

Spatial Data, Good Governance and Society

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Key words: Good Governance, Spatial Data, Cadastre, Society.

ABSTRACT

In the past decade many cadastres have converted their data capture and processing to digital environments. The problems encountered in internal organizational aspects were tremendous. Cadastral agencies in Argentina in particular, with their limited financial and human resources, still have a difficult time to overcome these problems. Contractors who had to deliver systems have hardly survived the battle. The Federal Council of Cadastre (CFC) is a platform for the 23 member cadastres to share experiences and consolidate the innovations. But now, new opportunities have to be seized. To support the Public Administration in its tasks to comply with the criteria for “Good Governance” is the next phase.

Aspects of “Good Governance” are: effectiveness, efficiency, equity, arm’s length governance, transparency and accountability. The electorate evaluates governments on these criteria. Only if transparency and accountability are real, the public is willing to participate in politics and elections.

The paper explores the role of spatial data to support good governance. Traditional models, which perceive space as (private) land, as delivered in cadastral and topographic mapping are insufficient. Especially the public space and the way in which societal processes take place in this space has to be modelled for good governance. Governance and e-governance require visualization of world perceptions as common language for communication between parties in society.

The paper explores the consequences of this vision. Besides it describes the activities of the CFC in Argentina to develop a common strategy and presents some experiences gained in the past years.

RESUMEN

En la pasada década muchos catastros han convertido su captación de datos y procesos a ambientes digitales. En este contexto los aspectos organizacionales internos, han presentado grandes problemas.

Las organizaciones catastrales en Argentina, en particular, con limitados recursos económicos y humanos, tienen aún dificultades para superar tales problemas. Los Contratistas con mandato de entregar sistemas a las organizaciones catastrales también han tenido que enfrentar dichos problemas. El Consejo Federal del Catastro (CFC), organización que integra los catastros de las 23 provincias y de la Ciudad Autónoma de Buenos Aires, es una

plataforma para compartir experiencias y consolidar las innovaciones. En el presente nuevas oportunidades deben ser desarrolladas a fin de generar el respaldo a la Administración Pública en sus tarea de cumplir con los criterios de "Buen Gobierno" en el futuro próximo.

Aspectos de "Buen Gobierno" son: efectividad, eficiencia, equidad, descentralización, transparencia y "accountability"(que implica responsabilidades definidas y que puedan ser ejercidos controles). El electorado evalúa los gobiernos sobre tales criterios. Sólo si la transparencia es concreta, si las responsabilidades están claras y definidas y los si pueden ser ejercidos controles, el público ganará confianza hacia el ámbito político.

El trabajo explora el rol de los datos espaciales como respaldo a un "Buen Gobierno". Los modelos tradicionales, que perciben el espacio como el territorio de propiedad privada. generan información catastral y topográfica insuficiente. Especialmente los espacios territoriales de dominio público y los caminos mediante los cuales las actividades de la sociedad en esos espacios tienen lugar deben ser modeladas para resultados de "buen Gobierno". Gobierno y e-gobierno requieren visualización de las percepciones del mundo como un lenguaje común para la comunicación entre las partes integrantes de una sociedad.

El trabajo explora las consecuencias de esta visión. Describe además las actividades del CFC en Argentina para desarrollar una estrategia común y presenta algunas experiencias ganadas en los últimos años.

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1. RECENT HISTORY AND THE CHANGING ENVIRONMENT OF LAND ADMINISTRATION

The period 1980-2002 is so recent in our minds that we hardly see it as history. Nonetheless it is a period in which some historical developments have been taking place, which have changed societies dramatically at global level. Three important phenomena can be distinguished

Neo Liberalism. In the period 1945-1980 governments have been expanding their power and influence in all sectors of society. Nationalised industries, centralised services and an enormous bureaucracy in the social welfare states arose. The shock of the oil crises started a period of economic recession, which in the early 80-tees led to considerable unemployment in the western world. Neo liberal economic reform policies were introduced and started to “clean” the public sector. Privatisation became a magic word and market orientation was introduced in many public and semi public agencies. Deregulation and withdrawal of the government in many areas was promoted.

The fall of the Soviet Union. The dissolution of the Soviet Union and the merge of East and West Germany meant "the end of the cold war". Many considered it the proof that only a market economy is able to satisfy needs of people. The "end of Ideology" was proclaimed and a new economic order with the entire globe as market was perceived.

Information and communication Technology. A digital revolution took place in the past 20 years. Starting with the massive introduction of the PC and the fast up-scaling of its capabilities and decrease of the costs. New standards in operating systems came up. Since 1995 the use of Internet grows fast. The information society arises. Some even speak about “Cyberism”, the creed of Information (Anderson, 1996). Technical and organisational networks arise.

1.1 Public Administration and Good Governance

In the 90-tees the effects of these phenomena lead to a period of rapid change and development. While in the past the distance between Government and the Public used to be large in many countries (centralisation of power), the last decade has been characterised by new paradigms for public administration.

Decentralisation, market – client orientation, privatisation and participation have become important concepts in Public administration. Economic Reform and Public sector reform have been combined in neo liberal market economies. The World Bank introduced the concept of Good Governance. Governance is then the total of public and private sector interactions whereby the role of the public sector is changing from “Command and Control” to

“facilitating” processes in society.

United Nation characterise good governance as;

- Sound and sustainable economic development
- Efficient government
- Effective civil society
- Successful private sector
- Democracy and participation
- Balance, equity, mobilization of resources
- Rule of law

Public Policy design and Public Administration processes can be characterized as:

- The political process that decides the rules
- The administrative processes that apply the rules
- The judicial process that resolve conflicts
- The monitoring processes that record experience of particular regulatory regimes and provide the rationale for reforming the rules in the light of that experience
- The market information that signals the influences of supply and demand

Recently it is more common to use the word governance (and especially good governance) to characterize the administrative and policy processes. The critical characteristics of good governance can be summarised as

- accountability
- transparency
- arm’s length management.

Their successful pursuit depends to a considerable extent on the successful adoption of appropriate information technologies and the corresponding adjustment of organisational structures and procedures. Recent developments in the informatics field enhance networking and the establishment of multi-party information infrastructures. These, in turn, help create the enabling environment for customised demand-driven data capture, data processing and information presentation formats. Close connection of information with organisational mandates and decision and management processes can thus be designed and maintained.

1.3 Influence on Land Administration and Cadastre

The developments of the past 20 years have strongly influenced the institutions of land administration and cadastre.

Land administration is described as all processes that deal with tenure, use, value and management of land (Enemark, 2001) Tenure, use and development (value) relate to land and property (land parcel + building). Management is the task of controlling land development in order to balance economic growth and environmental protection under criteria of sustainability and equity. Permit systems are established to control developments.

Governmental reform has brought decentralisation. Housing reform programs have stimulated the conversion of social housing to private housing. Large amounts of titles have

been given in settlement formalisation procedures, land restitution and privatisation processes. Low interest rates have been a stimulus for property development and land market mobility. Rise in property prices has stimulated consumer confidence. Property development and property prices have also been a stimulus for the revitalisation of property taxation as traditional (decentralised) tax.

Private landed property plays an essential role in market economies and represents a great part of the national wealth of nations. Land administration, comprising land registration and Cadastre, is therefore a cornerstone of modern society and governance. The land information is a product of, and input in land administration processes. Accessible, affordable and good quality land information is important to comply with criteria of good governance.

Cadastral data are generally considered the backbone of the spatial data in modern market economies. Together with the base topographic data, they are referred to as “foundation data” (Groot, Mac Laughlin, 2000) and play a major role in the discussion around the establishment of spatial data infrastructures.

The topographic data provide the “land” basis, which describes the territory, and provide a complete spatial partitioning (Molenaar, 1998). The cadastral data provide the basis for society and its economy. Cadastral data often do not make up a complete spatial partitioning. Both data sets share the geodetic network.

Williamson sketches four phases of Cadastre in western society. The cadastre is a multi functional institute in the last phase (Williamson 2000).

The Bathurst and Bogor Declarations are clear examples of new visions for the institutions Land administration and Cadastre. In practice though, politicians, managers and technicians in cadastral organisations do not commonly share these visions and often still perceive Cadastre as 19-Th century -fiscal institution.

2. CADASTRAL DEVELOPMENT PROJECTS IN ARGENTINA

The past 10 years

Argentina, a federation of Provinces, used to be a highly centralised state. The Argentine Government has adopted the neo liberal concepts in the past 10 years. A governmental reform program included a great amount of decentralisation to the Provinces. World Bank loans have been provided to finance tax reform and provincial development projects (Programs PDP I and PDP II).

Each argentine Province has its own cadastre, making up for a total of 23 Provincial Cadastres and one for Buenos Aires Capital District. The Argentine cadastres have traditionally been predominantly fiscal cadastres. As part of the provincial tax reform programs, property taxes were to be revised and updated.

Cadastral development projects have therefore been initiated during the 1990-tees. The objectives of these projects were largely to have an up to date set of parcel-based data, which would serve fiscal cadastral processes. The economic justification of the projects was

provided by the increase of property taxes. The major increase of income came from an update on the building data. Identification of non-declared build-up areas was already accountable for an increase of 10-30 % of tax income, even with old values and tax rates.

Each province could develop its own project. 10 Projects have been concluded, 6 are still in execution and another six, partly new, partly additional projects are under approval. In the development of these projects the tax focus has been dominant. The fiscal parcel (which is not necessarily the same as the legal parcel) was the prime geo spatial object. In urban areas, aerial photography provided the basis for an update of the data, especially building data. These were complemented with detailed building census data to provide the basis for valuation. The billing is responsibility of the Tax Departments, while the inking of payments is done mostly at the cadastral offices. Expectations of Provincial and Central politicians (as well as officials from the World Bank) responsible for the management of the World Bank loan were focussing almost entirely the revenue side of the projects. Support for the development of multi purpose Land Information Systems was far more difficult to obtain. Increase in tax income has been effectuated in the past years, even though not all projects have been completed entirely.

The decline of the economy, though, has overshadowed the relative success of many of these projects from a taxation point of view.

Scope of the projects ranged from:

- Limited updated cadastral cartography to the conversion of all cadastral analogue datasets to digital territorial information systems.
- New data collection for only a few urban areas to data of the entire province
- Partial data collection to the complete sets of data for a multipurpose cadastre.
- Time spans for execution of a few months to several years
- Projects only within the cadastre to projects incorporating other agencies, such as Public Register, municipalities and natural resource management agencies.
- Projects without human resource development to projects with explicit training components.
- Project without vision on organizational and institutional change to projects with a perspective of contributing to building an infrastructure of geo data

In brief the projects varied from isolated organisational work to collaborative inter-organizational efforts taking in account their importance for Good Governance.

3. ANALYSIS AND EXPERIENCES GAINED

Now that many provinces have concluded important phases, or their entire project, an analysis of experiences can be done. The Federal Council of Cadastres, FDC, is the platform, which facilitates this process.

The Federal Council of Cadastre was constituted on December 4, 1958, to promoting, coordinate and guide the execution of tasks relative to the Territorial Cadastre of the Argentine. It has played an uninterrupted role in promoting the cadastral development of the country.

Its functions are:

- Advise National and Provincial authorities when consulted or due to own initiative.
- To carry out, promote and co-ordinate studies to investigate, assess and contribute to the formation and improvement of the Cadastre, in its physical, economic and juridical aspects; of techniques of cadastral registration; and the conducive forces for the implementation of Land Information Systems orientated toward the multi-purpose cadastre.
- Provide technical and scientific assistance to public and private entities, professionals and educational organisations, linked to the cadastral curriculum.
- To promote the progress of the cadastral legislation and the modernisation of technical and operational methods, as well as the effective co-ordination of cadastral organisations with other bodies in the public domain.

In December 2000, a workshop " Catastro, un desafío con muchas oportunidades" (Cadaster, a Challenge with many Opportunities) was organised to evaluate progress, exchange experiences and plan collaborate action for the consolidation and sustainability of the cadastral projects. The workshop was organised jointly by the CFC and the UEC, (Unidad Ejecutora Central) the commission in charge of the coordination and control of the World Bank financed projects at the federal level. Participants were the directors of 19 Provincial cadastres, members of the UEC, the National Mapping Agency IGM, the professional association of land surveyors (FADA) , a representative of the CP IDEA (Permanent Committee on for Spatial Data Infrastructure for the Americas) and of the Dutch Kadaster and the International Institute for Geo-Information Science and Earth Observation, ITC.

Major findings of the first workshop were;

- The image of cadastres in political circles is still very much dominated by the fiscal connotation. The role of Cadastres as (potential) spatial information providers is hardly understood.
- A lack of legislation at federal level which defines norms and standards for the functioning of the Provincial Cadastres
- Many problems encountered in the management of the contracts for cadastral modernization. Management models to be elaborated for the gradual development of Land information systems.
- Problems in the management of information and communication technology. No experience in the design of financial planning for maintenance of digital systems.
- Deficient institutional arrangements for the maintenance of the data.
- Difficulty in handling resistance to change of the present personnel. Difficulty to contract young staff to complement the present personnel. Lack of training at all levels (managerial, technical and operational).

The workshop stimulated among all participants the awareness of the importance of the cadastre for spatial data infrastructure and the role of the cadastral data for such infrastructure. It led to the wish to present the Argentine Cadastres at national and international level and participate actively in CP IDEA. The Federal Council of Cadastres, CFC, received the mandate to do this.

Following the recommendations of the workshop, the CFC presented the initiative for the establishment of a Cadastral Group of the Americas in the 7th Cartographic Conference of the United Nations, New York, USA, January 2001. This proposal was accepted and the leadership was given to the CFC. The work plan of the group was presented in the GSDI 5 meeting in Cartagena de Indias, Colombia, may 2001.

In Argentina, in follow up of the activities of the SIGRA group (Geo Information System of the Argentine Republic) started in 1998, several meetings have been organized during the year 2001 at the offices of the National Mapping Agency (IGM), with a range of agencies generating spatial information in the country. These activities are directed towards a National Spatial Data Infrastructure. The CFC, through a Cadastral Working Group, is actively involved. In December 2001 a work plan, following the recommendations of the workshop of 2000 mentioned above, was presented.

The content of the cadastral databases will have to satisfy the requirements of users of a spatial data infrastructure. New users with new demands will be encountered. The man-land data represent the links to society. Together with the topographic data it will make up the basis of the infrastructure.

3.1 Land-Tax data versus Territorial Data

In all projects where the analogue cadastral map data were converted to digital map data an interesting problem of spatial data modelling arose. Only in few provinces the idea of creating a territorial information base was clear from the beginning. This was also reflected in a change of the names of the Provincial Cadastral Office into Territorial Information Office. Where in the past the cadastral maps were build from registered and surveyed private plots, positioned in cadastral management units (Sections, Municipalities), the fiscal descriptive data were only kept of these registered parcels. These descriptive data were often managed manually or in alphanumeric digital databases. These fiscal databases reflected thus only the registered part of space leaving out all public and other land, which was not part of the set taxable objects.

With the conversion of the map data to a digital environment only few provinces have grasped the opportunity to define a complete spatial and thematic partitioning with full topology. The cadastre as a reflection of the Land Register and of the Property tax office does not identify and describe the entire space. The fact that a complete (image) map of the territory can be shown in a digital environment is not the same as a complete data set of land objects which make up the territory and which can be queried on characteristics of these objects.

In Public Administration processes a major interest exists in the areas for public use which are often also property or at least under the responsibility of the public sector. To be able to identify, describe and query those spatial objects is essential in processes of spatial planning, infrastructure provision, legalization of informal landholdings, conservation planning, hazard management, emergency planning and many more. The quality and transparency of these

processes can be greatly supported if cadastral agencies can provide easy access to these (good quality) data and apply visualisation techniques, which can be used in the media for communication with the community.

E- governance is coming up as new way of communication between citizen and the public sector. Visualization and representation of the “world” of citizen is important as interface. If people want to inform municipal authorities around problems in their “world” a representation of that world as streets is more meaningful than a representation of cadastral parcels. The quality of life in urban environments is largely dependent on the quality of the street (accessible - safe - clean - green). The street (segment/parcel) is the most important type of spatial object in municipal management. To be able to query and visualize streets is essential in collaborative planning for the public and municipal authorities.

In rural areas the status and rights of access to land and water are important for planning of productive or recreational and tourist activities. A parcel-based description of all of space will allow the planners and the public to recognise their world and their stakes in space. It is therefore essential that the cadastral database will contain these data to which other agencies and groups can attach their specific characteristics (e.g. municipalities, environmental groups, private companies etc.)

In Argentine this means that new cadastral legislation at national level is required which gives legitimacy to the cadastre to be an institute to hold territorial data and not only the fiscal representation of space. Only then the accountability for quality and maintenance of the spatial data infrastructure will be clear.

3.2 Institutional requirements for Cadastres to be able to function as Territorial information providers – The case of Chubut

Cadastral Development Project.

The Province of Chubut has an area of 225.000 sq kilometres, with 26 autonomous municipalities and spacious rural areas.

Before the cadastral development project all registers were kept manual, data were duplicated in different offices, services provided to the public were slow and limited and the availability of spatial data was minimal.

The project incorporated from the very beginning the different agencies dealing with land data. The Public Register, 26 municipalities, the Forest Department and other agencies were part of the project. The idea to build a network and create the basis for exchange of spatial data was present from the beginning. The entire Province was to be covered with data at parcel level. Besides, training of personnel in the participating agencies has been continuous.

Even though the realisation of the project has gone slower than foreseen due to a series of political, technical and financial problems and limitations, the project is approaching its full implementation.

Already during the execution benefits have been generated, especially in terms of availability

of spatial data for non-traditional clients. Resource information has been used for water management problems. Parcel data have already been incorporated in the other municipal management procedures and several research projects have been supported. New clients have found their way to the cadastre, mainly for territorial type of information. Users have been public and private agencies.

Most important of all is that an arrangement has been made to create a fund for the maintenance of hardware, software and data. The institutional and financial sustainability will be assured in this way, even in an environment where budgets are under continuous pressure.

The Cadastre, which also changed its name into Directorate for Cadastre and Territorial Information, has clearly supported the basis for a spatial data infrastructure and criteria of Good Governance (see also M.Alvarez de Lopez, Y.Martinez Martinez, Cadastre- an essential Component in developing Spatial Data infrastructures - Experiences in Argentina and Colombia. M.Alvarez de Lopez, J.C.Usandivaras, B. Agudiak, G. Jones, Experience of Inter - Institutional collaborative Works as forms of multiplying the benefits of Territorial Information, FIG XXII International Congress)

The developments in Chubut can be seen as pilot project for an institutional embedding of the cadastre to secure sustainability in the quality and availability of the data through the operation of a spatial data infrastructure.

4. CONCLUDING REMARKS

The situation in Argentina, with severe economic problems and their political and social impacts requires that the investments in cadastral and spatial information as made over the past decade will produce social, economic and environmental benefits for society. Further cadastral development in the country will have to ensure that it contributes to reaching the criteria of good governance in the public and private sector. Capable, efficient and versatile cadastral organizations, which form a core node in the spatial data infrastructure, are essential for good governance in a modern and critical society. Such infrastructure strengthens by applying international standards the inter-provincial and international links (GSDI, CP IDEA). The contribution and update of data and a major use will be at decentralised level.

Regular workshops to exchange experiences in the modernization of cadastres, with participation of funding organizations (World Bank, UEC, others), national mapping and other spatial data collection organizations (Mining cadastres, municipalities, etc) and professional organisations are necessary to coordinate and collaborate in further development. The Federal Council of Cadastres (CFC) plays an essential role in this process, which can be seen as an important part of capacity building and institutional strengthening.

Web pages and e-mails have already proven to be important for the diffusion of material and ongoing contacts between the cadastres and related agencies in the past years. Strengthening the links to World Bank and UEC is necessary for sustainability of the investments made in modernization of the cadastres.

Human resource development and institutional capacity building is a continuous concern for Provincial Cadastral organizations. A proposed agreement with the Ministry of Education in the Province of Chubut will lead to the incorporation of Geo information as topic in the curricula of secondary schools.

The Provincial Cadastres can play a leading role in the modernization of government and the development of e-governance, by facilitating access to spatial data as interface for processes in governance. Spatial data provision is important for health planning, hazard management, physical planning, environmental management, public safety and several other governmental tasks.

A new National Cadastre Law is necessary which legitimises the incorporation of private and public territorial objects. This will be essential for a cadaster to become provider of parcel-based territorial information in addition to the traditional fiscal information.

Diffusion and dissemination is a major task for the cadastres. Contacts and interviews with other agencies, NGO's and the private sector are necessary to be informed about the requirements for spatial data of present and potential users. Modes for continuous access to spatial information (subscription) can be elaborated for the private sector. Contacts with research institutes and universities (University of Patagonia and University of La Plata) can be beneficial for both parties and generate value added to data and technical infrastructure. Contacts with public libraries have been established in Chubut for the diffusion of spatial information to the general public.

The development a (parcel- based) spatial data infrastructure is a challenge and at the same time an enormous opportunity for the Provincial cadastres to contribute to a range of new clients and processes under criteria of good governance.

Research, capacity building and training and best practice experience could all focus these opportunities.

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