ENVIRONICS RESEARCH GROUP

FINAL REPORT

Survey of Geographic Information Decision-makers

Prepared for:
GeoConnections
Natural Resources Canada

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ENVIRONICS
RESEARCH GROUP

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INTRODUCTION

Background. Geospatial information plays an important role in the everyday lives of Canadians. Every time someone watches a weather forecast on TV, uses a road map or phones 911, geospatial data are being used. Geospatial information provides characteristics (e.g. buildings, roads, demographics, water, soil, weather, topography, wildlife habitat, etc.) regarding a geographic location (on, under or over land or water), and varying in scale from local to global. With the advance of digital technology, geospatial information is becoming more common through use of global positioning systems (GPS), geographic information systems (GIS), and remote sensing (satellite and aerial imagery).

Exponential growth in the geomatics field during the last 20 years has led to growing requirements for better means to access and share these data. In 1999, the federal government invested $60 million in a national partnership initiative to improve our collective ability to share and apply geospatial information through the Internet. This initiative, known as GeoConnections, was led by Natural Resources Canada and was mandated to develop a Canadian Geospatial Data Infrastructure (CGDI). The CGDI was designed to facilitate the discovery, sharing and use of Canadian geospatial information and services. It is leading to various innovations and unforeseen applications that have increasing social and economic value.

The 2005 Federal Budget provided a renewed mandate for GeoConnections, with a focus on four identified priority areas of public health; public safety/security; sustainable development and the environment; and matters of importance to Aboriginal Peoples. The focus of the renewed GeoConnections will be operating and evolving the CGDI to respond to the needs of the above communities by providing them access to required geospatial data; maintaining, operating and expanding the technological standards and infrastructure required; and supporting consistent geomatics policy development federally, nationally and locally, to reduce duplication and improve use of geospatial information via the CGDI.

A key ingredient of GeoConnections is leveraging participation among governments, Aboriginal communities, the private sector, academia and non-government organizations. To ensure a user-driven approach, GeoConnections has an established governance mechanism (involving Thematic Advisory Committees) that allows for users in priority areas to communicate their needs for the CGDI to the respective Implementation Teams.

An important requirement of this approach is to collect information directly from current and potential end-users of CGDI, to fully understand their current requirements and priorities with respect to geospatial information. To address this requirement, Natural Resources Canada competitively commissioned Environics Research Group to complete an in-depth user needs assessment study at a national level. The results of this study will be used by GeoConnections to translate the general goals of the program into the specific functions, services, data sets and technologies that are required. These findings will be used to plan program activities such as Announcements of Opportunity and Requests for Proposals and will help to determine the most effective use of resources. The research will help to determine the types of projects that are funded and the exact deliverables that will be required.

Research objectives. The overall objective of this study was to collect information on key business requirements from current and potential users of the CGDI, from across the country and within each of the four thematic areas (public health; public safety/security; sustainable development and the environment and matters of importance to Aboriginal Peoples), with specific reference to identifying:

- The types of data, services and service delivery vehicles that would make CGDI the "service of choice" for users;

- Which data themes, attributes, resolution and coverage are required or desired within users/potential users in each thematic area;

- The technological, policy, financial, human resource and other constraints currently limiting use of geospatial information generally, and CGDI in particular; and

- Common issues regarding policy, data and technology that affect the thematic areas.

The study was conducted in two phases: i) initial qualitative research; followed by ii) a more extensive survey of CGDI users and potential users across the country.

Phase 1 – Qualitative Research (Focus Groups). The first phase consisted of qualitative research to provide for in-depth probing and analysis of the experiences and requirements of both CGDI users and non-users drawn from the four thematic areas. A series of 13 focus groups was conducted in Ottawa, Vancouver, Winnipeg, Quebec City, Iqualuit, Yellowknife and Halifax between October 19 and November 4, 2005. These sessions allowed for an exploration of the needs, barriers and issues of users and potential users regarding geospatial information and reactions to the CGDI. The findings of this phase of the research were presented in a separate report which is available under separate cover.

Phase 2 – Quantitative Research (National Survey). The second phase built on the Phase 1 results, in terms of expanding the scope of information collected, and generating quantifiable data that can be extrapolated to the full population of CGDI users and potential users across the four thematic areas, across the country. It was determined in the design stage that the use of a unique "phone-mail-phone" methodology was the best way to get the required level of detail from this specific population.

The initial stage (conducted by telephone), the recruitment stage, conducted between March 17 and July 27, 2006, identified the correct respondent within an organization, confirmed the use of geographic information in one of the four thematic areas (environment and sustainable development; Aboriginal matters; public safety/security and public health), sought participation in the study (in the official language of choice) and made appointments to call respondents back for survey results, at a time convenient to the respondent (see Appendix A for the recruitment screener).

Those who qualified and agreed to participate were sent an information package including a GeoConnections brochure, a letter explaining the purpose of the survey (Appendix B) and a self-completion version of the survey (Appendix C).

In the second stage, respondents received the survey questions and were asked to complete the survey in advance of the interview. This was required due to the nature and complexity of information sought. Receiving the information in advance also meant that the decision-makers identified would have an opportunity to consult others in their organization as needed for any questions requiring more technical knowledge.

The third stage, the interview itself, conducted between March 22 and August 4, 2006, collected the information from the survey questions by telephone and provided an opportunity for both confirmation and elaboration of responses as needed.

The margin of sampling error for a sample of this size is plus or minus 5.8 percentage points at the 95% confidence level. A more detailed description of the methodology used to conduct this study is provided at the back of this report.

This report begins with an executive summary outlining key findings and conclusions, followed by a detailed analysis of the survey data. All results are expressed as a percentage, unless otherwise noted. The symbol "n" is used in tables and graphs to indicate the actual number of respondents who answered a question, if it was asked of only a subset of the population and does not represent the total sample/number of respondents. Question numbers from the survey are referenced in square brackets.

Executive Summary

Conclusions

The findings from this research indicate that GeoConnections has successfully laid much of the required groundwork in the promotion of the CGDI as a geospatial information hub for organizations operating in the four theme areas. Many decision-makers in the four themes were aware of GeoConnections prior to being involved in the survey, and there is a wide range of areas where they see the CGDI being applicable for their organization. However, there is an ongoing need to promote the CGDI to organizations in these areas, as well as the need for continuing education efforts among decision-makers regarding the potential of the CGDI to have a positive impact on their organizations.

Decision-makers see metadata issues as less salient than do their technical experts, so additional education about the importance of metadata and technical standards may reap future rewards in terms of improved quality and completeness of data, the aspects most influencing confidence.

Expanded awareness and use of the CGDI should lead both to increased opportunities for the sharing of sources of geographic information. The CGDI is uniquely positioned to continue its leadership role in the promotion of guidelines and standards for the presentation and sharing of geographic information.

Because the target population uses a wide range of data types and categories, GeoConnections should focus its resources on the kinds of data used by more than one theme, such as aerial photography and road networks data, on a local or regional scale. That being said, each theme has identified its theme-specific data of importance, access to which should be facilitated via the CGDI. The Public Health theme stands out due to the nature of the sector and its heavy reliance on socioeconomic data.

Cost continues to be the most frequently cited barrier to the access and use of geospatial information, with human resource limitations also being a notable impediment, especially for those involved in matters of importance to Aboriginal Peoples. The target population looks to GeoConnections to address such barriers as a major part of its future efforts, in addition to improving content available through the CGDI.

Moving forward, GeoConnections should continue to make efforts to capture information about organizations requesting information about geospatial information access via the CGDI website and Discovery Portal. When contact with these organizations is made, permission could be sought to include them in future research to improve the CGDI. In this way a better contact database can be established, and reliable estimates regarding the make-up of the actual target population of geospatial information users may be developed.

GeoConnections may also wish to review the organization of its web sites to ensure that users can easily locate information, and that movement between the program site and the Discovery Portal is facilitated. Currently, there is no easily found link to the Discovery Portal from the main GeoConnections/CGDI site, which may in part explain why half of decision-makers have visited the GeoConnections site but only a third are aware of the Discovery Portal. The theme-based presentation of information on the CGDI site may not necessarily be the most effective arrangement from a user perspective, given that many organizations encompass two or more areas. Relatively basic issues (such as the URLs of the sites not matching the names given to them) may pose small barriers to easily locating and remembering the sites.

The following paragraphs are capsules on the four theme areas:

Environment & Sustainable Development

This theme comprises the largest population of users and their use of geospatial information is well established. Their data use is diverse: although the most common category of data is Land, they also use imagery, water, resources and infrastructure data. Their geographic information needs are frequently being met; GeoConnections' role may be one of "staying the course" with this population. Top kinds of geographic information for environmental organizations in the next five years include (in order of importance): watershed data; aerial photography; satellite imagery; land use and land cover.

Aboriginal Matters

A notable proportion of users in this theme are also involved in Environment and Sustainable Development and thus share many of the information needs of that theme, such as land and resources data. Organizations in this theme have more financial and human resource challenges in the use of geospatial information than might those in other areas. GeoConnections can play a role in helping to mitigate these issues. Top kinds of geographic information related to Aboriginal matters in the next five years include (in order of importance): land use; traditional knowledge; watershed data; satellite imagery; forest inventory and public water supply.

Public Safety/Security

Due to the nature of the organizations in this theme, their focus may not necessarily be on geospatial information collection and use per se, but they do have a significant requirement for information relating to infrastructure and resources data. Also due to the demands of their work, they have the greatest need for frequently updated information of all the themes. Top kinds of geographic information for public safety/security organizations in the next five years include (in order of importance): road networks; aerial photography; satellite imagery; street addresses; watershed data and emergency management/operations centres.

Public Health

The organizations in this theme place the lowest priority on geospatial information; it is simply one of a number of tools required for their successful operation. This theme is focused on socio-economic and infrastructure data. There is a special need to consider the resources needed to meet the unique requirements of health organizations. Top kinds of geographic information for public health organizations in the next five years (in order of importance): census data; population health indicators; emergency management/operations centres; health services delivery and reported disease incidences.

Key Findings (across all themes)

The following presents key findings drawn from this study.

Organizational use of geospatial information

- The vast majority of organizations gather or use geographic information as part of their operations; geospatial data is part of the day-to-day functions of seven in ten organizations and six in ten have a dedicated geomatics section or team.
- The average organization spends about 9 hours of staff time per week searching for geospatial information and about 27 hours per week using it.
- On average, organizations devote 29 percent of their annual operating budget to geomatics activities.
- Six in ten organizations say their specific group or division has an operating budget of under $1 million.
- Nine in ten organizations identify themselves as a geographic information *end-user*; four in ten are geographic information *suppliers*; three in ten are *application developers*, and one in ten are *application marketers*.
- Eight in ten organizations indicate geospatial information is either critically or very important to them currently, and a similar proportion expects its importance to increase in the next five years.

Kinds and importance of geospatial information

- The kinds of geographic information currently in use are to a large extent dependent on theme area and organizational focus. However, some data are common to many themes, such as aerial photography, road networks, cadastral/land parcels, digital elevation models/topography (relief), satellite imagery, and administrative boundaries.[1] Similar types of data are also expected to be of importance in the next five years.
- Organizations in the four theme areas use a broad spectrum of geospatial information, with considerable overlap. However, the Public Health theme focuses on socio-economic information.
- Lack of awareness and access is the main reason for not using most currently desired types of geospatial information; however, cost is the main barrier for those not currently using imagery-based data (aerial photography, light distance and ranging (LIDAR) or satellite imagery).
- Most indicate that the geospatial information they need is predominantly local or regional in scope.
- Imagery data (satellite, aerial photography and LIDAR) are among the types of data not currently being used although organizations express the most interest in this data content. Accessibility and cost are the major reasons why organizations are not using desired types of geographic data.
- Only two in ten organizations require data to be updated daily or more frequently. A greater need for frequently updated information is expressed by organizations in the Public Safety and Security theme.
- Few organizations say all their needed base data are available in a dependable, standardized way.
- Base data sets (frameworks) that would make the biggest difference to their organizations should they be made available at no cost include aerial photography, satellite imagery, digital elevation models, watershed data, road networks and cadastral/land data.
- Half of current users report that geospatial information is of critical importance to their operating unit or group currently; even more (six in ten) believe geospatial information will become significantly more important in the next five years.

- Organizations in the four theme areas expect to continue using as broad a spectrum of geospatial information in the near future as they are using now.

Sources of geospatial information

- Provincial/territorial governments, the federal government and internal collection are the most mentioned sources for obtaining geospatial information.
- Quality of data is the highest rated factor influencing confidence in geospatial information, followed closely by the data's completeness, who collected it (the source) and how the data were collected. Metadata issues are not generally rated as highly, although metadata describes such information.

Formats of geospatial information

- Three-quarters of current geospatial data is available electronically. Aboriginal Matters organizations are the most likely to report use of information in hard copy format and Public Health organizations are the most likely to report their data as available in soft copy. However, the format of geographic information used in the four themes runs the gamut from still predominantly paper to fully digital.

Sharing of geospatial information

- Eight in ten organizations in the four theme areas report sharing geospatial information either internally or externally. Most sharing organizations indicate that sharing is part of their mandate or that they share for the public good, and half share on a reciprocal basis. Few report sharing geographic information for cost recovery or profit.
- The types of geospatial information shared echo the types currently in use, and sharing is most likely to occur on an internal basis, or with regional or provincial governments. Half also share with federal government departments and with non-government, non-profit organizations.
- Those who do not share geospatial information cite privacy/confidentiality issues or licensing and ownership barriers.

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1   These are not cited in order of importance.

- Cost and privacy/confidentiality barriers are noted by those who do share as the most important barriers to remove to facilitate sharing.
- Road networks, aerial photography, land use, administrative boundaries and watershed data are the most likely types of geospatial information to be shared.
- While three-quarters of organizations report sharing geospatial data via e-mail or storage devices, two-thirds still share some information in hard copy format. Fewer take advantage of the Internet as a method of sharing data. One one-third indicate using web services (WMS, WFS).
- The most frequently used technical standards or specifications for data sharing are FGDC, OCG and ISO, but many data sharers use no standards.

Barriers to access and use of geospatial information

- By far the most commonly mentioned top-of-mind barrier to **accessing** geospatial data is cost, followed by availability/accessibility and data quality. Privacy and confidentiality issues are a major access barrier for a higher proportion of those in Public Health.
- Cost is also the most mentioned top-of-mind barrier to the **use** of geospatial data, followed by staffing, availability/accessing and data quality. The majority of organizations rate financial constraints and the cost of data as being a very serious barrier; human resource limitations are very serious for more of those involved with Aboriginal matters.
- Decision-makers are most apt to mention data accuracy or currency as top-of-mind issues affecting their trust of data or sources.

On-line geospatial information and tools

- Over half of the decision-makers in the four theme areas say they use on-line geographic information and tools or portals at least weekly or several times a month; a quarter report using these on a daily basis.
- Half say they were at least somewhat familiar with GeoConnections and the CGDI prior to the survey. Half report having visited the GeoConnections website, usually to learn more about the program. (Previous familiarity is highest among those in the Environmental and Sustainable Development theme.) The majority of site visitors found most or all of what they went there to find, although some noted that locating geospatial data was challenging.
- Only a third report being aware of the Discovery Portal, suggesting that additional promotion of this resource is needed to attract potential users.
- The ways in which GeoConnections is seen to be a fit to organizations are theme-specific, but three-quarters report some fit in the environment or resource management area.
- The GeoConnections website and an electronic newsletter are perceived as the best way for GeoConnections to disseminate further information about the CGDI.
- Users most look to GeoConnections to address barriers to the access and use of geospatial information (such as policy, data sharing or licensing issues), improving content (thematic data) available through the CGDI, addressing cost issues as well as providing more training or workshops.

DETAILED FINDINGS

ORGANIZATION PROFILE

This initial section presents a profile of organizations using geospatial information in the four theme areas.

Communities of practice

Organizations were asked to identify which of the four themes is their primary area.[2] However, many chose to self-identify into more than one theme, particularly between Environment and Sustainable Development and Aboriginal Matters, and between Public Safety and Security and Public Health. Close to six in ten (57%) of all organizations in the survey indicate they are involved to some extent with Environment and Sustainable Development, a fact which is reflected in responses to a number of questions including the types of geospatial information currently used and desired for the future. The following table shows where there is overlap across the four theme areas.

Theme overlap
By theme 2006

		MAIN THEME AREA IDENTIFIED			
ALL THEME AREAS IDENTIFIED AS APPLICABLE	TOTAL %	ENVIRONMENT & SUSTAINABLE DEVELOPMENT %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
E&SD	**57**	100	51	29	22
Aboriginal Matters	**37**	25	100	14	14
Public Safety	**40**	20	16	100	27
Public Health	**32**	13	18	24	100

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2   Organizations were asked to provide responses on behalf of their specific operating unit for which they are personally responsible (an operating unit was defined as the branch, program, division, section or group that the respondent is responsible for and for which there is a budget).

Organization type

A majority (64%) of responding organizations are government departments or agencies, reflecting the fact that three of the four themes (public safety and security, public health, Aboriginal matters) are largely the responsibility of the public sector. Government organizations identified as being provincial or territorial (19%); regional or municipal (17%); federal (15%) or as a First Nations, Métis or Inuit regional or local government (13%). Two in ten organizations are in the not-for-profit sector, either an Aboriginal (7%) or non-Aboriginal (13%) association or non-government organization (one organization indicated theirs fit both categories). One in ten are private sector companies (9% non-Aboriginal; 1% Aboriginal), and five percent are academic institutions. The table below indicates organization type by theme.

Organization type
By theme 2006

	Total %	Environment & Sustainable Development %	Aboriginal Matters %	Public Safety %	Public Health %
Government	**64**	50	64	79	71
Provincial/territorial	19	18	6	27	29
Regional/municipal	17	10	3	31	29
Federal	15	18	6	19	14
Aboriginal	13	4	48	1	–
Not-for-profit	**21**	30	30	4	12
Non-Aboriginal	13	28	3	3	10
Aboriginal	7	1	27	1	2
Both	*	1	–	–	–
Private sector	**10**	16	6	11	2
Non-Aboriginal	**9**	15	3	11	2
Aboriginal	**1**	1	3	–	–
Academic institution	**5**	4	–	6	14

* Less than one percent

Area of focus

Decision-makers in the four theme areas were provided with a list of 42 potential areas of focus under seven major headings, and asked to indicate one which would be their *main* area of focus, and then in which *other* areas their group or operating unit is involved (see Questions 1 and 2 in the questionnaire in Appendix C for the full list of focus areas provided to respondents).
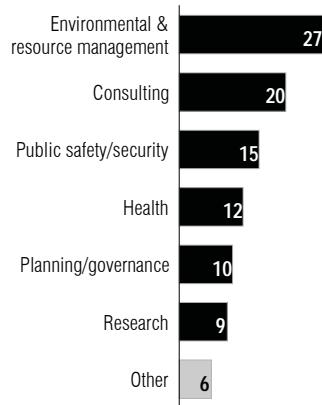
Main area of focus. A quarter of organizations (27%) give their primary area of focus as environment and resource management, followed by consulting (20%), public safety and security (15%) and health (12%). One in ten or fewer say their primary focus is in one of the other categories.[3]

As expected, areas of focus are strongly associated to the four themes, although there is overlap, as indicated in the table below.

The most-mentioned specific main areas of focus by theme are displayed graphically on the following page.

Main area of focus
All themes   2006

Area	%
Environmental & resource management	27
Consulting	20
Public safety/security	15
Health	12
Planning/governance	10
Research	9
Other	6

Main area of focus
By theme   2006

	E&SD %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
Environment & resource management	41	33	17	6
Consulting	30	21	16	4
Public safety/security	4	–	49	6
Health	–	2	1	65
Planning/governance	9	19	6	8
Research	12	6	7	8
Other	4	16	2	2

Q.1
What would you say is your group or operating unit's main area of focus …?

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3   The "Other" category includes traditional Aboriginal knowledge, traditional Aboriginal land use and occupancy, and a general "other" category.

SURVEY OF GEOGRAPHIC INFORMATION DECISION-MAKERS
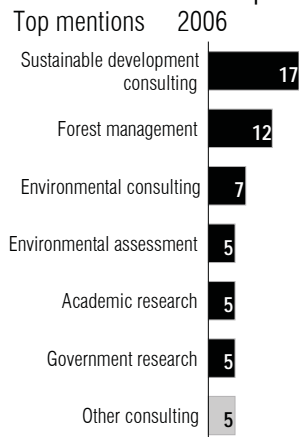**ENVIRONICS**

Over half of environment and sustainable development organizations report one of seven areas as their main area of focus, with "sustainable development consulting" and "forest management" noted as the top-mentioned areas.

Half of organizations involved in matters of importance to Aboriginal people report their main area of focus as one of the following seven, with "land use planning/management" being the most-mentioned focus area.
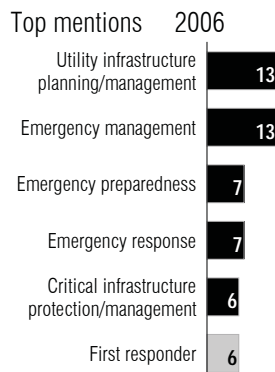
Half of public safety and security organizations report their main area of focus as one of the following six. The top two areas of focus are "utility infrastructure planning/management" and "emergency management."

Seven in ten public health organizations report their main area of focus as one of the following seven, with no predominating area; "population health analysis, "health care institution" and "disease surveillance" are the top mentions.

Main area of focus – Environment and Sustainable Development
Top mentions   2006

Sustainable development consulting	17
Forest management	12
Environmental consulting	7
Environmental assessment	5
Academic research	5
Government research	5
Other consulting	5

Main area of focus – Public Safety
Top mentions   2006

Utility infrastructure planning/management	13
Emergency management	13
Emergency preparedness	7
Emergency response	7
Critical infrastructure protection/management	6
First responder	6

Main area of focus – Aboriginal Matters
Top mentions   2006

Land use planning/management	18
Sustainable development consulting	10
Environmental consulting	8
Traditional Aboriginal land use/occupancy	8
Forest management	5
Community planning	5
Other areas	5

Main area of focus – Public Health
Top mentions   2006

|	
Population health analysis	14
Health care institution	12
Disease surveillance	12
Public health office	10
Health education/advocacy	8
Academic research	8
Other health	6

Q.1
What would you say is your group or operating unit's main area of focus …?

Other areas of focus. Recognizing that most organizations function in multiple areas, the survey also asked decision-makers to indicate their organizations' other areas of focus, in addition to the primary one identified. When asked to indicate other areas in which their organization operates (multiple mentions were allowed), two-thirds (66%) indicate some involvement in environmental and resource management, and almost half mention some aspect of public safety and security (46%) or research (45%). Close to four in ten do some form of consulting (39%) or planning and governance (38%), while three in ten (31%) encompass health. One in six (16%) mention some other area.

As could be expected, there is a connection of focus area to theme, but some organizations in each theme indicate involvement at some level in other general areas of focus.

Other areas of focus
All themes   2006
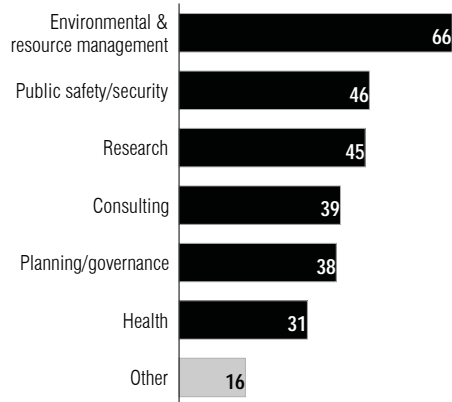
Note: does not add to 100% due to multiple mentions

Other areas of focus

By theme   2006

	E&SD %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
Environment & resource management	82	87	40	45
Public safety/security	28	38	81	43
Research	47	43	37	55
Consulting	50	60	21	12
Planning/governance	37	41	37	39
Health	16	30	29	65
Other	15	33	6	8

Note: does not add to 100% due to multiple mentions

Q.2
And what are your group's other areas of focus, if any …?

The most-mentioned specific other areas of focus are land use planning and management (cited by 32% across all themes); environmental assessment (27%); emergency preparedness (27%); government research (25%); and emergency response (24%). The top-mentioned areas are mentioned by significant proportions of respondents in at least two and sometimes in three of the theme areas. For example, "land use planning/management" and "environmental assessment" are top-rated focus areas for both Environment and Sustainable Development and Aboriginal Matters themes, and "emergency preparedness" is a focus for many in Public Safety/Security and Public Health. It can be expected that there would be notable areas of focus that go beyond themes, as many organizations mention involvement in more than one theme and also indicate they have multiple areas of focus. However, there are also important theme-specific areas of focus cited, particularly in the Public Health and Public Safety themes. The most frequently mentioned areas by theme are presented in the table below.

Other areas of focus
Top 10 mentions   By theme   2006   % reporting area as other focus

Environment & Sustainable Development		Public Safety	
Land use planning/mgmt	43	Emergency preparedness	54
Environmental assessment	32	Emergency response	47
Environmental monitoring	29	Critical infrastructure protection/management	41
Government research	28	Emergency co-ordination	40
Sustainable development/conservation consulting	26	Emergency management	36
Species management	25	First responder	36
Forest management	23	Security and intelligence	27
Freshwater management	23	Government research	27
Community research	19	Environmental assessment	20
Academic research	18	Policy development	17
Aboriginal Matters		**Public Health**	
Land use planning/mgmt	51	Disease surveillance	43
Forest management	43	Population health analysis	37
Environmental assessment	40	Emergency preparedness	37
Sustainable development/conservation consulting	38	Community research	33
Community research	33	Government research	29
Economic development	30	Health education and advocacy	29
Traditional Aboriginal knowledge	27	Academic research	27
Environmental monitoring	27	Emergency response	25
Utility infrastructure planning/management	27	Environmental monitoring	25
Traditional Aboriginal land use and occupancy	25	Health and safety co-ordination or management	25

Note: does not add to 100% due to multiple mentions

Q.2
And what are your group's other areas of focus, if any …?

Geomatics resources

Almost all organizations in the four theme areas gather or use geographic information of some type as part of their operations, with seven in ten reporting this as part of their day-to-day functions. Six in ten have a dedicated geomatics section or team.
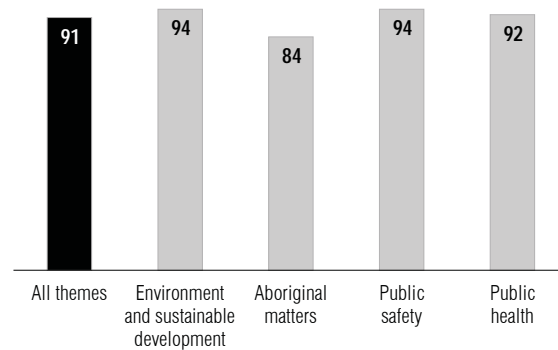
Gathering or using geographic information as part of operations. All decision-makers were asked if their specific operating unit gathers or uses geographic information as part of its operations. The vast majority (91%) say yes, while one in ten (9%) indicate they do not.

The organizations most likely to gather or use geographic information as part of their operations are those involved in environment/sustainable development, public health and public safety activities (93%, vs. 84% of Aboriginal Matters organizations). Also, organizations with higher annual operating budgets are more likely to gather or use such information.

Gathering geographic information as part of operations is most evident among organizations that use geospatial information daily (96% of daily users, vs. 81% of others), and among those who share geospatial information with others (95%, vs. 74% of those who do not share).

Operating unit gathers or uses geographic information
By theme   2006

| All themes	Environment and sustainable development	Aboriginal matters	Public safety	Public health
91	94	84	94	92

Q.4
Does your specific operating unit gather or use geographic information as part of its operations?

Geospatial data as part of day-to-day functions. Decision-makers from all organizations were asked if geospatial data is part of their specific operating group's day-to-day functions. A definition of geospatial data was provided in the questionnaire sent to participants.[4] A definition of geomatics was also provided.[5]

Seven in ten (69%) say geospatial information is part of their day-to-day functions, while the balance (31%) are not involved with this type of information on a daily basis. Organizations most likely to report geospatial information is part of their day-to-day operation are in the Environment and Sustainable Development (76%) and Public Safety/Security (71%) themes.

The types of organizations most likely to report day-to-day use of geospatial data are federal governments and private sector organizations. Daily use of geospatial data is most frequently cited by organizations that are suppliers, developers or marketers in addition to being end-users, and among those who share geospatial information with others. Day-to-day use increases along with increases in the percentage of budget devoted to geomatics.

Organization uses geospatial information in day-to-day functions
By theme   2006

All themes	Environment and sustainable development	Aboriginal matters	Public safety	Public health
69	76	62	71	63
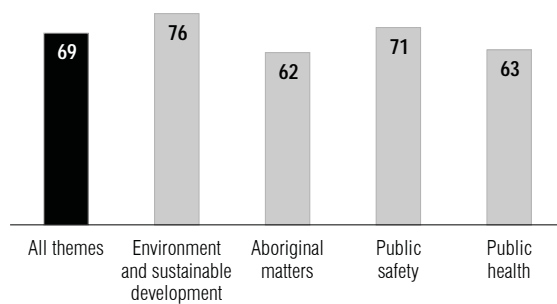
Organization uses geospatial information in day-to-day functions
By percentage of budget dedicated to geomatics
All themes   2006

Up to 10%	11 to 50%	51% plus
61	75	96
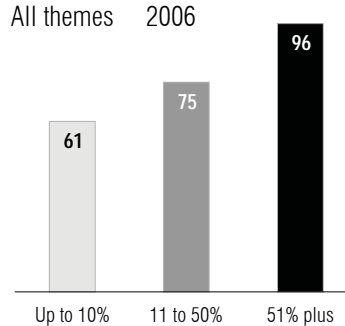
Q.7
Is geospatial data part of your specific operating unit or group's day-to-day functions?

4 *Definition:* Geospatial data is information that can be mapped or otherwise associated with a particular place, for example, the location of a river, crime statistics for a neighbourhood, or the spread of infectious diseases.
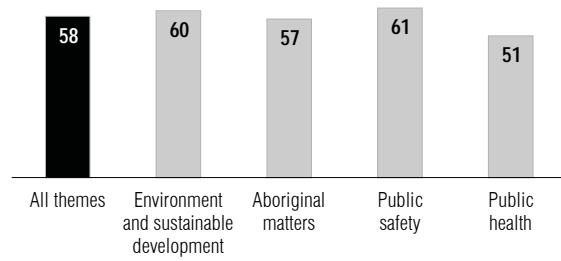5 *Definition:* Geomatics is the collecting, managing, analyzing and integrating of geospatial data. These activities and services enable Canadians to make better policy and business decisions. Geomatics can include remote sensing, GIS (geographic information systems), GPS (global positioning systems) and surveying.

Section or team dedicated to geomatics. Organizations that gather or use geographic information as part of their operations were asked if they have a section or team that is dedicated to geomatics. About six in ten (58%) say they have a dedicated geomatics team/section. Organizations in the Public Health theme are the least likely to have a geomatics team (51%).

As would be expected, having a dedicated geomatics team is most likely among organizations with higher proportions of their annual budget dedicated to geomatics (91% of those spending 51 percent or more of their budget on geomatics). As well, organizations that are application developers (86%) or marketers (83%) are very likely to have a dedicated geomatics team.

Having a dedicated geomatics unit is positively linked to daily use of geospatial information (72%, vs. 19% of those not using geospatial information every day); to sharing geographic information with others (59% vs. 49% who do not); and to having visited the Geo-Connections website (69%, vs. 44% who have not visited) or being aware of the Discovery Portal (72%, vs. 51%).

Organization has a geomatics section/team
By theme   2006

All themes	Environment and sustainable development	Aboriginal matters	Public safety	Public health
58	60	57	61	51

Q.6
Does your organization have a section or team that is dedicated to geomatics?
Subsample: Those who use geographic information as part of their operations (n=254)

Operating budget and percentage devoted to geomatics

Six in ten organizations say their specific group or division has an operating budget of under $1 million. The average allocation for geomatics is 29 percent of budget.

Decision-makers were all asked about the annual operating budget of their specific division or group and, in addition, those reporting the gathering or use of geospatial information as part of their operations were asked what proportion of their budget is devoted to geomatics. Response ranges were provided for both of these questions.

Approximate annual budget of operating unit, group or division. Six in ten (59%) organizations using geospatial information in one of the four theme areas report an annual operating budget of under $1 million for their specific operating unit, group or division, while over a third (36%) operate on $1 million or more. The organizations most likely to report high annual budgets are in the Public Safety/Security and Public Health themes.

Organizational budget
By theme   2006

	TOTAL %	E&SD %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
Up to $100K	**14**	14	18	16	10
$100K to under $1M	**45**	53	46	37	41
$1M and over	**36**	31	27	44	47
$1M to <$5M	23	23	24	27	18
$5M +	13	8	3	17	29
Refused/dk	**4**	2	10	3	2

Q.3
What is the approximate annual operating budget for your operating unit, group or division …?

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Percent of annual budget devoted to geomatics. Those indicating that their operating unit or group gathers or uses geographic information were asked what percentage of their operating budget is devoted to activities involving geomatics.

Half (48%) indicate that 10 percent or less of their budget is devoted to geomatics activities, a quarter (24%) have between 11 and 50 percent, and two in ten (22%) report having 51 percent or more of their budget for geomatics. The average is 29 percent.

Percentage of budget devoted to geomatics
By theme 2006

	TOTAL %	E&SD %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
Up to 10%	**48**	40	43	53	64
11% to 50%	**24**	32	34	12	13
11% to 30%	19	23	30	10	14
31% to 50%	5	9	4	3	0
51% and over	**22**	23	17	29	13
51% to 90%	12	14	10	12	4
91% to 100%	11	9	8	18	9
MEAN	**29.1**	31.8	26.0	33.7	19.9
dk	**6**	4	6	6	9

Q.5
What percentage of your operating unit's annual operating budget is devoted to activities involving geomatics?
Subsample: Those who use geographic information as part of their operations (n=254)

Organizations in the Public Safety/Security theme have the highest average percentage of their budget devoted to geomatics activities (34%) while those in Public Health, the theme with the highest annual budgets overall, have the lowest percentage devoted to geomatics (20%). Examining the pattern of organizations across all theme areas, those with the largest annual operating budgets ($1 million and over) devote an average of a quarter (26%) to geomatics, while the smaller organizations on average devote a third (33%).

There are differences by organizational type in the proportion of budget assigned to geomatics. The highest average proportions of budgets devoted to geomatics are reported by federal government departments/agencies and academic institutions.

Percentage of budget devoted to geomatics
By annual operating budget   2006

	<$100K %	$100K-<$1M %	$1M + %
Up to 10%	46	46	57
11% to 50%	30	29	14
51% and over	24	22	21
dk	–	3	7
MEAN	33.1	29.9	26.2

Percentage of budget devoted to geomatics
By organization type 2006

	FEDERAL GOVERNMENT %	PROVINCIAL/ TERR. GOV. %	MUNICIPAL/ REGIONAL GOV. %	NOT-FOR-PROFIT %	PRIVATE SECTOR %	ACADEM. %
Up to 10%	36	59	52	49	43	36
11% to 50%	18	10	28	30	32	29
51% and over	44	16	14	17	25	29
dk	3	14	6	4	–	7
MEAN	43.6	22.9	22.5	24.2	35.8	44.5

Q.5
What percentage of your operating unit's annual operating budget is devoted to activities involving geomatics?
Subsample: Those who use geographic information as part of their operations (n=254)

Involvement with geographic information

The majority of organizations are geographic information end-users.

Decision-makers were asked to indicate if they are a geographic information end-user, a supplier, an application developer or an application marketer. Respondents were allowed to select more than one option; definitions were provided.[6]

Almost all (90%) indicate they are end-users of geographic information. About half of this group (53%) are just end-users and the balance report at least one other function (supplier, application marketer or application developer). About four in ten (44%) of all organizations are suppliers of geographic information, one in three (31%) are application developers, and one in ten (9%) identify as application marketers. Seven percent of organizations say they perform all four functions.

The proportion of geographic information users is high across all theme areas, but there are some notable differences when it comes to the other levels of involvement. Those most likely to be an information supplier or an application marketer are in the Environment and Sustainable Development theme, while organizations involved in matters of importance to Aboriginal people are least likely to report any function other than information end-user.

The organizations most likely to report being either an information supplier or an application developer are federal government departments and organizations that devote 51% or more of the operating budget to geomatics.

Organization's involvement with geographic information
By theme   2006

	TOTAL %	E&SD %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
End user	**90**	89	92	89	94
Supplier	**44**	57	32	43	37
Application developer	**31**	38	14	39	31
Application marketer	**9**	16	3	9	4
dk	*****	–	2	–	–

* Less than one percent

Note: does not add to 100% due to multiple mentions

Q.8
Which of the following describes your specific operating unit, group or division …?

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6 ***Definition:*** Geographic information ***users*** rely on applications to produce outputs of geospatial information which they use to make decisions.
Definition: Geographic information ***suppliers*** provide geospatial data and web services.
Definition: Geographic information ***application developers*** create applications that make it easier for users to interact with geospatial data.
Definition: Geographic information ***application marketers*** sell and/or support geospatial applications, mostly to end-users. These applications are intended to meet a demand for geospatial information.

Staff involvement in geographic information

The average organizational unit devotes nine hours of staff time per week searching for geospatial information and 27 hours in using such information.

Organizations were asked approximately hour many hours in an average week their staff spends *searching* for geospatial information, and also how many hours are spent *using* geospatial information.
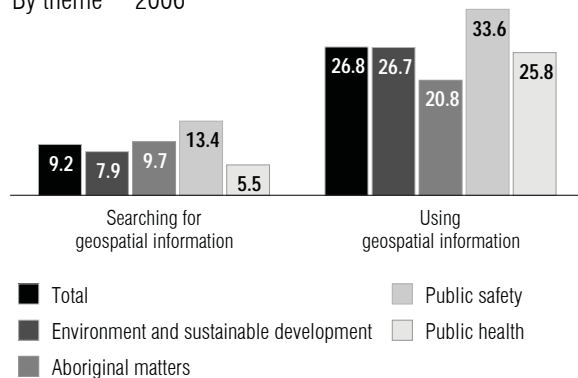
Organizations in the four theme areas devote an average of nine hours per week of staff time to searching for geospatial information, and 27 hours in using it. Public safety organizations report spending slightly more than the average amount of staff time in conducting both of these activities.

Three in ten (30%) organizations spend six or more hours in an average week just searching for geospatial information. A quarter (25%) report spending no more than an hour per week on searching, and a similar percentage (23%) spends two to three hours. Somewhat fewer (18%) spend four to five hours of staff time searching for geospatial information.
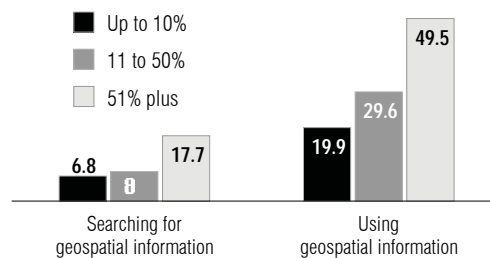
Over half (56%) of organizations spend less than 20 hours per week of staff time using geospatial information; three in ten (30%) use it for five hours or less. A quarter (26%) spend between 6 and 20 hours, and a similar proportion (24%) spend 21 to 40 hours on using this type of information. About one in seven (15%) organizations spent over 40 hours of staff time per week using geospatial information.

As can be expected, organizations devoting a higher proportion of their budget to geomatics report the most staff time spent both in searching for and in using geospatial information. Organizations using geospatial information daily also report more staff time spent than those using such information less frequently.

Average hours per week of staff time spent
By theme   2006

- Total
- Environment and sustainable development
- Aboriginal matters
- Public safety
- Public health

Average hours per week of staff time spent
By percent of budget devoted to geomatics   2006

- Up to 10%
- 11 to 50%
- 51% plus

Q.9
Approximately how many hours (in an average week) of staff time in your operating unit or group is spent searching for geospatial information?
Q.10
And approximately how many hours (in an average week) of staff time in your operating unit or group is spent using geospatial information?

Importance of geomatics to organization

Eight in ten organizations indicate geospatial information is either critically or very important to them currently, and a similar proportion expects its importance to increase in the next five years.

Respondents were asked how important geospatial information is to their operating unit or group currently, and whether or not they think it will increase in importance in the next five years.
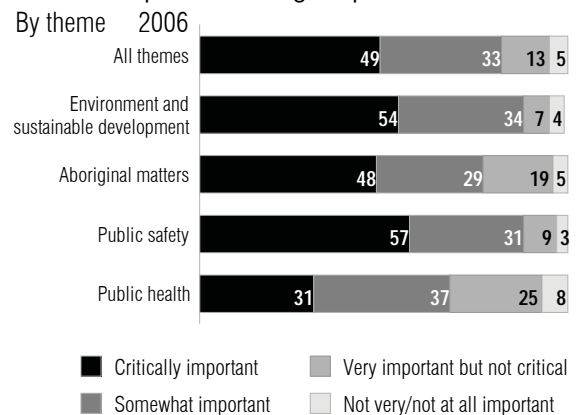
Current importance of geographic information. Eight in ten decision-makers in organizations using geospatial information in the four theme areas say such information is either critically (49%) or very (33%) important to them currently, and a further 13 percent say it is somewhat important.

Geospatial information is critically important for higher proportions of those in the Public Safety and Environment/Sustainable Development themes, and is least likely to be deemed critical by organizations in Public Health.

There are some differences in the perceived importance of geospatial information by type of organization. Geospatial information is of critical importance to higher proportions of academic, federal government and private sector organizations. Not-for-profit organizations are the most likely to say this type of information is very important but not critically so. Those least likely to say geospatial information is at least somewhat important are provincial or territorial governments.

There are also differences by the level of involvement the organization has with geospatial data. Those most likely to say this information is critical are application developers, marketers and suppliers. As well, it is of greater importance to organizations using it daily, and to those who share such information.

Current importance of geospatial information
By theme   2006

Theme	Critically important	Very important but not critical	Somewhat important	Not very/not at all important
All themes	49	33	13	5
Environment and sustainable development	54	34	7	4
Aboriginal matters	48	29	19	5
Public safety	57	31	9	3
Public health	31	37	25	8

■ Critically important　▨ Very important but not critical
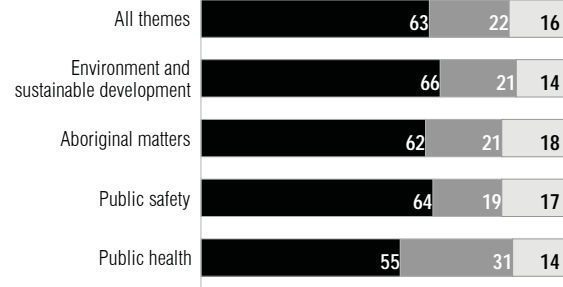▨ Somewhat important　□ Not very/not at all important

Q.11
How important is geospatial information to your operating unit or group currently?

Future importance of geographic information. The importance of geospatial information is only expected to increase in the near future. Over eight in ten decision-makers in the four theme areas say that in the next five years geospatial information will either be significantly (63%) or somewhat (22%) more important than it is now, while the balance (16%) indicate it will maintain its current level of importance.

Public health organizations are somewhat less likely than those in other theme areas to say that geospatial information will be significantly more important in five years. Similarly, federal government departments and not-for-profit organizations temper their estimation of the future importance of geospatial information, possibly because high proportions of these organizations already feel such information is critical.

Future importance of geospatial information
By theme   2006

Theme	Significantly more important	Somewhat more important	About the same level of importance
All themes	63	22	16
Environment and sustainable development	66	21	14
Aboriginal matters	62	21	18
Public safety	64	19	17
Public health	55	31	14

■ Significantly more important   □ About the same level of importance
■ Somewhat more important

Q.12
And do you think that, five years from now, geospatial information will be … than it is today?

Kinds of geospatial information

One objective of this study is to determine the kinds of geographic information currently being used by organizations in the four theme areas, and if they expect to be using these same kinds of data in the near future, or if other kinds are emerging as important. In addition, information was sought about what kinds of information may be missing, and the scale and currency of information usually required. The important aspect is what kinds of geospatial information are needed in common by all of the four theme areas. Participants were provided in advance with a list of over 80 kinds of geographic information to use as a reference while answering questions about types of data. The list appears as Appendix D to this report.

Kinds of geospatial information currently in use

Organizations in the four theme areas use a broad spectrum of geospatial information, with considerable overlap. However, Public Health organizations are more focused on the use of socioeconomic data.

Organizations in all theme areas were asked to review the list of kinds of geospatial data and to indicate up to ten types that they currently use. Most (61%) indicate 10 types; the average number of types provided is 8.6. The average organization currently uses data from 3.7 categories, an indication of the diversity of geographic information currently in use by organizations in the four communities of practice. As there is overlap in some of the kinds of geographic information listed, it is valuable to examine the data currently in use by category.[7]

Kinds of geospatial information currently used
By theme   2006

% MENTIONING	CATEGORY	E&SD %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
74	Infrastructure	65	62	90	86
69	Land	85	81	59	39
60	Socio-economic	47	62	59	88
56	Imagery	65	59	69	18
45	Water	66	35	39	29
42	Resources	65	60	11	16
23	Other (incl. weather/transportation)	25	10	31	25

Q.13
To complete this section of the survey, please refer to the Kinds of Geographic Information Worksheet from your survey package (yellow sheet). Which kinds of geospatial information does your operating unit or group currently use for decision-making? Please provide up to 10 in order of importance.

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7   To give examples, "Exploration activities" was listed separately from "Mineral potential"; "Groundwater data including aquifers" could be seen to overlap with "Watershed data"; "Government facilities" could conceivably include the separate codes "Port facilities," "Prisons," "Military bases/installations," etc. Respondents were limited to 10 kinds and thus might have chosen to use what they felt were more inclusive codes rather than specific ones. NB "Aerial photography" appeared twice on the original list (under "Imagery" and under "Land"); these responses were combined for analysis. The complete list as presented to the respondents appears in Appendix D.

The organizations most likely to use geographic information in the infrastructure category are in the Public Safety/Security and Public Health themes. Environment/Sustainable Development and Aboriginal Matters organizations are the most likely to use Land and Resources-related data. Socio-economic data are used by a high proportion of Public Health organizations.

The tables presented in this section show the specific kinds of geographic information mentioned by at least 20 percent of respondents in the appropriate group and a rating, a score out of ten, that is the average rating (placement) of those who mention that specific type of information.

Half (49%) of organizations across the four theme areas report at least some use of aerial photography, with an average importance rating of 6.8 out of 10. Road networks are a close second (45% mentioning, with an average score of 6.6). Three in ten report using administrative boundaries, land use data, and watershed data, albeit with somewhat lower average importance ratings. A quarter of respondents or fewer currently use other types of geographic information.

While some types of information cited as being in current use are theme-specific, it is useful when prioritizing to consider common areas across themes rather than areas of difference. At least 20 percent of organizations in all themes cite as one of their top ten types of geographic information either road networks or administrative boundaries, although the importance rankings for these vary by theme. All themes but Public Health use aerial photography, satellite imagery, cadastral/land parcel, toponymy or digital elevation models. Several other types of information are named by at least two of the themes. Public Health is the most focused of the four themes, tending to currently use predominantly socio-economic data.

Following are tables showing geographic information types cited by 20 percent or more per theme.

Kinds of geospatial information currently used
Kinds mentioned by 20% or more   All themes   2006

% Mentioning	Average Score (out of 10)	Kind of Geographic Information Used	Category
49	6.8	Aerial photography	Imagery
45	6.6	Road networks	Infrastructure
31	5.7	Administrative boundaries	Socio-economic
31	5.5	Land use	Land
29	4.8	Watershed data (including water bodies and drainage basins)	Water
26	5.8	Satellite imagery	Imagery
25	7.2	Cadastral/land parcel	Land
24	5.1	Protected areas/conservation areas (parks, wildlife areas, etc.)	Land
24	5.9	Digital elevation models (DEM)/topography	Land
22	6.0	Land cover	Land
21	7.0	Emergency management/operations centres, fire/EMS stations	Infrastructure
21	5.7	Street addresses	Socio-economic
21	6.8	Census data	Socio-economic
20	4.4	Toponymy (place names)	Land

Q.13
To complete this section of the survey, please refer to the Kinds of Geographic Information Worksheet from your survey package (yellow sheet). Which kinds of geospatial information does your operating unit or group currently use for decision-making? Please provide up to 10 in order of importance.

Aerial photography, watershed data, land use and cover, and road networks are the top-mentioned kinds of geographic information currently being used by organizations in the Environment and Sustainable development theme. This corresponds well to the findings of the Phase 1 qualitative research.

Kinds of geospatial information currently used – Environment and Sustainable Development
Kinds mentioned by 20% or more   2006

Kind of Geographic Information Used	Category	%	Score (out of 10)
Aerial photography	Imagery	53	6.9
Watershed data (including water bodies and drainage basins)	Water	47	5.2
Land use	Land	45	5.5
Land cover	Land	44	6.0
Road networks	Infrastructure	42	7.1
Satellite imagery	Imagery	37	6.1
Protected areas/conservation areas (parks, wildlife areas, etc.)	Land	35	4.9
Cadastral/land parcel	Land	31	7.0
Digital elevation models (DEM)/ topography	Land	30	6.3
Ecosystem data (ecozones, ecoregions, etc.)	Land	30	6.2
Forestry inventory/activities (e.g. cutblocks)	Resources	28	6.3
Soil types	Land	28	4.3
Wetland type and extent	Water	28	3.5
Administrative boundaries	Socio-economic	24	5.5
Toponymy (place names)	Land	23	3.7

Q.13
To complete this section of the survey, please refer to the Kinds of Geographic Information Worksheet from your survey package (yellow sheet). Which kinds of geospatial information does your operating unit or group currently use for decision-making? Please provide up to 10 in order of importance.

Organizations in the Aboriginal Matters themes indicate a wide variety of information currently in use, notably aerial photography and land use data. Other types mentioned by over a third include traditional knowledge, road network, protected areas and land claims. In the focus group sessions a similar wide-ranging variety of data types emerged, with information needs depending on the organization and its objectives and specific projects.

Kinds of geospatial information currently used – Aboriginal Matters
Kinds mentioned by 20% or more   2006

Kind of Geographic Information Used	Category	%	Score (out of 10)
Aerial photography	Imagery	51	6.2
Land use	Land	40	6.0
Traditional knowledge (e.g. forestry, plants, fishing, hunting)	Socio-economic	38	5.0
Road networks	Infrastructure	37	5.8
Protected areas/conservation areas (parks, wildlife areas, etc.)	Land	37	5.6
Land claims	Land	35	6.6
Cadastral/land parcel	Land	32	8.1
Satellite imagery	Imagery	27	4.9
Ecosystem data (ecozones, ecoregions, etc.)	Land	27	6.5
Forestry inventory/activities (e.g. cutblocks)	Resources	27	5.1
Reserves, First Nations	Socio-economic	25	5.7
Toponymy (place names)	Land	24	5.7
Legal survey	Land	24	5.4
Digital elevation models (DEM)/ topography	Land	21	5.7
Administrative boundaries	Socio-economic	21	6.5

Q.13
To complete this section of the survey, please refer to the Kinds of Geographic Information Worksheet from your survey package (yellow sheet). Which kinds of geospatial information does your operating unit or group currently use for decision-making? Please provide up to 10 in order of importance.

Public Safety/Security sector participants are very likely to mention using data in the infrastructure and socio-economic areas, noting that major types of information used currently are road networks and aerial photography. This corresponds to the findings of the qualitative research, in which participants mentioned such things as topographic data, search and rescue data, telecommunication lines (transmission systems), street signs (road networks and street addresses), etc.

Kinds of geospatial information currently used – Public Safety
Kinds mentioned by 20% or more   2006

Kind of Geographic Information Used	Category	%	Score (out of 10)
Road networks	Infrastructure	66	7.0
Aerial photography	Imagery	64	7.0
Street addresses	Socio-economic	34	5.8
Administrative boundaries	Socio-economic	33	5.0
Public water supply	Infrastructure	29	5.7
Railroad facilities/networks	Infrastructure	29	5.0
Watershed data (including water bodies and drainage basins)	Water	27	4.9
Transmission systems (power lines, telecommunications lines)	Infrastructure	27	5.1
Emergency mgmt./ ops. centres, Fire/EMS stations	Infrastructure	26	7.3
Satellite imagery	Imagery	23	6.4
Digital elevation models (DEM)/ topography	Land	23	5.4
Public venues (e.g. concert halls, community centres, arenas)	Infrastructure	21	6.0
Cadastral/land parcel	Land	20	6.3
Toponymy (place names)	Land	20	4.3

Q.13
To complete this section of the survey, please refer to the Kinds of Geographic Information Worksheet from your survey package (yellow sheet). Which kinds of geospatial information does your operating unit or group currently use for decision-making? Please provide up to 10 in order of importance.

The Public Health sector's focus is strongly on socio-economic data, notably census data; administrative boundaries; population health indicators; and postal codes, and two-thirds also use data on emergency management and operations centres, confirming the findings of the focus groups.

There are some regional differences in the use of geo-spatial data. Infrastructure data use is reported most by organizations in the Prairies; while water data use is highest in the Atlantic region. Almost all of the Northern organizations surveyed report the use of some type of land data.

Kinds of geospatial information currently used – Public Health
Kinds mentioned by 20% or more   2006

Kind of Geographic Information Used	Category	%	Score (out of 10)
Emergency management/ops. centres, Fire/EMS stations	Infrastructure	65	7.2
Census data	Socio-economic	63	7.0
Administrative boundaries	Socio-economic	55	6.1
Population health indicators	Socio-economic	55	7.2
Postal codes	Socio-economic	53	6.2
Street addresses	Socio-economic	43	5.0
Reported disease incidences	Socio-economic	43	6.5
Health service delivery	Socio-economic	43	7.2
Hospitals	Infrastructure	41	6.8
Road networks	Infrastructure	33	5.6
Reserves, First Nations	Socio-economic	25	4.4
Education facilities	Infrastructure	22	3.0
Treatment centres and clinics	Infrastructure	22	6.9

Q.13
To complete this section of the survey, please refer to the Kinds of Geographic Information Worksheet from your survey package (yellow sheet). Which kinds of geospatial information does your operating unit or group currently use for decision-making? Please provide up to 10 in order of importance.

Kinds of geospatial information used
Categories by region   2006

	BC (N=31) %	Prairies (N=35) %	Ontario (N=91) %	Quebec (N=69) %	Atlantic (N=35) %	North (N=17) %
Infrastructure	58	89	76	74	77	59
Land	58	74	62	77	69	94
Socio-economic	48	54	75	48	71	47
Imagery	48	71	51	61	46	71
Water	45	46	43	44	57	41
Resources	42	26	42	42	49	59
Other (weather, transport)	16	17	26	26	26	12

Q.13
To complete this section of the survey, please refer to the Kinds of Geographic Information Worksheet from your survey package (yellow sheet). Which kinds of geospatial information does your operating unit or group currently use for decision-making? Please provide up to 10 in order of importance.

As can be expected, current use of geospatial information also varies considerably by type of organization. The use of infrastructure data is most frequently reported by federal and municipal/regional governments. Socio-economic data are most likely to be used by municipal/regional governments, while land data use is highest among non-government organizations (private sector, not-for-profit and academics). Imagery use is most reported by private sector firms.

Kinds of geospatial information used
Top three mentions per category by organization type   2006

	FED. GOV'T (N=41) %	PROV. TERR. GOV'T (N=54) %	MUNICIPAL/ REG. GOV'T (N=83) %	NOT-FOR- PROFIT (N=57) %	PRIVATE SECTOR (N=28) %	ACADEM. (N=15) %
Infrastructure	**78**	**74**	**78**	**67**	**75**	**67**
Road networks	37	46	53	30	57	53
Emergency mgmt	15	28	29	16	11	13
Public water supply	5	13	37	14	7	–
Land	**66**	**57**	**66**	**79**	**86**	**73**
Land use	17	22	36	39	25	47
Cadastral/land parcel	12	26	31	26	25	13
Protected areas	24	17	23	35	25	13
Socio-economic	**51**	**54**	**72**	**61**	**46**	**67**
Administrative data	29	44	27	25	29	40
Street addresses	17	20	27	14	18	33
Census data	22	19	24	18	4	47
Imagery	**56**	**48**	**54**	**56**	**86**	**40**
Aerial photography	39	43	53	47	75	27
Satellite imagery	42	30	11	23	50	27
LIDAR	7	9	–	2	7	7
Water	**56**	**33**	**35**	**51**	**64**	**60**
Watershed data	32	24	24	30	43	33
Wetland type/extent	7	6	17	16	25	7
Coastlines	32	11	4	9	14	–
Resources	**49**	**26**	**37**	**60**	**43**	**33**
Forestry inventory/act	12	13	18	25	18	13
Species at risk/habitat	20	2	8	19	7	–
Fisheries	12	2	7	16	11	–
Other (weather, transport)	**39**	**17**	**18**	**21**	**14**	**53**
Meteorology/climate change data	17	6	5	7	7	27
Atmospheric data	10	6	–	4	4	40
Atmospheric quality	7	6	1	5	–	13

Q.13
To complete this section of the survey, please refer to the Kinds of Geographic Information Worksheet from your survey package (yellow sheet). Which kinds of geospatial information does your operating unit or group currently use for decision-making? Please provide up to 10 in order of importance.

Missing geospatial information and barriers

Imagery data (satellite, aerial photography and LI-DAR) are among the types of data not currently being used in which organizations express the most interest. Accessibility and cost are the major reasons why firms are not using any desired types of geographic data.

Missing geospatial information. Decision-makers were asked to list up to five kinds of geospatial information that their division or operating unit is not using now but would like to use. It should be noted there are no predominant types of geographic information that a majority of users are lacking. Instead, one in six (16%) say they would like to be using satellite imagery, and about one in seven (13%) mention LIDAR imagery. Around one in ten each mention: groundwater data; quality of freshwater; aerial photography; meteorology (including climate change data); digital elevation models; watershed data; soil quality (including con-

taminants); and species at risk critical habitats. Other types are mentioned by less than one in ten.

Just as the types of information currently being used vary by theme, so too do the types not used but wished for, although no one type of data predominates in any theme. However, there are also areas of overlap between the themes. Some organizations in all themes cite as a main type of geographic information not being used either satellite imagery or groundwater data, although the importance rankings for these vary by theme. All themes but Aboriginal Matters cite LIDAR, and there are organizations in all themes but Environment that are not currently but would like to be using data related to quality of freshwater (e.g. contaminants, pollutants). Several other types of information are named by at least two of the themes.

Missing geospatial information
Top 10 mentions   All themes   2006

%	AVERAGE SCORE (OUT OF 5)	INFORMATION	CATEGORY
16	3.5	Satellite imagery	Imagery
13	3.7	LIDAR (Light Distance And Ranging) imagery	Imagery
12	2.9	Groundwater data including aquifers	Water
12	3.0	Quality of freshwater (e.g. contaminants, pollutants)	Water
11	3.8	Aerial photography	Imagery
11	2.6	Meteorology, climate change weather data	Other (weather, transportation)
11	3.4	Digital elevation models (DEM)/ topography	Land
9	2.9	Watershed data (including water bodies and drainage basins)	Water
9	2.7	Soil quality including contaminants	Land
9	3.2	Species at risk critical habitat	Resources

Q.14
Which kinds of geospatial information, if any, would your operating unit or group like to use that it currently does not? Please provide up to five in order of importance.

About one in six Environment and Sustainable Development organizations would like to be using either LIDAR, satellite imagery or digital elevation models. Two in ten Aboriginal Matters organizations report lacking aerial photography, quality of freshwater data or traditional knowledge. Satellite imagery and LIDAR are each missed by two in ten Public Safety/Security firms, and two in ten Public Health organizations would like to be using groundwater data.

Missing geospatial information – Environmental & Sustainable Development
Top 10 mentions   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
LIDAR (Light Distance And Ranging) imagery	Imagery	18	3.6
Satellite imagery	Imagery	17	3.1
Digital elevation models (DEM)/ topography	Land	16	3.9
Species at risk critical habitat	Resources	15	3.0
Quality of freshwater (e.g. contaminants, pollutants)	Water	13	3.2
Groundwater data including aquifers	Water	12	3.1
Land use	Land	12	3.0
Wetland type and extent	Water	12	2.2
Aerial photography	Imagery	10	3.8
Invasive species	Resources	10	3.1

Q.14
Which kinds of geospatial information, if any, would your operating unit or group like to use that it currently does not? Please provide up to five in order of importance.

Missing geospatial information – Aboriginal Matters
Top 10 mentions   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Aerial photography	Imagery	22	4.1
Quality of freshwater (e.g. contaminants, pollutants)	Water	18	2.5
Traditional knowledge (e.g. forestry, plants, fishing, hunting)	Socio-economic	18	2.9
Satellite imagery	Imagery	16	4.2
Species at risk critical habitat	Resources	14	3.4
Groundwater data including aquifers	Water	13	2.2
Watershed data (including water bodies and drainage basins)	Water	11	2.4
Exploration activities (e.g. seismic, lines, well sites or mining)	Resources	11	2.3
Archeological site mapping	Socio-economic	11	3.0
Species range data	Resources	11	2.7

Missing geospatial information – Public Safety
Top 10 mentions   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Satellite imagery	Imagery	19	3.6
LIDAR (Light Distance And Ranging) imagery	Imagery	19	3.8
Meteorology, climate change weather data	Other (weather, transportation)	14	2.8
Hazardous materials facilities	Infrastructure	13	4.3
Digital elevation models (DEM)/ topography	Land	11	3.1
Transmission systems (power lines, telecommunications lines)	Infrastructure	11	3.4
Watershed data (including water bodies and drainage basins)	Water	10	3.0
Soil quality including contaminants	Land	10	2.9
Transportation behaviour (e.g. commuting patterns)	Other (weather, transportation)	9	2.5
Groundwater data including aquifers	Water	7	3.2

Q.14
Which kinds of geospatial information, if any, would your operating unit or group like to use that it currently does not? Please provide up to five in order of importance.

Missing geospatial information – Public Health
Top 10 mentions   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Groundwater data including aquifers	Water	20	3.0
Census data	Socio-economic	14	3.7
Well sites	Water	14	2.3
Meteorology, climate change weather data	Other (weather, transportation)	12	2.5
Quality of freshwater (e.g. contaminants, pollutants)	Water	12	3.5
Cadastral/land parcel	Land	12	4.7
Public water supply	Infrastructure	12	3.3
LIDAR (Light Distance And Ranging) imagery	Imagery	10	4.0
Land use	Land	10	4.0
Satellite imagery	Imagery	8	3.5

Why desired information is not currently used. Those indicating that there are kinds of geographic information they would like to be using were asked why they are not yet using this information. Multiple mentions were allowed. Reasons for not using specific types of information vary, but can be summarized by category. For all categories of data except for imagery, the most frequently cited reason is lack of availability or accessibility of the data. Cost is the major barrier to current use of imagery data (aerial photography, LIDAR and satellite imagery), with availability a close second. Lack of information and data quality issues are cited by somewhat fewer respondents as a bar to their current use of data. Following is a table summarizing reasons given for not using data in each of the categories.

Reasons for not using geospatial information
By category   2006

	INFRA-STRUCTURE (N=84) %	IMAGERY (N=88) %	LAND (N=111) %	RESOURCES (N=91) %	SOCIO-ECONOMIC (N=72) %	WATER (N=95) %	OTHER (INCL. WEATHER, TRANSPORT) (N=55) %
Lack of availability	67	59	66	71	58	62	67
Cost issues	39	65	48	35	33	36	35
Lack of information	24	18	17	19	18	26	24
Data quality issues	21	22	27	25	18	20	11
Lack of resources	18	15	18	18	25	16	24
No demand/low priority	13	13	14	19	15	12	13
Lack of time	10	3	5	1	10	4	9
Data do not exist	8	8	11	11	10	10	7
Licensing/privacy	7	7	6	3	14	4	7
GIS issues	7	–	6	2	6	4	6
Someone else does it	4	2	4	2	4	2	2
Standardization issues	–	3	4	1	–	4	2
Training issues	1	1	1	1	1	2	–
Other comments (<1% each)	25	19	17	18	15	13	16
dk/na	5	5	2	2	6	2	2

Q.15
Why are you not currently using this kind of information? Please refer to yellow worksheet – record codes.
Subsample: Those not currently using kinds of information in each category but would like to

Scale and currency of geospatial information

Most required data are local to regional in scope. Organizations focused on Public Safety/Security generally require their data to be more frequently updated than do those in other themes.

Scale of data. Decision-makers were asked to indicate what geographic coverage their operating unit or group usually requires, using a list (municipal, regional, provincial, national, international). Respondents could also indicate other scales, and more than one level could be cited, to accommodate the fact that different types of data are used.

The scale of geographic information usually required by organizations in the four theme areas is generally local to regional. Two-thirds (66%) indicate a requirement for data to be regional in scope, six in ten (60%) generally need municipal-level data, and half (54%)

use provincial or territorial data. Just over a quarter (27%) say they usually require national-level data, and just over one in ten (13%) use data on an international scale. There are some niche levels mentioned by those in certain theme areas, such as by ecozones, First Nations reserves or by health boards.

The organizations most likely to use municipal-level data are in the Public Health and Public Safety/Security themes. Organizations involved in Aboriginal Matters are less likely than other themes to report the use of national or international-level data.

There are, predictably, differences in required scale by type of organization. Those most likely to indicate a requirement for national or international data are federal government organizations and academic institutions.

Scale of geographic coverage usually required
By theme   2006

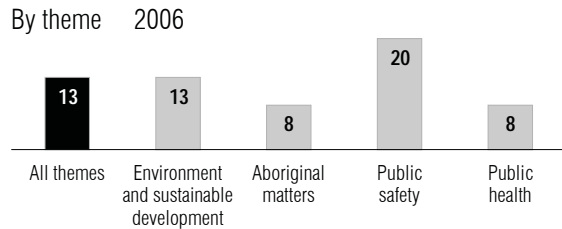|	ALL THEMES %	ENVIRONMENT & SUSTAINABLE DEVELOPMENT %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
Municipal	60	56	40	76	74
Regional	66	71	68	54	71
Provincial/territorial	54	57	40	51	69
National	27	32	14	23	39
International	13	14	8	13	18
Ecozones/watershed/marine/forest	3	6	2	–	4
First Nations reserves	3	1	13	–	–
Health board	1	–	–	–	4
Other	5	8	5	–	6

Q.19
What scale of geographic coverage does your operating unit or group usually require for geospatial data …?

Currency of data. Decision-makers were asked to indicate how current they normally require their top three kinds of geospatial information to be. Although geospatial information is quite important to the operations of most organizations in these theme areas, it does not necessarily follow that such information must be constantly updated to be useful. Two in ten organizations say they generally require their top three kinds of geospatial data to be updated daily or more often (e.g. in real-time), while three in ten require data to be updated every week to every quarter, and four in ten require only that their data be updated annually or less often. This varies by theme, however. Public Safety/Security organizations have considerably more need for frequently-updated data, notably real-time data.

Currency of geographic data usually required
By theme   2006

Theme	Daily or more often	Every week to every quarter	Annually or less often	Variable/dk
All themes	22	29	37	11
Environment and sustainable development	20	29	39	14
Aboriginal matters	14	30	41	15
Public safety	37	30	23	10
Public health	14	27	51	8

- ■ Daily or more often
- ■ Every week to every quarter
- Annually or less often
- Variable/dk

Need for real-time data
By theme   2006

All themes	Environment and sustainable development	Aboriginal matters	Public safety	Public health
13	13	8	20	8

Q.20
Thinking about the top three kinds of geospatial information you identified in question 13, how current do you generally require this geospatial information to be …?

Types of geographic information of future importance

Organizations in the four theme areas expect to continue using as broad a spectrum of geospatial information in the near future as they are using now.

Organizations were asked to review the list of kinds of geospatial data and to rank the top five types that they expect will be important to them five years from now. As there is overlap in some of the kinds of geographic information listed, it is valuable to examine this by category. About half identify kinds of information in the Land (54%) and Infrastructure (48%) categories as being of future importance; four in ten mention information types in the socio-economic (43%), imagery (38%) and water (37%) categories; and three in ten (32%) will find some kinds of resources information to be of importance. About one in six (18%) name some other type of data (including weather and transportation).

As is the case with current use of information, the organizations most likely to use information in the infrastructure category in the near future are in the Public Safety and Public Health themes, and socio-economic data will remain important to a high proportion of Public Health organizations. Land and Resources-related data will continue to be useful for those in the Environment/ Sustainable Development and Aboriginal Matters themes.

Of the individual types of geographic information mentioned as being important in the next five years, about a quarter of all respondents name aerial photography (25%) or watershed data (23%), and about two in ten name satellite imagery (21%), road networks (20%) or land use (18%).

Kinds of geospatial information important in five years
Categories by theme   2006

% MENTIONING	CATEGORY	ENVIRONMENT & SUSTAINABLE DEVELOPMENT %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
54	Land	70	67	37	29
48	Infrastructure	25	40	70	74
43	Socio-economic	25	51	37	76
38	Imagery	47	29	47	18
37	Water	54	30	30	22
32	Resources	48	52	10	8
18	Other (incl. Weather/Transportation)	19	11	26	16

Q.16
Please rank the top five types of information that will be important to your organization five years from now. Please refer to yellow worksheet – record codes from 1 to 5. If five types not important, rank top number available.

While some types of information cited as being of future importance are theme-specific, it is most useful when prioritizing to consider areas of overlap rather than areas of difference. At least 10 percent of organizations in all themes cite as one of their top five types the following: watershed data; road networks; aerial photography and cadastral/land parcel data, although the importance rankings for these vary by theme. All themes but Public Health mention satellite imagery as being important in the next five years, and three themes (other than Environment and Sustainable Development) cite a need for census data. Several other types of information are named by at least two of the themes.

Geographic information important in five years
Kinds mentioned by 10% or more   All themes   2006

%	AVERAGE SCORE (OUT OF 5)	INFORMATION	CATEGORY
25	3.4	Aerial photography	Imagery
23	2.6	Watershed data (including water bodies and drainage basins)	Water
21	3.3	Satellite imagery	Imagery
20	3.2	Road networks	Infrastructure
18	3.3	Land use	Land
16	3.5	Census data	Socio-economic
13	3.5	Cadastral/land parcel	Land
13	3.5	Emergency management/operations centres, Fire/EMS stations	Infrastructure
12	3.3	Population health indicators	Socio-economic
11	3.0	Public water supply	Infrastructure
11	3.1	Digital elevation models (DEM)/ topography	Land
10	3.5	Forestry inventory/activities (e.g. cutblocks)	Resources
10	3.0	Traditional knowledge (e.g. forestry, plants, fishing, hunting)	Socio-economic

Q.16
Please rank the top five types of information that will be important to your organization five years from now. Please refer to yellow worksheet – record codes from 1 to 5. If five types not important, rank top number available.

Geographic information important in five years – Environment and Sustainable Development
Kinds mentioned by 10% or more   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Watershed data (including water bodies/drainage basins)	Water	38	2.5
Aerial photography	Imagery	32	3.7
Satellite imagery	Imagery	28	3.1
Land use	Land	24	3.0
Land cover	Land	20	3.3
Cadastral/land parcel	Land	16	3.4
Digital elevation models (DEM)/ topography	Land	16	3.1
Forestry inventory/activities (e.g. cutblocks)	Resources	16	3.9
Species at risk critical habitat	Resources	16	2.8
Road networks	Infrastructure	14	2.8
Meteorology, climate change weather data	Other (weather, transport.)	13	2.8
Quality of freshwater (e.g. contaminants, pollutants)	Water	13	3.0
Groundwater data including aquifers	Water	10	2.8
Exploration activities (e.g. seismic/lines/well sites/mining)	Resources	10	2.7

Geographic information important in five years – Aboriginal Matters
Kinds mentioned by 10% or more   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Land use	Land	30	3.8
Traditional knowledge (e.g. forestry, plants, fishing, hunting)	Socio-economic	29	3.3
Watershed data (including water bodies and drainage basins)	Water	18	2.7
Satellite imagery	Imagery	18	4.3
Forestry inventory/activities (e.g. cutblocks)	Resources	18	2.7
Public water supply	Infrastructure	18	3.2
Protected areas/conservation areas (e.g. parks, wildlife areas)	Land	16	2.7
Cadastral/land parcel	Land	14	3.8
Species at risk critical habitat	Resources	14	3.0
Aerial photography	Imagery	13	3.9
Land claims	Land	13	3.1
Digital elevation models (DEM)/ topography	Land	11	3.1
Species range data	Resources	11	2.3
Legal survey	Land	11	3.9
Road networks	Infrastructure	10	2.7
Biodiversity observations	Resources	10	2.5
Census data	Socio-economic	10	3.5
Sewage systems	Infrastructure	10	2.5

Q.16
Please rank the top five types of information that will be important to your organization five years from now.
Please refer to yellow worksheet – record codes from 1 to 5. If five types not important, rank top number available.
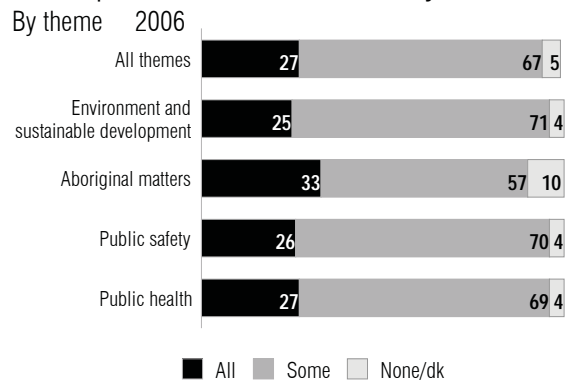
Geographic information important in five years – Public Safety
Kinds mentioned by 10% or more   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Road networks	Infrastructure	37	3.7
Aerial photography	Imagery	34	3.1
Satellite imagery	Imagery	21	2.9
Street addresses	Socio-economic	19	3.9
Watershed data (including water bodies and drainage basins)	Water	17	2.6
Emergency management/ops. centres, Fire/EMS stations	Infrastructure	17	3.6
Public water supply	Infrastructure	14	2.7
Hazardous materials facilities	Infrastructure	14	3.0
Cadastral/land parcel	Land	11	3.6
Bathymetry	Water	11	3.8
Census data	Socio-economic	10	4.1
Administrative boundaries (municipalities, counties, provinces)	Socio-economic	10	3.6
Transmission systems (power lines, telecommunications lines)	Infrastructure	10	2.7
Aerodromes (airports, airfields, etc.)	Infrastructure	10	3.6

Geographic information important in five years – Public Health
Kinds mentioned by 10% or more   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Census data	Socio-economic	47	3.4
Population health indicators	Socio-economic	43	3.8
Emergency management/ops. centres, Fire/EMS stations	Infrastructure	33	3.6
Health service delivery	Socio-economic	29	3.3
Reported disease incidences	Socio-economic	29	2.7
Administrative boundaries (municipalities, counties, provinces)	Socio-economic	25	2.4
Road networks	Infrastructure	22	3.0
Postal codes	Socio-economic	20	3.2
Aerial photography	Imagery	14	2.7
Hospitals	Infrastructure	14	3.0
Watershed data (including water bodies and drainage basins)	Water	12	2.7
Cadastral/land parcel	Land	10	2.8
Sewage systems	Infrastructure	10	2.4
Atmospheric quality (e.g. air quality data inc. contaminants)	Other (weather, transport.)	10	3.4

Q.16
Please rank the top five types of information that will be important to your organization five years from now.
Please refer to yellow worksheet – record codes from 1 to 5. If five types not important, rank top number available.

Base data set availability and future needs

Only one in four organizations report the base data they use is fully available in a dependable, standardized way. Aerial photography, satellite imagery, and digital elevation model (DEM)/topographic data would benefit organizations in all theme areas if free.

Extent to which base data are obtainable. An explanation of base data was provided to participants.[8] They were then asked to think about the data set(s) that make up their base geographic data, and to indicate to what extent they are currently able to obtain these data in a dependable, standardized way. Just over a quarter (27%) say they are able to obtain all of their base data in this way, while the majority (67%) can only obtain some, and five percent are not able to obtain any base data in a dependable, standardized way. There is little variation by theme area on this point, although those in the Aboriginal Matters theme are somewhat more likely to say that none of their base data are available dependably.

Base data sets that would make the biggest difference if free. Decision-makers were asked to refer to the list of geographic information types and indicate up to five base data sets (frameworks) that would make the biggest difference to their organization should they be made available at no cost. This gave participants an additional opportunity to prioritize, and provides

Amount of base data available in a dependable, standardized way
By theme   2006

	All	Some	None/dk
All themes	27	67	5
Environment and sustainable development	25	71	4
Aboriginal matters	33	57	10
Public safety	26	70	4
Public health	27	69	4

■ All ▨ Some ▢ None/dk

Q.17
Some types of geographic data are base data, that is, they form the framework to which other data sets are referenced. The exact themes that are considered base data vary by application, but typical examples could be road network data, shoreline data, topographic data or census boundaries. Thinking about the data set(s) that are part of your base geographic data, to what extent are you currently able to obtain these data in a dependable, standardized way …?

an indication of which data types are most affected by the barrier of cost.

As before, data identified in this question span a range of categories. About three in ten in all themes mention aerial photography (31%) or satellite imagery (26%), although the scores for these vary by theme.

Base data that would make the most difference if free
Types mentioned by 10% or more   All themes   2006

%	Average Score (out of 5)	Information	Category
31	3.6	Aerial photography	Imagery
26	3.6	Satellite imagery	Imagery
18	3.2	Digital elevation models (DEM)/ topography	Land
17	3.1	Watershed data (e.g. water bodies/drainage basins)	Water
16	3.6	Road networks	Infrastructure
15	3.6	Cadastral/land parcel	Land
14	3.4	Census data	Socio-economic
10	3.6	LIDAR (Light Distance And Ranging) imagery	Imagery

Q.18
What base data sets (frameworks) would make the biggest difference to your organization should they be made available at no cost? Please refer to yellow worksheet – record codes from 1 to 5. If five types not applicable, indicate as many as apply.

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8   The explanation was as follows: "Some types of geographic data are **base data**, that is, they form the framework to which other data sets are referenced. The exact themes that are considered base data vary by application, but typical examples could be road network data, shoreline data, topographic data or census boundaries."

Two in ten or fewer cite other types, notably digital elevation models (18%), watershed data (17%), road networks (16%), cadastral/land parcel (15%) or census data (10%).

While theme-related differences are apparent here, so too are areas of commonality. Organizations in all four theme areas mention their organization would benefit from free access to aerial photography, satellite imagery, and digital elevation model (DEM)/topographic data. Three of the themes (with the exception of Public Health) have organizations mentioning watershed or cadastral/land parcel data, while all themes but Environment name census data and all but Aboriginal Matters name road networks.

Base data that would make the most difference if free – Environment and Sustainable Development
Types mentioned by 10% or more   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Aerial photography	Imagery	32	3.5
Satellite imagery	Imagery	28	3.6
Watershed data (e.g. water bodies/drainage basins)	Water	24	3.2
Digital elevation models (DEM)/ topography	Land	19	3.3
Cadastral/land parcel	Land	19	3.3
Land cover	Land	17	3.6
Road networks	Infrastructure	15	3.5
Land use	Land	15	3.4
LIDAR (Light Distance And Ranging) imagery	Imagery	10	3.5

Base data that would make the most difference if free – Aboriginal Matters
Types mentioned by 10% or more   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Aerial photography	Imagery	33	3.7
Satellite imagery	Imagery	30	3.6
Digital elevation models (DEM)/ topography	Land	22	3.0
Watershed data e.g. water bodies/drainage basins)	Water	18	4.0
Cadastral/land parcel	Land	18	3.8
Traditional knowledge (e.g. forestry, plants, fishing, hunting)	Socio-economic	16	2.2
Legal survey	Land	14	2.8
Protected areas/conservation areas (parks, wildlife areas, etc.)	Land	13	1.9
Land use	Land	11	4.1
Forestry inventory/activities (e.g. cutblocks)	Resources	11	2.7
Geodetic survey	Land	11	3.3
Census data	Socio-economic	10	4.2
Exploration activities (e.g. seismic, lines, well sites or mining)	Resources	10	2.8

Q.18
What base data sets (frameworks) would make the biggest difference to your organization should they be made available at no cost? Please refer to yellow worksheet – record codes from 1 to 5. If five types not applicable, indicate as many as apply.

Base data that would make the most difference if free – Public Safety
Types mentioned by 10% or more   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Aerial photography	Imagery	36	3.8
Satellite imagery	Imagery	30	3.6
Road networks	Infrastructure	24	3.4
Digital elevation models (DEM)/ topography	Land	17	3.5
LIDAR (Light Distance And Ranging) imagery	Imagery	16	4.1
Watershed data (e.g. water bodies/drainage basins)	Water	14	2.4
Legal survey	Land	13	3.8
Cadastral/land parcel	Land	11	3.8
Census data	Socio-economic	10	3.0
Hazardous materials facilities	Infrastructure	10	2.3

Base data that would make the most difference if free – Public Health
Types mentioned by 10% or more   2006

INFORMATION	CATEGORY	%	SCORE (OUT OF 5)
Census data	Socio-economic	33	3.9
Population health indicators	Socio-economic	27	3.7
Aerial photography	Imagery	20	2.9
Street addresses	Socio-economic	18	3.9
Road networks	Infrastructure	16	4.0
Health service delivery	Socio-economic	16	4.1
Postal codes	Socio-economic	16	3.2
Emergency mgmt./ops. centres, Fire/EMS stations	Infrastructure	16	3.1
Reported disease incidences	Socio-economic	12	2.8
Satellite imagery	Imagery	10	3.8
Digital elevation models (DEM)/ topography	Land	10	3.0

Q.18
What base data sets (frameworks) would make the biggest difference to your organization should they be made available at no cost? Please refer to yellow worksheet – record codes from 1 to 5. If five types not applicable, indicate as many as apply.

Sources of geospatial information

Current sources of geospatial information

Provincial/territorial governments, the federal government and internal collection are the most usual sources of geospatial information for organizations in all four theme areas.

The source of geospatial information may be as important to users as the data itself, as the source can be responsible for many factors such as the accuracy or updating of content, access/availability, cost, standards and distribution. Participants were asked to indicate, using a list of possible sources, from which their operating unit, group or organization currently gets geospatial information. Multiple responses were permitted and an opportunity to cite additional sources was provided.

Users are most likely to indicate they get their current geospatial information from a provincial or territorial government (75%), which is understandable as this is one of the most frequently mentioned options when organizations are asked with whom they share data. Following this, users are equally likely to say they get data from a federal government department of agency or collect it internally (67% each). About half (48%) mention getting geospatial information from a regional or municipal government, and one in three (30%) get such data from the geomatics industry or the private sector.

There are some variations in sources by theme. Most likely to indicate they obtain geospatial information from federal government departments or agencies are Public Health organizations, which corresponds to their greater dependence on socio-economic data. As well, regional or municipal government sources are more cited by those in the Public Health or Public Safety/Security themes, which is in keeping with the frequently local mandates of many of these organizations.

Current sources of geographic information
All themes   2006

Source	Value
Provincial/territorial government	75
Federal government agency	67
Collected internally	67
Regional/municipal government	48
Geomatics industry/ private sector	30

Current sources of geographic information
By theme   2006

Source	Environment and sustainable development	Public safety	Aboriginal matters	Public health
Provincial/territorial government	84	60	70	80
Federal government agency	71	68	51	82
Collected internally	72	62	74	51
Regional/municipal government	43	32	60	59
Geomatics industry/ private sector	27	27	37	31

■ Environment and sustainable development
■ Aboriginal matters
☐ Public safety
☐ Public health

Q.21
From which of the following sources does your operating unit, group or organization currently get geospatial information …?

There are a few notable differences by type of organization. Federal government departments and agencies are the most likely to say they get geospatial data from either international governments or other federal government sources. Not-for-profit organizations are the most likely to say that other not-for-profits are the source of their geospatial information. As well, organizations using geospatial information daily are more likely than those using it less frequently to indicate they use any of the major sources of geospatial data.

Factors influencing confidence in geospatial data

Quality of data is the highest rated factor influencing confidence; metadata issues are ranked lower than are other factors.

Decision-makers were asked to rank nine factors in terms of how much they influence their confidence in geospatial data. As three of the nine factors involved metadata issues, a definition was supplied.[9]

To arrive at an average, factors ranked as "Most important – 1" were given a high value (9) and when ranked as "Least important – 9" were given a low value (1). The highest rated factor, having the most influence on confidence, is the quality of data (average rating of 7.3 out of 9). This is followed, quite equally, by completeness of the data (6.0), who collected/the source (5.8) and how the data were collected (5.8). The qualitative research found that many users consider it essential to know the source of the data, and when and why it was collected. Metadata issues, which may not be as well understood by decision-makers as by their technical staff, are rated lower compared to data quality issues, which is interesting because metadata describes data completeness, its source and how the data were collected.

Factors influencing confidence in geospatial data

Average ranking (out of nine)   All themes   2006

Factor	Rating
Quality of data	7.3
Completeness of data	6.0
Who collected data/source	5.8
How data collected	5.8
Standards to collect/display data	5.0
Who providing data/supplier	4.7
Quality/completeness of metadata	4.4
Standards to collect/display metadata	3.8
Content of metadata	3.7
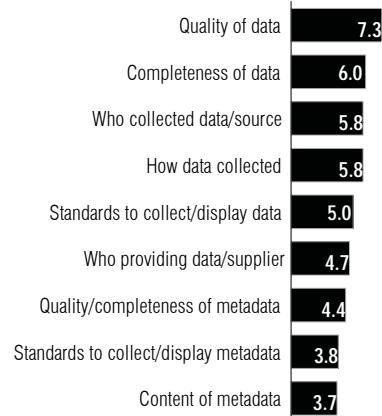
Q.22
Please rank the following factors in terms of how much they influence your confidence in geospatial data. Rank with numbers "1", "2", etc. … Who collected the data (the source) … Who is providing the data (the supplier) … How the data were collected … The quality of the data … The completeness of the data … The standards used to collect or display the metadata … The standards used to collect or display the data … The quality and completeness of the metadata (description of the data) … The content of the metadata (i.e. data too old).

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9   *Definition: Metadata* can be defined as 'information about data'. It answers the questions 'who, what, where, when, why, and how' about every facet of the data or service being documented. This includes details about the data's ownership, quality, time of collection or update, attribute information and how it can be accessed and obtained. To ensure consistency, metadata can be defined by standards that offer a common set of terms, definitions and organization.

Quality of data is the top-ranked factor among each of the four theme areas. There are minor differences in ratings by other subgroups, but the pattern is the same: data quality is of paramount influence over metadata issues.

Later in the survey decision-makers were asked in an unprompted manner what issues affect their trust of data or sources. There is a notable correlation between mentioning a factor in that question and providing a higher ranking for a similar issue here. The shaded areas in the table below indicate where factors that overlap in the two questions have levels of correlation.

Factors influencing confidence in geospatial data
Mean ratings (out of nine)   By theme   2006

	E&SD	ABORIGINAL MATTERS	PUBLIC SAFETY	PUBLIC HEALTH
Quality of data	7.4	6.7	7.6	7.6
Completeness of data	5.7	5.8	6.5	6.2
Who collected the data (source)	5.8	6.0	5.3	6.0
How data were collected	5.9	6.1	5.4	5.5
Standards used to collect/display data	5.2	4.5	4.8	5.5
Who is providing the data (supplier)	4.7	5.3	4.3	4.6
Quality/completeness of metadata	4.4	4.4	4.4	4.6
Standards used to collect/display metadata	4.0	3.8	3.7	3.7
Content of the metadata	3.4	4.1	3.9	3.1

Factors influencing confidence in geospatial data
Mean ratings (out of nine)   By issues affecting trust in data/sources   2006

	SOURCE/ REPUTATION	ACCURACY ISSUES	STANDARDS/ METHODS/ HOW COLLECTED	METADATA ISSUES
Quality of data	7.2	**7.3**	**7.3**	7.2
Completeness of data	5.9	**6.4**	5.6	5.5
Who collected the data (source)	**6.1**	5.9	5.7	5.1
How data were collected	**6.3**	5.8	**6.0**	5.9
Standards used to collect/display data	5.1	4.4	**5.8**	4.9
Who is providing the data (supplier)	**5.7**	4.3	4.5	4.5
Quality/completeness of metadata	3.5	4.5	3.9	**5.2**
Standards used to collect/display metadata	4.0	3.6	**4.1**	3.6
Content of the metadata	4.2	3.5	3.5	**4.2**

FORMATS FOR ACCESS AND USE OF GEOSPATIAL INFORMATION

Three-quarters of current geospatial information is available electronically. Aboriginal Matters organizations are the most likely to report use of information in hard copy format.

The vast majority of geospatial information being used currently is available in electronic format. Almost three-quarters of organizations say that over 50 percent of their information is electronic, and three in ten (29%) say over 90 percent is available this way. In comparison, only one in seven (14%) indicate that over half of their current geospatial information is available in paper format. On average, three-quarters (74%) of geographic information currently in use is in electronic format and one quarter (26%) is in hard copy. The earlier qualitative research showed that, although much information may be available electronically, hard copy formats may still be generated for use "in the field."

There is some variation by theme, with hard copy formats being most used by Aboriginal Matters organizations and least used by those in Public Health, which corresponds to the findings of the qualitative research, where Public Health was the sector most likely to be using predominantly digital geographic information. As well, the amount of information available in electronic information increases proportionately with the proportion of an organization's budget that is devoted to geomatics.

More use of hard-copy data is associated with organizations that use geospatial information less frequently (not daily) and with those that do not share information with others, and with municipal governments and not-for-profit organizations. Still, the majority of information used by these organizations is electronic.

Formats of current geospatial information
By theme   2006

Theme	Electronic	Paper
All themes	74	26
Environment and sustainable development	78	22
Aboriginal matters	62	38
Public safety	74	26
Public health	81	19
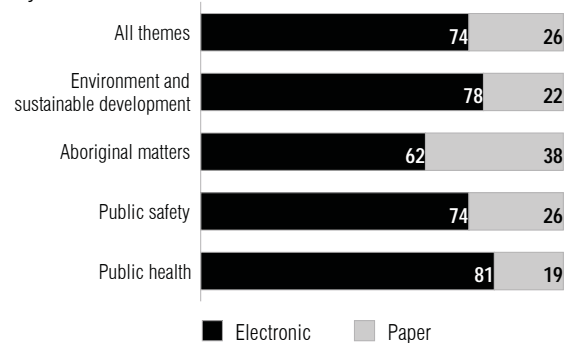
■ Electronic   ■ Paper

Q.23
What percentage of the geospatial information your operating unit or group uses currently is … In paper format (not including electronic content that is printed) … In electronic or digital format (including web-based resources)?

SHARING OF GEOSPATIAL INFORMATION

If geospatial information is shared

Eight in ten organizations say they share geospatial information either internally or externally.

Decision-makers were provided with a definition of sharing geospatial information and then asked if their specific operating unit or group shares such information with others, either internally or externally.[10]

Eight in ten (82%) report such sharing. Incidence of sharing is quite uniform across theme areas, with Environment and Sustainable Development organizations (85%) being only marginally more likely to report sharing information than the other themes. Increased sharing of data is associated with those who make more intensive use of geospatial information: for example, among daily users and among those with more exposure to GeoConnections, such as visitors to the Discovery portal.

It should also be noted that, while reported sharing of geospatial data is high (80% or more) among most types of organizations, it is lower in private-sector firms (68%).

Sharing of current geospatial information with others
By Discovery Portal awareness and use
of geospatial information   2006

82	90	78	87	72
Total	Aware of Discovery Portal	Not aware of Discovery Portal	Use geo info daily	Do not use geo info daily
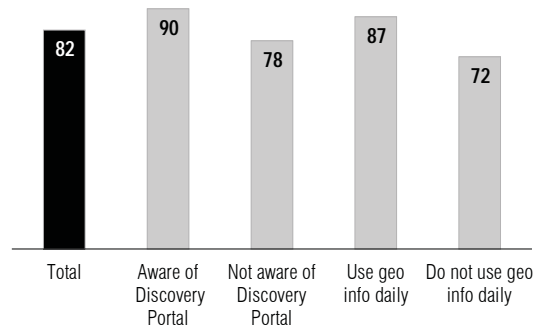
Q.25
Does your operating unit or group share geospatial information with others, either internally or externally?

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10 ***Definition: Sharing geospatial information*** means that you jointly use information gathered either by your organization or by another organization.

Why geospatial information is not shared

Confidentiality and licensing issues are the most frequently mentioned barriers to the sharing of geospatial information.

Organizations indicating their operating unit or group does not share geospatial information (n=50) were asked why they do not share. A list of six potential reasons was provided; multiple mentions were permitted. The two main reasons for not sharing, each cited by about four in ten, are privacy and confidentiality issues (42%) and licensing and ownership issues (38%), which were also mentioned in the qualitative research as important barriers to sharing. Two in ten each indicate that liability issues (20%) and political issues (trust) (20%) prevent their sharing information. In the qualitative research, political issues (including government decisions, community leader decisions, funding and ownership issues) were mentioned as likely to prevent people from giving or receiving information that would be of help with their work objectives.

Few are prevented from sharing by the inability to recover costs or standardization issues. Of other reasons given, the fact that the organization is not a data creator is the most mentioned (4%). Other mentions are given by less than two percent of respondents and include the data not being developed yet, not having been asked to share, and reasons indicating various resource, infrastructure, technical or capacity limitations. One in ten did not give a reason why their organization does not share data.

Although few do not share geospatial information, some patterns emerge in those who do not share. Privacy and confidentiality is most likely to be cited by those in the Aboriginal Matters and Public Safety/Security themes, while those in Environment and Sustainable development are the most likely to mention licensing and ownership. Political issues/trust is also mentioned more frequently among those involved in Aboriginal Matters. Also, private sector firms stand out as being likely to indicate both privacy/confidentiality and licensing/ownership issues regarding sharing of data.

Why geospatial information is not shared
All themes   2006

Category	Value
Privacy/confidentiality issues	42
Licensing/ownership issues	38
Liability issues	20
Political issues (trust)	20
Cannot recover costs	8
Not data creators	4
Standardization issues	2
Other reasons (<2% each)	22
Not stated	10
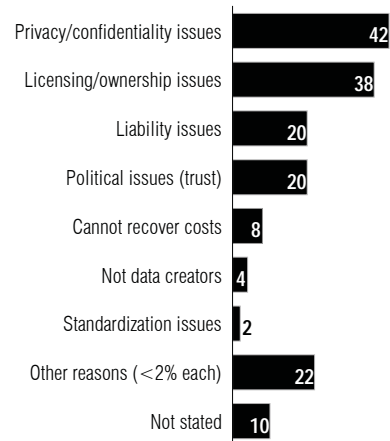
Q.26
Why does your organization not share geospatial information …?
Subsample: Those not sharing geospatial information (n=50)

Why geospatial information is shared

Many organizations share geospatial data because it is part of their mandate to do so, and for the public good.

Those who share geospatial information were asked their main reasons for doing so, with multiple mentions permitted. Seven in ten (69%) say they share such information because it is part of their mandate to do so, and two-thirds (66%) also claim they do it for the common (public) good. Half (52%) share to in turn get more data on a reciprocal basis. Few indicate other reasons for sharing data, such as cost recovery (15%), profit (4%) or as part of a collaborative partnership (2%).

As might be expected, sharing data for the common (public) good is most noted among organizations in the Public Safety/Security and Public Health themes, while sharing on a reciprocal basis is highest among those in Public Safety and in Environment/Sustainable Development. Public Health organizations are the least likely to indicate they share on a cost recovery basis.

The organizations most likely to share for cost recovery are those devoting 51 percent or more of their annual budgets to geomatics (28%, vs. 11% of firms devoting half or less). Cost recovery and data reciprocity are more noted among those using geospatial information daily than those who use it less frequently, and daily users are also more likely to say they share data for the common (public) good.

Why geospatial public information is shared
By theme   2006

	ALL THEMES %	ENVIRONMENT & SUSTAINABLE DEVELOPMENT %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
Part of mandate to provide information to others	69	73	68	64	70
For the common (public) good	66	62	60	73	73
Reciprocal basis/get more data	52	67	44	50	35
Cost recovery	15	15	18	18	8
Profit	4	6	6	4	-
Collaboration/partnership	2	1	–	2	5
Client purposes	1	2	–	–	–
Avoid redundancy/duplication	1	–	–	4	–
Other reasons (<1% each)	5	5	4	7	3

Q.27
What is the main reason(s) your organization shares geospatial information with others …?
Subsample: Those sharing geospatial information (n=228)

Kinds of geospatial information shared

A wide range of geospatial information is shared, notably road networks, aerial photography, land use, administrative boundaries and watershed data.

Those sharing information were asked what kinds they shared. As there is a wide range of geospatial information currently in use, it follows that the types of data shared are similarly diverse, and that the major types used are also the major types being shared. Half of organizations in the four theme areas share at least

some types of data in the land, infrastructure and socio-economic categories, while about a third share data related to resources, imagery and water. As was the case when examining current geospatial data use, land and resources data are more likely to be shared by organizations in the Environment/Sustainable Development and Aboriginal Matters themes, while those in Public Safety/Security and Public Health are more likely to share infrastructure and socio-economic data.

Kinds of geospatial information currently shared
Categories by theme   2006

% Mentioning	Category	Environment & Sustainable Development %	Aboriginal Matters %	Public Safety %	Public Health %
53	Land	61	68	46	25
52	Infrastructure	37	40	68	75
50	Socio-economic	29	52	57	80
36	Resources	51	52	9	20
34	Imagery	40	38	36	13
32	Water	43	18	38	18
10	Weather	7	8	9	20
4	Transportation	–	2	11	5

Q.28
What geospatial information does your organization share with others …? Please refer to yellow worksheet – record codes.
Subsample: Those sharing geospatial information (n=228)

While some types of information cited as being shared are theme-specific, it is useful when prioritizing to consider areas of overlap rather than areas of difference. A minimum of 10 percent of organizations in all themes cite as one of their types of shared geographic information either road networks, aerial photography, cadastral/land parcels or satellite imagery.

There are also a number of data types shared by organizations in three of the four themes. All themes but Public Safety have organizations that share census data or land use data; all themes but Aboriginal Matters cite some sharing of administrative boundaries data; and all themes but Environment/ Sustainable Development may share toponymy (place name) data. Several other types of information are named by at least two of the themes.

Kinds of geospatial information currently shared
Kinds shared by 10% or more   All themes   2006

% MENTIONING	KINDS OF GEOGRAPHIC INFORMATION SHARED	CATEGORY
29	Road networks	Infrastructure
29	Aerial photography	Imagery
19	Land use	Land
18	Administrative boundaries (municipalities, counties, provinces)	Socio-economic
18	Watershed data (including water bodies and drainage basins)	Water
16	Emergency management/ops. centres, Fire/EMS stations	Infrastructure
16	Cadastral/land parcel	Land
15	Protected areas/conservation areas (parks, wildlife areas, etc.)	Land
15	Census data	Socio-economic
14	Satellite imagery	Imagery
13	Toponymy (place names)	Land
13	Street addresses	Socio-economic
12	Land cover	Land
11	Digital elevation models (DEM)/topography	Land
11	Ecosystem data (ecozones, ecoregions, etc.)	Land
10	Public water supply	Infrastructure
10	Legal survey	Land
10	Forestry inventory/activities (e.g. cutblocks)	Resources
10	Population health indicators	Socio-economic
10	Traditional knowledge (e.g. forestry, plants, fishing, hunting)	Socio-economic

Q.28
What geospatial information does your organization share with others …? Please refer to yellow worksheet – record codes.
Subsample: Those sharing geospatial information (n=228)

SURVEY OF GEOGRAPHIC INFORMATION DECISION-MAKERS
ENVIRONICS

Kinds of geospatial information currently shared – Environment & Sustainable Development
Kinds shared by 10% or more   2006

Information	Category	%
Aerial photography	Imagery	33
Road networks	Infrastructure	28
Protected areas/conservation areas (parks, wildlife areas, etc.)	Land	26
Land use	Land	23
Watershed data (including water bodies and drainage basins)	Water	23
Satellite imagery	Imagery	17
Land cover	Land	17
Ecosystem data (ecozones, ecoregions, etc.)	Land	17
Forestry inventory/activities (e.g. cutblocks)	Resources	17
Cadastral/land parcel	Land	16
Administrative boundaries (e.g. municipalities, counties, provinces)	Socio-economic	15
Digital elevation models (DEM)/topography	Land	13
Species at risk critical habitat	Resources	13
Wetland type and extent	Water	12
Quality of freshwater (e.g. contaminants, pollutants)	Water	12
Census data	Socio-economic	11
Species range data	Resources	11
Fisheries	Resources	11
Soil types	Land	10
Other mentions	Other	10

Kinds of geospatial information currently shared – Aboriginal Matters
Kinds shared by 10% or more   2006

Information	Category	%
Aerial photography	Imagery	34
Traditional knowledge (e.g. forestry, plants, fishing, hunting)	Socio-economic	30
Land use	Land	28
Road networks	Infrastructure	24
Cadastral/land parcel	Land	24
Legal survey	Land	24
Land claims	Land	24
Reserves, First Nations	Socio-economic	22
Protected areas/conservation areas (parks, wildlife areas, etc.)	Land	20
Toponymy (place names)	Land	20
Public water supply	Infrastructure	14
Satellite imagery	Imagery	12
Land cover	Land	12
Ecosystem data (ecozones, ecoregions, etc.)	Land	12
Forestry inventory/activities (e.g. cutblocks)	Resources	12
Species at risk critical habitat	Resources	12
Species range data	Resources	12
Exploration activities (e.g. seismic, lines, well sites or mining)	Resources	12
Census data	Socio-economic	10

Kinds of geospatial information currently shared – Public Safety
Kinds shared by 10% or more   2006

Information	Category	%
Road networks	Infrastructure	41
Aerial photography	Imagery	30
Street addresses	Socio-economic	29
Watershed data (including water bodies and drainage basins)	Water	27
Administrative boundaries (e.g. municipalities, counties, provinces)	Socio-economic	27
Emergency management and operations centres, Fire/EMS stations	Infrastructure	20
Railroad facilities/networks	Infrastructure	18
Toponymy (place names)	Land	16
Transmission systems (power lines, telecommunications lines)	Infrastructure	16
Public water supply	Infrastructure	14
Digital elevation models (DEM)/topography	Land	14
Sewage systems	Infrastructure	14
Pipelines	Infrastructure	14
Bathymetry	Water	14
Cadastral/land parcel	Land	13
Satellite imagery	Imagery	13
Electoral districts	Socio-economic	13
Public venues (e.g. concert halls, convention centres, community centres, arenas)	Infrastructure	11
Coastlines	Water	11
Aerodromes (airports, airfields, etc.)	Infrastructure	11

Q.28
What geospatial information does your organization share with others …? Please refer to yellow worksheet – record codes. Subsample: Public Safety/Security organizations sharing geospatial information (n=56)

Kinds of geospatial information currently shared – Public Health
Kinds shared by 10% or more   2006

INFORMATION	CATEGORY	%
Emergency management/ops. centres, Fire/EMS stations	Infrastructure	48
Population health indicators	Socio-economic	48
Census data	Socio-economic	35
Health service delivery	Socio-economic	33
Reported disease incidences	Socio-economic	33
Administrative boundaries (e.g. municipalities, counties, provinces)	Socio-economic	30
Hospitals	Infrastructure	23
Postal codes	Socio-economic	20
Road networks	Infrastructure	18
Street addresses	Socio-economic	18
Land use	Land	15
Reserves, First Nations	Socio-economic	15
Education facilities	Infrastructure	13
Well sites	Water	13
Meteorology, climate change weather data	Other (weather, transportation)	13
Agriculture	Resources	13
Treatment centres and clinics	Infrastructure	13
Aerial photography	Imagery	10
Toponymy (place names)	Land	10
Cadastral/land parcel	Land	10
Satellite imagery	Imagery	10
Atmospheric data (physical characteristics over time)	Other (weather, transportation)	10
Soil types	Land	10
Atmospheric quality (e.g. air quality data including contaminants)	Other (weather, transportation)	10

Q.28
What geospatial information does your organization share with others …? Please refer to yellow worksheet – record codes. Subsample: Public Health organizations sharing geospatial information (n=40)

With whom geospatial information is shared

Sharing of geospatial information is largely internal or with regional or provincial governments.

Those sharing geospatial information were asked with whom they share. A list of nine possibilities was supplied and an opportunity given to indicate others; multiple mentioned were permitted.

Consistent with findings in the qualitative research, the vast majority (82%) of data-sharing organizations share within their own operating unit, group or organization. Sharing with regional or provincial governments occurs for seven in ten (71%). About half share with local municipalities (54%), federal government departments (54%), non-government/not-for-profits (53%) and academic institutions (47%), while four in ten share with the private sector (44%) or clients (43%). Data are not frequently being shared with suppliers (17%) or the public (4%). It should be noted that, although only six percent state specifically that they share with First Nations organizations, it is likely that these would also have been included in several of the other named categories, such as regional governments, private sector or not-for-profit organizations.

With whom geospatial information is shared
All themes   2006
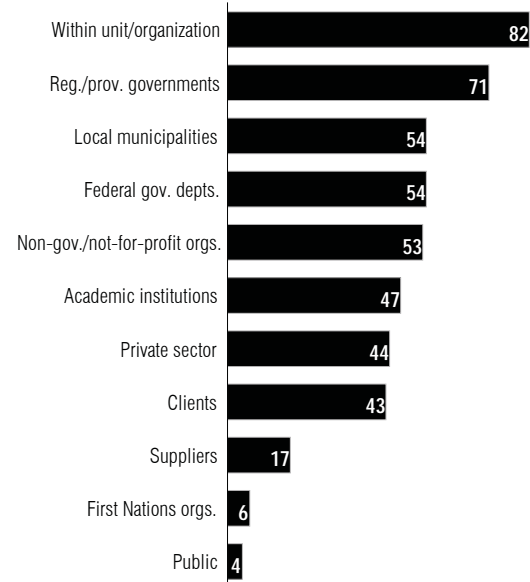
Within unit/organization	82
Reg./prov. governments	71
Local municipalities	54
Federal gov. depts.	54
Non-gov./not-for-profit orgs.	53
Academic institutions	47
Private sector	44
Clients	43
Suppliers	17
First Nations orgs.	6
Public	4

Q.29
With whom do you share geospatial information …?
Subsample: Those sharing geospatial information (n=228)

SURVEY OF GEOGRAPHIC INFORMATION DECISION-MAKERS
ENVIRONICS

There are some observable differences by theme area. While significant proportions of organizations in all themes share information internally, this is almost universal among those in the Public Safety/Security and Public Health themes. Those in Environmental and Aboriginal Matter themes are more likely than others to report sharing with federal government departments. Those least likely to share information with private sector firms are, somewhat understandably, those in the Public Health area. The focus group findings indicated that in the Health sector, some non-sensitive information is shared with the public when appropriate, but that in the Public Safety sector there is a reluctance to share data other than with project partners because of security fears.

Daily users of geospatial information are somewhat more likely than those using it less frequently to report sharing with any of these types of organizations.

With whom geospatial information is shared
By theme   2006

	Environment & Sustainable Development %	Aboriginal Matters %	Public Safety/ Security %	Public Health %
Within own unit/group/organization	72	80	93	90
Regional/provincial governments	81	60	68	68
Local municipalities	59	38	63	53
Federal government departments	60	62	45	43
Non-government or not-for-profit organizations	67	50	38	48
Academic institutions	60	32	32	58
Private sector companies	56	44	43	20
Clients	44	40	45	43
Suppliers	16	12	21	20
First Nations organizations/governments	–	24	2	3
General public	7	2	5	–

Q.29
With whom do you share geospatial information …?
Subsample: Those sharing geospatial information (n=228)

How geospatial information is shared

While three-quarters of organizations report sharing geospatial data via e-mail or storage devices, two-thirds still share some information in hard copy format. Fewer take advantage of the Internet as a method of sharing data.

Decision-makers who indicated their operating unit shares geospatial information with others were asked what delivery mechanisms are used to share these data. A list of five possibilities was supplied and an opportunity to indicate others was provided; multiple mentioned were permitted.

In keeping with the majority of geospatial information being available in electronic format, over three-quarters of organizations say they share this type of data either by e-mail (78%) or using various storage devices (77%). However, close to two-thirds (64%) are still sharing at least some of their geospatial information in hard-copy format. Half (53%) use File Transfer Protocols (FTP) and only a third (33%) indicate they share data using web services such as Web Map Service (WMS) or Web Feature Service (WFS), indicating there is room for expansion in this area.

Those most likely to still share data in hard copy format are in the Aboriginal Matters (76%) and Public Safety (71%) themes, although it should be noted that these themes are not less likely than the others to use e-mail or storage devices. Hard copy data sharing is still noted among municipal and regional governments (76%) and among those with the lowest annual operating budgets (78% of those with budgets under $100,000).

The use of web services for data sharing is highest in the Public Safety/Security (41%) and Environment (37%) themes, and is also higher among federal (49%) and provincial/territorial (46%) governments than among other types of users (25%). Any electronic method of data sharing is more likely to be employed by daily users than by those using geospatial information less frequently.

Methods of sharing geospatial information
All themes   2006

E-mail	78
Storage devices	77
Hard copy	64
FTP	53
Web services	33
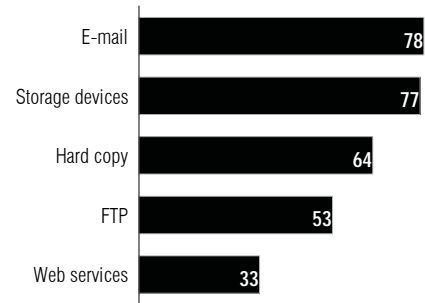
Q.30
What delivery mechanisms does your organization use to share geospatial information with others …?
Subsample: Those sharing geospatial information (n=228)

Technical standards for sharing geospatial information

The most frequently used technical standards or specifications for data sharing are FGDC, OCG and ISO, but many data sharers use no standards.

Organizations sharing geospatial data with others were asked to indicate which, if any, technical standards they use. A list of seven potential standards and an opportunity to indicate others was provided; multiple mentioned were permitted.

The most frequently mentioned technical standards among data-sharing organizations are Federal Geographic Data Committee (FGDC – 20%), followed by Open GeoSpatial Consortium (OGC – 16%) and International Organization for Standardization (ISO – 16%). Four in ten (38%) say that none of the named standards are used by their organization. As this survey was of decision-makers rather than technicians, a relatively high percentage (16%) could not state which technical standards are used, if any. Mentions grouped as "other standards" include references to the International Hydrographic Office (IHO) (1%), the Forest Stewardship Council (FSC) (1%) and other individual mentions, such as internal organizational standards, industry-specific standards (e.g. transportation or utilities), or standards that are specified by the end-user of the data.

Organizations in the Environment and Public Safety/ Security themes are the most likely to indicate they use at least one technical standard. Standards are most frequently named by Federal government departments and agencies – about four in ten mention using FGDC (42%), OGC (42%) or ISO (36%) standards. Over half (53%) of municipal and regional governments say they do not use any of the standards indicated.

Those who are suppliers, marketers or developers are more likely than end-users to use the four top technical standards, and the use of these standards is highest among organizations with the largest annual budgets and with the highest percentage of budget devoted to geomatics.

Technical standards or specifications used
All themes   2006

FGDC	20
OGC	16
ISO	16
W3C	8
ANSI	6
CGSB	4
IEEE	4
Provincial standards	2
Other	10
None of above	38
Not stated	16
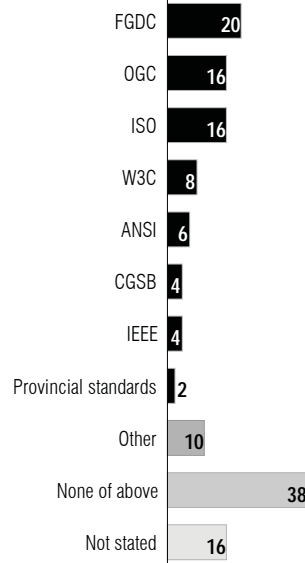
Technical standards or specifications used
By percent of budget devoted to geomatics   2006

	FGDC	OCG	ISO
Up to 10%	13	12	8
11 to 50%	17	9	21
51% plus	41	31	26
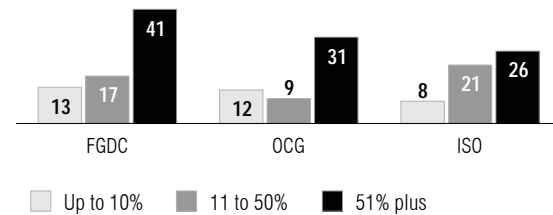
Q.31
Which technical standards or specifications do you use, if any …?
Subsample: Those sharing geospatial information (n=228)

Importance of removing barriers to sharing geospatial information

Cost and privacy/confidentiality issues are considered the most important barriers to remove to facilitate data sharing.

Sharers of geospatial information were asked how important to their organization's increased data sharing it would be to remove seven specific barriers. As a majority of respondents consider each of the barriers to be at least somewhat important to remove, analysis will concentrate on the proportions saying that each is very important.

Half of data sharers consider it very important that cost (53%) and privacy or confidentiality (51%) issues be removed to facilitate their organization's data sharing. The qualitative research findings are quite consistent with this, and went on to indicate that a major reason for costs being a barrier to sharing geographic information was that the data costs were frequently high relative to the scope of the project, and costs could also prove to be a barrier in terms of the expense required to convert data or make it compatible.

Four in ten believe the removal of licensing issues (42%) and political issues that impact trust (39%) is vital. Lack of common standards, liability issues and lack of common platforms are very important to a third or fewer, although it should be remembered that respondents are senior decision-makers and not technical experts who might have to deal more personally with the barriers produced by lacking standards or platforms.

Importance of removing barriers to sharing
Percent very important   2006
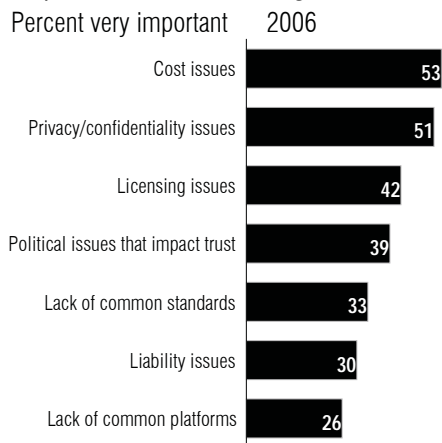
Barrier	Value
Cost issues	53
Privacy/confidentiality issues	51
Licensing issues	42
Political issues that impact trust	39
Lack of common standards	33
Liability issues	30
Lack of common platforms	26

Q.32
In order for your organization to do more data sharing, how important is it to remove each of the following barriers … Political issues that impact trust … Lack of common platforms … Lack of common standards … Privacy and confidentiality issues … Liability issues … Licensing issues … Cost issues? Subsample: Those sharing geospatial information (n=228)

There are some notable differences by theme. While cost is a very important barrier to sharing for all theme areas, removal of privacy and confidentiality issues is similarly very important to those in the Public Safety/Security and Aboriginal Matters themes, and those in the latter are equally likely to mention political issues that impact trust. The qualitative research also found that confidentiality, although mentioned in all sectors, was a particularity notable barrier in the Aboriginal Matters and Pubic Safety/Security themes.

Liability issues are of most concern to those in Public Safety/Security. Those in the public health theme, which tend to have higher annual budgets, are somewhat less concerned with cost issues and are the least likely to say it is very important to address political issues.

Privacy and liability issues are of highest importance to provincial and regional governments, while licensing is a notable barrier to sharing for federal governments and private sector firms. Those most likely to be concerned with the removable of barriers involving lack of common standards are federal, provincial and municipal/regional governments, which is an interesting finding as about half of the latter type earlier indicated that they do not use technical standards in data sharing. Academics are the least likely to state that the removal of any of these barriers is very important.

There is a high level of correlation between saying that each of these barriers to sharing is very important to remove and indicating that the same barrier is one of the top-three barriers to an organization's accessing or using of geospatial information in general.

Importance of removing barriers to sharing
Percent very important   By theme   2006

	ALL THEMES %	ENVIRONMENT & SUSTAINABLE DEVELOPMENT %	ABORIGINAL MATTERS %	PUBLIC SAFETY %	PUBLIC HEALTH %
Cost issues	53	55	52	55	45
Privacy/confidentiality issues	51	49	56	52	48
Licensing issues	42	46	42	39	38
Political issues that impact trust	39	35	56	38	28
Lack of common standards	33	26	42	39	30
Liability issues	30	27	24	41	28
Lack of common platforms	26	20	34	30	25

Q.32
In order for your organization to do more data sharing, how important is it to remove each of the following barriers … Political issues that impact trust … Lack of common platforms … Lack of common standards … Privacy and confidentiality issues … Liability issues … Licensing issues … Cost issues?
Subsample: Those sharing geospatial information (n=228)

Barriers to access and use of data

Cost is the greatest barrier to both access and use of geographic information, but data access tends to be more affected by availability and data quality issues, while staffing and training are important barriers to using data.

Barriers to access. When asked, unprompted, to list the top three barriers to their operating unit or group's access to geographic or geospatial information, two-thirds (65%) of decision-makers place cost in their top three, far ahead of other barriers such as availability and accessibility (29%), data quality (16%) of lack of resources (12%). Only three percent indicate that their organization experiences no barriers to accessing information.

Cost is a top barrier to accessing information for higher proportions of organizations in the Aboriginal Matters (73%) and Environmental (71%) themes, although it is also the most-mentioned barrier for those in Public Safety/Security (61%) and Public Health (49%). Data quality issues are more frequently cited by those in Environmental/Sustainable Development (21%) and Public Health (22%), and the latter theme is also the most apt to mention privacy and confidentiality issues as a barrier to accessing this type of information (25%), consistent with findings in the qualitative research.

As might be expected cost is somewhat less cited as a barrier to access by organizations with annual budgets of $1 million or more, but having a higher proportion of one's budget devoted to geomatics does not appear to lessen the impact of cost as a barrier to access.

Top barriers to *accessing* geospatial information
All themes   2006
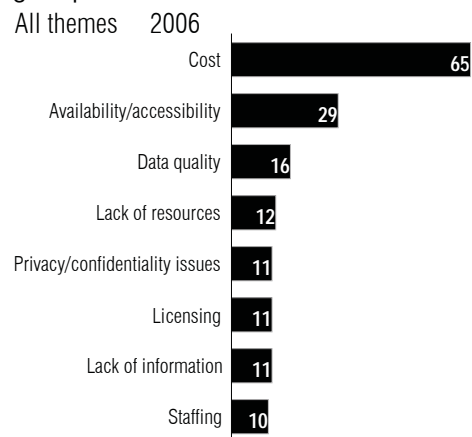
Q.33
Please identify the top three barriers to your operating unit or group's access to geographic or geospatial information.

Barriers to use. Decision-makers were asked in an un-prompted way about the top three barriers to their operating unit's use of geographic or geospatial information, as these may differ somewhat from barriers to access. While cost emerges as the most frequently mentioned barrier (by 37%), human resource issues such as staffing (17%) and training (12%) emerge more as barriers to use of data than was the case in looking at barriers to access. As well, slightly more organizations (8%) say they have no barriers to the use of geospatial information than say they have no barriers to access (3%).

Staffing issues are notably more of a barrier to organizations in the Aboriginal Matters (29%) and Public Health (22%) areas than in Environmental (10%) and Public Safety/Security (13%) areas, which also echoes findings in the qualitative research, where participants in the Aboriginal Matters theme wondered whether people will be able to access data via the Internet quickly enough, and whether from what they saw of the CGDI if it requires a higher degree of technical competence than they have, and would therefore require training.

Annual operating budget is a factor in whether cost is mentioned as a barrier to use of geographic information, but in this case it is more noted by those with the lowest budgets (under $100,000).

Top barriers to *using* geospatial information
All themes   2006

Cost	37
Staffing	17
Availability/accessibility	14
Data quality	14
Training	12
Lack of resources	11

Q.34
Please identify the top three barriers to your operating unit or group's use of geographic or geospatial information.

Cost as a barrier
By annual budget   All themes   2006
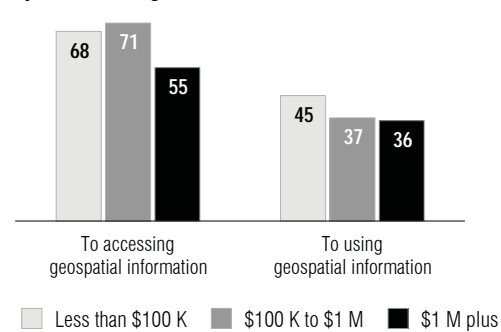
	To accessing geospatial information	To using geospatial information
Less than $100 K	68	45
$100 K to $1 M	71	37
$1 M plus	55	36

Q.33
Please identify the top three barriers to your operating unit or group's access to geographic or geospatial information.
Q.34
Please identify the top three barriers to your operating unit or group's use of geographic or geospatial information.

Issues affecting trust of data or sources

Decision-makers are most apt to mention data accuracy or currency as top-of-mind issues affecting their trust of data or sources.

Geographic information decision-makers were asked to indicate what, if any, issues they have that affect their trust of data or sources. This was asked in an open-ended manner, without providing a list of possible responses. Multiple mentions could be offered.

A quarter of respondents across all theme areas (26%) gave a response indicating that the accuracy or currency of data is an issue that impacts their ability to trust data or sources, while close to two in ten (18%) say that some aspect of standards, methods or how the data were collected would influence their trust. The source of the data or its reputation is also cited by over one in ten (13%). Fewer indicate factors such as metadata issues (6%), political influence (3%), patenting of ideas/corporate interest (2%), a lack of data (1%) or any other mention (7%). Three in ten indicate either that there are no issues that affect their trust (19%) or do not state one (15%). Not stating a trust issue is most pronounced among organizations who use geospatial information less frequently and among those who do not share this type of information.

Differences by subgroups on this issue are not notable.

Issues affecting trust of data or sources
All themes   2006

Issue	Value
Accuracy/currency	26
Standards/methods/how collected	18
Source of data/reputation	13
Metadata issues	6
Political influence	3
Patenting of ideas/corporate interest	2
Lack of data	1
Other	7
None/nothing	19
dk/na	15
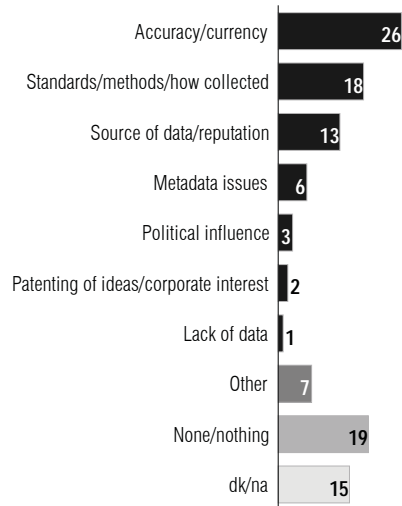
Q.35
What, if any, issues do you have that affect your trust of data or sources?

Impact of specific barriers to use of geospatial information

Financial constraints and the cost of data are considered the most serious barriers to the use of geospatial data; human resource limitations are very serious for more of those involved with Aboriginal Matters.

Decision-makers were asked to identify on a four-point scale how serious each of three barriers is to their group or organization's use of geographic information. As the vast majority feel that each of the three barriers is at least somewhat serious, analysis will focus on the proportion saying each is very serious to them.

Of the three identified barriers, financial constraints and the cost of data are considered very serious by close to six in ten (56%), while close to half (47%) say human resource limitations and training capacity is a very serious barrier for them. Three in ten (31%) identify a difficulty in locating or learning about data sources as being a very serious barrier.

The most notable difference by theme area is that both financial constraints and human resources limitations are considered very serious by higher proportions of those in Aboriginal Matters than those in the three other themes.

There are some differences in perceived seriousness of the barriers by organization type. Those most likely to see financial constraints as very serious are not-for-profit organizations, private sector firms and municipal/regional governments. Human resource limitations are most likely to be very serious for not-for-profits and municipal/regional governments; private sector firms are the least likely feel seriously limited by this.

Looking regionally, financial constraints are very serious for a higher proportion of organizations located in Quebec.[11] Interestingly, Quebec organizations are the least likely to point to human resource limitations as being very serious.

Impact of barriers to use of geospatial information
All themes   2006
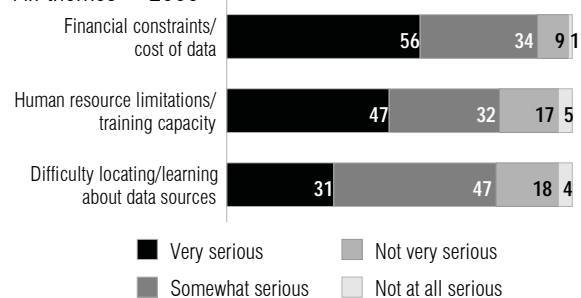
Very serious / Somewhat serious / Not very serious / Not at all serious

	Very serious	Somewhat serious	Not very serious	Not at all serious
Financial constraints/cost of data	56	34	9	1
Human resource limitations/training capacity	47	32	17	5
Difficulty locating/learning about data sources	31	47	18	4

Q.36
How serious would you say that each of the following barriers are to your group or organization's use of geographic information … Financial constraints or the cost of data … Difficulty in locating or learning about data sources … Human resource limitations and training capacity?

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11 Results were always examined for regional differences, but these were not generally significant. This is one example where region appears to play a role.

Impact of barriers to use of geospatial information
Percent very serious   2006

	Financial Constraints/ Cost of Data %	Human Resource Limitations/ Training %	Difficulty Locating/ Learning Data Sources %
Theme			
Environment & Sustainable Development	54	45	27
Aboriginal Matters	71	67	33
Public Safety	53	36	33
Public Health	45	41	33
Organization type			
Federal government	46	34	37
Provincial/territorial government	52	46	24
Municipal/regional government	55	57	29
Not-for-profit	68	61	33
Private sector	61	18	39
Academic	47	27	27
Region			
B.C.	52	58	23
Prairies	60	51	29
Ontario	50	46	37
Quebec	70	36	38
Atlantic	54	51	14
North	41	53	24

Q.36
How serious would you say that each of the following barriers are to your group or organization's use of geographic information … Financial constraints or the cost of data … Difficulty in locating or learning about data sources … Human resource limitations and training capacity?

On-line geospatial information and tools

Frequency of personal use of on-line geospatial information

About one in four decision-makers say they personally use on-line geospatial information or tools on at least a daily basis, while half use them weekly or several times a month.

The survey was conducted with senior decision-makers in organizations that use geographic information, not with technicians. As such, these individuals can be expected to be somewhat removed from the use of geospatial information. To assess the extent to which this is the case, respondents were asked to indicate how often, if ever, they personally use on-line geospatial information and tools or portals. Websites like Mapquest or downloadable applications such as GoogleEarth were given as examples.

One in four (24%) decision-makers say they use on-line geographic tools daily, and half (52%) say they use them weekly or several times a month. One in six (18%) say they use them once a month or less, and five percent say they have never used on-line geographic tools. Use of on-line geospatial information and tools is quite consistent across themes, with those in the Aboriginal Matters theme being somewhat less likely to report daily use.

Those most likely to report using on-line geospatial services at least once a day work in organizations with annual budgets of $100,000 or more, but the proportion of that budget devoted to geomatics does not appear to be a factor. Frequent use of such on-line services is linked to having visited the CGDI website, and to awareness of the Discovery portal.

Frequency of personal use of on-line geospatial information
By theme   2006

Theme	At least once a day	Weekly/several times a month	Less often/never
All themes	24	52	23
Environment and sustainable development	26	49	25
Aboriginal matters	18	56	25
Public safety	27	51	20
Public health	25	55	20

- ■ At least once a day
- ■ Weekly/several times a month
- □ Less often/never
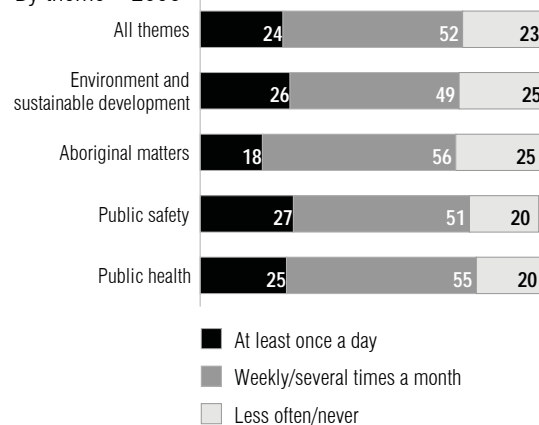
Q.37
How often, if ever, do you personally use on-line geospatial information and tools or portals (for example, websites like Mapquest, where you can plan a trip route, or downloadable applications like GoogleEarth, where you can plot your location on a satellite image of Earth) …?

Level of familiarity with GeoConnections/CGDI

About half of organizations in the four themes were at least somewhat familiar with GeoConnections and the CGDI prior to this survey. Previous familiarity is highest among those in the Environment and Sustainable Development theme.

All respondents were asked to indicate how familiar they were with GeoConnections and the CGDI prior to this survey. Half say they were either very (19%) or somewhat (30%) familiar, and the remainder were not very (22%) or at all (30%) familiar with it. Those most likely to have been very familiar with GeoConnections prior to the survey are in the Environmental and Sustainable Development theme area.

As can be expected, previous familiarity with the CGDI varies by type of organization. Those most likely to say they were very familiar are federal government organizations and agencies (34%), followed by not-for-profit organizations (26%). Previous familiarity is lowest among municipal and regional governments (7% very aware).

Having previous familiarity with GeoConnections varies considerably by region, with those most aware located in Ontario (29% very aware) and the Prairies (23%), and those least aware in British Columbia (10% very aware) and Quebec (12%). Budget also appears to be a factor: awareness of GeoConnections and the CGDI is higher among organizations with annual budgets of $100,000 than among smaller ones, and reported familiarity increases proportionately with the percentage of budget devoted to geomatics. Awareness is higher among those who report being suppliers, developers and marketers than among end-users, and among those organizations that are daily users of geospatial information.

Familiarity with GeoConnections/CGDI
By theme   2006

	Very familiar	Somewhat familiar	Not very familiar	Not at all familiar
All themes	19	30	22	30
Environment and sustainable development	31	35	15	19
Aboriginal matters	14	33	24	29
Public safety	9	29	26	37
Public health	16	16	27	41
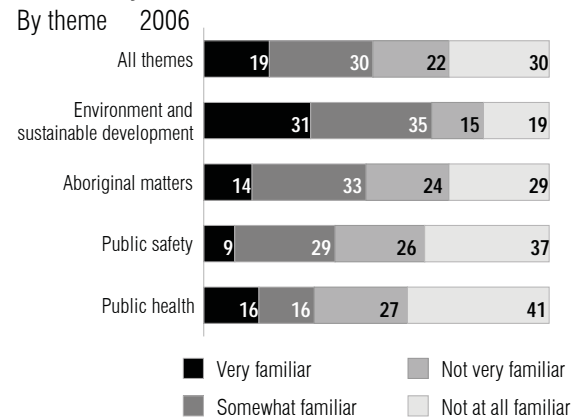
Q.38
Prior to this survey, how familiar were you with GeoConnections and the Canadian Geospatial Data Infrastructure (CGDI) …?

GeoConnections website and Discovery Portal

Half say they have visited the GeoConnections website, and a third are aware of the Discovery Portal. Two-thirds of website visitors went there to learn more about GeoConnections and the CGDI; half reported finding most or all of what they sought.

Ever visited GeoConnections website. Decision-makers were asked if they have ever visited the GeoConnections/CGDI website.[12] Half (53%) report having visited these sites, which may be a somewhat elevated proportion, as the addresses were provided in the material provided to respondents in advance of the survey.

Having visited the site is highest among those in the Environment/Sustainable Development theme area (69%, vs. 45%). As might be expected, it is also higher among those in federal government departments and agencies (73%) than those in other types of organizations. Previous website visits are reported more by daily users of geospatial information (62%) than by those who use such information less often (33%), and also by those who have 51 percent or more of their operating budget devoted to geomatics (75%) than those devoting half or less (51%).

Awareness of Discovery Portal. Participants were asked to indicate if they are aware of the GeoConnections Discovery Portal.[13] A third (33%) are aware of this site.

As is the case with having visited the CGDI website, awareness of the Discovery Portal is highest among those in the Environment/Sustainable Development (46%) theme area than those in the other theme areas (26%). Similarly, awareness of the Discovery Portal is also highest among those in federal government departments and agencies (56%); among daily users of geospatial information (41%) than among those who use such information less often (15%); and among those with 51 percent or more of budget devoted to geomatics (58%) than those devoting 50% or less (29%).

CGDI website/Discovery Portal
By theme   2006
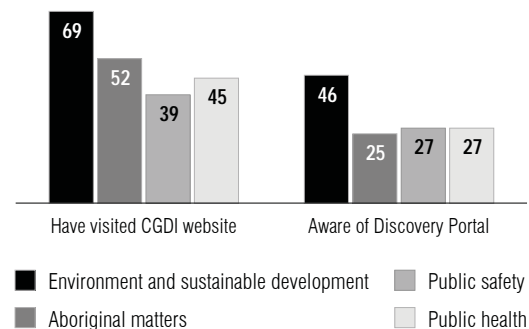
■ Environment and sustainable development   ▨ Public safety
▨ Aboriginal matters   □ Public health

Q.39
Have you ever visited the GeoConnections/CGDI website (http://www.geoconnexions.org or http://www.cgdi.gc.ca)?
Q.42
Are you aware of the GeoConnections Discovery Portal (http://geodiscover.cgdi.ca)?

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12 The URLs http://www.geoconnexions.org and http://www.cgdi.gc.ca were provided for clarification.
13 The URL http://www.geodiscover.cgdi.ca was provided.

Reason for visit to CGDI website. GeoConnections website visitors were asked their reason for going to the site. Three possibilities were provided and an option to specify more given. Two-thirds (65%) went to the site to learn more about GeoConnections and the CGDI, while just over a third (37%) said they went to obtain geospatial information. One in six (17%) visited to learn about standards, and one in ten (9%) to learn about funding. About one in six mention some other reason for the visit, including publishing metadata, looking for contact information, connecting with others, promoting services on-line, and to search for data (deemed "very difficult for a non-specialist" by one respondent).

Success in locating information on CGDI website. Those who reported visiting the GeoConnections website were asked if they generally found what they were looking for. Just over half found all (12%) or most (43%) of what they sought. Four in ten found some (39%) of what they were looking for, and six percent found none or did not say. One should keep in mind that the majority indicate they went to the site to learn about GeoConnections and the CGDI; they may not have had a specific information need or goal in mind and thus it is unlikely they would report having found "all" they could. Those least likely to have found most or all of what they were looking for are in the Aboriginal Matters theme.

Reason for visiting CGDI website
All themes   2006

Learn about CGDI	65
Obtain geospatial information	37
Learn about standards	17
Learn about funding	9
Other	15
Not stated	2
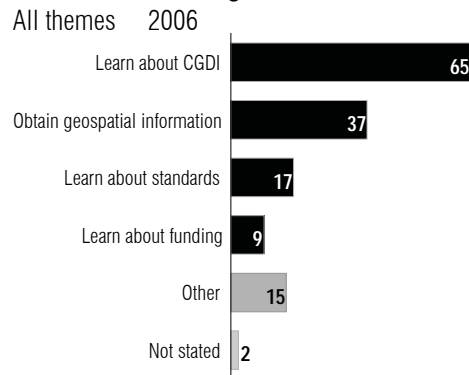
Q.40
What did you use the GeoConnections/CGDI website for …?
Subsample: Those who have visited the GeoConnections/CGDI website (n=148)

Amount of needed information located on CGDI website
By theme   2006

	All	Most	Some	None/dk
All themes	12	43	39	6
Environment and sustainable development	14	47	33	6
Aboriginal matters	6	39	46	9
Public safety	15	41	41	4
Public health	14	41	46	

■ All   ■ Most   ■ Some   □ None/dk
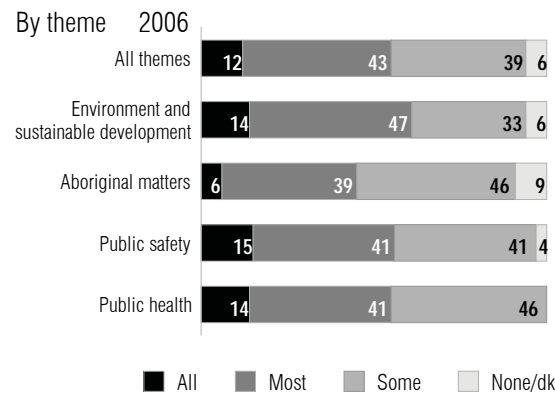
Q.41
When you visited the GeoConnections/CGDI website, did you generally find …?
Subsample: Those who have visited the GeoConnections/CGDI website (n=148)

GeoConnections' applicability to respondents' organization

The ways in which GeoConnections is seen to be a fit to organizations are theme-specific, but three-quarters report some fit in the environment or resource management area.

Decision-makers were provided with a list of 38 areas (in six categories) where the CGDI might be applicable to their organization and asked to indicate the top five "best fit" areas in order of priority. Unlike the case with kinds of geospatial data, these areas of fit are more theme-specific so there tends to be less observable overlap between themes, so it is important to review the lists by theme when considering priorities.

Three-quarters of organizations gave at least one area in the environmental and resource management category. This reflects not only the importance of these in both the E&SD and Aboriginal Matters themes, but the fact that this is the largest and broadest grouping, including as it did such diverse options as indicator development, community or municipal planning, policy development and regulatory affairs.

Over a third (36%) of respondents cite land use planning, about a quarter each mention environmental assessment (27%) and environmental monitoring (26%), and two in ten each mention forest management (19%) and sustainable development/conservation (19%). This is a reflection of the shared interests in the Environmental/Sustainable Development and the Aboriginal Matters theme areas. Close to two in ten mention emergency preparedness, emergency response or emergency management, reflecting the level of applicability of these to organizations in the Public Safety and Security area.

GeoConnections' applicability
By theme   2006

	All Themes	Environment & Sustainable Development	Aboriginal Matters	Public Safety	Public Health
Environmental/resource management	75	96	89	53	45
Public safety/security	39	22	24	77	37
Consulting	31	43	35	26	12
Research	24	24	19	19	39
Health	23	10	10	19	69
Other*	23	17	60	10	6

* "Other" category includes traditional Aboriginal land claims and traditional Aboriginal knowledge

Q.43
From the list below, please identify the top five areas where the CGDI would be the most applicable (best fit) for your organization. Indicate the priority by writing the number next to the item where 1 is most important and 5 is the least important …

SURVEY OF GEOGRAPHIC INFORMATION DECISION-MAKERS
ENVIRONICS

The top ten areas of applicability by theme are shown
in the following tables.

GeoConnections' applicability
Top 10 mentions   All themes   2006

INFORMATION	% RANKING	AVERAGE SCORE (OUT OF 5)
Land use planning/mgmt	36	3.5
Environmental assessment	27	3.0
Environmental monitoring	26	2.9
Forest management	19	3.5
Sustainable development/conservation	19	3.4
Emergency preparedness	18	2.8
Emergency response	18	2.8
Emergency management	17	3.2
Population health analysis	16	3.6
Emergency co-ordination	16	2.8

Q.43
From the list below, please identify
the top five areas where the CGDI
would be the most applicable
(best fit) for your organization.
Indicate the priority by writing the
number next to the item where 1 is
most important and 5 is the least
important …

GeoConnections' applicability –
Environment & Sustainable Development
Top 10 mentions   2006

INFORMATION	% RANKING	AVERAGE SCORE (OUT OF 5)
Land use planning/mgmt	49	3.6
Environmental monitoring	43	2.9
Environmental assessment	40	3.0
Forest management	30	3.9
Sustainable development/conservation	27	3.9
Freshwater management	23	2.5
Other natural resource mgmt (e.g. mining, oil, gas)	22	2.7
Species management	21	3.4
Utility infrastructure planning/mgmt.	19	2.9
Environmental education and advocacy	18	2.0

GeoConnections' applicability – Aboriginal Matters
Top 10 mentions 2006

INFORMATION	% RANKING	AVERAGE SCORE (OUT OF 5)
Land use planning/mgmt	62	3.6
Traditional Aboriginal land use and occupancy	44	3.0
Traditional Aboriginal knowledge	32	3.0
Environmental assessment	29	3.2
Forest management	29	2.9
Community planning	25	3.0
Environmental monitoring	24	3.3
Sustainable development/conservation	24	3.2
Species management	24	2.4
Other natural resource mgmt (e.g. mining, oil, gas)	18	3.2

GeoConnections' applicability – Public Safety
Top 10 mentions 2006

INFORMATION	% RANKING	AVERAGE SCORE (OUT OF 5)
Emergency response	46	3.1
Emergency co-ordination	44	2.9
Emergency management	43	3.6
Emergency preparedness	41	3.3
Critical infrastructure protection/mgmt.	34	3.8
First responders (fire/police/rescue/emerg.services/notification)	29	3.1
Protection/management	19	3.2
Utility infrastructure planning/mgmt.	17	4.4
Sustainable development/conservation	16	3.0
Municipal/urban planning	16	3.6

GeoConnections' applicability – Public Health
Top 10 mentions 2006

INFORMATION	% RANKING	AVERAGE SCORE (OUT OF 5)
Population health analysis	67	3.9
Disease surveillance	45	4.0
Health education and advocacy	33	2.9
Health and safety co-ordination/mgmt	29	2.8
Health care institution, clinic or centre	29	3.3
Academic research	27	3.7
Emergency preparedness	22	2.1
Government research	20	2.5
Environmental assessment	18	2.9
Public health office	18	2.0

Q.43
From the list below, please identify the top five areas where the CGDI would be the most applicable (best fit) for your organization. Indicate the priority by writing the number next to the item where 1 is most important and 5 is the least important …

Preferred methods to receive future CGDI information

The GeoConnections website and an electronic news-letter are the methods users prefer to obtain further information about the CGDI.

Decision-makers were asked to indicate which of several possible methods they would prefer to obtain further information about the CGDI. Multiple mentions were permitted. In keeping with the fact that most geographic information is available electronically, users tend to prefer electronic methods of obtaining further information about the CGDI. Over six in ten (63%) indicate the GeoConnections website as an information source, following by an electronic news-

letter (56%). Four in ten (41%) would like to obtain information from workshops on specific issues, while a third (33%) would prefer more direct contact in the form of a personal call or e-mail. Two in ten or fewer would prefer hard-copy media, such as print materials or articles in journals or magazine. One in seven (15%) does not indicate a preferred method to obtain additional CGDI information.

There is little difference observed by theme area, with the exception that print materials find somewhat more acceptance among those in the Public Safety/Security and Aboriginal Matters communities.

Preferred methods to receive future information
By theme   2006

	All Themes %	Environment & Sustainable Development %	Aboriginal Matters %	Public Safety %	Public Health %
The GeoConnections website	63	63	65	63	63
Electronic newsletter	56	55	54	60	53
Workshops on specific issues	41	41	46	36	41
Personal contact via telephone or e-mail	33	37	37	26	31
Print materials	22	14	27	34	16
Articles in journals/magazines	15	13	13	23	12

Q.44
By what methods would you prefer to obtain further information about CGDI …?

SURVEY OF GEOGRAPHIC INFORMATION DECISION-MAKERS
ENVIRONICS

Areas of focus for GeoConnections

Users most look to GeoConnections to address barriers to the access and use of geographic information.

Organizations using geospatial data were given a list of four possible areas for GeoConnections to focus its efforts, and allowed to indicate any they felt were applicable [Q.45]. Addressing barriers emerged as the most-mentioned area of focus for GeoConnections (64%), although is should be noted that barriers were the focus of much of the survey and this may have some impact on its high placement. Improving content is an area of focus for half (50%), while four in ten each believe that GeoConnections should focus

on improving technology, standards and specifications (40%) and developing useful applications for applying the CGDI (39%). Six percent did not indicate any of these areas.

Addressing barriers such as policy, data sharing or licensing issues is the top focus for organizations in all of the theme areas, but content improvement is also of notable interest to those in the Environment/Sustainable Development and Aboriginal matters themes; as previously seen these two communities of practice have considerable overlap in thematic focus.

Areas of focus for GeoConnections
By theme   2006

	All Themes %	Environment & Sustainable Development %	Aboriginal Matters %	Public Safety %	Public Health %
Addressing barriers such as policy, data sharing or licensing issues	64	65	57	66	71
Improving content available through the CGDI	50	55	52	43	49
Improving technology, standards and specifications for accessing and applying content	40	41	37	46	35
Developing useful applications for applying the CGDI	39	39	35	40	43
dk/na	6	8	5	4	4

Q.45
On which of the following areas should GeoConnections focus its efforts …?

Suggestions for improvements or additions to GeoConnections

Suggestions of improvements are wide ranging, but the most common emphasize additional thematic data, addressing cost issues and more training or workshops.

Four in ten decision-makers provide suggestions for improvements or additions that would make CGDI more useful to their organization for accessing and sharing geospatial information. No central issue stands out as being a most pressing need for improvement. Instead, users mention augmenting existing information, reducing costs or improving awareness or website appearance and functionality. Those most interested in seeing more theme-specific information are in Environmental and Sustainable Development.

Suggestions for improvements or additions for GeoConnections
By theme   2006

	All Themes %	Environment & Sustainable Development %	Aboriginal Matters %	Public Safety %	Public Health %
More information on specific themes	9	16	8	3	6
Cost issues	8	8	10	3	10
More training/workshops	6	4	16	1	2
More comprehensive information	4	2	5	6	2
Increased awareness of GeoConnections	4	4	–	3	8
Improvements on data sharing issues	3	6	2	3	–
Improvements in visual presentation	3	3	–	3	6
Improvements in navigation	3	2	5	1	4
Increased accuracy	1	2	2	–	–
All other mentions (<1% each)	15	15	13	20	14
Nothing/no answer	63	57	61	71	65

Q.46
Do you have any suggestions for improvements or additions that would make CGDI more useful to your organization for accessing and sharing geospatial information?

Methodology

Sample design

The survey was designed to complete interviews with a representative sample of up to 100 end-users of CGDI (current or potential) in each of the four thematic areas identified by GeoConnections. The sample was drawn from all parts of the country to the degree possible based on the lists and other information supplied by the client and further research carried out by Environics.

The sample frame for this survey was developed from multiple sources. The starting point was the end-users already identified by GeoConnections, supplemented by the eligible and willing end-users identified through the Phase 1 focus groups. The third step involved additional research carried out by Environics using published and proprietary lists (e.g. published directories, list brokers), as well as referrals obtained from contacted users/non-users to the extent possible.

The search for additional sample was based on criteria provided by the client in terms of the types of organizations that would be likely to use geospatial information in any of the prescribed thematic areas. The survey was launched with a Wave 1 sample and continued as additional sample was identified. Below is a breakdown of the final sample universe by thematic area:

Estimated sample universe

Wave	1	2	3	Total
Sample Source	GeoConnections	GeoConn/ Environics	Environics	
Aboriginal Matters	183	168	175	526
E&SD	283	27	349	659
Public Health	56	69	529	654
Public Safety	105	74	442	621
Unassigned (theme not established prior to dialling)	0	0	1,254	1,254
Total records	**627**	**338**	**2,749**	**3,714**

(Shown are the numbers of complete, unduplicated sample available for dialling)

All potential respondents were screened to ensure they were decision-makers using geospatial information in one of the four theme areas. Others were disqualified. Respondents were asked in which of the four theme areas their organization was involved, and those who cited more than one were asked to identify a main theme area. The limited availability of qualified eligible end-users and the difficulties in reaching and obtaining consent from senior-level executives, however, resulted in less than the anticipated 100 completed interviews in each area. Organizations from across Canada and from various organization types participated in the survey. At close of field 278 interviews were completed (see table below).

Final sample distribution by theme within region

	Total	Environment / Sustainable Development	Aboriginal Matters	Public Safety	Public Health
	#	#	#	#	#
Atlantic	35	11	7	5	12
Quebec	69	19	16	26	8
Ontario	91	34	14	25	18
Prairies	35	16	9	7	3
BC	31	9	9	5	8
North	17	7	8	2	–
Total	**278**	**96**	**63**	**70**	**49**
Margin of error*	± 5.7	± 9.3	± 11.6	± 11.0	± 13.5

* Described in percentage points, 19 times in 20.

Final sample distribution by organization type

Organization type	Total sample	%
Federal government	41	15
Provincial/terr. gov.	54	19
Municipal/regional gov.**	83	30
Not-for-profit	57	21
Private sector	28	10
Academic	15	5
TOTAL	**278**	**100**

**includes Aboriginal governments/tribal councils

Questionnaire design

The survey methodology determined to be best able to collect the level of detail of information required for a baseline survey was a telephone recruitment interview, followed by the sending of an information package containing a letter from GeoConnections stressing the importance of the survey, a brochure about the program, and a self-completion version of the questionnaire.

The survey instruments used were developed in consultation with GeoConnections. The design incorporated information gleaned from the Phase 1 research, and contained primarily structured questions that provide for fully quantifiable results (e.g. having end-users rate the importance of each of several types of data themes). Once finalized and approved by GeoConnections, the survey materials were then translated into French using the company's professional translators. The French language versions of the survey instruments are appended.

Pre-test. Prior to finalizing the survey for field, Environics conducted a pre-test with "live" respondents. This consisted of telephone recruitment interviews in the same manner as for the full survey, but with a small sample of respondents in major centres, who were then e-mailed, faxed or couriered the survey package and called for a follow-up telephone interview within a short timeframe.

The interviews were monitored by Environics' senior research consultant. Following the pre-test, Environics provided GeoConnections with an assessment of the pre-test results, and recommendations on changes to the questionnaire. Changes to the questionnaire were minor; however, it was noted that numerous attempts and appointments had to be made to achieve completions with this population, a finding that proved to also be the case for the main survey.

Fieldwork

Telephone interviewing. The recruitment interviewing was conducted from Environics' central facilities in Toronto and Montreal, between March 17 and July 27 and the callback interviews were conducted between March 22 and August 4, 2006. Field supervisors were present at all times to ensure accurate interviewing and recording of responses. A minimum of ten percent of each interviewer's work was unobtrusively monitored for quality control in accordance with the standards set out by the Marketing Research and Intelligence Association (MRIA). The average length of time required to complete the recruitment interviews was 4.6 minutes and the full interview was 16.6 minutes. However, a great deal of additional time was spent in rescheduling appointments and this is not included in the above average times.

Numerous call-backs were made to reach each respondent selected in the sample, and such calls were made at different times of the day and days of the week, to maximize the chances of connecting with the respondent. Appointments were made to conduct the follow-up interview during the recruitment screener; however, in a number of cases numerous appointments were required to complete the survey, as respondents were senior executives and the survey was often postponed due to urgent work demands.

All surveys were conducted in respondents' official language of choice. This survey was registered with the Marketing Research and Intelligence Association (MRIA)'s registration system, which permits the public to verify survey calls, inform themselves about the industry and/or register a complaint.

Completion results

A total of 3,714 numbers were available for this survey and a total of 278 interviews were completed. The margin of error for a sample for this size is ± 5.8 percentage points, 19 times in 20. The margins of error are wider for regional and demographic subsamples.

There are two calculated response rates for this survey. The first is the response rate for the recruitment of qualified organizations. This is calculated, using the industry standard calculation of the Marketing Research and Intelligence Association, as the number of

responding participants (those recruited to participate plus those who were disqualified and those E &SD organizations not recruited as this quota was filled) (1,697), divided by unresolved numbers (e.g. busy, no answer) (412) plus non-responding individuals (e.g. refusals, language barrier, missed call-backs) (1,100) [R/(U+IS+R)]. The response rate for recruitment is 53 percent.

The second response rate is the completion rate (completed surveys divided by recruited respondents), which is 47 percent.

Completion results

	N
Total sample dialled	3,714
UNRESOLVED NUMBERS (U)	**412**
Busy	16
No answer	145
Answering machine/voice mail	251
RESOLVED NUMBERS (Total minus Unresolved)	**3,302**
OUT OF SCOPE (Invalid/non-eligible)	**505**
Non-business	17
Not-in-service	257
Fax/modem	231
IN SCOPE NON-RESPONDING **(IS)**	**1,100**
Refusals – gatekeeper	96
Refusals – individual	345
Language barrier	38
Callback missed/respondent not available	620
Break-offs (interview not completed)	1
IN SCOPE RESPONDING **(R)**	**1,697**
Disqualified	874
Quota filled (E&SD)	227
Recruited	596
RECRUITMENT RESPONSE RATE [R / (U + IS + R)]	**53%**
Completed surveys	278
COMPLETION RATE (Completed surveys/ Number recruited)	**47%**

APPENDICES

A) Screener interview questionnaire (English and French)
B) Letter from GeoConnections (English and French)
C) Survey questionnaire (English and French)
D) Kinds of geographic information worksheet (English and French)

APPENDIX A

Screener interview questionnaire (English and French)

Natural Resources Canada - GeoConnections
Survey of Geographic Information Decision-Makers
RECRUITMENT SCREENER - FINAL

Introduction

IF CONTACT NAME IS AVAILABLE IN SAMPLE FILE:

Good morning/afternoon. Is CONTACT NAME there?

IF PERSON IS NOT AVAILABLE, ARRANGE FOR CALL-BACK
IF PERSON IS NOT AVAILABLE OVER INTERVIEW PERIOD, ASK FOR ANOTHER DECISION-MAKER IN THE SAME AREA: Is there someone else in this organization who uses geographic information for decision-making?

IF CONTACT NAME IS NOT AVAILABLE IN SAMPLE FILE:

Good morning/afternoon. My name is _____ and I am calling from Environics Research Group on behalf of Natural Resources Canada's GeoConnections program. May I speak to someone in your group or organization who uses geographic information for decision-making?

INTERVIEWER INSTRUCTION: THE APPROPRIATE RESPONDENT IS SOMEONE WHO IS A DECISION-MAKER (RATHER THAN A TECHNICIAN); HE OR SHE WILL BE INVOLVED IN AREAS SUCH AS INFORMATION MANAGEMENT, EMERGENCY MEASURES, PLANNING OR POLICY, AND USES MAP-BASED INFORMATION – ON PAPER OR ELECTRONIC - TO HELP MAKE DECISIONS.

WHEN RESPONDENT IS REACHED:

My name is _____ and I am calling from Environics Research Group, a national research firm. We are calling on behalf of Natural Resources Canada's GeoConnections program to invite you to participate in an important survey on information that can be mapped online and used for decision making. GeoConnections is a national partnership program to build the Canadian Geospatial Data Infrastructure, or CGDI, which provides on-demand access to geographic information, like maps and satellite images. Map-based information is increasingly used to support decision-making on public health, public safety, environment and matters of importance to Aboriginal peoples. GeoConnections hopes to use your input to ensure its program is relevant to people like you.

This survey is being directed to people who use geographic information to make business or policy decisions, and/or who make decisions about the type of geographic information that your organization acquires and uses.

A. Is this part of your current role?

IF YES CONTINUE
IF NO: Is there someone else in this organization who uses geographic information for decision-making? OBTAIN CONTACT INFORMATION AND RECONTACT.

WHEN CORRECT RESPONDENT IS REACHED: (Repeat introduction if necessary)

Please be assured that your participation in the research is completely voluntary and your decision to participate or not will not affect any dealings you may have with Natural Resources Canada. All information collected is confidential. Your name will not be linked to results. Information used and/or disclosed will be used for research purposes only, will not deal with classified or confidential information, and will be administered as per the requirements of the Privacy Act.

The survey will take about 15 to 20 minutes of your time to complete. We will send you an information package first containing the survey questions and background information on GeoConnections and the CGDI. We will call you back to go through the survey at a time convenient to you. We would like to set that time and date with you today.

IF ASKED: We were given the name of your organization by Natural Resources Canada as a current or potential user or provider of geospatial information.

IF ASKED: The contact person at Natural Resources Canada in charge of the project is Annie Laviolette. Her telephone number is (613) 995-4783 and her e-mail address is alaponse@nrcan.gc.ca

B.   May we have your permission to ask you some further questions to see if you fit in our study?

IF NO – REFUSE TO PARTICIPATE ASK QC
IF YES SKIP QC AND PROCEED

C3. For our records, may I ask you why you do not wish to participate in the survey?
      DO NOT READ LIST

      01 – No time – too busy
      02 – Not qualified to respond
      03 – OTHER REASON - SPECIFY
      VOLUNTEERED
      99 – REFUSED

---

1.   Is geographic data or analysis used for decision-making or priority-setting in your specific operating unit, group or organization? [A7]

      01 - Yes
      02 - No - THANK AND TERMINATE
      VOLUNTEERED
      99 - DK/NA

2.   In which of the following areas is your specific operating unit or organization involved?
      READ LIST – CODE MORE THAN ONE IF VOLUNTEERED

      01 - Environment and sustainable development
      02 - Aboriginal matters
      03 - Public safety and security
      04 - Public health
      05 - None of these - THANK AND TERMINATE
      VOLUNTEERED
      99 - DK/NA

IF MORE THAN ONE THEME AT Q2 ASK Q3
3.   And which area would you say is your *primary* focus?

      01 - Environment and sustainable development
      02 - Aboriginal matters
      03 - Public safety and security
      04 - Public health
      VOLUNTEERED
      05 - All themes mentioned in Q2 are primary focus
      98 - REFUSED
      99 - DK/NA

CHECK AGAINST QUOTAS

4.   What type of organization do you work for?
      READ LIST IF NECESSARY [A1]

      01 – a Provincial or territorial government
      02 – a Regional or municipal government
      03 – a Federal government
      04 – a First Nation, Métis or Inuit regional or local government
      05 – an Academic institution
      06 – an Aboriginal association, not-for-profit organization or NGO (non-government organization)
      07 – a non-Aboriginal association, not-for-profit organization or NGO (non-government organization)
      08 – an Aboriginal private sector company (DO NOT READ: INCLUDES CONSULTANTS)
      09 – a non-Aboriginal private sector company (DO NOT READ: INCLUDES CONSULTANTS)
      VOLUNTEERED
      10 - *Other (specify):_____*
      99 - DK/NA

NEED TO GET A MIX OF ORGANIZATION TYPES WITHIN THE FOUR THEME AREAS
(04, 06 AND 08 = ABORIGINAL)

DISPLAY: We would like to mail you a package to assist you in preparing your answers to the survey, and make an appointment to call you back to complete the survey at a time convenient to you. When you get the package you will see a copy of the questionnaire. We would like you to review and fill out this questionnaire before the interviewer calls you.

5.   Can I please confirm your mailing information?

NAME (VERIFY SPELLING), TITLE
ORGANIZATION NAME (VERIFY SPELLING)
MAILING ADDRESS
VERIFY TELEPHONE NUMBER INCLUDING AREA CODE
E-MAIL ADDRESS

6.   And may I confirm that you would prefer us to send you the package in (LANGUAGE OF
      CURRENT INTERVIEW)?

      01 – ENGLISH
      02 – FRENCH
      03 – BOTH

7.   Would you prefer to be e-mailed the questionnaire information package? This would be a file e-
      mailed in Adobe Acrobat format that you would print out and complete prior to the interview
      appointment.

      IF YES CONFIRM E-MAIL ADDRESS OR OBTAIN FAX NUMBER AS APPROPRIATE

8. When might be a good day and time (IF REGULAR SURVEY: during the week of DATE - ONE WEEK IF E-MAIL/FAX, TWO WEEKS IF MAIL AND URBAN ADDRESS/TWO TO THREE WEEKS IF MAIL AND RURAL/OTHER ADDRESS) for us to call you back to complete the survey?

    MAKE APPOINTMENT FOR CALLBACK - IF RESPONDENT CANNOT PARTICIPATE IN PRETEST SET UP APPOINTMENT IN THREE WEEKS AS PART OF THE MAIN STUDY.

THANK AND TERMINATE

RECORD:

A. Language of interview

    01 - English
    02 - French

B. Province/Territory

    01 - Northwest Territories
    02 - Yukon
    03 - Nunavut
    04 - British Columbia
    05 - Alberta
    06 - Saskatchewan
    07 - Manitoba
    08 - Ontario
    09 - Quebec
    10 - New Brunswick
    11 - Nova Scotia
    12 - Prince Edward Island
    13 - Newfoundland and Labrador

C. Rural/Urban indicator

    01 - Urban
    02 - Rural
    98 - Other
    09 - DK/NA

D. Number of attempts before completing the recruitment

E. Date of recruitment interview

Ressources naturelles Canada – GéoConnexions
Étude auprès des décideurs ayant recours à l'information géographique
QUESTIONNAIRE DE RECRUTEMENT – VERSION FINALE

Introduction

SI LE NOM DE LA PERSONNE À INTERVIEWER SE TROUVE DANS LE FICHIER DE L'ÉCHANTILLON :

Bonjour/bonsoir, puis-je parler à NOM DE LA PERSONNE À INTERVIEWER ?

SI LA PERSONNE EN QUESTION N'EST PAS DISPONIBLE, CONVENIR D'UN MOMENT POUR RAPPELER.
SI LA PERSONNE EN QUESTION N'EST PAS DISPONIBLE PENDANT LA PÉRIODE DES ENTREVUES, DEMANDER À PARLER À UN AUTRE DÉCIDEUR DE CE SECTEUR : Est-ce qu'une autre personne, au sein de votre organisation, utilise de l'information géographique pour prendre des décisions ?

SI LE NOM DE LA PERSONNE À INTERVIEWER EST ABSENT DU FICHIER DE L'ÉCHANTILLON :

Bonjour/bonsoir, je suis _____ , du Groupe de recherche Environics, qui réalise présentement une étude pour le programme GéoConnexions de Ressources naturelles Canada. Puis-je parler à un membre de votre groupe ou de votre organisation qui utilise de l'information géographique pour prendre des décisions ?

NOTE À L'INTENTION DE L'INTERVIEWEUR : LE RÉPONDANT DOIT ÊTRE UN DÉCIDEUR (ET NON UN TECHNICIEN). IL TRAVAILLERA, PAR EXEMPLE, DANS LE DOMAINE DE LA GESTION DE L'INFORMATION, DES MESURES D'URGENCE, DE LA PLANIFICATION OU DES POLITIQUES ET AURA RECOURS À DES DONNÉES CARTOGRAPHIQUES, SUR PAPIER OU ÉLECTRONIQUES, POUR PRENDRE DES DÉCISIONS.

UNE FOIS LE RÉPONDANT EN LIGNE :

Je suis _____, du Groupe de recherche Environics, une maison de recherche nationale, chargée de réaliser une étude pour Ressources naturelles Canada et, plus précisément, le programme GéoConnexions. Nous aimerions vous inviter à participer à une importante étude sur l'information qu'on peut cartographier en ligne et utiliser pour prendre des décisions. GéoConnexions est un programme de partenariat national visant à élaborer l'Infrastructure canadienne de données géospatiales, ou l'ICDG, qui donne accès, sur demande, à de l'information géographique comme les cartes et les images satellites. Les décideurs en matière de santé publique, de sécurité publique, d'environnement et d'affaires autochtones s'appuient de plus en plus sur les données cartographiques. GéoConnexions aimerait vous consulter afin d'assurer l'utilité de son programme pour les gens comme vous.

Cette étude s'intéresse aux gens qui utilisent de l'information géographique dans le cadre de leurs décisions d'affaires ou de leurs décisions en matière de politiques, ou qui décident des types d'information géographique qu'acquerra ou utilisera leur organisation.

A.   Est-ce que ceci fait partie de votre rôle actuel ?

SI A RÉPONDU « OUI », CONTINUER
SI A RÉPONDU « NON » : Est-ce qu'une autre personne de votre organisation utilise de l'information géographique pour prendre des décisions ? OBTENIR LES COORDONNÉES DE LA PERSONNE EN QUESTION ET COMMUNIQUER AVEC ELLE.

UNE FOIS EN LIGNE AVEC LE RÉPONDANT VOULU : (Répéter l'introduction, au besoin.)

Vous êtes tout à fait libre de participer ou non à cette étude et votre décision d'y participer ou de vous abstenir n'aura aucun effet sur vos relations avec Ressources naturelles Canada. Toutes les réponses seront traitées de façon confidentielle. Votre nom ne sera pas associé aux résultats. Il ne sera pas question de renseignements confidentiels ou classifiés. Les renseignements obtenus ne seront utilisés qu'à des fins de recherche et seront traités conformément aux exigences de la *Loi sur la protection des renseignements personnels*.

Il faudra de 15 à 20 minutes pour répondre au questionnaire. Nous vous ferons d'abord parvenir une trousse de renseignements comprenant les questions qui vous seront posées ainsi que des renseignements généraux sur le programme GéoConnexions et l'ICDG. Nous vous téléphonerons ensuite pour réaliser l'entrevue, à votre convenance. Pourrions-nous fixer la date et l'heure tout de suite ?

SI ON VOUS LE DEMANDE : Ressources naturelles Canada nous a transmis le nom des utilisateurs et des fournisseurs d'information géographique, actuels ou potentiels, dont le vôtre.

SI ON VOUS LE DEMANDE : La personne responsable de ce projet, à Ressources naturelles Canada, est Mme Annie Laviolette. Son numéro de téléphone est le (613) 995-4783 et son adresse de courriel est la suivante : alaponse@nrcan.gc.ca

B.   Puis-je vous poser quelques questions pour vérifier votre admissibilité à notre étude ?

SI A RÉPONDU « NON » (REFUS DE PARTICIPER), POSER LA QUESTION C.
SI A RÉPONDU « OUI », SAUTER LA QUESTION C ET CONTINUER.

C3. Pour nos dossiers, puis-je vous demander pourquoi vous ne souhaitez pas participer à cette étude ?
     NE PAS LIRE LA LISTE

     01 – Manque de temps – trop occupé(e)
     02 – N'a pas les compétences nécessaires
     03 – AUTRE RAISON – PRÉCISER
     DÉCLARATION SPONTANÉE
     99 – REFUS

1.   Est-ce que votre organisation, votre unité ou votre groupe opérationnel utilise des données ou des analyses géographiques lors de prises de décisions ou de l'établissement de priorités ? [A7]

     01 - Oui
     02 - Non - REMERCIER ET METTRE FIN À L'ENTRETIEN
     DÉCLARATION SPONTANÉE
     99 - NSP/NPR

2. Auquel des domaines suivants s'intéresse votre unité ou organisation opérationnelle ?
   LIRE LA LISTE – ACCEPTER PLUS D'UNE RÉPONSE S'IL S'AGIT D'UNE DÉCLARATION SPONTANÉE

   01 – L'environnement et le développement durable
   02 – Les affaires autochtones
   03 – La sécurité publique
   04 – La santé publique
   05 – Aucune de ces réponses – REMERCIER ET METTRE FIN À L'ENTRETIEN
   DÉCLARATION SPONTANÉE
   99 - NSP/NPR

SI A INDIQUÉ PLUS D'UN DOMAINE À LA Q2, POSER LA Q3
3. Et, selon vous, dans lequel de ces domaines se situe votre *principal* intérêt ?

   01 – L'environnement et le développement durable
   02 – Les affaires autochtones
   03 – La sécurité publique
   04 – La santé publique
   DÉCLARATION SPONTANÉE
   05 – Tous les domaines mentionnés à la Q2 constituent le principal intérêt de l'organisation.
   98 - REFUS
   99 - NSP/NPR

VÉRIFIER D'APRÈS LES QUOTAS

4. Pour quel genre d'organisation travaillez-vous ?
   LIRE LA LISTE AU BESOIN [A1]

   01 – Un gouvernement provincial ou territorial
   02 – Une administration régionale ou municipale
   03 – Un gouvernement fédéral
   04 – Un gouvernement régional ou local des Premières nations, Métis ou Inuit
   05 – Un établissement d'enseignement
   06 – Une association, une organisation sans but lucratif ou une ONG (organisation non
         gouvernementale) autochtone
   07 – Une association, une organisation sans but lucratif ou une ONG (organisation non
         gouvernementale) non autochtone
   08 – Une entreprise privée autochtone (NE PAS LIRE : INCLUT LES EXPERTS-CONSEILS)
   09 – Une entreprise privée non autochtone (NE PAS LIRE : INCLUT LES EXPERTS-CONSEILS)
   DÉCLARATION SPONTANÉE
   10 – *Autre (préciser) :_____*
      99 - NSP/NPR

ON DOIT RETROUVER LES DIVERS GENRES D'ORGANISATIONS AU SEIN DE CHACUN DES
QUATRE DOMAINES
(04, 06 ET 08 = AUTOCHTONE)

AFFICHER : Nous aimerions vous envoyer une trousse, par la poste, pour vous aider à préparer vos
réponses et convenir d'un moment où nous pourrions vous téléphoner pour réaliser l'entrevue. Quand
vous recevrez cette trousse, vous y trouverez un exemplaire du questionnaire. Veuillez l'étudier et le
remplir avant l'entrevue téléphonique.

5.   Puis-je confirmer votre adresse postale ?

NOM (VÉRIFIER L'ORTHOGRAPHE)
TITRE
NOM DE L'ORGANISATION (VÉRIFIER L'ORTHOGRAPHE)
ADRESSE POSTALE
VÉRIFIER LE NUMÉRO DE TÉLÉPHONE, Y COMPRIS L'INDICATIF RÉGIONAL
COURRIEL

6.   Préféreriez-vous recevoir la trousse offerte en (LANGUE DU PRÉSENT ENTRETIEN) ?

   01 – ANGLAIS
   02 – FRANÇAIS
   03 – LES DEUX

7.   Préféreriez-vous recevoir la trousse de renseignements par courriel ? Nous vous enverrions un fichier de format Adobe Acrobat. Il vous suffirait alors d'imprimer le questionnaire et de le remplir avant l'entrevue téléphonique.

SI A RÉPONDU « OUI », CONFIRMER L'ADRESSE DE COURRIEL OU OBTENIR LE NUMÉRO DE TÉLÉCOPIEUR, AU BESOIN.

8.   Quelle date et à quelle heure pourrions-nous vous téléphoner pour réaliser l'entrevue, durant la semaine du _____ ?

PRENDRE RENDEZ-VOUS. SI LE RÉPONDANT NE PEUT PAS PARTICIPER AU PRÉ-TEST, PRENDRE RENDEZ-VOUS DANS TROIS SEMAINES, DURANT LA PÉRIODE DES ENTREVUES.

REMERCIER ET METTRE FIN À L'ENTRETIEN

NOTER :

A. Langue de l'entrevue

01 - Anglais
02 - Français

B. Province/territoire

01 – Territoires du Nord-Ouest
02 – Yukon
03 – Nunavut
04 – Colombie-Britannique
05 – Alberta
06 – Saskatchewan
07 – Manitoba
08 – Ontario
09 – Québec
10 – Nouveau-Brunswick
11 – Nouvelle-Écosse
12 – Île-du-Prince-Édouard
13 – Terre-Neuve-et-Labrador

C. Indicateur rural/urbain

01 - Urbain
02 - Rural
98 - Autre
09 - NSP/NPR

D. Nombre de tentatives avant la fin de la période de recrutement

E. Date de l'entrevue de recrutement

Appendix B

Letter from GeoConnections (English and French)

DATE

NAME
TITLE
ORGANIZATION
ADDRESS
CITY, PR PCODE

Dear NAME,

Re: Survey on Use of Geographic Information

Thank you for agreeing to participate in this survey for Natural Resources Canada's GeoConnections program. This survey is part of a national assessment of the needs of present and future users of the Canadian Geospatial Data Infrastructure (CGDI). The CGDI is an online resource that enables Canadians to access, use, and combine geographic information over the Internet to gain new insights into social, environmental, and economic issues.

The objective of this assessment is to discover key business requirements of organizations who use geospatial information in one of four thematic areas: a) public health; b) public safety and security; c) environment/ sustainable development, and d) matters of importance to Aboriginal Peoples). The results of this assessment will be critical to guiding further development of the CGDI. Your input will help shape this important geospatial resource.

Included in this package is: the list of survey questions for which we are seeking your answers; a worksheet, listing types of geographic information that is used, to help complete several of the questions; and a booklet describing GeoConnections and the CGDI. We ask that you review the questions and note your answers on the survey form provided, prior to the telephone interview. This will ensure that information is not missed and that the interview can be conducted efficiently. Please answer the questions on behalf of the operating unit of your organization for which you have direct responsibility. An operating unit is the branch, program, division, section or group that you are responsible for and for which there is a budget.

Our records indicate that your interview has been scheduled for

DATE   TIME

Your participation in this research is completely voluntary and all information collected is confidential. Your name will not be linked to results.

If, on reviewing the questions, you believe that someone else in your department, group or division is better positioned to answer them, please pass on the survey to them and let the interviewer know about the change in contact name when you are called. We are seeking the input of people who use geographic information for decision-making, rather than someone who is a technician or computer analyst.

If you would like to know more about the survey or the CGDI assessment, please contact Annie Laviolette at (613) 995-4783 or by e-mail address: alaponse@nrcan.gc.ca. You can get additional information about the CGDI on the GeoConnections web site at http://www.geoconnections.org/.

Thank you again for your assistance with this important survey.

Sincerely

615 Booth St, 6th Floor
Ottawa, ON K1A 0E9

Craig Stewart, A/Director, GeoConnections Program

DATE

NOM
TITRE
ORGANISATION
ADRESSE
VILLE, PROVINCE CODE POSTAL

Madame,
Monsieur,

Objet : Sondage sur l'utilisation de l'information géographique

Merci d'avoir accepté de participer à ce sondage réalisé pour le programme GéoConnexions de Ressources naturelles Canada. Cette étude fait partie d'une évaluation, à l'échelle nationale, des besoins des utilisateurs, actuels et futurs, de l'Infrastructure canadienne de données géospatiales (ICDG). L'ICDG est un outil en ligne permettant aux Canadiens et Canadiennes de consulter, d'utiliser et de combiner de l'information géographique sur Internet afin de mieux comprendre certaines questions sociales, environnementales et économiques.

L'objectif de cette évaluation est de cerner les principaux besoins fonctionnels des organisations qui utilisent l'information géospatiale dans l'un ou l'autre des quatre domaines suivants : a) la santé publique; b) la sécurité publique; c) l'environnement ou le développement durable; d) les affaires autochtones. Les résultats de cette évaluation joueront un rôle de premier plan dans l'orientation du développement de l'ICDG. Vos réponses contribueront à donner corps à cet important outil géospatial.

Vous trouverez, ci-joint, les documents suivants : les questions auxquelles nous aimerions obtenir vos réponses dans le cadre du sondage, une liste des types d'information géographique utilisée (pour vous aider à répondre à certaines questions), et un livret décrivant le programme GéoConnexions et l'ICDG. Veuillez étudier les questions et indiquer vos réponses sur le formulaire prévu à cet effet et ce, avant l'entrevue téléphonique. Ceci permettra d'éviter tout oubli et de faire en sorte que l'entrevue se déroule le plus efficacement possible. Veuillez répondre aux questions au nom de l'unité opérationnelle de votre organisation dont vous êtes directement responsable. Une unité opérationnelle peut être une direction, un programme, une division, une section ou un groupe dont vous avez la responsabilité et qui est doté d'un budget.

Selon nos dossiers, votre entrevue aura lieu le

DATE   HEURE
Exemple : 20 avril 2006 à 14 h 30

Vous êtes tout à fait libre de participer ou non à cette étude et tous les renseignements obtenus seront traités de façon confidentielle. Votre nom ne sera pas associé aux résultats du sondage.

Quand vous prendrez connaissance des questions, si vous jugez qu'une autre personne au sein de votre unité, de votre groupe ou de votre division serait mieux placée pour y répondre, veuillez acheminer le questionnaire à cette personne et communiquer ce changement à l'intervieweur, quand il vous téléphonera. Nous voulons consulter des personnes qui utilisent de l'information géographique pour prendre des décisions et non des techniciens ou des analystes en informatique, par exemple.

Pour en savoir davantage sur cette étude ou sur l'évaluation de l'ICDG, veuillez communiquer avec Mme Annie Laviolette, en composant le (613) 995-4783, ou lui écrire à l'adresse suivante : alaponse@nrcan.gc.ca. Vous trouverez de plus amples renseignements sur l'ICDG dans le site http://www.geoconnections.org/, de GéoConnexions.

Encore une fois, merci de votre participation à cette importante étude.

Je vous prie d'agréer mes sincères salutations.

615, rue Booth, 6e étage
Ottawa, ON K1A 0E9

Craig Stewart, directeur par intérim, GéoConnexions

Appendix C

Survey Questionnaire (English and French)

SURVEY ON USE OF
GEOGRAPHIC INFORMATION

This survey is being directed to people who use geographic information to make business or policy decisions, and/or who make decisions about the type of geographic information that your organization acquires and uses.

Please be assured that your participation in the research is completely voluntary and your decision to participate or not will not affect any dealings you may have with Natural Resources Canada. All information collected is confidential. Your name will not be linked to results. Information used and/or disclosed will be used for research purposes only, will not deal with classified or confidential information, and will be administered as per the requirements of the Privacy Act.

We ask that you review the questions and note your answers on the survey form provided, prior to the telephone interview. This will ensure that information is not missed and that the interview can be conducted efficiently. You may wish to consult with colleagues to answer some of the questions. Please provide responses on behalf of the specific operating unit of your organization for which you are personally responsible (an operating unit is the branch, program, division, section or group that you are responsible for and for which there is a budget).

ENVIRONICS
RESEARCH GROUP

A. Organization Profile

We would like to start by asking some general questions about your operating unit, group or organization.

1. What would you say is your group or operating unit's <u>main</u> area of focus?
Check one only

2. And what are your group's other areas of focus, if any? *Check any that apply*

1. **MAIN AREA** *Check one only*	2. **OTHER AREAS** *Check all that apply*	
		CONSULTING
☐	☐	Environmental consulting
☐	☐	Economic development
☐	☐	Sustainable development/conservation
☐	☐	Other consulting (specify): _____
		_____
		PUBLIC SAFETY/SECURITY
☐	☐	Critical infrastructure protection/management
☐	☐	Security and intelligence
☐	☐	Emergency coordination
☐	☐	Emergency management
☐	☐	Emergency preparedness
☐	☐	Emergency response
☐	☐	First responders (fire/police/rescue/emergency services/notification)
☐	☐	Other safety/security-related (specify): _____
		_____
		RESEARCH
☐	☐	Academic research
☐	☐	Government research
☐	☐	Community research
☐	☐	Other research (specify): _____
		_____
		HEALTH
☐	☐	Disease surveillance
☐	☐	Frontline health care provider
☐	☐	Health and safety coordination or management
☐	☐	Health care institution, clinic or centre
☐	☐	Population health analysis
☐	☐	Health education and advocacy
☐	☐	Public health office
☐	☐	Other health-related: _____
		_____

ENVIRONMENTAL & RESOURCE MANAGEMENT

1.	2.	
☐	☐	Environmental assessment
☐	☐	Forest management
☐	☐	Freshwater management
☐	☐	Fisheries or marine management
☐	☐	Species management
☐	☐	Land use planning/management
☐	☐	Agriculture
☐	☐	Other natural resource management (e.g. mining, oil, gas)
☐	☐	Utility infrastructure planning/management (e.g. hydro pipelines, roads)
☐	☐	Indicator development
☐	☐	Environmental monitoring
☐	☐	Environmental education and advocacy
☐	☐	Other management (specify):

_____

_____

PLANNING AND GOVERNANCE

1.	2.	
☐	☐	Community planning
☐	☐	Land claim negotiating
☐	☐	Municipal/urban planning
☐	☐	Policy development
☐	☐	Regulatory affairs
☐	☐	Treaty negotiating
☐	☐	Other planning and governance (specify): _____

_____

OTHER

1.	2.	
☐	☐	Traditional Aboriginal knowledge
☐	☐	Traditional Aboriginal land use and occupancy
☐	☐	Other (specify):

_____

_____

3. **What is the approximate <u>annual</u> operating budget for your operating unit, group or division?**

☐ Less than $10,000.00
☐ $10,000 to under $50,000
☐ $50,000 to under $100,000
☐ $100,000 to under $500,000
☐ $500,000 to under $1 million
☐ $1 million to under $5 million
☐ Over $5 million

4. **Does your specific operating unit gather or use geographic information as part of its operations?**

☐ Yes

☐ No   **SKIP TO Q.7**

5. **What percentage of your operating unit's <u>annual</u> operating budget is devoted to activities involving geomatics?**

PERCENTAGE _____%

DEFINITION: **Geomatics** is the collecting, managing, analyzing and integrating of geospatial data. These activities and services enable Canadians to make better policy and business decisions. Geomatics can include remote sensing, GIS (geographic information systems), GPS (global positioning systems) and surveying.

6. **Does your organization have a section or team that is dedicated to geomatics?**

☐ Yes

☐ No

7. **Is geospatial data part of your specific operating unit or group's day to day functions?**

☐ Yes

☐ No

DEFINITION: **Geospatial data** is information that can be mapped or otherwise associated with a particular place, for example the location of a river, crime statistics for a neighbourhood, or the spread of infectious diseases

8. **Which of the following describes your specific operating unit, group or division?**
Check all that apply

☐ A geographic information end user

DEFINITION: Geographic information users rely on applications to produce outputs of geospatial information which they use to make decisions.

☐ A geographic information supplier

DEFINITION: Geographic information suppliers provide geospatial data and web services.

☐ A geographic information application developer

DEFINITION: Geographic information application developers create applications that make it easier for users to interact with geospatial data.

☐ A geographic information application marketer.

DEFINITION: Geographic information application marketers sell and/or support geospatial applications, mostly to end-users. These applications are intended to meet a demand for geospatial information.

9.   Approximately how many hours (in an average week) of staff time in your operating unit or group is spent <u>searching for</u> geospatial information?

HOURS PER WEEK _____

10. And approximately how many hours (in an average week) of staff time in your operating unit or group is spent <u>using</u> geospatial information?

HOURS PER WEEK _____

11. How important is geospatial information to your operating unit or group currently?

☐   Critically important (could nor function without it)

☐   Very important (but not crucial)

☐   Somewhat important

☐   Not very important

☐   Not at all important

12. And do you think that, five years from now, geospatial information will be…than it is today?

☐   Significantly more important

☐   Somewhat more important

☐   About the same level of importance

☐   Somewhat less important

☐   Significantly less important

B. Kinds and Importance of Geospatial Information

To complete this section of the survey, please refer to the KINDS OF GEOGRAPHIC INFORMATION WORKSHEET from your survey package. (yellow sheet)

13. Which kinds of geospatial information does your operating unit or group <u>currently</u> use for decision-making?
Please provide up to 10 in order of importance

14. Which kinds of geospatial information, if any, would your operating unit or group <u>like</u> to use that it currently does not?
Please provide up to five in order of importance

13. **GEO INFO** **CODE** *(up to 10)*	**14.** **GEO INFO** **CODE** *(up to 5)*
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
6. _____	
7. _____	
8. _____	
9. _____	
10. _____	

15. FOR ANY KINDS OF INFORMATION IDENTIFIED IN Q.14: Why are you not currently using this kind of information?
Please refer to yellow worksheet – record codes

GEO INFO **CODE**	**REASON FOR NOT USING**
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

16. **Please rank the <u>top five</u> types of information that will be important to your organization five years from now.**
    Please refer to yellow worksheet – record codes from 1 to 5
    If five types not important, rank top number available

    GEO INFO
    CODE
    (up to 5)

    1. _____

    2. _____

    3. _____

    4. _____

    5. _____

17. **Some types of geographic data are <u>base data</u>, that is, they form the framework to which other data sets are referenced. The exact themes that are considered base data vary by application, but typical examples could be road network data, shoreline data, topographic data or census boundaries.**

    Thinking about the data set(s) that are part of your <u>base geographic data</u>, to what extent are you currently able to obtain these data in a dependable, standardized way?

    ☐   All of it

    ☐   Some of it

    ☐   None of it

18. **What base data sets (frameworks) would make the biggest difference to your organization should they be made available at no cost?**
    Please refer to yellow worksheet – record codes from 1 to 5.
    If five types not applicable, indicate as many as apply

    GEO INFO
    CODE
    (up to 5)

    1. _____

    2. _____

    3. _____

    4. _____

    5. _____

19. What scale of geographic coverage does your operating unit or group <u>usually</u> require for geospatial data?
Check all that apply

☐ Municipal

☐ Regional

☐ Provincial

☐ National

☐ International

☐ Other (specify): _____

20. Thinking about the top three kinds of geospatial information you identified in question 13, how <u>current</u> do you generally require this geospatial information to be?
Check one only

☐ Real-time

☐ Hourly

☐ Daily

☐ Weekly

☐ Bi-weekly

☐ Monthly

☐ Quarterly

☐ Annually

☐ Doesn't matter

☐ Other (specify): _____

C. Sources of Geospatial Information

21. From which of the following sources does your operating unit, group or organization currently get geospatial information?
Check all that apply

- ☐ Collected internally
- ☐ Not-for-profit organizations
- ☐ Geomatics industry/private sector
- ☐ Other industry/private sector
- ☐ Regional or municipal governments
- ☐ Provincial or territorial governments
- ☐ Federal governments departments or agencies
- ☐ International governments
- ☐ Other (specify):_____

22. Please <u>rank</u> the following factors in terms of how much they influence your confidence in geospatial data.
Rank with numbers "1", "2", etc.

RANK

_____	who *collected* the data (the source)
_____	who is *providing* the data (the supplier)
_____	*how* the data were collected
_____	the *quality* of the data
_____	the *completeness* of the data
_____	the *standards* used to collect or display the metadata
_____	the *standards* used to collect or display the data
_____	the *quality* and *completeness* of the metadata (description of the data)
_____	the *content* of the metadata (i.e. data too old)

DEFINITION: **Metadata** can be defined as 'information about data'. It answers the questions 'who, what, where, when, why, and how' about every facet of the data or service being documented. This includes details about the data's ownership, quality, time of collection or update, attribute information and how it can be accessed and obtained. To ensure consistency, metadata can be defined by standards that offer a common set of terms, definitions and organization.

D. Formats for Access and Use of Geospatial Information

23. What percentage of the geospatial information your operating unit or group uses currently is:
Total should equal 100%.

%

_____ A) In paper format (not including electronic content that is printed)

_____ B) In electronic or digital format (including web-based resources)

100%

24. What geomatics software does your operating unit or group use (if any)?
Note: This can include GIS software, image processing software & CAD systems

_____

_____

☐ None

E. Sharing of Geospatial Information

25. Does your **operating unit** or group share geospatial information with others, either internally or externally?

☐ Yes **SKIP TO Q.27** →

☐ No

> DEFINITION: **Sharing geospatial information** means that you jointly use information gathered either by your organization or by another organization.

26. Why does your organization not share geospatial information?
Check all that apply

☐ Political issues (trust)

☐ Privacy and confidentiality issues

☐ Liability issues

☐ Licensing and ownership issues

☐ Cannot recover costs

☐ Standardization issues

☐ Other (specify): _____

> Now skip to section F

If your organization shares data:

27. What is the main reason(s) your organization shares geospatial information with others?
Check all that apply.

☐ For profit
☐ For cost recovery
☐ Share on reciprocal basis – to get more data
☐ Part of mandate to provide information to others
☐ For the common good
☐ Other (specify):_____

28. What geospatial information does your organization share with others?
Please refer to yellow worksheet – record codes

GEO INFO CODE

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

29. <u>With whom</u> do you share geospatial information?
Check all that apply

☐ Within our own operating unit, group or organization
☐ Local municipalities
☐ Regional or provincial governments
☐ Federal government departments
☐ Clients
☐ Suppliers
☐ Private sector companies
☐ Non-government or not-for-profit organizations
☐ Academic institutions
☐ Other (specify):_____

30. What delivery mechanisms does your organization use to share geospatial information with others?
Check all that apply

☐   File Transfer Protocols (FTP)
☐   Web services such as Web Map Service (WMS), Web Feature Service (WFS)
☐   E-mail
☐   Storage devices such as CD, DVD, memory stick, floppy disk
☐   Hard copy
☐   Other (specify):_____

31. Which technical standards or specifications do you use, if any?
Check all that apply

☐   ISO (International Organization for Standardization)
☐   OGC (Open GeoSpatial Consortium)
☐   FGDC (Federal Geographic Data Committee)
☐   CBSB (Canadian General Standards Board)
☐   ANSI (American National Standards Institute)
☐   W3C (World Wide Web Consortium)
☐   IEEE (Institute of Electrical and Electronics Engineering)
☐   Other (specify):_____
☐   None of the above

32. In order for your organization to do more <u>data sharing</u>, how important is it to remove each of the following barriers?
Check one for each barrier

	Very important	Somewhat important	Not very important	Not at all important
a. Political issues that impact trust	☐	☐	☐	☐
b. Lack of common platforms	☐	☐	☐	☐
c. Lack of common standards	☐	☐	☐	☐
d. Privacy and confidentiality issues	☐	☐	☐	☐
e. Liability issues	☐	☐	☐	☐
f. Licensing issues	☐	☐	☐	☐
g. Cost issues	☐	☐	☐	☐

F. Barriers to Access and Use of Geospatial Information

33. Please identify the <u>top three barriers</u> to your operating unit or group's <u>access to</u> geographic or geospatial information.
Please specify

    1. _____

    2. _____

    3. _____

    ☐   None

34. Please identify the <u>top three barriers</u> to your operating unit or group's <u>use of</u> geographic or geospatial information.
Please specify

    1. _____

    2. _____

    3. _____

    ☐   None

35. What, if any, issues do you have that affect your trust of data or sources?
Please specify

_____

_____

36. How serious would you say that each of the following barriers are to your group or organization's use of geographic information?
Check one for each barrier

	Very serious	Somewhat serious	Not very serious	Not at all serious
a. Financial constraints or the cost of data	☐	☐	☐	☐
b. Difficulty in locating or learning about data sources	☐	☐	☐	☐
c. Human resource limitations and training capacity	☐	☐	☐	☐

G. Online Geospatial Information and Tools

37. How often, if ever, do you personally use online geospatial information and tools or portals (for example, web sites like Mapquest, where you can plan a trip route, or downloadable applications like GoogleEarth, where you can plot your location on a satellite image of Earth)?
Check one only

□   Several times each day

□   About once a day

□   Several time a week

□   Several times a month

□   Once a month or less

□   Have never used

38. Prior to this survey, how familiar were you with GeoConnections and the Canadian Geospatial Data Infrastructure (CGDI)?

□   Very familiar

□   Somewhat familiar

□   Not very familiar

□   Not at all familiar

39. Have you ever visited the GeoConnections / CGDI website (http://www.geoconnexions.org or http://www.cgdi.gc.ca)?

□   Yes

□   No   **SKIP TO Q.42**

40. What did you use the GeoConnections / CGDI web site for?

□   To learn about GeoConnections/CGDI

□   To obtain geospatial information (data or services)

□   To learn about standards

□   Other (specify): _____

41. When you visited the GeoConnections / CGDI web site, did you generally find…?

□   All of what you were looking for

□   Most of what you are looking for

□   Some of what you were looking for

□   None what you were looking for

42. Are you aware of the GeoConnections Discovery Portal (http://geodiscover.cgdi.ca)?

☐   Yes

☐   No

43. From the list below, please identify the <u>top 5</u> areas where the CGDI would be the most applicable (best fit) for your organization. Indicate the priority by writing the number next to the item where 1 is most important and 5 is the least important.

CONSULTING
_____ Environmental consulting
_____ Economic development
_____ Sustainable development/conservation

PUBLIC SAFETY/SECURITY
_____ Critical infrastructure protection/management
_____ Security and intelligence
_____ Emergency coordination
_____ Emergency management
_____ Emergency preparedness
_____ Emergency response
_____ First responders (fire/ police/ rescue/ emergency services/notification)

RESEARCH
_____ Academic research
_____ Government research
_____ Community research

HEALTH
_____ Disease surveillance
_____ Frontline health care provider
_____ Health and safety coordination or management
_____ Health care institution, clinic or centre
_____ Population health analysis
_____ Health education and advocacy
_____ Public health office

ENVIRONMENTAL & RESOURCE MANAGEMENT
_____ Environmental assessment
_____ Forest management
_____ Freshwater management
_____ Species management
_____ Land use planning/management
_____ Agriculture
_____ Other natural resource management (e.g. mining, oil, gas)
_____ Utility infrastructure planning/ management (e.g. hydro, pipelines, roads)
_____ Indicator development
_____ Environmental monitoring
_____ Environmental education and advocacy
_____ Community planning
_____ Land claim negotiating
_____ Municipal/urban planning
_____ Policy development
_____ Regulatory affairs

OTHER
_____ Traditional Aboriginal knowledge
_____ Traditional Aboriginal land use and occupancy
_____ Other (specify): _____

44. By what methods would you prefer to obtain further information about CGDI?
Check all that apply

☐   Personal contact via telephone or e-mail

☐   Workshops on specific issues (e.g. technical or content)

☐   Print materials

☐   Electronic newsletter

☐   Articles in magazines or journals

☐   The GeoConnections web site

45. On which of the following areas should GeoConnections focus its efforts?
Check all that apply

☐   Improving content available through CGDI

☐   Improving technology, standards and specifications for accessing and applying content

☐   Addressing barriers such as policy, data sharing or licensing issues

☐   Developing useful applications to apply to CGDI

46. Do you have any suggestions for improvements or additions that would make CGDI more useful to your organization for accessing and sharing geospatial information?

This completes the survey. An interviewer will call you to record your responses.

You can get more information about this research by contacting Annie Laviolette at Natural Resources Canada. Her telephone number is (613) 995-4783 and her e-mail address is alaponse@nrcan.gc.ca

On behalf of Natural Resources Canada and the GeoConnections program, thank you very much for your time and cooperation.

ÉTUDE SUR
L'EMPLOI D'INFORMATION GÉOGRAPHIQUE

Cette étude s'intéresse aux gens qui utilisent de l'information géographique dans le cadre de leurs décisions d'affaires ou de leurs décisions en matière de politiques, ou qui décident des types d'information géographique que pourra acquérir ou utiliser leur organisation.

Vous êtes tout à fait libre de prendre part ou non à cette étude et votre décision d'y participer ou de vous abstenir n'aura aucun effet sur vos relations avec Ressources naturelles Canada. Toutes les réponses seront traitées de façon confidentielle. Votre nom ne sera pas associé aux résultats. Il ne sera pas question de renseignements confidentiels ou classifiés. Les renseignements obtenus ne seront utilisés qu'à des fins de recherche et seront traités conformément aux exigences de la *Loi sur la protection des renseignements personnels.*

Veuillez étudier les questions et indiquer vos réponses sur le formulaire prévu à cet effet et ce, avant l'entrevue téléphonique. Ceci permettra d'éviter tout oubli et de faire en sorte que l'entrevue se déroule le plus efficacement possible. N'hésitez pas à consulter vos collègues pour répondre à certaines questions. Veuillez répondre aux questions au nom de l'unité opérationnelle dont vous êtes personnellement responsable, au sein de votre organisation (l'unité opérationnelle est la direction, le programme, la division, la section ou le groupe dont vous êtes responsable et qui est doté d'un budget).

ENVIRONICS
RESEARCH GROUP

A. Profil de l'organisation

J'aimerais commencer par vous poser quelques questions générales sur votre unité, votre organisation ou votre groupe opérationnel.

1. **Selon vous, auquel des domaines suivants s'intéresse <u>principalement</u> votre unité ou votre groupe opérationnel ?**
   Cocher une seule réponse
2. **Et à quels autres domaines s'intéresse votre groupe, s'il y en a ?**
   Cocher toutes les réponses qui s'appliquent

1. DOMAINE PRINCIPAL *Cocher une seule réponse*	2. AUTRES DOMAINES *Cocher toutes les réponses qui s'appliquent*	
		CONSULTATION
☐	☐	Consultation environnementale
☐	☐	Développement économique
☐	☐	Développement durable / conservation
☐	☐	Autre type de consultation (préciser) : _____
		_____
		SÉCURITÉ PUBLIQUE
☐	☐	Protection ou gestion des infrastructures essentielles
☐	☐	Sécurité et renseignement
☐	☐	Coordination des urgences
☐	☐	Gestion des urgences
☐	☐	Protection civile
☐	☐	Réponse aux situations d'urgence
☐	☐	Premiers intervenants (pompiers, police, secouristes, services d'urgence ou de signalement des urgences)
☐	☐	Autre domaine lié à la sécurité (préciser) : _____
		_____
		RECHERCHE
☐	☐	Recherche universitaire
☐	☐	Recherche gouvernementale
☐	☐	Recherche communautaire
☐	☐	Autre type de recherche (préciser) : _____
		_____
		SANTÉ
☐	☐	Surveillance des maladies
☐	☐	Fournisseur de soins de santé de première ligne
☐	☐	Coordination ou gestion en santé et sécurité
☐	☐	Établissement, clinique ou centre de santé
☐	☐	Analyse de la santé de la population
☐	☐	Éducation et défense des droits en matière de santé
☐	☐	Bureau de santé publique
☐	☐	Autre domaine lié à la santé : _____
		_____

Suite →

GESTION DE L'ENVIRONNEMENT ET DES RESSOURCES

1.	2.	
☐	☐	Évaluation environnementale
☐	☐	Gestion des ressources forestières
☐	☐	Gestion de l'eau douce
☐	☐	Gestion des pêches ou gestion maritime
☐	☐	Gestion des espèces
☐	☐	Aménagement ou gestion des terres
☐	☐	Agriculture
☐	☐	Gestion des autres ressources naturelles (mines, pétrole, gaz, etc.)
☐	☐	Planification ou gestion de l'infrastructure des services publics (hydro, pipelines, routes, etc.)
☐	☐	Élaboration d'indicateurs
☐	☐	Surveillance environnementale
☐	☐	Éducation et défense des droits en matière d'environnement
☐	☐	Autre domaine de gestion (préciser) : _____

_____

PLANIFICATION ET GOUVERNANCE

1.	2.	
☐	☐	Urbanisme
☐	☐	Négociation en matière de revendication territoriale
☐	☐	Urbanisme municipal ou urbain
☐	☐	Élaboration de politiques
☐	☐	Affaires réglementaires
☐	☐	Négociation de traités
☐	☐	Autre type de planification ou de gouvernance (préciser) : _____

_____

AUTRE

1.	2.	
☐	☐	Savoir autochtone traditionnel
☐	☐	Utilisation et occupation traditionnelles autochtones des terres
☐	☐	Autre (préciser) : _____

_____

3. **Approximativement, quel est le budget opérationnel <u>annuel</u> de votre unité, votre division ou votre groupe opérationnel ?**

☐ Moins de 10 000 $
☐ 10 000 $ à moins de 50 000 $
☐ 50 000 $ à moins de 100 000 $
☐ 100 000 $ à moins de 500 000 $
☐ 500 000 $ à moins de 1 million de dollars
☐ 1 million de dollars à moins de 5 millions de dollars
☐ Plus de 5 million de dollars

4. Est-ce que votre unité, votre organisation ou votre groupe opérationnel collecte ou utilise de l'information géographique dans le cadre de ses activités ?

☐ Oui

☐ Non **ALLER À LA Q.7**

5. Quel pourcentage du budget opérationnel <u>annuel</u> de votre unité ou de votre groupe opérationnel est consacré aux activités liées à la géomatique ?

POURCENTAGE _____%

DÉFINITION *:* **La géomatique** consiste en la collecte, la gestion, l'analyse et l'intégration des données géospatiales. Les activités et les services de géomatique sont un gage de meilleures décisions et de prospérité pour les Canadiens. La géomatique inclut la télédétection, le SIG (système d'information géographique), le GPS (système mondial de localisation) et l'arpentage.

6. Est-ce que votre organisation est dotée d'une section ou d'une équipe consacrée à la géomatique ?

☐ Oui

☐ Non

7. Est-ce que les données géospatiales font partie des activités quotidiennes de votre unité ou de votre groupe opérationnel ?

☐ Oui

☐ Non

DÉFINITION *:* **Les données géospatiales** sont des données qui peuvent être cartographiées, c'est-à-dire qu'elles contiennent de l'information qui les situent géographiquement. Il peut s'agir de la localisation d'une rivière, de statistiques sur la criminalité dans un secteur donné ou de la propagation de maladies infectieuses sur un territoire.

8. À laquelle des catégories suivantes appartient votre unité, votre division ou votre groupe opérationnel ? *Cocher toutes les réponses qui s'appliquent*

☐ Un utilisateur final d'information géographique

DÉFINITION : Les utilisateurs finals d'information géographique utilisent des applications pour produire des données géospatiales en vue de prendre des décisions

☐ Un fournisseur d'information géographique

DÉFINITION : Les fournisseurs d'information géographique offrent des données géospatiales et des services Web

☐ Un développeur d'applications pour l'information géographique

DÉFINITION : Les développeurs d'applications pour l'information géographique créent des applications qui facilitent les interactions avec les données géospatiales pour les utilisateurs
.

☐ Un distributeur d'applications pour l'information géographique

DÉFINITION : C'est aux distributeurs d'applications que reviennent la vente et/ou les services de soutien après-vente des applications géospatiales, qui sont essentiellement destinées aux utilisateurs finaux. Ces applications visent à répondre à une demande en information géospatiale
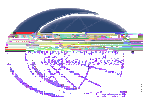
9. **Environ combien d'heures (au cours d'une semaine normale) le personnel de votre unité ou de votre groupe opérationnel consacre-t-il à la <u>recherche</u> d'information géospatiale ?**

HEURES PAR SEMAINE _____

10. **Et environ combien d'heures (au cours d'une semaine normale) le personnel de votre unité ou de votre groupe opérationnel consacre-t-il à <u>l'utilisation</u> d'information géospatiale ?**

HEURES PAR SEMAINE _____

11. **Quelle importance a l'information géospatiale pour votre unité ou votre groupe opérationnel, à l'heure actuelle ?**

☐ Importance capitale (ne pourrait pas fonctionner sans elle)
☐ Grande importance (mais pas capitale)
☐ Importance moyenne
☐ Importance minime
☐ Aucune importance

12. **Selon vous, dans cinq ans, est-ce que l'information géospatiale aura une importance beaucoup plus grande, un peu plus grande, à peu près la même, ou qu'elle aura une importance un peu moins grande ou beaucoup moins grande que maintenant ?**

☐ Importance beaucoup plus grande
☐ Importance un peu plus grande
☐ À peu près la même importance
☐ Importance un peu moins grande
☐ Importance beaucoup moins grande

B. Types d'information géospatiale et leur importance

Pour remplir cette section du questionnaire, veuillez vous référer à la feuille de travail sur les TYPES D'INFORMATION GÉOGRAPHIQUE, que vous trouverez parmi les documents que vous avez reçus. (feuille jaune)

13. Quels types d'information géospatiale utilise <u>actuellement</u> votre unité ou votre groupe opérationnel pour prendre des décisions ?
Veuillez indiquer jusqu'à 10 types d'information, par ordre d'importance

14. Quels types d'information géospatiale <u>aimerait</u> utiliser votre unité ou votre groupe opérationnel, information non utilisée actuellement ?
Veuillez indiquer jusqu'à 5 types d'information, par ordre d'importance

13.
CODE
INFO GÉO
(jusqu'a 10)

14.
CODE
INFO GÉO
(jusqu'a 5)

1. _____   1. _____

2. _____   2. _____

3. _____   3. _____

4. _____   4. _____

5. _____   5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

15. POSER LA QUESTION SUIVANTE AU SUJET DES TYPES D'INFORMATION INDIQUÉS À LA Q14 : Pourquoi n'utilisez-vous pas ces types d'information à l'heure actuelle ?
Voir la feuille de travail jaune – noter les codes

CODE INFO GÉO	**RAISON POUR LAQUELLE ON NE L'UTILISE PAS**
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

6

16. Veuillez indiquer les <u>cinq principaux</u> types d'information qui seront importants pour votre organisation dans cinq ans et ce, par ordre d'importance.
Voir la feuille de travail jaune – attribuer un chiffre de 1 a 5 aux cinq types d'information
Si le répondant indique moins de cinq types d'information, classez quand même ceux-ci par ordre d'importance

**CODE
INFO GÉO**
(jusqu'a 5)

1. _____

2. _____

3. _____

4. _____

5. _____

17. Certains types d'information géographique sont des <u>données de base</u>. Autrement dit, ces données constituent les données-cadre auxquelles les autres jeux de données sont associés. Les thèmes qui font partie des données de base varient d'une application à l'autre mais il s'agit généralement de données sur les réseaux routiers et sur les frontières de recensement ainsi que de données côtières et topographiques.

Parlons des jeux de données qui font partie de vos <u>données géographiques de base</u>. Quelle proportion de ces données arrivez-vous à obtenir de manière fiable et normalisée ?

☐ Toutes les données
☐ Une partie des données
☐ Aucune donnée

18. Quels jeux de données de base (données-cadre) changeraient le plus les choses pour votre organisation, s'ils étaient disponibles gratuitement ?
Voir la feuille de travail jaune – attribuer un chiffre de 1 a 5 aux cinq types d'information
Si le répondant indique moins de cinq types d'information, noter les types mentionnés

**CODE
INFO GÉO**
(jusqu'a 5)

1. _____

2. _____

3. _____

4. _____

5. _____

19. À quelle échelle, sur le plan géographique, sont les données géospatiales qu'utilise habituellement votre unité ou votre groupe opérationnel ?

Cocher toutes les réponses qui s'appliquent

☐ Municipale
☐ Régionale
☐ Provinciale
☐ Nationale
☐ Internationale
☐ Autre (préciser) : _____

20. Parlons des trois principaux types d'information géospatiale que vous avez mentionnés à la question 13. Généralement, quelle doit être la fréquence des mises à jour de l'information géospatiale que vous consultez ?

Cocher une seule réponse

☐ En temps réel
☐ Toutes les heures
☐ Tous les jours
☐ Toutes les semaines
☐ Toutes les deux semaines
☐ Tous les mois
☐ Tous les trimestres
☐ Tous les ans
☐ Aucune importance
☐ Autre (préciser) :_____

C. Sources d'information géospatiale

21. De quelles sources, parmi les suivantes, est-ce que votre unité, votre organisation ou votre groupe opérationnel obtient actuellement de l'information géospatiale ?
Cocher toutes les réponses qui s'appliquent

☐ Information recueillie à l'interne

☐ Organisations sans but lucratif

☐ Industrie de la géomatique / entreprises privées de géomatique

☐ Autres industries ou secteurs / autres entreprises du secteur privé

☐ Administrations municipales ou régionales

☐ Gouvernements provinciaux ou territoriaux

☐ Ministères ou agences du gouvernement fédéral

☐ Gouvernements étrangers

☐ Autre (Préciser) :_____

22. Veuillez <u>classer</u> les facteurs suivants selon l'influence qu'ils ont sur la confiance que vous avez dans les données géospatiales.
Classer à l'aide de chiffres : « 1 », « 2 », etc.

CLASSER

_____ qui a *fait la collecte* des données (la source)

_____ qui *fournit* les données (le fournisseur)

_____ *comment* les données ont été recueillies

_____ la *qualité* des données

_____ *l'intégralité* des données

_____ les *normes* utilisées pour recueillir ou présenter les métadonnées

_____ les *normes* utilisées pour recueillir ou présenter les données

_____ la *qualité* et *l'intégralité* des métadonnées (description des données)

_____ le *contenu* des métadonnées (p. ex., données désuètes)

DÉFINITION : **Les métadonnée**s sont des « renseignements sur les données ». Elles répondent aux questions qui, quoi, où, quand, pourquoi et comment pour toutes les facettes des données ou du service documentés. Cette information comprend des détails sur le propriétaire des données, la qualité, le temps ou le moment de la collecte ou de la mise à jour, les attributs, et la façon d'accéder aux données et de les obtenir. Afin d'assurer l'uniformité, les métadonnées peuvent être définies par des normes qui contiennent un ensemble commun de termes, de définitions et de structures.

D. Support de l'information géospatiale consultée et utilisée

23. **Quel pourcentage de l'information géospatiale qu'utilise actuellement votre unité ou votre groupe opérationnel est…**
Le total doit être de 100 %

%

_____ A) … en format papier (à l'exception du contenu électronique imprimé)

_____ B) … en format électronique ou numérique (y compris les ressources Web)

100 %

24. Quel(s) logiciel(s) de géomatique utilise votre unité ou votre groupe opérationnel ?
Nota : Comprend les logiciels SIG, les logiciels de traitement d'images et les systèmes de CAO (CAD).

_____

_____

☐ Aucun

E. Partage d'information géospatiale

25. Est-ce que votre unité ou votre <u>groupe opérationnel</u> partage de l'information géospatiale avec d'autres, à l'interne ou à l'externe ?

☐ Oui **ALLER À LA Q.27** ──►

☐ Non

> DÉFINITION: On **partage** de l'information géospatiale quand on utilise conjointement de l'information recueillie par sa propre organisation ou par une autre.

26. Pourquoi votre organisation <u>ne</u> partage-t-elle <u>pas</u> de l'information géospatiale ?
Cocher toutes les réponses qui s'appliquent

☐ Questions politiques (confiance)
☐ Questions de protection des renseignements ou de confidentialité
☐ Questions de responsabilité
☐ Questions de licences et de propriété
☐ Ne peut recouvrir les coûts
☐ Questions de normalisation
☐ Autre (préciser) : _____

> Passer à la section F

Si l'organisation partage l'information :

27. Quelle est la principale raison pour laquelle votre organisation partage de l'information géospatiale ? *Cocher toutes les réponses qui s'appliquent*

☐ Profit

☐ Récupération des coûts

☐ Partage réciproque – pour obtenir plus de données

☐ Renseigner fait partie du mandat

☐ Pour l'intérêt commun

☐ Autre (préciser) : _____

28. Quels types d'information géospatiale votre organisation partage-t-elle ?
Voir la feuille de travail jaune – noter les codes

**CODE
GÉO INFO**

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

29. <u>Avec qui</u> partagez-vous de l'information géospatiale ?
Cocher toutes les réponses qui s'appliquent

☐ Avec votre propre unité, organisation ou groupe opérationnel

☐ Municipalités locales

☐ Administrations régionales ou gouvernements provinciaux

☐ Ministères du gouvernement fédéral

☐ Clients

☐ Fournisseurs

☐ Entreprises du secteur privé

☐ Organisations non gouvernementales ou sans but lucratif

☐ Établissements d'enseignement

☐ Autre (préciser) :_____

30. Quel moyen ou support votre organisation utilise-t-elle pour partager de l'information géospatiale ?
Cocher toutes les réponses qui s'appliquent

☐ Protocole de transfert de fichier (FTP)
☐ Services Internet comme les *Services cartographiques Web* (*Web Map Service* ou WMS) et le *Service d'entités Web* (*Web Feature Service* ou WFS)
☐ Courriel
☐ Dispositifs de stockage comme les cédéroms, les DVD, les clés USB et les disquettes
☐ Copie papier
☐ Autre (préciser) :_____

31. Quelles normes ou spécifications techniques utilisez-vous ?
Cocher toutes les réponses qui s'appliquent

☐ ISO (Organisation internationale de normalisation)
☐ OGC (Open GeoSpatial Consortium)
☐ FGDC (Federal Geographic Data Committee)
☐ ONGC (Office des normes générales du Canada)
☐ ANSI (American National Standards Institute)
☐ W3C (Consortium World Wide Web)
☐ IEEE (Institute of Electrical and Electronics Engineers)
☐ Autre (préciser) :_____
☐ Aucune de ces réponses

32. Dans quelle mesure est-il important d'éliminer les obstacles suivants afin que votre organisation s'intéresse davantage au partage des données ?
Cocher une seule case pour chaque obstacle

	Très important	Assez important	Peu important	Pas du tout important
a. Les questions politiques qui nuisent à la confiance	☐	☐	☐	☐
b. L'utilisation de plate-formes différentes	☐	☐	☐	☐
c. L'utilisation de normes différentes	☐	☐	☐	☐
d. Les obstacles liés à la protection des renseignements et à la confidentialité	☐	☐	☐	☐
e. Les obstacles liés à la responsabilité	☐	☐	☐	☐
f. Les obstacles liés aux licences	☐	☐	☐	☐
g. Les obstacles liés aux coûts	☐	☐	☐	☐

F. Obstacles empêchant l'accès à l'information géospatiale et son utilisation

33. Veuillez nommer les <u>trois principaux obstacles</u> empêchant <u>l'accès</u> de votre unité ou de votre groupe opérationnel à l'information géographique ou géospatiale.
Préciser

1. _____

2. _____

3. _____

☐ Aucun obstacle

34. Veuillez nommer les <u>trois principaux obstacles</u> empêchant votre unité ou votre groupe opérationnel <u>d'utiliser</u> l'information géographique ou géospatiale.
Préciser

1. _____

2. _____

3. _____

☐ Aucun obstacle

35. Qu'est-ce qui nuit à la confiance que vous avez dans certaines données ou sources d'information ?
Préciser

_____

_____

36. Selon vous, dans quelle mesure chacun des obstacles suivants empêche-t-il votre groupe ou votre organisation d'utiliser l'information géographique ?
Cocher une seule case pour chaque obstacle

	Obstacle important	Obstacle moyen	Obstacle négligeable	Aucunement un obstacle
a. … les contraintes financières ou le coût des données empêchent-ils…	☐	☐	☐	☐
b. … la difficulté à trouver les sources de données ou à en découvrir de nouvelles empêche-t-elle…	☐	☐	☐	☐
c. … vos contraintes en matière de ressources humaines et votre capacité de formation empêchent-elles…	☐	☐	☐	☐

G. Information géospatiale et outils en ligne

37. À quelle fréquence utilisez-vous personnellement l'information géospatiale et les outils en ligne ou les portails (par exemple, les sites Web comme *Mapquest*, permettant de planifier vos déplacements, ou les applications téléchargeables, comme *GoogleEarth*, permettant de déterminer votre position sur une image satellite de la Terre) ?
Cocher une seule réponse

- ☐ Plusieurs fois par jour
- ☐ Environ une fois par jour
- ☐ Plusieurs fois par semaine
- ☐ Plusieurs fois par mois
- ☐ Une fois par mois ou moins
- ☐ N'a jamais utilisé ceux-ci

38. Avant ce sondage, dans quelle mesure connaissiez-vous GéoConnexions et l'Infrastructure canadienne de données géospatiales (ICDG) ?

- ☐ Connaissait très bien
- ☐ Connaissait assez bien
- ☐ Connaissait peu
- ☐ Ne connaissait pas du tout

39. Avez-vous déjà visité le site Web de GéoConnexions ou de l'ICDG (http://www.geoconnexions.org ou http://www.cgdi.gc.ca) ?

- ☐ Oui
- ☐ Non   **ALLER À LA Q.42**

40. À quelles fins avez-vous consulté le site Web de GéoConnexions ou de l'ICDG ?

- ☐ Pour me renseigner sur le programme GéoConnexions ou sur l'ICDG
- ☐ Pour obtenir de l'information géospatiale (données ou services)
- ☐ Pour me renseigner sur les normes
- ☐ Autre (préciser) : _____

41. Quand vous avez consulté le site Web de GéoConnexions ou de l'ICDG, avez-vous généralement…

- ☐ … trouvé tout ce que vous cherchiez,
- ☐ … trouvé presque tout ce que vous cherchiez,
- ☐ … trouvé une partie de ce que vous cherchiez,
- ☐ … ou rien trouvé ?

42. **Êtes-vous au courant du *Portail de découverte de GéoConnexions*
(http://geodiscover.cgdi.ca) ?**

☐ Oui

☐ Non

43. Dans la liste ci-dessous, veuillez classer les cinq principaux domaines où l'ICDG serait la plus utile pour votre organisation, en indiquant un chiffre de 1 à 5 à côté des domaines en question : le chiffre « 1 » correspondant au domaine le plus important et « 5 », au moins important.

CONSULTATION

_____ Consultation environnementale

_____ Développement économique

_____ Développement durable / conservation

SÉCURITÉ PUBLIQUE

Protection ou gestion des infrastructures essentielles

_____ Sécurité et renseignement

_____ Coordination des urgences

_____ Gestion des urgences

_____ Protection civile

_____ Réponse aux situations d'urgence

Premiers intervenants (pompiers, police, secouristes, services d'urgence ou de
_____ signalement des urgences)

RECHERCHE

_____ Recherche universitaire

_____ Recherche gouvernementale

_____ Recherche communautaire

SANTÉ

_____ Surveillance des maladies

Fournisseur de soins de santé de
_____ première ligne

Coordination ou gestion en santé et
_____ sécurité

Établissement, clinique ou centre de
_____ santé

_____ Analyse de la santé de la population

Éducation et défense des droits en
_____ matière de santé

_____ Bureau de santé publique

GESTION DE L'ENVIRONNEMENT ET DES RESSOURCES

_____ Évaluation environnementale

_____ Gestion des ressources forestières

_____ Gestion de l'eau douce

_____ Gestion des espèces

_____ Aménagement ou gestion des terres

_____ Agriculture

Gestion des autres ressources naturelles
_____ (mines, pétrole, gaz, etc.)

Planification ou gestion de l'infrastructure
des services publics (hydro, pipelines,
_____ routes, etc.)

_____ Élaboration d'indicateurs

_____ Surveillance environnementale

Éducation et défense des droits en matière
_____ d'environnement

_____ Urbanisme

Négociation en matière de revendication
_____ territoriale

_____ Urbanisme municipal ou urbain

_____ Élaboration de politiques

_____ Affaires réglementaires

AUTRE

_____ Savoir autochtone traditionnel

Utilisation et occupation traditionnelles
_____ autochtones des terres

Autre (préciser) :

_____ _____

44. De quelle façon préféreriez-vous obtenir de plus amples renseignements sur l'ICDG ?
   Cocher toutes les réponses qui s'appliquent

☐   Communication personnelle par téléphone ou par courriel
☐   Ateliers sur des sujets précis (p. ex., les aspects techniques ou le contenu)
☐   Matériel imprimé
☐   Bulletin d'information électronique
☐   Articles dans des revues
☐   Site Web de GéoConnexions

45. Sur quels aspects, parmi les suivants, le programme GéoConnexions devrait-il se concentrer ?
   Cocher toutes les réponses qui s'appliquent

☐   Améliorer le contenu de l'ICDG
☐   Améliorer la technologie, les normes et les spécifications se rapportant à l'accès et à l'utilisation du contenu
☐   Réduire les obstacles comme ceux liés aux politiques, au partage des données ou aux licences
☐   Développer des applications utiles, complémentaires à l'ICDG

46.   Que proposez-vous pour améliorer l'ICDG ? Que pourrait-on ajouter à cette infrastructure pour la rendre plus utile à votre organisation et favoriser l'accès à l'information géospatiale et le partage de ce genre de données ?

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Voilà qui met fin au sondage. Un intervieweur communiquera avec vous pour prendre note de vos réponses.

Pour obtenir plus de renseignements sur cette étude, veuillez communiquer avec Mme Annie Laviolette, de Ressources naturelles Canada. Son numéro de téléphone est le (613) 995-4783 et son adresse de courriel est la suivante : alaponse@nrcan.gc.ca

De la part de Ressources naturelles Canada et du programme GéoConnexions, je vous remercie beaucoup de votre temps et de votre collaboration.

Appendix D

Kinds of geographic information worksheet (English and French)

Kinds of Geographic Information – Worksheet

(for use with Survey on Use of Geographic Information - questions 13, 14, 15, 16, 18, 28)

Category	CODE	Information
Infrastructure	A1	Aerodromes (airports, airfields, etc.)
	A2	Border crossings and customs posts
	A3	Business/commercial/industrial districts
	A4	Disposal sites (old mines, quarries)
	A5	Education facilities
	A6	Emergency management and operations centres, Fire/EMS stations
	A7	Government buildings
	A8	Ferry terminals
	A9	Financial institutions
	A10	Hazardous materials facilities
	A11	Heritage sites
	A12	Hospitals
	A13	Treatment centres and clinics
	A14	Military bases/installations
	A15	National symbols (e.g. Parliament Hill)
	A16	Natural gas storage facilities
	A17	Nuclear facilities
	A18	Pipelines
	A19	Port facilities
	A20	Prisons
	A21	Public venues (e.g. concert halls, convention centres, community centres, arenas)
	A22	Public water supply
	A23	Railroad facilities/networks
	A24	Refineries
	A25	Road networks
	A26	Sewage systems
	A27	Shopping malls and complexes
	A28	Transmission systems (power lines, telecommunications lines)
Imagery	B1	Aerial photography
	B2	Lidar (Light Distance And Ranging) imagery
	B3	Satellite imagery
Land	C1	Aerial photography
	C2	Cadastral/land parcel
	C3	Digital elevation models (DEM)/ topography
	C4	Ecosystem data (ecozones, ecoregions, etc.)
	C5	Geodetic survey
	C6	Land cover
	C7	Land claims
	C17	Land use
	C8	Legal survey
	C9	Protected areas/conservation areas (parks, wildlife areas, etc.)
	C10	Soil quality including contaminants
	C11	Soil types
	C12	Toponymy (place names)

Please see other side for more themes

Category	CODE	Information
Resources	D1	Agriculture
	D2	Biodiversity hotspots
	D3	Biodiversity observations
	D4	Exploration activities (e.g. seismic, lines, well sites or mining)
	D5	Fisheries
	D6	Forestry inventory/activities (e.g. cutblocks)
	D7	Invasive species
	D8	Mining sites
	D9	Mineral potential
	D10	Species at risk critical habitat
	D11	Species range data
	D12	Toxic sites (e.g. chemical load monitoring/indicators)
Socio Economic	E1	Administrative boundaries (e.g. municipalities, counties, provinces)
	E2	Archeological site mapping
	E3	Census data
	E4	Electoral districts
	E5	Health districts
	E6	Health service delivery
	E7	Population health indicators
	E8	Postal codes
	E9	Reported disease incidences
	E10	Reserves, First Nations
	E11	Street Addresses
	E12	Traditional knowledge (e.g. forestry, plants, fishing, hunting)
Transportation	F1	Evacuation routes
	F2	Ferry routes
	F3	Transportation behaviour (e.g. commuting patterns)
Water	G1	Bathymetry
	G2	Coastlines
	G3	Quantity of freshwater
	G4	Quality of freshwater (e.g. contaminants, pollutants)
	G5	Groundwater data including aquifers
	G6	Ocean data (biophysical characteristics, over time)
	G7	Ocean quality (e.g. contaminants, indicators)
	G8	Watershed data (including water bodies and drainage basins)
	G9	Well sites
	G10	Wetland type and extent
Weather	H1	Atmospheric data (physical characteristics over time)
	H2	Atmospheric quality (e.g. air quality data including contaminants)
	H3	Meteorology, climate change weather data
Other (specify)	J1	

Note: This list of geographic themes has resulted from previous consultations including focus groups held across Canada.

Types d'information géographique – Feuille de travail

Catégorie	CODE	Information
Infrastructure	A1	Aérodromes (aéroports, terrains d'aviation, etc.)
	A2	Passages frontaliers et postes frontaliers
	A3	Quartiers d'affaires, commerciaux et industriels
	A4	Sites d'enfouissement (anciennes mines, carrières)
	A5	Établissements d'enseignement
	A6	Centres de gestion des urgences et des opérations d'urgence, casernes de pompiers, SMU
	A7	Édifices gouvernementaux
	A8	Gares maritimes de traversiers
	A9	Institutions financières
	A10	Installations de matières dangereuses
	A11	Sites patrimoniaux
	A12	Hôpitaux
	A13	Centres et cliniques de traitement
	A14	Bases/installations militaires
	A15	Symboles nationaux (comme la Colline du Parlement)
	A16	Installations de stockage du gaz naturel
	A17	Installations nucléaires
	A18	Pipelines
	A19	Installations portuaires
	A20	Prisons
	A21	Lieux publics (salles de concert, centres de congrès, centres communautaires, arénas, etc.)
	A22	Service d'eau public
	A23	Installations/réseaux ferroviaires
	A24	Raffineries
	A25	Réseaux routiers
	A26	Réseaux d'égout
	A27	Centres et complexes commerciaux
	A28	Systèmes de transmission (lignes électriques, lignes de télécommunications)
Imagerie	B1	Photographie aérienne
	B2	Imagerie par LIDAR (détection et localisation par ondes lumineuses)
	B3	Imagerie satellite
Terre	C1	Photographie aérienne
	C2	Parcelles cadastrales / parcelles de terre
	C3	Modèles altimétriques numériques (MAN) / topographie
	C4	Données sur les écosystèmes (écozones, écorégions, etc.)
	C5	Études géodésiques
	C6	Couverture terrestre
	C7	Revendications territoriales
	C17	Utilisation des terres
	C8	Arpentage officiel
	C9	Aires protégées / aires de conservation (parcs, réserves d'espèces sauvages, etc.)
	C10	Qualité du sol, y compris les polluants
	C11	Types de sol
	C12	Toponymie (noms de lieux)

Catégorie	CODE	Information
Ressources	D1	Agriculture
	D2	Régions névralgiques de la biodiversité
	D3	Observations sur la biodiversité
	D4	Activités d'exploration (exploration sismique, lignes, emplacement de puits ou exploration minière)
	D5	Lieux de pêche
	D6	Inventaire forestier / activités forestières (comme les blocs de coupe)
	D7	Espèces envahissantes
	D8	Sites d'exploitation minière
	D9	Potentiel minier
	D10	Habitats essentiels des espèces en péril
	D11	Données sur l'aire de répartition d'une espèce
	D12	Zones toxiques (indicateurs / surveillance des charges chimiques, etc.)
Socio-économique	E1	Frontières administratives (municipalités, comtés, provinces, etc.)
	E2	Cartographie des sites archéologiques
	E3	Données de recensement
	E4	Circonscriptions électorales
	E5	Districts de santé
	E6	Étendue de la prestation de services de santé
	E7	Indicateurs de santé de la population
	E8	Codes postaux
	E9	Incidence des maladies rapportée
	E10	Réserves, Premières nations
	E11	Adresses municipales
	E12	Savoir traditionnel (foresterie, plantes, pêche, chasse, etc.)
Transport	F1	Routes d'évacuation
	F2	Routes de traversiers
	F3	Comportements en matière de transport (caractéristiques des déplacements, etc.)
Eau	G1	Bathymétrie
	G2	Côtes
	G3	Quantité d'eau douce
	G4	Qualité de l'eau douce (contaminants, polluants, etc.)
	G5	Données sur l'eau souterraine, y compris les réservoirs aquifères
	G6	Données océaniques (caractéristiques biophysiques au fil du temps)
	G7	Qualité des océans (contaminants, indicateurs, etc.)
	G8	Données hydrographiques (y compris les plans d'eau et les bassins de drainage)
	G9	Emplacement des puits
	G10	Type et étendue des zones humides
Météo	H1	Données atmosphériques (caractéristiques physiques au fil du temps)
	H2	Qualité de l'atmosphère (données sur la qualité de l'air et ses polluants, etc.)
	H3	Météorologie, données sur les changements climatiques
Autre (précisez)	J1	

Nota : Cette liste de thèmes géographiques est le résultat de consultations réalisées par le passé, incluant des rencontres de discussion tenues un peu partout au Canada.