

# Canada

**GEOMATICS IN CANADA**

**2012 Country Report  
to the**

**UN COMMITTEE OF EXPERTS  
ON  
GLOBAL GEOSPATIAL INFORMATION MANAGEMENT**

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## **Canadian Context**

Canada has a population of approximately 34 million people and is the second largest country in the world by total area, with 91% of the coverage as land mass with immensely different topography and geology. The remaining 9% of the territory is covered by water, of which 2% are glaciers and ice fields.

Canada is a federal state governed as a parliamentary democracy with 13 distinct provincial and territorial jurisdictions, each with powers similar in scope to that of the central government. Within the Canadian context, Government of Canada priorities include economic growth, emergency preparedness & response, social cohesion & well-being, and environmental management.

There is no federal legislation mandating spatial data infrastructure (SDI) development in Canada, so effective governance is essential to ensure proper use, sharing and management of Canadian geospatial information. To that end, over the past two and half years, Canada has taken significant steps forward in bringing together and aligning key players in the Canadian geomatics sector.

## **Canadian Geomatics Governance**

Three key committees provide the foundation for collaborative governance within the geomatics sector in Canada. These committees are:

### ***Federal Committee on Geomatics and Earth Observation (FCGEO)***

Established through the collaborative effort of federal departments, the FCGEO provides proactive, whole-of-government leadership in establishing federal priorities for geomatics and Earth observations and their application to support of government priorities, decision-making, and Canada's competitive advantage. In addition, the FCGEO seeks to collectively enhance the responsiveness, efficiency and sustainability of the federal geomatics and Earth observations infrastructure.

FCGEO brings together senior level executives from federal departments and agencies that are both producers and users of geospatial information to lead the development of a strategic, integrated and horizontal forward agenda for the federal geomatics and Earth observations community, underscoring the significance of federal geomatics and Earth observations as key enablers of Government of Canada policy priorities. The current agenda of FCGEO focuses on two main initiatives: development of a Business Case for the realization of a Federal Geospatial Platform, and defining and establishing an International Engagement Strategy and Protocol.

## **Federated Geospatial Platform**

If adopted the Federal Geospatial Platform is expected to provide an Internet-based capability that will provide access to shared and trusted geospatial data, services and applications across government departments and agencies, and would become an enabler to effectively address issues of national importance.

Issues around the economy, public health, public safety, and the environment can be better addressed using shared decision support tools, shared applications and trusted geospatial data that is made available via a Platform. Moreover, the Platform is expected to enhance Canada's ability to support international organizations in addressing these same issues on the global stage.

## **International Engagement Strategy and Protocol**

The intent of the strategy is to further advance Canadian interests internationally through consistent messaging and coordinated representation on international geomatics and Earth observations issues. The strategy will contribute to government priorities through a coordinated/collaborative approach, leverage participation on a global scale, and help advance Canadian geomatics capacity nationally and internationally.

## ***Canadian Council on Geomatics (CCOG)***

Created in 1972, the Canadian Council on Geomatics (CCOG) is the major federal-provincial-territorial consultative body for geographic information management. Its purpose is to provide a forum for exchanging information on programs, to consider common operational issues, to discuss proposed legislation relevant to geomatics, and to develop and promote national geomatics standards.

Initiatives such as the Canadian Geospatial Data Infrastructure (CGDI) and GeoBase (see below) were both conceived at the CCOG table. Since 2001, a Canadian Geomatics Accord has helped provide the framework for federal-provincial-territorial collaboration and cooperation.

## ***Canadian Geomatics Roundtable***

Within the Canadian geomatics governance structure, the Canadian Geomatics Roundtable provides a forum for information and discussion exchange between all geomatics stakeholders across federal, provincial, and territorial governments, industry and academic sectors. It provides an informal mechanism for dialogue among stakeholders, as well as a means for stakeholders to provide advice and feedback on geospatial information management in Canada and key Canadian geomatics initiatives.

## Managing Geospatial Information in Canada

The Government of Canada recognizes the importance of SDI's in spurring innovation, supporting the digital economy, and facilitating decision-making by governments, industry and the public. In support of Government priorities, Canada has funded the GeoConnections program, a national initiative led by Natural Resources Canada, to support the integration and use of the Canadian Geospatial Data Infrastructure (CGDI).

The CGDI is an on-line resource that improves the sharing, access and use of Canadian geospatial information—information tied to geographic locations in Canada. It helps decision makers from all levels of government, the private sector, non-government organizations and academia make better decisions on social, economic and environmental priorities. The CGDI is based on a partnership model that comprises standards, tools, operational policies and accessible framework data layers.

The first phase of GeoConnections (2000-2005) succeeded in building the “supply” side of the CGDI. Key framework data layers, built to nationally agreed upon data standards and specifications were established, and best practices for a wide range of data licensing options were defined. Software tools and applications were developed to discover, access, analyze and disseminate geographic data via the Internet in a wide variety of ways.

GeoConnections' second phase (2005-2010) focused on developing the “demand” side of the CGDI by supporting projects to build capacity in user communities to access and use the CGDI to enhance decision-making in four areas: public health, public safety and security, environment and sustainable development, and in matters of importance to Aboriginal communities.

The third phase of the GeoConnections Program seeks to bring together the supply and demand sides of the CGDI through coordination of the Canadian geomatics community – both producers and users - in order to sustain the CGDI going forward.

GeoConnections' current objectives are:

- Increased awareness of the benefits of using geospatial data and tools to achieve goals for social, economic and environmental priorities;
- Facilitate the integration and use of geospatial data to support effective decision making;
- Coordinate the development of national policies, standards and mechanisms and support their implementation to ensure maintenance and updating of geospatial data and compatibility with global standards;
- Keep Canada at the leading edge of accessing, sharing and using geospatial information via the Internet.

In order to ensure long-term sustainability of the CGDI, as well as to position it for future growth and continued relevance, GeoConnections initiated the CGDI Performance Project that will provide an assessment framework to assess progress and performance of the CGDI. This includes updating the CGDI vision, mission and roadmap for a way forward that reflects current and projected requirements (i.e. technology, standards,

operational and strategic policy, data, and collaboration). This project will help ensure that the CGDI continues to effectively support economic, social and environmental priorities and decision-making now and into the future. The outputs will also help communicate what the CGDI is and its benefits.

Internationally, the CGDI has been recognized as providing a leading edge approach to sharing data amongst public and private sectors in a distributed system. The CGDI is based on a cooperative approach with other agencies and levels of government. It is a reflection of Canada's governance structure, where decision-making and the information needed to support it, is distributed across a federated structure. Collaboration between equal partners is central to our model of the CGDI, with GeoConnections serving as the hub for the infrastructure. The CGDI model also reflects two other important philosophies:

- Private industry is best suited to develop the components in a model partnership with governments; and
- A single 'backbone', namely the CGDI, properly constructed, can support many applications.

## ***Open Government and Open Data***

Further to SDI development and sustainability, the Government of Canada is currently implementing a blueprint for the future of open information sharing and citizen and stakeholder engagement known as Canada's Action Plan on Open Government. The Action Plan sets out our Open Government commitments to Canadians that we will achieve over the next three years. The expansion of Open Government is being pursued through these three main streams:

- *Open Data* offers Government data in a more useful format to enable citizens, the private sector and non-government organizations to leverage the data in innovative and value-added ways.
- *Open Information* proactively releases information, including on government activities, to Canadians on an ongoing basis. By proactively making government information available, it will be easier to find and more accessible for Canadians.
- *Open Dialogue* gives Canadians a stronger say in Government policies and priorities, and expands engagement through Web 2.0 technologies.

Open Data fosters innovation, job creation and improving community services for Canadians, and helping create new business or research opportunities. Open Data also allows citizens to access data (Open Data Portal) to learn about and participate in the Government. The Open Data Portal seeks to improve the ability of the public to find, download and use Government of Canada data. Canada is an international leader in Open Data initiatives where the Portal comprises more than 260,000 geospatial datasets (as of May 29, 2012).

## **Canadian Initiatives**

A number of initiatives are being championed by the Canadian geomatics governance committees that support the continued evolution of geomatics and geospatial information management in Canada. These initiatives include:

### ***Evolution of GeoBase (GeoBase 2.0)***

GeoBase enables the provision of, and access to, common, up-to-date and maintained quality base geospatial data for all of Canada. Through the GeoBase portal, users have access to quality geospatial information at no cost and unrestricted use. The GeoBase 2.0 initiative aims to develop new strategies and approaches of collecting and managing topographic data and build a data repository that will enable the CGDI to continue providing high quality demand-driven geospatial information on the internet.

A Canadian Geomatics Roundtable Working Group report tabling recommendations for building GeoBase 2.0 was completed in 2012. This initiative explores issues pertinent to the evolution of GeoBase and includes considerations on: data content and maintenance; licensing and access; standardization and interoperability; roles of contributing organizations; funding; data provision and services; and data quality, validation and liability.

### ***Renewed National Digital Elevation Model***

In response to user needs and the increasing availability of new data sources, a project to define and implement an altimetry strategy that enables the the provision of up-to-date relevant elevation data for Canada on the internet has been undertaken. The goal of this project is to rebuild the national digital elevation model so that it is open, flexible and variable with respect to: coverage, resolutions, formats, projections, and direct access. The end result will provide users with better data as well as customized products and services via the CGDI.

### ***Canadian Arctic SDI***

Preliminary analysis of Government of Canada priorities related to economic development, environmental protection and safety, security and sovereignty, identify the need for authoritative scientific and landmass knowledge of Canada's Arctic region. Canada's Northern Strategy states that, "science and technology form an important foundation for Canada's Northern Strategy priorities and provide the knowledge necessary for sound policy and decision-making."

As such, the Government of Canada and key stakeholders will grow the CGDI in the Arctic; a 'Canadian Arctic SDI' will cover the entire terrestrial and marine extents of the landmass, and complement efforts, formally supported by the Arctic Council, to plan and establish an international Arctic SDI spanning the entire circumpolar region. In this context, the Canadian Arctic SDI initiative will help provide analysis, assessment and



recommendations to inform a strategic plan and roadmap for the development of Canada's Arctic spatial data infrastructure (SDI) and a marine cadastre.

The analysis and assessment will build on and bring together existing information on Arctic-related activities. This initiative will assist in identifying priorities, requirements, gaps and actions required to develop the Canadian Geospatial Data Infrastructure (CGDI) to meet the needs of Arctic stakeholders and promote the integration of geospatial data in decision-making. It will also provide a base upon which Canada's contribution to the international Arctic SDI initiative under the Arctic Council can be enhanced.

### ***Canadian Geomatics Sector Scan and Economic Value Study***

A strong performing geomatics sector is critical to Canada's economy and international competitiveness. What was once a relatively narrow and well defined field, focused on land and resource development, now permeates almost every facet of Canadian Society. It is critical to fully understand today's Canadian geomatics sector and its contribution to the Canadian economy to better inform future directions and activities.

The goal of the Canadian Geomatics Sector Scan is to provide a relevant 'snap-shot' of existing capacity, emerging trends and service delivery constructs, as well as future potential for the geomatics sector in Canada. The goals for the Economic Value Study are threefold. First, the study will determine the economic value (impact) of the geospatial information on the broader Canadian economy for the year 2011. Second, the economic value of open spatial information and its contribution to competitiveness and innovation will be determined. Finally, the study will examine, explore and evaluate, in the Canadian context, geomatics (provision of data and services) as a "Public Good".

The Canadian Geomatics Scan and Economic Study will provide:

- a complete and coherent understanding of the state of the geomatics sector in Canada;
- an understanding of the significance and value of the geomatics sector and location-based information (geospatial data) to the Canadian economy;
- an overview of emerging trends and opportunities for the Canadian geomatics sector;
- a better definition of the future roles of government, industry and academia in support of a high performing geomatics sector;
- a better understanding of the contribution of the geomatics sector and geospatial information to the Canadian economy.

### **International Engagement**

Canada is recognized as a world leader in geomatics and an influential partner in international development. Canada is working to connect databases and optimizing the use of geospatial data for more effective decision-making and to lead strategic geomatics policy development.

Canada is collaborating with international organizations such as United Nations Initiative on Global Geospatial Information Management (UN-GGIM), Permanent Committee on Spatial Data Infrastructure for Americas (PC-IDEA), Global Spatial Data Infrastructure Association (GSDI), Global Earth Observation System of Systems (GEOSS), International Organization for Standardization (ISO) and Open Geospatial Consortium (OGC), and other international partners to ensure the CGDI remains interoperable with other SDIs initiatives, to facilitate the sharing of data in support of trans-jurisdictional policy challenges and public good.

## **A Way Forward**

In moving forward the use of geospatial information needs to be further maximized for better decision-making in support of broad national and international objectives such as economic growth, emergency preparedness & response, social cohesion & well-being, and environmental management. Canadian geomatics will continue its evolution based on the intertwining of policies, standards, legal and administrative issues and attempt as a government to respond to changes in these environments that are brought on by changes in technology. The Government of Canada will continue to support Canadian geomatics initiatives and international collaboration to ensure effective management of Canadian geospatial information in an interoperable environment aligned with international standards and policies.

## Links

Canada's Action Plan on Open Government: <http://www.open.gc.ca/open-ouvert/ap-patb-eng.asp>

Canada - Open Government: <http://www.open.gc.ca/open-ouvert/aop-apgo-eng.asp>

Canada - Open Government - Open Data Stream: <http://www.open.gc.ca/open-ouvert/data-donnees-eng.asp>

Canada - Open Data Portal: <http://www.data.gc.ca/default.asp?lang=En&n=F9B7A1E3-1>

Canadian Council on Geomatics: <http://www.ccog-cocg.ca/>

GeoConnections: <http://geoconnections.nrcan.gc.ca/>

GeoBase: <http://www.geobase.ca/geobase/en/index.html>

Treasury Board of Canada Secretariat – Standard on Geospatial Data: <http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?section=text&id=16553>