

## Lessons Learned from a Big Cadastral Project

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## The Hellenic Cadastral Project

- 2nd Community Support Program, 1994
  - € 152.600.000
  - European Union 75% Greek State 25%
- Very briefly this part of the project contained:
  - A positive cadastre ready for use for 35.000 km<sup>2</sup> (total area of Greece ~ 132.000km<sup>2</sup>).
  - Digital Cadastral surveys prepared by photogrammetry at a scale 1:1000 for urban areas and 1:5000 for agricultural land.
  - Application of a special adjudication procedure.
  - Collection and formation of all data in digital form by private firms.
- The Preparation completed by the end of 1995 the real implementation started in January of 1996
- That part of the project has covered only 8400km<sup>2</sup> it is going to cost about € 352.000.000
- The Hellenic Cadastre is one of the most significant infrastructure projects currently underway anywhere in the world (Mc Laughlin 1998).

## The introduction of a new LAS is a very complicated project.

- It requires large amounts of money, quite long time, legal, administrative, technical and educational changes
- even some internal structural reorganization within specific departments.
- The project is much more complicated than the construction of a big bridge, a long autoroute.
- This is why the Design Phase is very important which usually is underestimated.
- We have now a more clear view about the structure of the preparation actions, which are necessary for the implementation of a new system of land administration or for the re-engineering one.
- The steps that must be followed for a thorough complete study are:
  - The Feasibility Study (F.S.).**
  - The Design Phase (D.P.).**

## THE FEASIBILITY STUDY (FS)

- The FS is a relatively short text (30-50 pages) where all items influencing the introduction of a new Land Administration System (LAS) are briefly but clearly defined and described.
- The FS is an important document on which the authorities can be based to take decisions.

### A FS must contain at least the following:

- Identification of user needs
- Definition of Programme Goals
- The Legal Frame
- Administration Options
- Data collection-adjudication procedure
- Operation and Maintenance
- Economic and Financial Matters
- Time Consideration
- Informing the Users
- Training and Educational Requirements
- Quality Assurance
- Citizen Access to the Cadastre Data
- External Advisors

## Identification of user needs

- It is essential that the requirements of those who will use or benefit from the system are clearly identified. This means that a wide variety of user communities will need to be consulted.
- It should examine present management structures and their supporting management information systems, making inquiries at all those ministries and departments that deal with land. (United Nations 1996)
- User representatives should be adequately involved in identifying needs and in setting priorities. Thus the objective of determination of user needs is threefold:
  - to identify user needs,
  - to set priorities,
  - to establish a cooperation and a support of the project by users.

## Definition of Programme Goals

- User needs and benefits to the society should be thoroughly surveyed and debated in order to proceed to the selection of project goals.

The above process is not simple because this selection can be done only with thorough coevaluation with all the parameters which are influencing the process.

### Stage goals:

- deed system or title system,
- united registration and cadastre system or separate systems
- the ministry responsible for the system,
- the administrative structure,
- the legal environment, the adjudication procedure,
- the completion time etc.

## The Legal Frame

- In accordance with the goals the formation of a proper legal frame, followed by the necessary specifications and instruction manuals, presidential acts and ministerial decisions are important for supporting the implementation and the function of the system.
- In this stage the arrangements, which will be expected by the legal frame, must be explicitly described.
- It requires very long time.
- It is important to specify which part of the legislation must be ready for starting the implementation and which part could be completed later on giving the possibility for the project to start before the full completion of the legal frame.

## Administrative Options

- In this part all items constituting the picture of the administrative structure both for the implementation and the operation and the maintenance phase must be briefly defined.
- First the ministry or the ministries by which the LAS will be supervised will be selected.
- An existing public agency will be used or a new one will be created within the government
- A private company belonging to the state.
  - The geographic distribution of this administration
  - the plan to secure the buildings, which will house this activity
  - the necessary staff will be acquired.

## Data collection-adjudication procedure

- The amount and method of collection of geometric, legal and other data is very important for the cost and the duration of the project.
- The geometric information will define the accuracy
- Legal information will define the adjudication method and reliability
- Additional information will define usefulness and productivity.
- The above processes are going also to define the time and the cost required for the implementation of the project.
- At this stage again general characteristics of the data collection is given but the description must be enough to allow reasonable cost and time estimates for that part of the project.

## Operation and Maintenance

- The operation, the maintenance and the update of the system must be outlined.
- These are the activities at which the whole system is tested and these are also the parts where the whole system is usually failing.
- Incorporated to these activities are also:
  - the degree of the new information technology which will be used,
  - the management of the data,
  - the operational actions of the system.

## Economic and Financial Matters 1/2

- The economic and financial matters are also a very important and difficult part of the FS.
- It is very important because from it depends the realization of the project.
- Very difficult because the estimation of the amount needed cannot be accurately assessed.
- Also the sources from which the needed funds will be financed are difficult to allocate and to be predicted.
- The cost refers to
  - equipment and maintenance cost,
  - labour cost,
  - hiring and constructing buildings,
  - administration and management cost,
  - overhead and interests costs.
- All the above are very unclear since
- They contain new equipment, complicated works which are very difficult to be assessed.  
The only way with which we can approach this problem is through pilot projects they require a lot of time.

## Economic and Financial Matters 2/2

- The financing of a LAS can come from:
  - the state,
  - its operation,
  - special taxation, fee, aid, agencies or banks.
- The income from the activities of a LAS are not enough for the implementation of the system.
- It is enough for the operation of it.
- It is then necessary for state financing or from other sources money to be used.

## Time consideration

- Equally important is the reasonable planning of time because big deviations from the planned time results in loss of confidence from the state and the public and great damages to the economy of the country.
- The completion time depends very much from the accuracy and the diversity of the data.
- Often it is recommended to start with a simple and quick running program and proceed latter to the full completion of the project.
- Very important for the completion of the project in short time is the degree of use the private sector.
- We must also keep in mind that legal and administrative reforms require a lot of time to be accepted by the public and approved by the authorities.

## Informing the users

- It is very important to secure a favorable attitude of the users towards the project.
- Establish a permanent campaign explaining:
  - benefits of the project,
  - phases of the project and theirs justification,
  - policy of the project and to listen and apply recommendations from the users.
- This campaigns will consist of:
  - pamphlets,
  - videos,
  - radio and television broadcasts and advertisements,
  - meetings and speeches to special groups.
- All the above cannot bring favorable results if the processes of the project are not friendly.
- It is then important to make any effort for planning a friendly project.

## Training and Educational requirements

- In order to run such a complicated LAS we need a variety of staff with a variety of expertise.
- To produce this staff we need:
  - in house training
  - external seminars some of which will take place abroad.
- Also a variety of training visits must take place by foreign LAS experts and by visits of the staff to operating LAS.
- In some cases even the introduction of new courses at polytechnics or universities is anticipated.
- "Having skilled, competent, and motivated staff is critical for the success of any organization" (Hoogsteden 1998).

## Quality assurance

- To produce high quality data and services you must have high quality and clear specifications for collecting and operating.
- Equally important is to have very reasonable and clear procedure for testing the quality of the data and the quality of the operations within the LAS.
- Procedures for the quality control must cover both the creation and the operation phases of the LAS.
- All incoming data and mapping sets must be carefully tested through sampling.
- The quality and productivity control must serve for the general supervision of the project and for applying in time the necessary modifications to the project.
- Thus the supervision of the program besides day by day examinations must forse repeated (for example every year) large examinations with external consultants and foreign advisors.
- **This way it will be accepted that the program of the project will be updated every year.**

## Citizen's Access to the Cadastre Data

- We can for see many variations for such access such as:
  - the direct access of citizens with the cadastral data,
  - the access with the presence of a lawyer or a notary,
  - the access through a privet cadastral agency,
  - the direct access through the computer and the Internet.
- The selection of the method of access at a national level depends from the general customs of the country the data that are considered personal and the level of using the electronic media.
- This selection however will determine the number of cadastral offices and the personnel, which is needed for the operation of the system.

## External Advisors

- In many cases, especially in countries under development, where experience for establishing LAS does not exist, the use of external advisors is essential.
- The contribution of the external advisors can be more successful if this consultation is performed in adequate freedom and if the external advisors complete their tasks from beginning to end.
- The local authorities must give enough freedom to the advisors and the advisors must cooperate with the locals, use the data collected by them but must investigate their proposals.
- Many times the local authorities hesitate to use external advisors because of the cost, which is associated with this advice.
- The cost however is many times compensated by the reduction of the cost of the project.
- The selection of the external advisors is usually very difficult can be facilitated through the consultation of international bodies like World Bank, UN/ECE, WPLA and others.

## THE DESIGN PHASE (DP)

- The DP is a much longer text (500-2000 pages) which requires a lot of time, and a lot of expertise to be completed.
- It contains at least the topics treated in the FS and some additional ones it contains a very important chapter on the strategic plan.
- Whatever has described shortly in the FS is now treated in full details.
- The DP requires a lot of discussions with:
  - experts,
  - central a local authorities,
  - academics,
  - unions etc.
- It requires discussions with small and big groups and open meetings with many audiences.
- It is this why it requires a lot of time.
- We must not be stingy in money and in time because if the study will be executed properly we will gain multiple money and time during the execution and the operation.
- The long period for the preparation and the approval of the DP can be used for several pilot.

## Execution of the Design

- Many times it is prepared by:
  - a public service,
  - a private company,
  - a special committee
  - a special agent.
- A public service usually does not have the experience and the experts needed for such a study.
- A private company is more versatile in acquiring the proper experts.
- A committee is completely inadequate for such a task because its members are not accustomed to work as a team. Also very often the members of a committee are appointed with political criteria and they do not have the needed experience.
- The most favourable case is the preparation of such a DP by a company like the ones operating by successful cadastral organisations **Cadaster International** associated with the **Dutch Cadastre**, **Suedesurvey** associated with the **National Land Survey of Sweden**.
- After a good preparation the implementation and the operation of the project is smooth, fast and more economic.

## The Strategic Plan

- The most critical for the success of a LAS project is the strategic plan.
- **The strategic plan must describe in details the exact sequence of all the works or tasks foreseeing by the DP.**
- It will show how and when:
  - legislation, the technical specifications and the instruction manuals will be approved,
  - the buildings, the staff, and the equipment will be acquired,
  - what works will be executed by the staff of the LAS agency and how and what works will be tendered to the private sector.
- A full plan will contain:
  - the development of the IT of the LAS,
  - the test of all works executed by the staff or the tender,
  - the operation and maintenance of the system.
- The strategic plan must explicitly foresee the times where the evaluation and the possible modifications of the program will be done.
- The strategic plan will consist of text but also of diagrams (Gant or Perth).
- Especially important is the cash flow diagram where the incoming and out coming money will be shown.

## CONCLUSIONS

- For the introduction of a LAS extensive preparation studies performed in two phases are needed
- These phases are:
  - The Feasibility Study (F.S.)
  - The Design Phase (D.P.)
- These two phases require a lot of time and a high cost but their contribution to the success of the project is extremely important.