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Multipurpose Cadastre, Essential for Urban Development Plans in Iran

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***Abstract*—**Majority of researches conducted on Iranian urban development plans indicate that they have been almost unsuccessful in terms of draft, execution and goal achievement. Lack or shortage of essential statistics and information can be listed as an important reason of the failure of these plans. Lack of figures and information has turned into an obvious part of the country's statistics officials. This problem has made urban planner themselves to embark on physical surveys including real estate and land pricing, population and economic census of the city. Apart from the problems facing urban developers, the possibility of errors is high in such surveys.

In the present article, applying the interview technique, it has been mentioned that utilizing multipurpose cadastre system as a land information system is essential for urban development plans in Iran. It can minimize or even remove the failures facing urban development plans.

***Keywords*—**Multipurpose Cadastre, Urban Development Plan (UDP), Land Information System (LIS), Interview Technique

I. Introduction

THE most important objective of execution of urban development plans in Iran in 1960s was pushing formation and expansion of cities towards planned program and order in a bid to create a more comfortable, better, more beautiful and effective environment [1]. In other words, using urban development plans as a medium to regulate physical environment is an undeniable necessity. A parcel of land is the smallest element (cell) of the body of the city. All decisions on plans directly or indirectly influence the lands. In fact, both cadastre and urban development plans deal with parcels of land with a single difference that cadastre (the cadastre system) is an updated data bank of lands, which can be used in urban development plans.

The cadastre is usually defined based on Law of Deed and Properties Registry. It translates cadastre as a collection of geometrical, legal, ownership information of new construction and properties information which can at least answer questions such as "whom?" "why?", "where?" and "what amount?" of a properties within a united system [2]. Although this definition focuses on one of primary origin cadastre and registry, which is securing land transactions (registry), the cadastre as a multipurpose land information system embraces more than aforementioned definition. The paper is dealt with such definitions as well.

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II. Importance

We are living in information age. Alvin Toffler, American writer and futurist, for the first time described three waves of societies; agrarian, industrial and information. Information technology has made information available for all. Therefore it cannot be said that the information superiority is only having information [3]. Today, humans are seeking information in a way that knowledge is considered as values and wealth and the process of changing information into knowledge has become a main value. Man is witnessing in the current age that the developed societies are pursuing establishment of data systems. The speed of exchange of information is getting higher and higher day by day. Such process leads to formation of fundamental IT-based infrastructures in societies. As in agrarian societies lands were the ground for activities and factories in industrial societies, information systems are necessary infrastructure for information societies. Information systems process data and turn them into information needed for decision-making [3].

The contemporary man cannot separate himself off events related to his surrounding environment and world. Therefore, exchange of information and benefitting from mediums facilitate access to such information are of paramount importance [4]. Cadastre can be named as one of such mediums. Although the cadastre dates back to over 3500 years, the modern cadastre as land information system has gained momentum with the development of technology and extensive usage of computer in various sciences in recent decades.

Unwarranted expansion of cities in the third world countries, especially Iran and the necessity to tame such phenomenon and its ramifications need professional human resources and huge financial resources. The usage of land information systems, notably the cadastre system (multipurpose cadastre) and its interaction with information collected by municipalities and urban management, legal and land and deed registry bodies, cultural and tourism organizations, banks, tax institutions and … seem a sine qua non due to limitation of sources.

III. Methodology

The methodology of the paper is analytical and qualitative. The essay includes two sections given the methodology:

- Theory
- Assessing the necessity of the cadastre in Urban Development Plans (UDP) in Iran by interview technique

IV. Theory

A. Land Information System (LIS) and Status of Cadastre

Information system (IS) means sets of processes conducted on data to produce information. Majority of information systems have

been computerized in the past two decades. There are two main approaches towards land information systems (LIS):

1-The best definition presented by the first group and approved by the International Federation of Surveyors is as follows:

for a defined area and, on the other, of procedures and techniques for the systematic collection, updating, processing and distribution of the data. The base of a land information system (LIS) is a uniform spatial referencing system, which also simplifies the linking of data within the system with other land-related data [5]. (See Fig. 1)

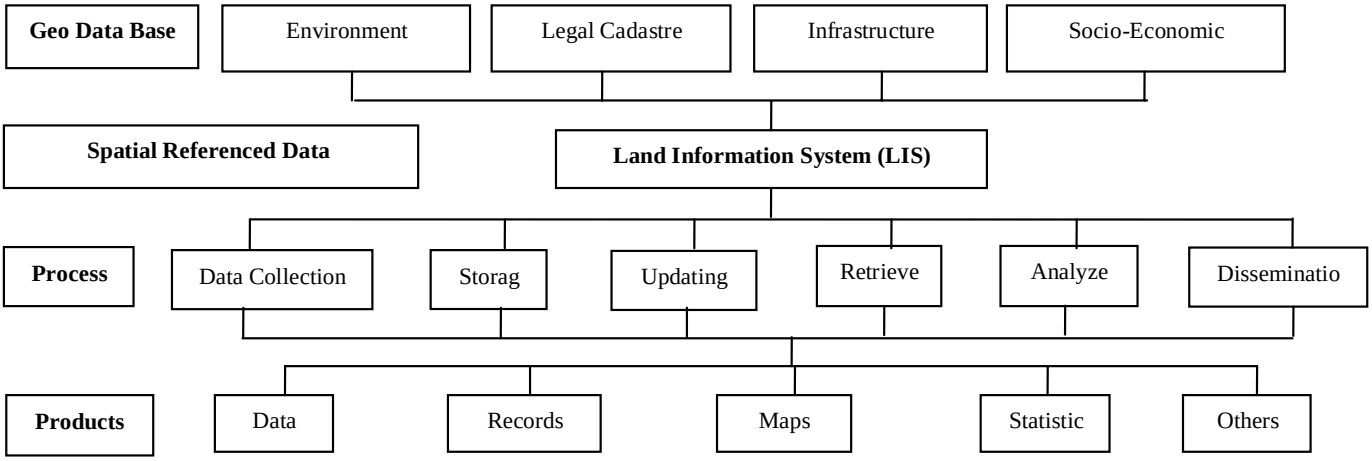


Fig. 1. Structure of Land Information System and Status of Cadastre [5]

2-Contrary to first group, which defines Land Information System as a collection of information systems with referenced land-related - data, this group believes that Land Information System is comprised of independent definition. (See Fig. 2)

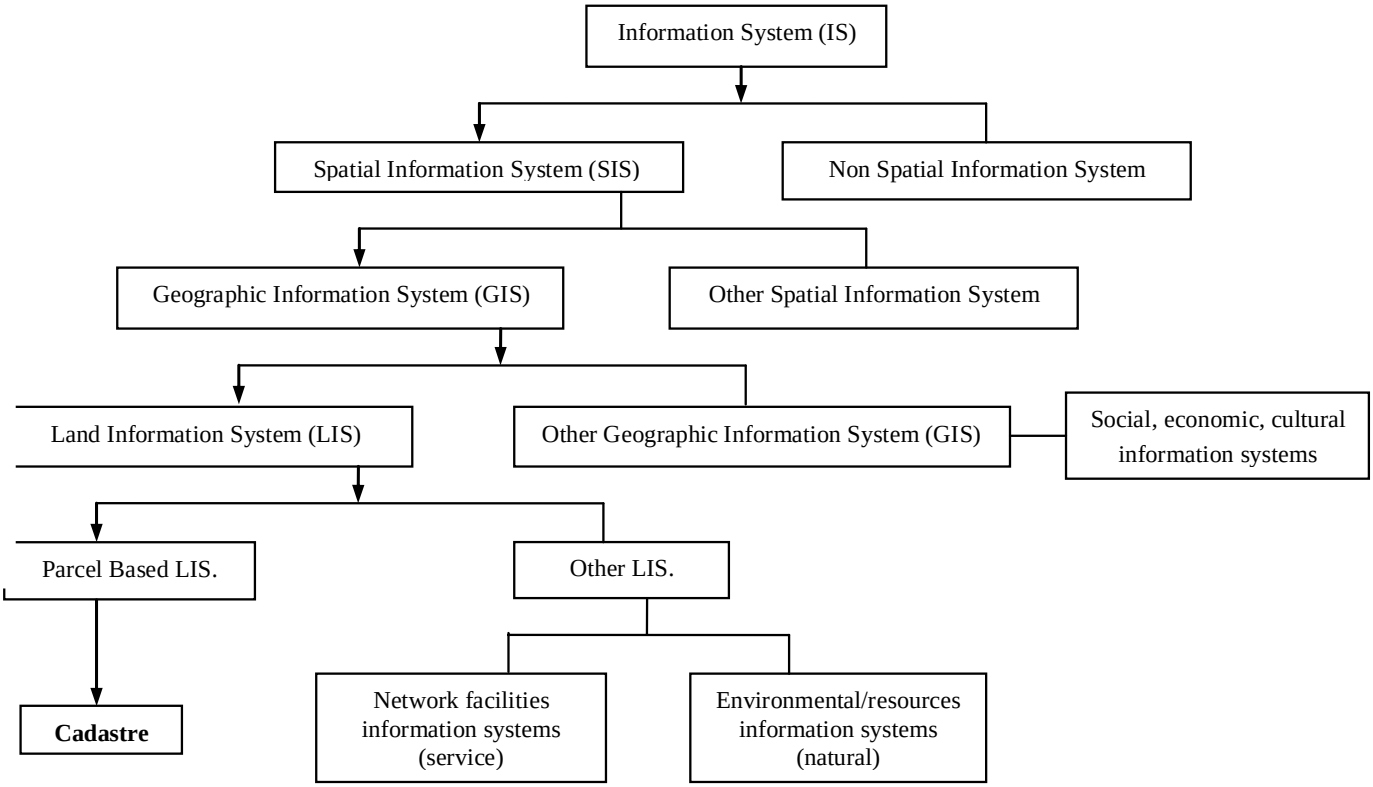


Fig. 2. Hierarchy of Land Information Systems and Status of Cadastre [6], [7]

Land information system (LIS) is a tool for legal, administrative and economic decision-making and an aid for planning and development. A land information system (LIS) consists, on the one hand, of a database containing spatially referenced land-related data

B. Urban Development Plans (UDP) in Iran

Urban development plans (UDP) were first implemented in Iran roughly five decades ago. Numerous development plans have been

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implemented during the period. These plans have been executed based on comprehensive planning rules. Official statistics indicate that over 350 comprehensive plans (national, regional, district, city and new cities) were officially approved in Iran by the end of 2008 [8].

The trend governing Iran's urban planning system can be classified in five periods. (See Table 1)

TABLE I
EVOLUTION TREND OF IRAN URBAN PLANNING SYSTEM IN CURRENT DECADE AND ROLE OF CADASTRE

Period	Time Period	Approaches/Measures	Role of Cadastre
First	1930-1940	▪ First Modern Measures in Urban Development	▪ No Possibility to Employ Cadastre in Urban Development because No Cadastre System Was Available
Second	1940-1950	▪ WWII & Stagnation in Urban Planning	
Third	1950-1965	▪ The Period of Blue Print	
Fourth	1965-2000	▪ Comprehensive and Detail Plans Period	▪ Start of Country's Comprehensive Cadastre Plan in 1991 ▪ No Possibility to Employ Cadastre Because the Plan Was in Early Stage and the Preparation of Comprehensive Cadastre Plan Was Time-Consuming
Fifth	2000 until present	▪ Period of Change in Paradigm from Comprehensive toward Democratic	

Studies show that there was no possibility to employ the multipurpose cadastre during the period due to reasons mentioned above.

V. ROLE OF CADASTRE IN URBAN PLANNING IN IRAN

The role and effect of cadastre in Iran urban planning is assessed by referring to objective-experimental reasons using interview technique and seeking the views of experts. To have a transparent and principled perspective, the paper initially explains what the meaning of interview as a technique is. Its various methods are also explained of which one is chosen to assess impact of the cadastre system on Iran urban development.

A. Interview Technique

The interview in conversational language is in journalism and is somehow flashy. In this article interview has a scientific aspect and is conducted secretly.

The common element between the two is that both could be face-to-face verbal relations between two persons, which is a mean of transferring information from one to the others. Therefore an interview for a scientific study means;

A type of scientific research method using verbal relations to collected information related to determined objective [9]. Grawitz classifies six types of interview [9]. (See Table 2)

TABLE II
TYPES OF INTERVIEW

Row	Type of Interview	Description
1	Clinical Interview (Psychoanalysis or psychotherapy)	▪ Raising few questions ▪ Interviewee chooses to tell sections of his memory with selected objectives for him to be informed of his complexes and are assisted in life and improvement of his mental health
2	Deep Interview (Study on motivations)	▪ Topic of interview is chosen by the researcher. ▪ Researcher can freely conduct the interview and interviewee is free in answering the questions. ▪ The objective of interview is limited to researcher's targets.
3	Centralized Interview	▪ Numerous and non-formulated questions on clear objectives ▪ To focus on an experiences or impacts of one or several certain motivations ▪ The interviewees and objectives are selected very precisely. ▪ Interviewees and researchers are not free in research frame. ▪ Researchers guide interviewees to interview target
4	Interview with free questions	▪ Having numerous, unformulated questions on clear topics as same as the previous type. ▪ The interviewees are selected in a more flexible way compared to centralized interview. ▪ The interviewees are freer in answering questions.
5	Interview with unlimited questions	▪ The researcher must have precise and determined questions. ▪ The interviewee is free to answer questions within the framework of raised questions.
6	Interview with limited questions	▪ The most principled type of interview ▪ Includes a standard questionnaire with fixed and organized questions ▪ The interviewee is limited to a determined questionnaire ▪ Answers are yes or no, agree or disagree and …

The process of preparation of the urban development plans has changed from comprehensive to strategic and democratic since a decade ago because criticism over theoretical and executive bases of comprehensive plans and their inefficiency.

B. Assessing Role of Cadastre in Urban Development Plans (UDP) in Iran by Interview Technique

Ten experts, who were familiar with Iran's urban planning and multipurpose cadastre, were selected to be interviewed in deep

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interview methods to assess role of the cadastre in Iran's urban development plans (UDP).

- *Cadastre a Tool for Land Management*

Informal deeds for properties were formed in 1934 when the Law for Properties and Deeds was approved. The first impact given from the cadastre system is that it is a tool for changing scribal deeds into digital ones. The digital cadastre dates back to years ago. This is while the traditional cadastre system has changed into a tool for land management, registry of operations carried out on possessed lands as a result of emergence of computer and geographical information system.

One of the pitfalls plaguing housing planning and development in the third world countries is lack of cadastre. Although the cadastre was initially under the umbrella of legal and judicial bodies in the developed countries, it gradually released itself from the sole control of legal and judicial approaches with the development and emergence of multipurpose cadastre.

- *Cadastre paves the ground for transparency in decision-making*

The bodies which decide on lands in Iran are comprised of High Architecture and Urban Development Council and Article 5 Commission These bodies approve comprehensive and detailed plans. Municipalities are obliged to issue permits based on the approved plans. The registry offices must issue deeds based on permits. The courts also can settle disputes based on the deeds. Lack of cadastre causes failure in the process. In other word, the process becomes in transparent. Therefore, one of the elements of good urban governance which is transparency in decision-making is ignored.

- *Cadastre Guarantees Individual Rights*

The multipurpose cadastre (cadastre system) secures the rights of individuals. If admitted that urban planning serves as a practice for establishing good relations between individuals and the government. The government ignores rights of individual (ownership right) if there is lack of cadastre. This unbalance puts democracy in danger.

- *Using Cadastre in Urban Development Plan Stages*

Different stages of planning and execution of urban development plans including preparation, implementation, supervision and review are a uniform and cohesive process. Systematic coordination and cooperation must be between planning, implementation and management process and participation and supervision one. In fact, the success of urban development plans largely depends on the quality of preparation, execution and management. Having information is essential for making plan. Therefore, it can be said that land information of an efficient cadastre system can positively influence the planning process and preparation of urban development plans.

Planning and management are inseparable in view of strategic planning. Preparation of urban development plans is a process which includes continuous and cohesive stages such as determination of objectives and policies, preparation of plan and program, execution and supervision, review and reform. Thus any changes in current situation of city can be controlled and updated immediately should there be a basic information system (cadastre).

- *Cut in Preparation & Approval Time of Urban Development Plans With Cadastre*

A fundamental problem in preparation and implementation of urban development plan is the lengthy process of preparation and approval due to shortage of basic information including economic, social and physical information. The information dearth negatively influences the possibility of materialization of urban development programs and plans. Lack of a basic information system on city's spatial organization (Economic, physical and social) causes a great deal of time would be spend on collecting such information from various organizations and institutions and also unification of the information. This, in turn, makes the process of recognition of current situation and preparation of urban development plans lengthy. The other obstacle which makes finalization of plans lengthy is outdated information. Such outdated information seems old and unreal and not proper for execution. It is while existence of an efficient and updated information system gives a chance to focus the planning capabilities on preparation and materialization of plans rather than collection of information.

- *Cadastre, Essential for Increase in Public Participation & Social Justice*

One of fundamental elements for execution and materialization of urban development plans is the role of participation, notably participation of interested individuals. Each urban development plan targets special groups. It cannot be materialized unless this group gives sections of value added resulted from the plan to management and executive system of a city. (The proposals in each urban development plan in land use -direct relation between land and economy of citizens- will provide citizens with advantages. On the contrary, submitted plans on roads and green spaces plans will deprive citizens of some of their right.)

Fair recognition of this issue needs a basic, proficient and updated information system. The multipurpose cadastre can play an important role in this respect. On the other hand, urban managers must allocate funds for implementation of urban development plans and management. Such funds can be secured through public participation depending on their financial clout and the amount of their usage of urban environment.

The role of citizens in fulfilling some demands of the cities considering financial power of each family and social justice is another section of participation of residents in an urban society. Although the municipality has levied tax on renovation of buildings, lack of information on inhabitants, their incomes, professions and possessions show why no social justice is obtained.

VI. Conclusion

The history of the cadastre system and land registry show that it has played an important role in preparation of urban plans, management and other urban-related issues in the past two decades as a land information system in western Europe countries including Germany, the Netherlands and Denmark. Cadastral maps as a base for other urban maps including comprehensive plans had been used earlier.

Land registry and cadastre like other science fields is being used in Iran for years. However, studies indicate that the cadastre has not developed enough in Iran. The reason behind slow progress of the cadastre is article 156 of Law for Registration of Deeds and Properties, which lists objective of cadastre as guarantee of ownership and facilitation of property and land registry disputes. It reiterates that cadastre is a branch of Estate and Deed Registry Organization, which is affiliated to the judiciary.

Iran's cadastre comprehensive plan is being prepared since early 1990s. Despite monthly and yearly reports of related organizations in provinces and state cadastre department for having a cadastre system of different corners of the country, the cadastre of any places in the country cannot be compared with what is described as modern cadastre as land information system. In other words, the multipurpose cadastre in Iran has not reached a stage to be used in urban development plans or other issues.

The capability of the multipurpose cadastre differs in various countries. Given the experimental-objective evidences and based on views of experts and specialists, the following scopes can be listed as the role the modern cadastre system (multipurpose) can play in improvement of urban development in Iran:

- Cadastre a Tool for Land Management
- Cadastre paves the ground for transparency in decision-making
- Cadastre Guarantees Individual Rights
- Using Cadastre in Urban Development Plan Stages
- Cut in Preparation & Approval Time of Urban Development Plans With Cadastre
- Cadastre, Essential for Increase in Public Participation & Social Justice

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