

THE HELLENIC CADASTRAL SYSTEM: PROGRESS AND FUTURE STRATEGY

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ABSTRACT

In the year 1994, the Hellenic government, with the support of the European Union, started a project for the establishment of the Hellenic Cadastre (H.C.), which will be a title registration information system in fully digital form. It is estimated, that this project will last 20 years and it will cover the whole country. So far, digital photogrammetric Cadastral Surveys (C.S.'s), named Pilot Phase and Main Program, of a total area of 893,000 hectares are commissioned and executed in various areas of Greece; 250,000 hectares more will be commissioned within the year 2000. Through this work, a high level of cooperation between private and public sector has been achieved.

This paper gives a brief historical review of similar attempts in the past, and a general, more analytical description of the main characteristics of the new Hellenic Cadastre Project. In addition, the progress that has been made in the research field for the adjudication process and the regional structure of the HC is given, together with the recent development of the necessary National Legal Framework. In addition, some considerations referring to the core team's - responsible for the strategic plan- effort to introduce a cost recovery business culture are mentioned.

1. A BRIEF HISTORICAL REVIEW

In the year 1825 the new Hellenic State was established.

The first effort to introduce a cadastral system for *Land Administration purposes*, took place in the year 1836, after the publication of a Royal Decree by King Othon, in order to *improve the land market and to enable the mortgage loans*.

In the year 1853, the *French Mortgage Bureaux System*, a deeds registration system, was introduced. This system, named "Transfers and Mortgages Registration System", is still valid in Greece. Today, there are 394 offices in operation. All legal rights concerning land (surface, subsurface resources, buildings, etc), such as land ownership, lease, mortgage, charge, easement, seizure, claiming etc, are registered and available to the public under special prerequisites.

Its main disadvantages are:

a) the legal information is mostly based on textual descriptions of the land parcels, in many cases insufficient for the accurate localization of the real estate. Since 1977, all registered deeds referring to land parcels, that belong to urban areas are obligatory accompanied by topographic plots; yet, these plots are "island" topographic surveys, and in general the system is not connected with a cadastral map.

b) In many cases, the existing information of the "Transfers and Mortgages Registration System" is not available in digital form, and

c) Access to the system is possible only by the name of the owner; that means, that the system has a "person centric" model.

d) The "Transfers and Mortgages Registration System" is responsible for the registration of deeds, but it does not guarantee the content of the deeds.

In the year 1895, a proposal for a Law for the Cadastre was made, and in the year 1910 a new Law (called ΓΧΝΖ'/1910) for the H.C. was published.

In 1917, a great fire destroyed Thessaloniki, the second in size city of Greece, so a big effort started after that to establish a Cadastre in Thessaloniki.

In 1923, a Legislative Decree, concerning the codification of the cadastral surveys of urban areas was made.

Between 1926 and 1929 a cadastral system was established on the islands of Rhodes and Kos in Southern Greece, known as the *Dodecanesean Cadastre*. The system continues to operate until today, according to a special Cadastral Regulation. In the year 1932, the *rural cadastre* was started. Its aim was the registration for the *raisin producing areas*.

In 1943 two *cadastral bureaux* were established in *two counties in the vicinity of Athens named Kallithea and Paleo Faliro* (total area: 1200 hectares), which operate until now.

Between 1971 and 1974 the first phase of a new cadastre started.

During that period a great percentage of Greece (25 Prefectures out of 54 in total) was covered, among them Crete, Peloponese, Central Greece, Thessaly and a part of Thrace. This project was stopped immediately after the political change, in the year 1974.

In 1976, there was another attempt concerning *the registration of forest land*.

Also, in 1983, some cadastral information has been collected indirectly, as part of the activities of Urban Planning according to the Law 1337/83, which introduced the *Urban Plan Implementation Act*.

In 1986, the Law 1647 established the Hellenic Mapping and Cadastre Organization (known as HEMCO), which belongs to the Ministry of Environment, Physical Planning and Public Works and is responsible for the mapping of the country, the implementation and the running of the Cadastre and the creation of Databases for the national resources and the environment. (Badekas 1999)

The H.C. is, in 1994, (HEMCO 1994) designed to be: a modern Information System, which will improve the efficiency of land transactions and guarantee land tenure. In addition it will provide all levels of information to both private and public sector, necessary for land management, urban and rural planning, agricultural policy, land administration and above all *environmental monitoring*. (National Research Council 1980, Economic Commission of Europe 1996).

2. MAIN CHARACTERISTICS OF THE NEW HELLENIC CADASTRE PROJECT

While there is much to be learned from international experience, ultimately the scope and direction of the H.C. will be dictated by the unique institutional landscape of Greece. So far a great deal of high level, multidiscipline research (in collaboration with local and international experts) in organizational, administrative, legislative, technical, and fiscal issues has taken place within the Hellenic Mapping and Cadastre Organization (HEMCO) and KTIMATOLOGIO S.A, concerning its implementation. The result of all this joint effort is what we call today: «National Cadastre Project».

Its critical characteristics are:

- that the H.C. is *one* unique organization, like the Kadaster in the Netherlands, the Cadastral Office in Belgium, Czech Republic, etc, responsible for both the collection of all necessary spatial information concerning land parcels and the registration of all legal rights on them, this decision was a very important administrative step (Badekas 1999)
- the H.C. is a *title registration* system, so it is a *positive* Cadastre (Williamson, Ting 1999)
- during the cadastral surveys a special *adjudication* procedure is been followed
- the stretch of the H.C. refers to the total of 131,600Km² country's surface, which is divided as follows:
 - urban-suburban areas 8,000 Km²
 - rural areas 36,000 Km²
 - forest land (as the valid legislation defines) 84,100 Km²
 - divided as: forest 29,800 Km²
 - forest areas 32,400 Km²
 - pasture, barren land 21,900 Km²
 - lakes-rivers 3,500 Km²
- the basic maps for the cadastral surveys are carried out by *photogrammetric* methods, to take advantage of the facilities of modern technology (FIG Publication 1995), (HEMCO 1997)
the main *scales*: for *urban areas* from 1:1000 up to 1:2,000 and for *rural areas* 1:5,000 and *in forest or mountainous areas* the scale of 1:10,000,
- all cartographic and textual information are in *digital* form
- it contains additional information such as land uses, land cover and administrative
- the digital information is on a network which allows real-time access
- the estimated time for its completion is *20 years* and the expected cost is US\$1.8 billions
- the project is financed partially by the E.U. (75%) and partially through governmental funding (25%). The total available funds for the years 1995 up to the year 2000 is US\$200 millions, which is equivalent to 50 billion Greek Drachmas
- the execution of the project:
 - a) the compilation of the H.C. is carried out by the private companies, so it is a shared public and private responsibility (FIG Publication 1995)
 - b) The project of the HC is under the political supervision of the Ministry of Environment, Physical Planning and Public Works. It is executed through two

institutions, which belong to the government, that is the Hellenic Mapping and Cadastre Organization, HEMCO, and the KTIMATOLOGIO S.A.

The state responsibility for the compilation has the «KTIMATOLOGIO S.A.», a private sector company, established by the government, in 1995. All shares of this company belong to the Ministry of Environment, Physical Planning and Public Works

- c) to facilitate the implementation of the HC a Project Manager has been appointed for the period 1997-2000. The selected consortium consists of three companies: SAGRIC from Australia, CARL BRO from Denmark and EURODYNAMICS from Greece.

3. REGIONAL STRUCTURE

KTIMATOLOGIO S.A. is managed by the Board of Directors, the President of the Board, the Managing Director and the General Manager. The headquarters of KTIMATOLOGIO S.A. are in Athens. The present structure of the company has 243 approved employee positions. Its structure consists of:

- the Directors' Department (19 employees),
- the Legal and Finance Branch (72 employees) and
- the Technical Branch (152 employees).

There is one regional office already in operation, in Thessaloniki.

The installation and keeping of the HC at a regional level:

- brings the individual citizen close to the Project
- helps the citizen to become aware of its usefulness and its targets
- strengthens the interest and confidence to the institution
- helps the public acceptance (Potsiou 1997).

In developing the strategy for a functional, efficient, flexible and sustainable Regional Development Plan for the H.C. many factors have been taken into account. The most important ones are:

- the political impact
- the existing administrative structure of Greece: regions, prefectures, municipalities and communities
- the existing "Registration System for Transfers and Mortgages" structure, since by Law 2664/98 the existing Mortgage Bureaux will be transformed to Cadastral Offices
- the international experience about main principles of privatization, decentralization, cost-recovery strategies, introduction of Information Technology
- the efficiency of the local office
- the distance of the users/clients to the office –easy access and
- the good management and easy availability of the products to the main users, such as: the public services, local authorities, utility services, private companies, and individuals

According to the research results, the regional structure of the system will consist of three levels:

1. **Regional Centers (RC):** there will be 5 Regional Centers, which will be regional branches of the KTIMATOLOGIO S.A. and will be under the responsibility of the Regional Structure Department. (the proposed locations are: Thessaloniki-which already exists-, Ioannina in Epirus, Patras in the Peloponnese, Heraklion on Crete and on the island of Mitilini).
2. **Cadastral Offices:** there will be 55 Cadastral Offices (one at each of the 54 prefectures of Greece -however at the prefecture of Attica, which is the largest and most active, there will be two offices in operation). Taken into consideration the particular circumstances at the islands, the isolated mountainous areas, the areas close to the frontiers etc, it is estimated that finally the number of the Cadastral Offices in full development will be about 70.
3. **Cadastral Agencies-Service Offices:** a series of Service Offices for the Public will be established at a local level (municipalities and communities) all over the jurisdiction. These offices may be operated either by the local authority or by individuals (private sector) and may be established either within the Hellenic State or at the Hellenic Embassies abroad.

Our proposal on the applications development environment for the support of cadastral operations focuses on the improvement and operation in an Internet/Intranet setting.

Each RC will be responsible for the storage of the Cadastral Data that fall under its jurisdiction. The Central System at Ktimatologio S.A. headquarters will function both as the repository of the data stored in the RCs and as an RC itself for the Region of Attika. The area covered by each RC includes several prefectures. For every prefecture there will be at least one Cadastral Office, preferably located at the prefecture's capital, and three Cadastral Branches for Public Services.

The Cadastral Offices will be connected by a permanent telephone network with the relevant Regional Center and will be equipped with computers that will execute the user interface with the use of a simple browser. As soon as the need arrives, all necessary software will be installed at the Cadastral Offices, by the relevant Center, or by the Head Offices.

The Cadastral Branches of Public Service will be connected to the relevant Cadastral Office with a semi-permanent telephone network and through it, to the Regional Centers of KTIMATOLOGIO S.A. These will operate in much the same way as that of the Cadastral Offices.

Any request from the Cadastral branch office will be processed at the equivalent Center, and in case the need arises for the intervention of the Cadastral Office, the information will be transmitted from the Center to the Cadastral Office. The result will again be transmitted from the Center to the Cadastral branch for Public Services.

Conclusively the structured system will:

- provide, in a friendly operating environment, data access (textual, spatial, pictures etc):
 1. to the users who will be appointed by a common Ministerial Resolution from the Department of Internal Affairs and the Department of Justice
 2. to users independently of their location (for example, through LAN connection, modem, wireless, mobile etc)
 3. at anytime (24 hours per day).

- handle complex data and applications with a specific number of powerful Servers, that will be administered by a small number of specialized personnel. In this way the overall cost of the system will be reduced, while at the same time the quality of the service provided will be improved.

In the way described above, the utilization of the web reduces the cost of the IT systems, while at the same time allows to a large number of users access to information, ensuring scalability.

4. NATIONAL LEGAL FRAMEWORK

The Law 2308/1995 (Government Gazette 1995) rules the cadastral surveys for the data collection and describes the adjudication procedure:

In brief the procedure is as follows:

- The area (of one or more municipalities) is declared to be under cadastral survey.
- All who have real or other rights to be registered in the cadastral records on real estate in the area under cadastral survey are called to *submit declarations* within a three-month term. The declaration submission is obligatory.
- Compilation of the temporary cadastral maps and records, according to the specific Technical Specifications.
- The temporary cadastral maps and records *are to be displayed*, for two months, at the cadastral office, local Municipal or Communal office. Instead of that, due to the gained experience through the Pilot Phase, for better publicity of the results, HEMCO has decided to mail, to each owner, a copy of the map of his/her real estate together with a copy of the record with the textual information related to that, called the cadastral sheet. This stage is called *first suspension*.
- Each one, who has a legal interest has the right to submit objections, within a time limit of 60 days, to the registration of the above mentioned temporary cadastral data.
- The examination of objections is done, within 2 months, administratively, by a three member committee, founded according to a HEMCO' s decision, that consists of one jurist, one rural and surveying engineer and one representative of the local authority
- Amendment of the temporary cadastral maps and records after the examination of the objections
- Second Suspension of the cadastral data
- Recourse before the Second Degree Committee is permitted to any who has legal interests, within 60 days.
- Examination of the recourses. The Second Degree committee is to be composed by one judge, one rural and surveying engineer and one lawyer
- Amendment of the cadastral data according to the decisions of the Second Degree committee and completion of the cadastral survey
- First Registration in the cadastral records. To the registered owners certificates are to be issued by the cadastral office. These certificates are not titles of registered rights and do not create a proof of them, but certify, with reference to the real estate, the first registration in the cadastral records, the date and the rest of its basic data. For the issuing of this certificate a recovery fee is to be paid to HEMCO, whose amount may not be less than ten (10,000) thousand drachmas

nor in excess of three (300,000) hundred thousand drachmas and is to be published to the Government Gazette.

The Law 2664/1998 (Government Gazette 1998) describes the fundamental principles for the operation of the Cadastre, describes the regulations under which the first registrations lie, defines the content of the cadastral record, and the responsibility for the operation / maintenance of the cadastral data.

- The time limit for dispute of the correctness of the first registrations, before the competent ordinal courts by any who has a legal interest, is five years (the relevant period for people living abroad is seven years).
- The first registrations, whose correctness has not been in dispute within this limit, are to be validated by the expiration of this time limit.
- Then, a permanent proof is to be created for those inscribed at the first registrations as owners of the rights, this is the title to the land.
- Any change to the content of the first registrations is then prohibited. In the case of inaccurate first registration, the real owner, who has sustained a loss by the permanent proof, has a financial claim only against the inaccurately registered owner for the return of enrichment caused by the creation of the permanent proof.
- Real estates that are shown in the cadastral records as “of unknown ownership” come into the Public domain after the validation of the first registration.

5. ORGANIZATION OF PRODUCTS AND MARKETING STRATEGY PROPOSAL

For the compilation period, the H.C. Project is expected, both by the government and the political opposition but also by the citizens, to be a full State responsibility. The collection of the registration fees is expected to come late, by the time of first registrations. According to some early financial calculations (Potsiou, Ioannidis 1998), the establishment of the H.C. system could be supported by the State and partly by the registration fees. On the contrary, the estimated maintenance expenses of the system can be covered through the transaction fees and the marketing policy of the cadastral products: spatial and textual/legal.

The KTIMATOLOGIO S.A. is at the stage of identifying the marketing possibilities, the product types and the possible future users (Dale, 1998). It is strongly realized how essential is to focus on the users needs, so that the structure and the final product's type will satisfy them and this will enable the whole project to be financially sustainable. The available cadastral products are either spatial or textual. The products that will be soon available to the users are:

- Ortho-photo maps,
- photogrammetric and topographic maps,
- cadastral maps,
- air photos,
- leveling data (contours, DTM),
- forest maps,
- coordinates of trigonometric or other control points,
- administrative boundaries,

- cadastral tables (owners, rights)
- certificates, etc.

6. STATISTICAL DATA AND PROGRESS OF THE CADASTRAL SURVEYS (C.S.'S)

The C.S.'s are to be carried out by the Private Sector. Until now, the C.S.'s under compilation are:

1. The C.S.'s of the Pilot Program, developed in two phases (Phase A' and Phase B'),
2. The C.S.'s of the 1st Main Program, and
3. The C.S.'s of the 2nd Main Program

The commissioning of the A' Pilot Phase was done in Dec '95 and Jan '96. This phase refers to 30 C.S.'s, including 66 municipalities with in total 525,000 inhabitants (5.1% of the total population in Greece), of a total area of 226,000 hectares (1.7% of the total area of the jurisdiction). The pre-estimated cost for this phase is US\$25.5 millions.

The commissioning of the B' Pilot Phase was done in the Autumn of 1997. This phase refers to 27 C.S.'s of a total area of 155,300 hectares (out of which the 9,600 hectares refer to urban land), including 54 municipalities with in total a population of 295,000 inhabitants. The pre-estimated cost for this phase is US\$12.5 millions.

The commissioning of the 1st Main Program was made in Oct 1997. This phase refers to 38 C.S.'s of a total area of 571,730 hectares or the 4% of the total area of Greece, including 221 municipalities with 1,554,000 inhabitants and the pre-estimated cost is US\$85.0 millions.

The procedure for the selection of Cadastral Surveying Companies for the 2nd Main Program has started. Within the year 2000, the CS's of the 2nd Main Program will be commissioned.

7. COMMENTS AND PROPOSALS

According to the analysis of the available statistical data and of the up till now gained experience through the execution of the Pilot Phase and the 1st Main Program, some useful comments and proposals can be derived:

- Unfortunately, the possibility of the *existing* maps (produced in the past for land consolidation, planning or other purposes) utilization, in most cases, has proved to be very restricted due to the lack of digital reliable updated data. Yet, this material may well be used as the basis for the draft cadastral maps during the declarations collection phase for the localization of the parcels and the registration of the owners (Avyerinos et al 2000).
- Very critical factor for the success of the program, is *the achievement of a better cooperation with the local authorities*, so that they will contribute to the activities of the project
- HEMCO should publish a more detailed issue with *guidelines* for the fill out of the declaration form and the necessary additional documents. This issue will be distributed to the public during the declaration collection period.
- Most critical factors for the continuity of the program are:
 - the *improvement of awareness* about cadastral issues among politicians both of the governmental party and of the opposition as well

- the *stability within the general axes of planning and the periodic updating and adjustment of the strategic plan* according to the gained experience
- the *improvement of coordination in relative activities between other relative public agencies* for the benefit of the Project, not only the local authorities, but also the existing “Registration System for Transfers and Mortgages”, the Ministry of Agriculture, etc
- the *continuation and real improvement of cooperation with the Private Sector, mainly the Surveying Engineers, and with other relative Associations involved such as: Lawyers, Notaries etc.*
- the *improvement in knowledge issues concerning Land Administration*, within Universities, public and private sector and among politicians.

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