

# **Simplifying Land Transactions – It can be done**

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## **SUMMARY**

Starting from January 2012, the Government of Armenia has implemented a big reform to their cadastre. During a period of less than a year, the organization has been changed, cadastral surveying has been privatized and the mandatory use of notaries for land transactions has been abolished. 47 local “front” offices have been maintained to service clients, whilst registration has been centralized to 11 offices at different locations than the front offices. Thus clients can no more meet with the staff making the entries to the cadastre, and a major option for corruption has been removed.

The reform has been facilitated by a new cadastre IT system, making it possible to move data between front offices and registration offices. Front offices receive applications, which are scanned and electronically transferred to the central registration office for checking, approval and registration. At the end of the process, various certificates will returned to the client by email or printed for pick at the front offices linking up to the central database.

The new cadastre IT system is based entirely on Service Oriented Architecture and Open Source Software. A contract with the developers were signed in April 2011, and the components of the system being critical for the reform, came into operation from 2 January 2012. The contract amount for system development, testing and implementation was exactly 1 million USD.

It has been demonstrated that with the political will, big cadastral reforms for the benefit of the citizens can be made quickly. Reforming the organization and procedures has been closely linked with the design and implementation of a new IT cadastre system. It has been demonstrated that applying Service Oriented Architecture and Open Source Software, modern cadastral IT systems can be made more rapidly and at much lower costs than experienced before.

## **1. BACKGROUND**

At the outset, the Cadastre organization in Armenia consisted of a central headquarters in Yerevan and 50 local offices servicing the public with registration of rights in land and with giving out information. Since the transition to market economy, Armenia has completed the privatization of land and implemented an organization for integrated registration of technical and legal information. Each local office used a range of stand-alone SW tools for their work, different and not well integrated solutions for textual information, for graphical information

and for documents. Data were regularly copied to CD's and brought to the headquarters to constitute national datasets and back up. Paper books and paper maps were used in parallel with the electronic resources at the local offices.

Well servicing the initial privatization of land, it became increasingly evident that the IT solutions could not satisfactory support the emerging land market, with timely, secure and transparent services, underlined by an increasing public discontent with the cadastral services. Early 2011 the Chairman of the State Committee of the Real Property Cadastre decided to improve the overall cadastral system in Armenia. Following study visits to a number of countries considered to apply best practices, it was rapidly decided to make a radical reform to be in place from the beginning of 2012, well ahead of the general election scheduled for May 2012.

However, already a year earlier, the State Committee had submitted an application to the Government of Norway for support to modernizing their cadastral IT-system. Following the preparation of detailed technical specifications and an international tender, a contract for system development and implementation was signed in April 2011. 3 months later the IT-project was adjusted to target the overall cadastral reform.

The Norwegian support to the cadastre in Armenia is funded under the Norwegian aid program for former socialist countries in the Balkans and in former Soviet Union. The Norwegian Mapping Authority (Statens kartverk) has been supervising the project on behalf of the Norwegian Government. Deliveries to the project have been procured through international competitive tenders.

## **2. REFORMING REGISTRATION AND INFORMATION SERVICES**

Until end 2011 cadastral services in Armenia were provided by 50 local offices, which in addition to receiving applications and issuing certificates, also maintained the cadastral registers and maps, using various distributed electronic software packages and paper books. Data produced locally were regularly copied to central databases, but the possibility for remote access to data via Internet and for electronic exchange of data with other institutions was very limited.

The public could interact directly with the staff making data entries, with an embedded risk for corruption. A notary had to be employed for all transactions. The cadastre organization was as well the only institution in Armenia authorized to undertake cadastral field surveys. A cadastre field survey was requested not only for new properties, but as well for transactions with existing properties.

The above cadastre system has been in place more or less unchanged since the land privatization took place in the year following the dismantling of the Soviet Union in 1989. It became increasingly evident that the overall cadastral system was becoming outdated, both in terms of services to individuals and companies making transactions, as well as concerning access to information and use of technology. In the spring of 2011 it was formed a group of

experts to investigate the matter and propose improvements, including looking at best practices internationally. Netherlands, Lithuania and Georgia were visited. The group proposed to radically reform legislation, organization, procedures and technology. The proposals were rapidly approved by the Government and bravely set in motion for realization during the remaining six months of 2011. The offices of the reformed cadastre should open on the first working day of 2012. *It was done.*

The main objectives of the reform were formulated as follows:

1. Improving the quality of the services to the public and legal entities
2. Simplifying procedures for real property rights registration and related provision of information to clients
3. Reduction of corruption risks
4. Abolition of unnecessary bureaucratic procedures
5. Improve access to uniform nationwide real estate information
6. Increase the use of information technology
7. Creation of mechanisms of the exchange of information between the Cadastre and other governmental bodies.

### **3. THE REFORM**

First of all it was decided to radically change the organization; To separate the dealing with clients from the investigation, approval and the recording of data, with the objective to streamline and make different work processes more efficient and with enhanced quality, and to reduce the risk for corruption. 47 front offices have been maintained, whilst investigation, approval and recording have been centralized to 11 registration offices. This was made possible by using modern technology. Applications and supporting documents are scanned at front offices and made electronically available to the registration offices. Thus, applications can be handed in and certificates picked up at any of the 47 front offices, regardless the location of the property in question.

Offices throughout the country have been refurbished presenting themselves with modern and attractive facilities to visiting clients. The importance of good looking facilities to the overall image of the cadastre organization and to the cadastre staff, should not be underestimated. Arriving to the front office, clients will retrieve a queue number from an electronic dispenser, which subsequently is displayed publically on TV-screens to all waiting to be serviced. While waiting, clients can pay the fees using the ATM, if not paid beforehand in a bank. It is no handling of cash.



Fig 1. Yerevan Cadastre Front Office

The reform included a major overhaul of laws and regulations. More than 150 amendments were made. The most important changes concern the following:

- ✓ Abolishing the mandatory use of notaries. Instead the identity of the parties and the legality of documents can be approved by registrars working at the front offices, provided that both parties to a contract are present. No extra fee is paid for this service
- ✓ Introducing simple, standard forms for standard transactions
- ✓ Removing mandatory field survey for transacting with existing properties, so that a field survey is required only for first registration and in case boundaries are changed.
- ✓ Privatizing cadastral surveying (already a significant and satisfactory number of private surveyors have been licensed)
- ✓ Allow registration and transaction regardless the presence of an illegal construction or of an unapproved use of the land in question
- ✓ Provide clients with an application number which they subsequently can use to monitor the progress of investigation, approval and recordation remotely via Internet
- ✓ Introducing electronic submission of applications and supporting documents with electronic signature and remote payment by credit card (expected to be used by professional agents mainly)

It is expected that the number of refused applications will be reduced by 40 %. It should also be noted that in case a client has not paid a correct fee, the application will still be received and the client allowed correcting the payment without having to restart the registration process.

According to the Law, a registration procedure should last no more than 4 working days including the day of application. The registration fee is 25000 ADM (64 USD). If paying a double fee the case will be dealt with in 3 days and by paying a tripe fee in 2 days. The fee is regardless the type of property or it's location.

After registration the related certificate can be sent electronically by email to the client, or the client can pick up a paper copy at the front office.

#### **4. THE ROLE OF INFORMATION TECHNOLOGY**

The role which IT played for the reform could have been achieved with different SW products. However, it showed very beneficial to apply a Service Oriented Architecture (SOA) and Open Source Software (OSS). This facilitated rapid development of separate components, which could be put into use one by one as needed for the reform timetable. Components being critical to the reform, and which therefore should be in place from early 2012, were prioritized; namely a work flow system, a document management system, a component for handling textual information and a web portal for two ways Internet based communication between clients and the Cadastre. A component for editing graphical information and full system integration will be implemented during spring 2013. Until then the components can be used individually.

Correspondingly important was the price for the IT system. The contract value for the entire IT system, including migration SW, training and implementation for operational use, was 1 million USD. It is hard to believe that this price could have been achieved unless using SOA and OSS. Significant parts could be procured off shelf with minimal tailoring needed.

The IT-project with the Cadastre in Armenia is one of the first full scale use of SOA and OSS for the building a modern cadastre IT system. It is a centralized web based system, depending on a telecommunication network with sufficient capacity. However, normal cadastre operations do not require very high network capacity. High capacity lines are needed only for downloading larger amount of data. The overall system consists of five independent components, which communicate using web services:

- A component for textual data, legal and technical data
- A component for graphical data, maps and drawings of houses and apartments
- A document management system, supporting scanning, indexing and storage of documents
- A work flow system to guide and to control the registration process, from reception of applications and documents, through all steps of verification, approval, recording and storage

- A web portal for distribution of data and communication with clients

All related work processes function in real time against databases at central level. No software needs to be installed locally. When needed, data from different components are combined instantly at the work stations, for example when textual and graphical data should be presented simultaneously and worked with in different screen windows.

System components were made using different SW tools. It was required to use only OSS, to reduce license costs, which the Committee hardly could afford. Components could be developed and tested separately and they also function separately. As an example, the document management system was put into operation before the other components were ready. This also means that components later may be improved or renewed without affecting other components. The independency of the components demonstrated a great advantage during development, making it easier to control all steps of the development. Traditionally, IT systems for cadastre and land registration tend to be big and complex. Many cadastre and land registration IT development projects have experienced heavy costs; long development times, and frequently ended up with big problems to overcome.

Much effort was allocated to the preparation of the technical specifications. A consultancy was tendered internationally for an expert to work closely with the local staff of the Cadastre. Developing specifications amounted to about 15 % of the total project costs.

The development of the system was tendered internationally, requesting bidders to bring in a local Armenian partner to ensure local knowledge, language skills and presence in Armenia for durable system maintenance. It was insisted that development largely should take place on site in Armenia in close contact with the Cadastre Agency. In addition, the company which had specified the system was as well contracted to monitor the development, testing and implementation at all steps. On average the external monitoring expert visited the project for one week every month, amounting to 15 % of the total project costs. In total, preparing specifications and monitoring system development, testing and implementation amounted to about 30 % of the total project costs.

In conclusion, it has been demonstrated that SOA and OSS offers promising opportunities for making sophisticated solutions for cadastre and land registration, both in terms of price and time for development. Significant efforts were allocated to system specification and to external monitoring of the development, which could be recommended for other projects of the kind. Finally, the importance of bringing in local experts and that development can take place on site in close collaboration with the owner of the final result, has to be underlined.

## **BIOGRAPHY**

Helge ONSRUD is Director of the Centre for Property Rights and Development, being a unit of the Norwegian Mapping Authority responsible for Norwegian funded (mainly) projects abroad. The Centre is currently working with land related projects in Serbia, Bosnia Herzegovina, Montenegro, Kosovo, Romania, Moldova, Armenia and Azerbaijan

He has been chairperson of FIG Commission 3 (1994-98), and chairperson of UN ECE Working Party on Land Administration – WPLA (1996-99).

He was appointed honorary member of FIG in 2010.

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