

Political and Implementation Challenges of Integrating Land Information into a Coherent Land Administration System for Sustainable Development

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Key words:

ABSTRACT

Issue

“The Institutional Level Challenge (Political & Implementation challenges): To establish appropriate institutional and organizational infrastructures to manage the integration of topographic mapping and cadastral information into a coherent land administration system for sustainable development.”

Recommendation

“that member States develop appropriate institutional, legal and technical processes to integrate land administration and topographic mapping programs within the context of a wider national strategy for spatial data infrastructure.”

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1. INTRODUCTION

Canada is a relatively young nation. The Canadian federation was initially formed in 1867 and has evolved over the years to include 10 provinces and 3 northern territories. As well, the country's landmass borders on 3 oceans creating a formidable challenge to manage maritime resources. The most recent addition to the country is the northern territory of Nunavut, which was created in 1999. The geography of our country is enormous as is its cultural diversity. Add emerging Aboriginal governments to this mix and Canadians have a great deal of nation building history and experience to share, much of which revolves around the fundamental task of institutional development.

In the context of this paper, it is argued that the key challenges towards reforming or developing land administration systems are related to institutional creation and reform. For example, a key focus for the Government of Canada's Aboriginal Peoples' self-reliance agenda is to create the basic institutional infrastructure required to provide reliable health care, education, financial management and of course the according and management of property rights. In Canada, such institutions form the backbone of society, support our standard of living and are considered essential for political stability and our national prerogative of "Peace Order and Good Governance".¹

Nonetheless, it is clear that land administration systems in Canada and their related institutions are in need of reform. The drivers for change include an increased demand for information to support stewardship of the land and sustainable development of communities and natural resources. Most levels of government in Canada have recognized this need and are beginning to move in new directions. For example, at the national level, leadership in the promotion of the Canadian Geospatial Data Infrastructure (CGDI) through the GeoConnections² program has effectively established a framework for change. At the provincial level, land tenure regimes and land information systems are becoming more effective through the integration of parcel-based cadastral mapping, property rights registries and other information systems.

Successful change has not come easily or without the expenditure of significant time and energy. The majority of Canada's land administration systems have developed over different

¹s. 91 of the Constitution Act , 1867 , Other references - Royal Proclamation (1763), the Quebec Act (1774), the Constitutional t (1791) and the Union Act (1840-41).

² Canadian Geospatial Data Infrastructure (CGDI), GeoConnections,
<http://www.geoconnections.org/CGDI.cfm/fuseaction/home.welcome/gcs.cfm/>, September 14, 2004.

periods of time and most have been in place for many years. The institutional barriers to change are therefore significant. Bringing representatives from the various levels of government (federal, provincial/territorial and municipal) also creates logistical problems that often seem insurmountable.

In our experience, the success stories involve more than the technical exercise of networking information systems. Relevant progress towards the creation of an effective geospatial infrastructure has involved changing the way information is collected, managed and distributed. This involved dealing with the difficult issues around data ownership, re-engineering of business processes and changing roles for participants.

This paper has been designed to initiate a dialogue on the key political and implementation challenges associated with driving change in a mature land administration environment, using examples from the Canadian context. It is presumed that the concepts for land administration and their correlation to sustainable development are accepted and understood.³ It is hoped that we all will benefit through discussion of common experiences.

2. KEY POLITICAL CHALLENGES

Canada, as is probably the case with a number of the countries represented at this workshop, takes its property rights and/or land administration systems for granted. Like any other piece of critical infrastructure, it only attracts attention when it fails or is stressed to capacity. Consequently it is difficult to obtain resources to develop and maintain this basic infrastructure with so many more visible, and perhaps more understandable, priorities facing politicians and governments.

Those countries that have overcome political inertia and have established administrative infrastructures to manage property and natural resources are now reaping the benefits. Such infrastructures are fundamental to sustainable development, the social framework and the creation of wealth and prosperity. The first and perhaps the most important political challenge therefore, is to articulate the importance of property rights, land administration and the geospatial infrastructure to senior decision makers at all levels of government to ensure they are funded appropriately.

2.1 Influencing Senior Decision Makers

The governance model for Canada's GeoConnections program is perhaps an example of best practice in communicating the importance of geospatial infrastructure. The federal and provincial governments along with academia and the private sector have jointly invested significantly towards this program. The program is managed at arms-length from the federal regime and is governed by a board consisting of partner representatives. Many of the partners are also senior representatives in other levels of government or federal departments;

³ Grant, Williamson, Ting, 1999, United Nations Bathurst Declaration, "Sustainable Development is just rhetoric without appropriate land administration systems".

therefore, an effective forum for communicating the relevance of geospatial infrastructure has been established.

Similar participatory governance models that include senior level representation have been established in the Canadian provinces – most notably in Saskatchewan and British Columbia. A significant level of partner investment encourages more than tacit participation and commitment towards a common vision. As will be demonstrated later in the paper, senior level commitment and participation are also essential to successful implementation. Demonstrating to senior decision makers and purse string holders how a geospatial program will positively impact their mandate is also extremely important.

It is suggested that programs be developed to communicate how they directly impact a key priority of government. In the Earth Sciences Sector (ESS) of Natural Resources Canada, all program activities are said to be “Issues Driven”⁴ as opposed to being “Capacity Driven”. The issues are derived directly from the federal government’s statement of its priorities and are articulated using the same phraseology. Programs are then developed with measurable outputs and outcomes which impact directly on these issues, thus drawing the link with government priorities.

This is not as easy as it first seems however, when the conversation is focused on subjects such as property rights systems, cadastral mapping, land administration systems and the creation and maintenance of a geospatial data infrastructure. This terminology would most likely make any politician’s eyes glaze over. To bring the conversation to a level of common understanding, a results-based logic model⁵ can be developed. The model graphically illustrates the flow of activities from inputs to outputs to the eventual outcomes that target the key priority or *issue* for government. Such tools are an invaluable means to articulate the importance of investing in activities, the benefits of which may be difficult to articulate; for example: geospatial data infrastructure.

In Canada there is a lack of awareness within the general public of how land values, geospatial infrastructure and geomatics technologies contribute to the quality of life in communities. By raising awareness through public relations campaigns or other means, constituents will contribute to delivering the message to politicians. For example, if a constituent becomes aware that a parcel-based geographic information system could reduce response times for emergency vehicles, perhaps more support would flow from the community level. A number of other examples are emerging.

Finally, it is suggested that the geomatics community has an obligation to ensure that basic infrastructure is not endangered through the irresponsible application of technology. We live in the age of technological wizardry. Although many technical solutions bring wonderful benefits, and increase the efficiency and effectiveness of our operations, one must also

⁴ Earth Science Sector, Natural Resources Canada, Priorities, http://ess.nrcan.gc.ca/index_e.php, September 15, 2004

⁵ Treasury Board of Canada, Results based Management, http://www.tbs-sct.gc.ca/cmo_mfc/resources2/RMAF/RMAF05_e.asp, September 15, 2004

consider the ramifications if things go wrong. For example, imagine the impact on society if thousands of digital land records were permanently lost due to corruption of data. In one jurisdiction in Canada this has already happened. Unfortunately, the back up data was also corrupt. Fortunately the hard copies of the records were still available. We're working on additional safeguards.

2.2 Defining Roles for the Private Sector, Government and Academia

Role definition is important to the political discussion. In Canada, considering the numerous levels of government and the large number of administering authorities within each, it should be no surprise that diverse approaches to service delivery can be a major stumbling block towards the development of a national, cohesive approach to land and property rights administration.

In our jurisdiction, Canada Lands, the Surveyor General's role is to contribute to the property rights infrastructure. This includes maintaining and developing standards for surveys, operating the legal public archive for official records, managing the regulatory regime and maintaining and providing access to cadastral data. The private sector carries out almost all of the actual legal survey and mapping activities on Canada Lands. Academia contributes through capacity development, strategic planning, research and development, and participation on advisory boards. Roles are clearly defined and the overlap is minimized.

A key challenge of the strategy of the Earth Sciences Sector of Natural Resources Canada is to "own only what you must; influence all you can"⁶. Through this statement, and by focusing on priority issues, senior management clearly defines the scope of activities with which the sector will be involved. To illustrate this notion, while developing a conceptual framework for a Marine Cadastre for Canada, it became clear that the Surveyor General's role in this arena is to influence. Ownership of administrative processes and infrastructure in Canada's Offshore must remain with the departments responsible for administering ocean space. By continually testing proposed activities against the criteria listed in the Earth Sciences Sector Strategy, the role of the Surveyor General's office or for that matter any other program within the sector can be clearly established.

It is argued that a similar approach should be taken to define roles when defining a national digital mapping strategy that will result in the most effective means to achieve essential coverage and the assurance that data is collected only once and is focused on the needs of the users.

3. KEY IMPLEMENTATION CHALLENGES

Once the political decision makers are aligned and a clear vision for the way forward has been established, the numerous challenges associated with implementation follow. Most can be related to institutional barriers and change management.

⁶ Earth Sciences Sector Strategy, Natural Resources Canada, 2002

3.1 Breaking down the Institutional Barriers

Institutional barriers can take a number of forms. For example, Canada has generally adopted a national, satellite-based, homogeneous spatial reference system. However, many areas of the country are still using local control networks that are not integrated within the system. There is however, general recognition that there can only be one national spatial reference system, therefore, although there is a tendency to maintain the status quo, provincial and municipal agencies are slowly moving towards adoption of the national system.

A second example is the different means of recording property interests in Canada in the following systems:

- Deeds registry system (limited to filing and providing public notice of land transaction documentation),
- Torrens or Land Titles system (contains a statement as to the title of each land parcel and guarantees that title under an Assurance Fund),
- Cadastre under the Napoleonic Code (Quebec only).

Finally, standards for land surveys and survey-related products differ in each jurisdiction, as do many of the technical platforms for managing cadastral mapping and data.

The above examples provide a sense of the fundamental differences in institutional approaches to land management across Canada; there are many more.

Perhaps the single most significant driver to bring about massive change and resolution of differences has been the fiscal restraints that have been placed on governments over the past decade or so. Cooperation and collaboration are now the imperatives in programs such as GeoConnections and GeoBase and in organizations such as the federal Inter-Agency Committee on Geomatics and the federal/provincial/territorial Canadian Council on Geomatics. The GeoConnections principles of collecting data once closest to the source, in accordance with international standards, partnerships and cost sharing, access through a common policy environment etc, are being adopted. In short – the building of the Canadian Geospatial Infrastructure is underway.

The next step will be to build a national property rights infrastructure – a daunting task given the multitude of institutions, approaches and the laws that govern them. A new willingness to do this is emerging however, and work has started to integrate the business processes and data sets of the various land survey systems with the land interest registration systems. Demonstrating how integration between the survey and land registration systems could improve program delivery became the institutional challenge.

Another institutional barrier can be the “one size fits all” attitude of the many agencies charged with property rights administration systems. Such an approach does not consider the differing cultural notions of land and land tenure held by the constituents. In Canada, this is particularly true of the country’s Aboriginal peoples. It is hard to imagine a more culturally

diverse group. Property rights administration must therefore be flexible enough to adapt to the varying needs and cultural notions of the users.

3.2 Developing Common Standards

Much work has been done to develop common standards for data interchange in Canada. Standards for data and meta data have been developed in support of the CGDI. Not all data is produced for the CGDI however, and there are a plethora of standards for data that are maintained by municipal governments, large utility companies and other non-government organizations.

There is much work to be done to harmonize standards in support of coherent land information systems. Many organizations including our own, have a legacy of multiple mapping systems, file formats, data models etc. Lack of standardization becomes an implementation issue when the lack of consistent standards introduces a barrier to data integration and interoperability of data sets.

4. CONCLUSION

In conclusion, Canada has a history of working towards agreements and compromise. From negotiating treaties with our Aboriginal Peoples late in the last century to establishing new political entities such as the Territory of Nunavut, our culture respects and encourages participatory governance. Communication and participation are therefore essential components to successful implementation of our geospatial strategies.

A key strategy for our department is to “optimize the contribution of natural resources to sustainable development.”⁷ Our key political challenge therefore is to demonstrate how the geospatial data infrastructure is an absolutely essential component of sustainable natural resource *and* community development.

Our key institutional challenge is to develop the collective vision and promote the change that will allow us to evolve the existing institutions to meet the changing needs of society.

The challenges and potential solutions are summarized as follows:

| Key Political Challenges | Possible Solutions |
|------------------------------------|--|
| Influencing Senior Decision Makers | Involvement in participatory governance models Clearly illustrating how geospatial infrastructure directly supports their mandate Public Awareness Campaigns Communicating that land records are a national heritage and must be protected for future generations |

⁷ Sustainable Development Strategy, Moving Forward, Natural Resources Canada, Ottawa 2004, page 1

| Key Political Challenges | Possible Solutions |
|--|---|
| Defining Roles for the Private Sector, Government and Academia | Through a consultative process develop a joint strategy that supports each participant's objectives, with clearly defined roles Develop criteria to test participation |

| Key Implementation Issues | Possible Solutions |
|--|---|
| Breaking Down the Institutional Barriers | Identify key leaders or champions in each participating department that have the authority to implement change Involve participants from participating organizations in strategic planning exercises Involve participants at the working level in participating in joint business process re-engineering exercises Engage constituents in program and/or application development Develop strategies to reduce or eliminate financial barriers to accessing data |
| Developing common standards | Take a leadership role in developing and encouraging the use of common standards Developing a user awareness campaign promoting the benefits of using common standards |