Strategic Management Of Cadastral Reform - Institutional Issues

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ABSTRACT

A key objective of this paper is to show the increasing importance of cadastral reform in economic development, social stability and environmental and in particular the requirement for institutional reform in achieving such these reforms. This is achieved by briefly reviewing key UN initiatives over the last five years, such as the Earth, Social and City summits.

The paper argues that cadastral reform requires a national commitment by governments to strategically manage the reform process. Central to this reform process are a range of economic, technical and institutional issues. From an institutional perspective, the cadastral surveying and mapping, and land registration functions in government, are also developing close strategic alliances or are merging.

The paper concludes by identifying a range of key issues which must be addressed if the above initiatives are to become a reality. In drawing conclusions the paper draws heavily on the Statement on the Cadastre developed by the International Federation of Surveyors and the Bogor Declaration, which resulted from a joint meeting of cadastral experts brought together by the United Nations, the International Federation of Surveyors and the Indonesian Government.

1. THE BIG PICTURE - the justification for cadastral reform

Cadastral reform has had a resurgence world-wide over the last decade or so in all continents and in many United Nations member states. The reasons for this trend are many and varied but central to most initiatives is a recognition that issues of property formalisation, land markets and land information systems are keys to increased economic development, social stability and environmental management (also see Williamson, 1997a). Following is a brief overview of some of the major UN initiatives, together with severalrding private property and cadastral issues.

1.2 THE SOCIAL SUMMIT - Copenhagen, 1995

The Copenhagen Declaration on Social Development, which resulted from the United Nations Summit on Social Development in 1995 also emphasised the importance of land issues to social development and tied such issues to cadastral reform.

For example Commitment 2 states that governments should "...ensure that people living in poverty have access to productive resources, including credit, land,...". And further Commitment 3 states that governments should "improve access to land, credit, ...for small and micro-enterprises, including those in the informal sector, ...". Lastly Commitment 5 states that governments should "...remove all obstacles to their (women‘s) access to credit and other productive resources and to their ability to buy, hold and sell property and land equally with men;" and "remove the remaining restrictions on women‘s rights to own land, inherit property or borrow money, ...".

1.3 THE CITY SUMMIT - Istanbul, 1996

The United Nations City Summit or HABITAT II, held in Istanbul in 1996 agreed on a new HABITAT AGENDA and 'Global Plan of Action on Sustainable Shelter and Human Settlements Development'. Central to this Plan are:

- issues of access to land and security of tenure,
- an emphasis on appropriate land delivery systems and processes, and
- an acceptance of informal settlements and systems as key components within a nations land market.

1.4 THE WORLD BANK

The last decade has seen a resurgence of interest in land tenure, land administration, land titling, cadastral and land management issues with the World Bank. This is best seen in the authoritative annual publication of the Bank, the 'World Development Report' (Williamson, 1997a). This has resulted in many land and cadastral related projects being initiated as part of the Bank's increasing emphasis to support institution building rather than infrastructure building. The profile has been highlighted by the dramatic changes in Eastern and Central Europe, and Southern Africa, where issues of land and cadastral reform are critical.

1.5 THE BOGOR DECLARATION ON CADASTRAL REFORM

The United Nations sponsored an inter-regional meeting of cadastral experts in Bogor, Indonesia in March, 1996 (UN, 1996a and 1996b) again emphasised the importance of cadastral reform (see separate report to this conference on the Bogor Declaration). The main justifications for an emphasis on cadastral reform in member states were noted as:

- efficient land markets,
- protection of land rights,
- land management and economic development,
- computerisation, and
- simplification of land related processes.

1.6 OTHER INITIATIVES

The above are just some of the many initiatives, reports and publications which have promoted cadastral reform over the last few years. Other notable examples are the United Nations Economic Commission for Europe (UNECE) Land Administration Guidelines (UN, 1996c) and the establishment of the European Meeting of Officials in Land Administration (MOLA).

In addition there are the Statement on the Cadastre by the International Federation of Surveyors in 1995 (now translated into 12 languages), numerous reports and initiatives by the Land Tenure Service of the United Nations Food and Agriculture Organisation (FAO) as well as numerous initiatives by universities, national and state governments, international banks and national aid organisations.

1.7 CONCLUSION

While there is general agreement on the need for cadastral reform as described above, the strategies to achieve that reform are many and varied. As briefly described in the following sections there are a range of land policy, legal, technical and institutional issues which need to be addressed in undertaking cadastral reform. However this paper concentrates on institutional issues and constraints within a wider cadastral reform strategy.

2. IMPACT ON NATIONAL SURVEYING AND MAPPING ORGANISATIONS

Historically national surveying and mapping organisations have little interaction with the cadastral organisations in the respective countries. This is the major institutional issue to be addressed in cadastral reform. The issues identified

above and the pressures of the information society are causing these organisations to work much more closely and in some cases they are merging. The major reasons for this trend are:

- pressures for increased efficiency and productivity, often due to micro-economic reform, and the resulting computerisation,
- the pressures of the information society requiring on-line access to digital data,
- national, state, regional and urban spatial data infrastructures,
- the growth of spatial information - GIS, LIS, AM/FM, Spatial IS, Urban Information Systems and digital road networks,
- the need to integrate topographic and cadastral data sets, and
- the need for national large scale land parcel data sets.

3. PROJECTS

It is important that individual countries realise they are not alone in embarking on multi-million dollar cadastral reform projects which often include institutional reform. Examples can be found in every continent and in a great number of countries. The following countries have either just completed, are starting or have a project under way which links the cadastre and national topographic mapping:

- Thailand, Indonesia, Malaysia, Philippines
- South Korea
- People‘s Republic of China
- Australia, New Zealand
- Southern Africa
- most countries of Western Europe
- Argentina, Brazil

4. STRATEGIC MANAGEMENT

It is important that cadastral reform is undertaken as a long term strategic initiative. It is not uncommon for countries to implement a multi-million dollar (amounts of USD100 million to USD1 billion are not uncommon) 20-year plan to undertake the reform (examples are Thailand and Indonesia). Some of the key components in developing such a strategy include:

- evaluating and fitting in with national economic, security, social and environmental objectives (for example a nation‘s National Development Plan)
- understanding the existing system using rigorous Case Study methodologies (see Williamson and Fourie, 1997)
- evaluating the Strengths, Weaknesses, Opportunities and Threats (SWOT) of the existing system against national requirements and international benchmarks
- developing a long term vision including User, HRD, Technical (IT) and Institutional visions, and how the cadastre supports the development and maintenance of a National Spatial Data Infrastructure (NSDI)
- developing appropriate strategies and implementation plan

5. THE CADASTRAL VISION

The Bogor Declaration (UN, 1996a) agreed on the following cadastral vision, "...to develop modern cadastral infrastructures that facilitate efficient land and property markets, protect the land rights of all, and support long term

sustainable development and land management".

5.1 COMPONENTS OF VISION

The Bogor Declaration then described some of the key strengths of a vision as:

- being simple and effective,
- being adaptable to different rates and patterns of population change,
- facilitating access to land, security of tenure, trading in land rights,
- allowing a vast array of cadastral options,
- including all state and private lands, and
- part of a national or state spatial data infrastructure.

5.2 RECOGNISE DIVERSITY OF NEEDS

The Declaration recognised that western countries, countries in transition and developing countries all have different priorities and different capacities for development i.e. human, technological and financial. For example in some countries a simple low cost manual cadastre is ideal, while for others a fully computerised multi-purpose cadastre is more appropriate.

6. THE NEED FOR RE-ENGINEERING SYSTEMS

In re-engineering systems to support cadastral reform it is desirable to focus on users and landowners, not just government needs. The focus should be on improving the efficiency of cadastral processes (i.e. land adjudication, land transfer and mutation) not the separate components (ie the cadastral surveying or land registration system). This will help identify bottle-necks, inefficiencies and duplication. Importantly re-engineering of the key cadastral processes may require legal, institutional, administrative and technical changes. The institutional issues and options are discussed below.

7. INSTITUTIONAL OPTIONS

7.1 FIG STATEMENT ON THE CADASTRE

The FIG Statement on the Cadastre considered organisation, coordination and management issues (FIG, 1995). It stated that since the cadastre is a public land information system with the aim of providing information for public land administration, supporting the land market and protecting legal interests in land, the management of the cadastre should preferably be supervised by the government, either through regulation or through actual operation of the cadastre.

It then went on to say that with deregulation of professions in some developed countries, together with anti-monopoly legislation and efforts to downsize public administration, new organisational arrangements are being considered. These range from partnerships and strategic alliances between government and the private sector for managing and improving cadastral systems to contracting out some services to the private sector. It is increasingly common, for example, for the private sector to be responsible for data capture and update, for surveying and mapping, and even for the running of the computer system, and for distributing information in some cases. Such arrangements require standards, guidelines, and at least sporadic checks by authorities to ensure that the standards are met.

And further it stated that the greatest benefits of a cadastral system or system reform can only be realised if this basic information system is used and coordinated with other types of land information. This nearly always involves coordination with other public and private organisations which are responsible for this data. To be successful, such coordination needs leadership, effective communication, commitment, and compromise. Coordination can be facilitated through legislation, establishment of standards, establishment of advisory groups, exchange of information etc.

The Statement concluded by pointing out that the management of a cadastral organisation includes the establishment and maintenance of good contacts with, not only the primary users of the cadastre, but also with the growing group of

secondary users and clients. An important goal of a cadastral organisation must always be to provide good service to clients, ie., to give fast, easy and relatively cheap access to reliable data. This is necessary not only to avoid the development of expensive duplicate systems, but also to be able to realise the full benefits of a cadastral reform.

7.2 INSTITUTIONAL REFORM AND COORDINATED CADASTRES

In a paper by Williamson (1997b) concerned with coordinated cadastres, it is stated that it is very difficult if not impossible to conceive a coordinated cadastre without fully understanding the structure and operation of the cadastral system of which it is an integral part and which it serves. All reforms to introduce a survey accurate DCDB and an improved cadastral surveying system (collectively a coordinate cadastre) go hand in hand with reforms to the wider cadastral system including reforms to the title registration system. In order to place the concept of a coordinated cadastre in perspective, a suggested future vision for Australian state and territory cadastral systems is described in the paper and shown diagrammatically in Figure 1. Based on the trends in Europe and many other countries it is suggested that this model has generic application with some modification to many other countries. Most Australian states and territories are well on their way to achieving this vision, albeit with slight differences to reflect local circumstances.

Important aspects of the institutional structure are that:

- the Cadastral Component, which is responsible for supporting the land market (i.e. the buying, selling, leasing and mortgaging interests in land), would operate administratively as one entity with an inseparable linkage between the textual component (the Automated Land Titles System - ALTS) and the spatial component (the DCDB);
- the Spatial Component (or spatial data infrastructure for the jurisdiction) again needs to be fully integrated administratively, including the core spatial data sets such as the geodetic framework, the digital topographic data base, the digital administrative boundaries data base and particularly the DCDB; and
- both the Cadastral Component and the Spatial Component, which include all title registration and land transfer functions, maintenance of all indexes, maintenance of the spatial data infrastructure (and particularly the DCDB), and quality assurance of all these activities and associated processes, would be coordinated by one jurisdiction-wide geographic information organisation.

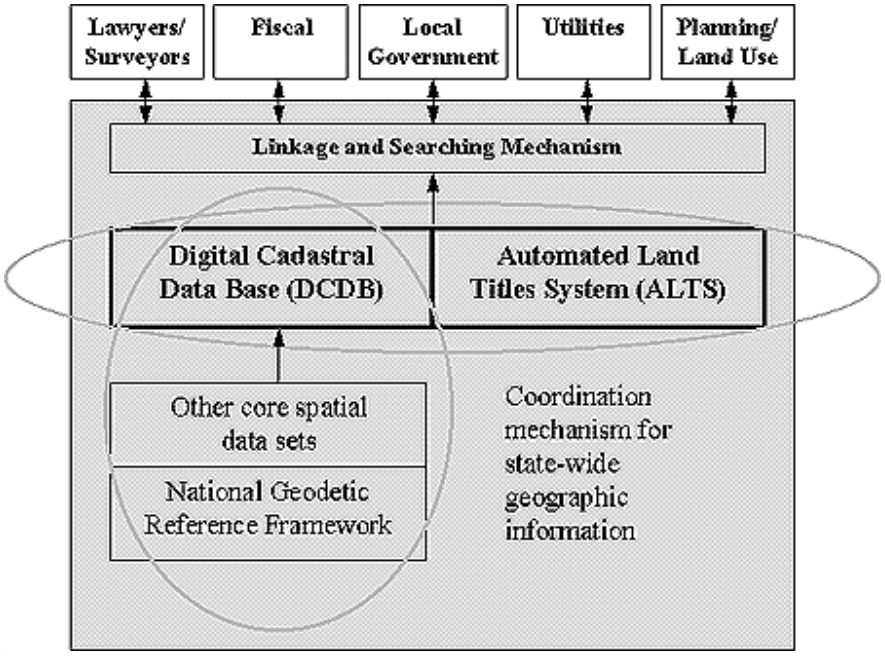

FIGURE 1

A conceptual model of a state-wide parcel based land information system based on the legal cadastre

7.3 UN/FIG MEETING OF CADASTRAL EXPERTS

At the joint UN/FIG Interregional Meeting of Experts on the Cadastre held in Bogor, Indonesia from the 18-22 March, 1996, a Working Group addressed the organisational needs for effective cadastral administration. The major issues arising from the Working Group‘s discussions (UN, 1996b) were:

- There is a strong need to fully integrate and rationalise land title registries and cadastral systems to simplify processes, and link and coordinate them with other land administration and management activities, such as valuation and planning.
- The integration of title registries and cadastral systems, and coordination with other land administration functions, is most important for effective automation, and will need to be supported by cooperative arrangements with the relevant agencies.
- Funding needs to be supplemented from alternative sources, such as from central government as a means of contributing to national objectives, from local government as a contribution to community development, and from users to meet regular updating and maintenance costs.
- The development of appropriate structures ensures that while there will be good central direction, standardisation and coordination, there will also be decentralised provision of services and information at local levels.
- The utility and integration of cadastral information with other processes requires a very clear definition and unique identification of individual parcels.
- The provision of skilled and competent people in the required numbers is a major challenge, and will require a major emphasis and investment in relevant education and training.
- The building of local capacity to implement and manage a cadastre will require the development of in-country research and user-needs analysis capabilities.
- Nationally consistent standards of surveying are needed to ensure that a national survey system is developed and maintained to standards of accuracy appropriate to the circumstances and needs of the individual country.

The meeting determined a range of institutional options in supporting cadastral reform as follows:

- Cadastral organisations also have, in many countries, the responsibility for land registration. If the responsibility for cadastral surveying and mapping, and for land registration, is divided between two organisations, close links will need to be established between the two. Even within one organisation, close links are needed if the responsibility is divided between different departments.
- The cadastre represents a major component of the land data infrastructure, which serves many purposes. If the data base is going to serve these purposes, linkages need to be established with other data bases, such as data for land use planning, taxation, valuation, local authorities (sometimes with village authorities), and housing development boards. If the cadastre does not include land use rights, linkage to that registry is also essential. These linkages will improve access to the data, reduce duplication, and avoid ambiguity. Combined efforts will create more efficient land management.
- The administration of cadastral systems can be centralised. From the user‘s point of view, data collection as close to the source of the data as possible is desirable. On the other hand available resources, both human and technical, and cost-effectiveness can make centralised solutions more feasible.
- The cadastre is part of the basic infrastructure of a country and should therefore be the responsibility of the government. However certain tasks, for instance data collection, technical work as surveying and mapping, and sometimes even updating, can be contracted out to private contractors depending on the type of work and the responsibilities involved. So called Build-Operate-Transfer (BOT) solutions have so far not been practised

widely, but might be an option in future.

- Cadastral activities can be financed by governmental funds, either provided by the government or through loan and grants from international or bilateral funding agencies. They can also be funded through charges on land users, other users such as utility companies, or through special taxes—for instance, transfer taxes or land taxes. These methods can be combined. Established cadastres are increasingly recovering at least operation costs. In developing countries, the rural population and some sectors of the urban population usually have only very limited capabilities to contribute to costs for cadastral operations. Investments in the establishment of cadastres are usually borne by the government.

- Other key issues are education and training, human resource development, research and development, and international cooperation with regard to cadastral development. Communication issues, for instance logistics and information communication, need also to be investigated.

- If private surveyors should be involved in cadastral mapping and surveying, it is necessary to define functions for licensing surveyors and regulations of accountability and control. Studies of needs and the market are desirable and solutions should be designed to encourage true competition in the private sector and to avoid self-regulating monopolies. Accountability and quality assurance are to be preferred before general checking by a State body.

7.4 THE BOGOR DECLARATION

The Bogor Declaration (UN, 1996a) which resulted from the above meeting summarised the institutional issues which arise when selecting the most appropriate organisational structure for managing a cadastre. These include:

- whether there should be combined land registration and cadastral surveying and mapping functions or whether these should be separate organisations

- whether the system should be centralised or decentralised

- how to establish linkages between different authorities responsible for maintaining records on the ownership, value and use of land

- whether the activities of the cadastre should be commercialised, corporatised or privatised

- the extent of participation by private surveyors in a state run cadastre

- the role of professional bodies and NGOs and the administration of licensing boards

- regulation of responsibilities, accountability, quality assurance

- funding arrangements for the creation or development of a cadastre

- education training and continuing professional development

- research and development

- international cooperation

9. CADASTRAL ISSUES

The major issues to be considered in undertaking cadastral reform and which impact on institutional reform are also summarised in the Bogor Declaration (UN, 1996a) include:

- clear identification and recording of ownership rights,
- adoption of simple unique land parcel identifiers,

- identifying restrictions and obligations to land,
- providing access to land information,
- recognition of informal land tenures,
- the efficiency (speed) of the system and difficulties in keeping it up-to-date,
- integrating cadastral and land registry systems,
- recognition that cadastral systems are not ends in themselves and that their primary objective is serving efficient land markets and permitting effective land management, and
- legal reform, Quality Assurance and Risk Management.

However one of the biggest institutional issues, which also has significant land policy, legal and technical considerations, in cadastral reform is the existence of 'parallel cadastres'. For example in many countries formerly under colonial rule, there is a formal, rigorous, expensive, slow and often complex cadastral system which had a prime objective of ensuring a secure land market for a minority population (often expatriate). At the same time there is often another 'parallel' cadastre serving the needs of the indigenous population and the whole country. The latter is often informal or a very simple graphical system. The rationalisation of these two cadastral systems is usually a major objective if economic development, social stability and environmental management is to become a reality

And finally in any reform it is very important to recognise that the success of a cadastral system is not dependent on its legal or technical sophistication, but whether it protects land rights adequately and permits those rights to be traded (where appropriate) efficiently, simply, quickly, securely and at low cost.

10. CONCLUSIONS

The major conclusions which can be drawn from this paper include:

- the importance of cadastral reform to economic development, social stability and environmental management,
- the important role that cadastral reform plays in establishing National Spatial Data Infrastructures (NSDI),
- that topographic and cadastral data bases need to be homogeneous and uniformly based on national geodetic network, and
- that cadastral reform and the establishment of NSDI requires a long term vision and a carefully thought out strategic plan, often including the re-engineering of institutional structures.

11. REFERENCES

FIG, 1995. Statement on the Cadastre. International Federation of Surveyors. FIG Bureau (1992-95), Canberra, Australia, 22p.

Williamson, I.P. and Enemark, S. 1996. Understanding Cadastral Maps. The Australian Surveyor, Vol. 41, No. 1, 38-52.

Williamson, I.P. and Fourie, C., 1997. Using the Case Study Methodology for Cadastral Reform. Submitted to Geomatica for publication, 17p.

Williamson, I.P., 1996. A Land Information Vision for Victoria. A position paper prepared for Geospatial Policy and Coordination, Government of Victoria, 21p.

Williamson, I.P., 1997a. The Justification of Cadastral Systems for Developing Countries. Accepted for publication by Geomatica, 15p.

Williamson,I.P., 1997b. Coordinated cadastres, spatial data infrastructures and geographic information systems.

Submitted to the International Journal of Geographical Information Systems, 18p.

United Nations, 1996a. The Bogor Declaration. United Nations Interregional Meeting of Experts on the Cadastre, Bogor, Indonesia, 16p. Printed by the Land Information Centre, NSW, Australia.

United Nations, 1996b. Report of United Nations Interregional Meeting of Experts on the Cadastre, Bogor, Indonesia, 36p. Printed by the Land Information Centre, NSW, Australia.

United Nations, 1996c. Land Administration Guidelines. United Nations Economic Commission for Europe, Geneva, 94p.

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