

## **If the Timing is Right....**

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**Key words:** land administration, development projects, planning, timing.

### **SUMMARY**

Many land administration projects today do things in the wrong order. As an example, they might first buy equipment from donor funds, then design a database and capture data, just to realize that data can not be kept up-to-date as no maintenance system is in place, or that stakeholders are not on board and disagree on needs or format of the information. The system is of little use and the collected information is getting old. Little was gained from the project and the equipment soon gets outdated.

The paper presents some example templates for timing the many components of a land administration project, and lists some common timing problems and their reasons. It should be seen as a basis for discussion of the most appropriate timing between common project components.

# **If the Timing is Right....**

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The time is right for projects to improve land administration, judging from the large amounts of such projects now underway in all parts of the world. But is the timing right of the various components of those projects? Experience from projects in Europe, Central America and Africa is that the timing is not always right. This is costly both in monetary and human terms. The discussion will be based on donor or bank funded projects, where large funds during limited periods inevitably cause problems of this kind.

## **1. MANY COMPONENTS IN LAND ADMINISTRATION PROJECTS**

Land administration involves many disciplines; legal, organizational and technical. The needs for improvements vary between countries and while in some countries the basic legal framework must be revised, other countries might only need improvements in some technical aspects. Some countries need to deal with the whole spectrum of development issues.

The following list of common project components or activities was compiled after studying official Procurement Notices and Requests for Expression of Interest for the years 2004, 2005 and half of 2006.

### **1.1 Legal and land policy components**

The following are some examples on naming of components covering the land policy and legal issues in land administration projects.

- Prepare modern land legislation and land policy guidelines;
- Land policy formulation;
- Legal reform, development of regulatory framework;
- Harmonizing land policy and regulatory framework;
- Public land inventory and management strategy.

### **1.2 Technical components**

The majority of components were technical ones. They were most often related to system development for cadastre and land registration, and/or the systematic collection/creation of land rights for registration.

- Modernization of the geodetic network;
- Installation of Continuously Operating Reference Stations (CORS) to facilitate the use of GPS for cadastral surveying;

- Orthophotography;
- Satellite imagery;
- Systematic cadastral surveying and mapping, in pilot areas or parts of the country;
- Systematic subdivision of former collective farms and issue of State Deeds for Land;
- Vectorization of existing cadastral maps;
- Cadastre system development;
- Development of a national GIS policy including the establishment of geographic data standards and data sharing protocols;
- Establishment of existing and future property rights;
- Systematic land titling and registration, in pilot areas or parts of the country;
- Inter-institutional operations and IT;
- Farm restructuring or land consolidation;
- Establish a land valuation database;
- Procurement of computer equipment;
- Modernization of computer and specialized equipment in Lands and Survey Department.

### 1.3 Institutional development components

The following are examples of institutional components:

- Capacity building and institutional strengthening;
- Restructuring public sector land agencies;
- Institutional development, e.g. establish one separate institution for property registration;
- Decentralization and strengthening of land administration services;
- Pilot establishment of modern land offices;
- Strengthening education programs in land administration/management and surveying;
- Short term training programs;
- Public awareness and community participation campaigns;
- Strengthening customary land administration;
- Strengthening private sector capacity in surveying.

## 2. LITTLE TIME FOR BIG CHANGES

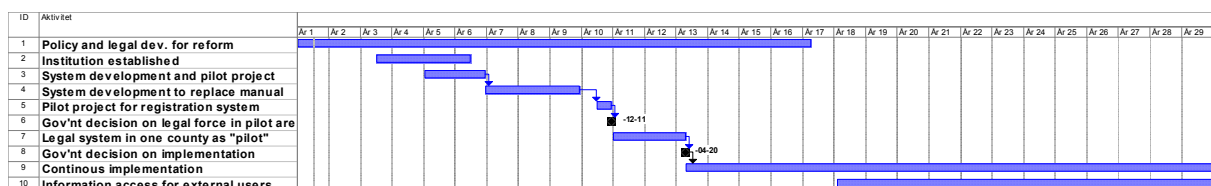
The project periods vary depending on the magnitude of the project/program, but the longest period mentioned was six years. It is of course possible that some of those projects will be further extended in order to accomplish the project objectives. The following examples show what is generally assumed to be possible within some given periods of time.

- To develop software for a land information database (system) and to train technical staff and end users in the system was supposed to take *eight months* in Ghana.

- To develop "a sustainable and well functioning land administration system that is fair, cost effective, decentralized and that enhances land tenure security" was supposed to take *three years*. Three major components were involved, namely "harmonizing land policy and regulatory framework for land administration, institutional reform and development as well as improving land titling, registration, valuation and information systems". This was also in Ghana.
- In Belize a Land Management Program involving systematic cadastral surveying and land registration, system development, institutional improvements, land use planning and land policy reform was to take *four years*. After an extension they proposed *one year* for the design and implementation of a Land Information System, including data conversion.
- In the Ukrainian Rural Land Titling and Cadastre Development Project, a component for Land Survey Works will perform "systematic subdivision of the land of former collective farms and the issue of 4 million State Deeds for Land and preparation of base maps" in a period of *six years*.

It is possible that the projects mentioned above, and other similar projects, can be successful in obtaining their goals. With enough financial and human resources and competent management anything is possible. But most likely many projects will not live up to the stakeholders' expectations.

Sweden was in the forefront when the establishment of a computerized and integrated cadastre and land registration system started in the late 60'ies. The graph below shows the main components and the time it took; about *29 years* from the time the government started to investigate the possibility of computerization. It can be noted that the policy and legal developments took more than sixteen years, and that data capture, from the date the decision finally came to implement the system in the whole country, took about seventeen years.



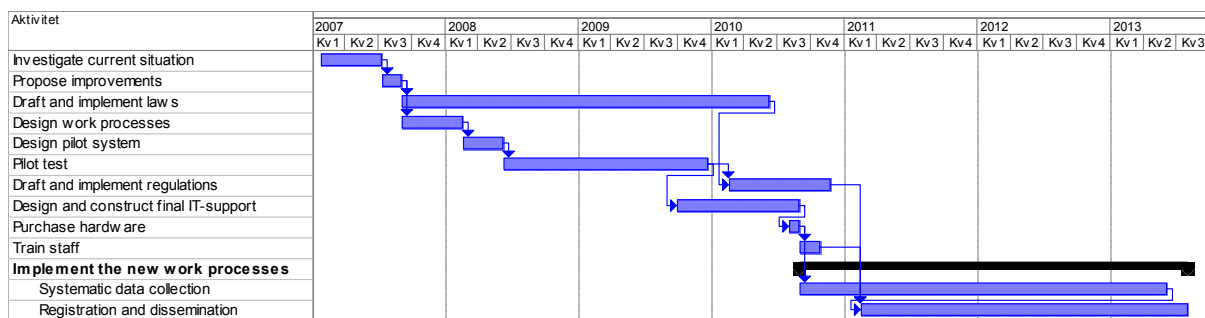
**Figure 1** The Swedish Land Data Reform took 29 years

Later on, when countries have benefited from the lessons learned in Sweden or other early countries, the time scale has shortened. For instance Lithuania has successfully developed systems and restituted and registered land rights for the same amount of real properties as in Sweden in a period of about ten years.

### 3. TEMPLATES FOR SOME DEVELOPMENT CASES

The following is a general template for land administration system development projects. It shows the main steps in development and the most important dependencies between components, e.g. that:

- Policy and legal developments can run parallel to system design and construction, but that the registration system cannot replace the analogue system until the relevant laws and regulations are in place;
- The main lot of hardware for implementing the system need (and should) not be purchased until late in the process, i.e. when training of users in the new system is to begin;
- The system for up-dating and maintaining the information *must* be in place when data collection starts, so that collected information can be kept current.

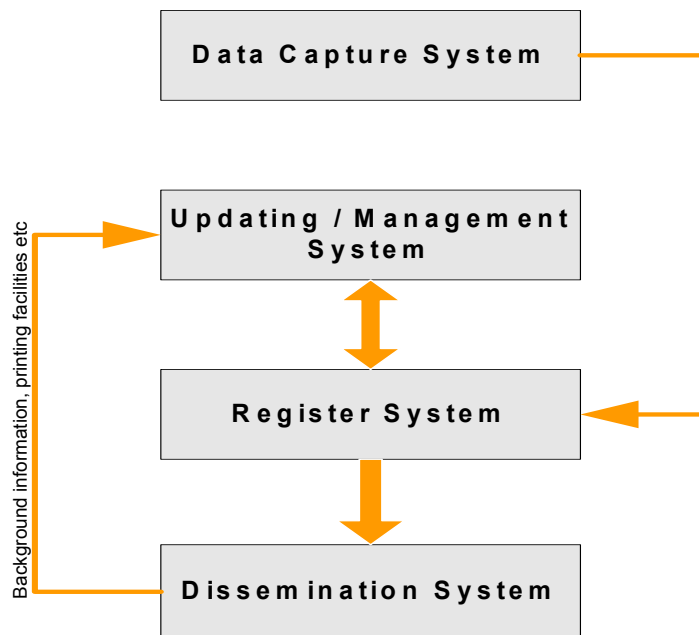


**Figure 2** General template for computerization projects

Another general conclusion is the types of systems that should be developed for the IT-supported land administration activities. They can be described as four parts of a complete system, namely:

- The core Register System that is optimized for data storage of all the registered information;
- The Updating/Management system that may include any system owned by an organization responsible for data in the Register System;
- The Dissemination system that is the main source for publication of information to customers and other users;
- The Data Capture System that is used exclusively for initial data capture purpose.

The information flow between the system parts is illustrated by the figure on next page.



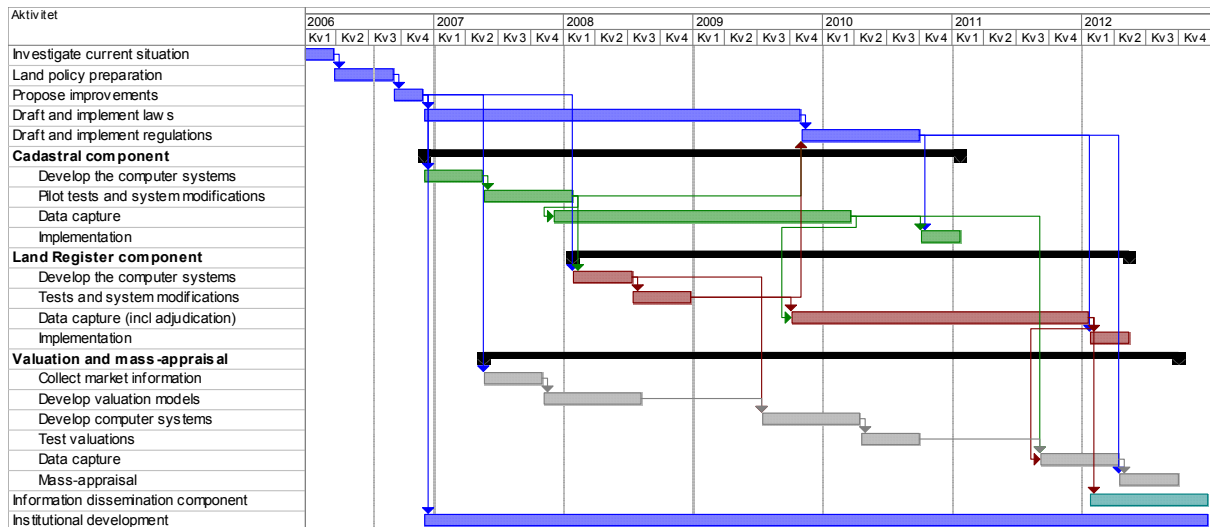
**Figure 3** Land Administration system parts

System development is a complex activity that covers many activities, e.g. business modeling, requirement analysis, system analysis, design, implementation (construction, programming), test and deployment. Training of users at all levels is also a big task, as well as setting in place and maintaining a support organization. System maintenance and upgrades is a continuous operation that will always exist and demand a similar amount of IT-staff as during development and implementation phases.

### 3.1 Case 1 – The All-inclusive Land Program

The large Land Management Programs are often funded by the multilateral donors/lenders, sometimes with co-funding from bilateral donors. They often include legal and policy developments, system development for both the cadastre and the land register, systematic adjudication or other systematic data collection, as well as valuation for property taxation.

The following MS Project plan is an attempt to show how these various components relate to each other, on a comprehensive scale. The time periods shown are, however, overly optimistic, i.e. periods would expand for most project components in a medium sized country.



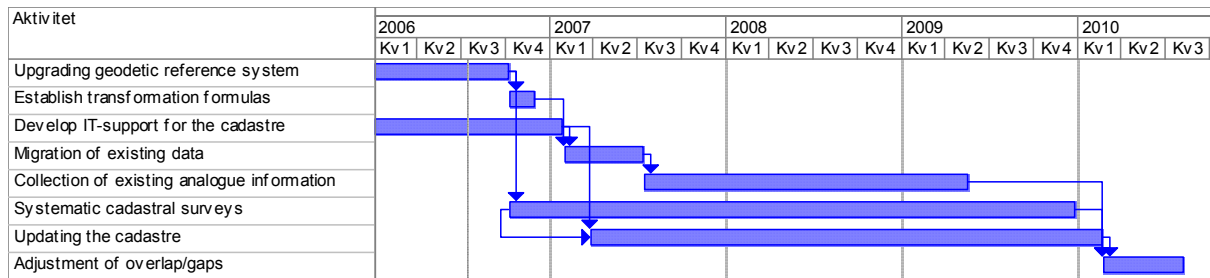
**Figure 4** Templete for the all-inclusive Land Administration Program

The main dependencies are:

- Systematic cadastral surveying will be done concurrently to systematic adjudication, but when it comes to entering information into a land administration system, the data capture of the cadastre – at least the cadastral unit identifiers – should be finished for any given area before data capture for the land register can start. This is to ensure that land rights are only registered for existing real properties.
- Data capture is a big task for the mass-appraisal system, and much (but not all!) of the information needed will be available in the cadastre and the land register. A first mass-appraisal should therefore await the conclusion of the other two components.
- As mentioned before, implementation with legal force is dependent on that the legal framework is in place.

### 3.2 Case 2 – Modernizing the Cadastre

The Cadastre is the system for creating, storing and disseminating information about real property (parcels of land or apartment units). The information usually includes geometry, object size and location on maps, as well and textual information in registers.



**Figure 5** Template for cadastre development

Some dependencies in this type of project are noted to be:

- If the geodetic network is revised the transformation formulas need to be applied to existing digital as well as analogue survey information when capturing that data;
- Systematic surveys cannot start before the new reference system is established, at least if GPS is to be used;
- If simplified systematic cadastral surveys are done using orthophoto images that activity has to be finished before the survey starts (NB Not shown in graph);
- The capturing of analogue information should ideally be done concurrent to the systematic survey of new parcels, to avoid the problem with adjustments of gaps and overlaps at a later stage.

### 3.3 Case 3 – Systematic Adjudication or Formalization

Systematic adjudication or formalization of land rights will normally be combined with systematic surveys, either in the field or by using photographic material to identify the boundaries. The most important rules, to avoid future problems, are to ensure that:

- The legal framework supports the activity;
- The information created systematically can immediately be registered in a registry system with legal force, a system that can be kept current once transactions start to affect the real properties;
- The institution (the Land Registry) is capable of handling the much increased volume of registrations.

## 4. COMMON TIMING PROBLEMS AND THEIR REASONS

### 4.1 Premature data capture

The most common timing problem appears to be premature data capture, i.e. projects collect data in the field through systematic cadastral surveying and adjudication of land rights, *before* there are appropriate systems and staff in place to register and maintain that information. Data is stored in temporary databases and the data format does not comply with the final specifications, as they are not known or under recurrent revision.



A large amount of data then has to be registered in the analogue registers and be updated manually. Usually the institutions (the Cadastre and/or the Land Registry) cannot cope with the huge information loads and backlogs become insurmountable.

When eventually the systems have been developed and implemented, the first task will be to re-capture all the information in the backlog. But this information has now become old, and can no longer be fully trusted as no up-dating was possible.

The reasons for premature data capture is probably mainly related to two conditions, namely that:

- Donor funds are available for a limited period of time (3-6 years) and since data collection within land administration is a big task there is a need to start early to get as much as possible done while funds are available.
- Politicians want to see result and a database full of information or an area covered by adjudication is something to show. System development gives (at least in its early stages) not much to show.

#### **4.2 Computer equipment is procured too early**

Funding agents (development banks and donors) usually have a planned disbursement rate, and want funds to be used accordingly. Often projects are slow in the starting-up phase, for various valid reasons. The easiest way to use funds is then to purchase the equipment that was budgeted for. The problem is that especially computer equipment "age" quickly, and when the systems finally are developed and ready to install the computers might not have the right specifications.

#### **4.3 Implementing new laws always take longer than expected**

A common hang-up in land administration projects is the legal changes that have to be made so that new developments and new work processes can be implemented in agreement with law. Too often the technical developments come first and a system might be up and running without legal backing. The old manual system then has to continue, as it still holds the legally valid information, and the digital information might soon start to deteriorate.

The main reason for this problem is probably that the technical professions are not aware of the time legal changes normally take. Maybe a new government is elected and want to re-think the whole issue? Generally politicians are also very cautious when changing land policies and laws, as these are matters very important to the voters. For instance, a new property tax law will probably not be adopted close to an upcoming election.

## **5. MANY SMALL STEPS INSTEAD OF ONE HUGE LEAP?**

It seems justified to issue a warning against the all-inclusive large Land Management or Land Administration Program. The risk is high that investments will not “pay off”, due among others to the timing problems described above. The situation could improve if funding can be spread over longer time and care is taken to time the components properly. The other option would be to have more and smaller projects, with time in-between to allow for developments to “settle” within the institution before the next step in a long-term development plan continuous.

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### **BIOGRAPHICAL NOTES**

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