Natural Resources Canada

1997-98 Estimates

A Report on Plans and Priorities
Pilot Document

The Estimates Documents

The Estimates of the Government of Canada are structured in three Parts. Beginning with an overview of total government spending in Part I, the documents become increasingly more specific. Part II outlines spending according to departments, agencies and programs and contains the proposed wording of the conditions governing spending which Parliament will be asked to approve. The Part III documents provide additional detail on each department and its programs primarily in terms of the results expected for the money spent.

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Approved

Minister of Natural Resources Canada

Foreward

The Improved Reporting to Parliament Project (IRPP) was established within the Treasury Board Secretariat to improve the Expenditure Management information provided to Parliament, and to update the processes used to prepare this information. This is part of a broader initiative to increase the results orientation and increase the transparency of information provided to Parliament known as “Getting Government Right”.

During the period from August 1995 to December 1996, extensive consultations were held with members of Parliament and other key stakeholders to examine options to improve the information provided to Parliament. A clear requirement was identified to improve performance information and to provide planning information that is results oriented, longer term and more strategic in focus, and clearly communicated.

The IRPP has unfolded in three phases. In March, 1996, six departments tabled revised Part III of the Main Estimates documents. These documents responded to requirements to provide a better focus on planning and performance information.

In June 1996, the House of Commons gave its concurrence to expand the pilot project and to test the tabling of separate planning and performance documents. In October, 1996, sixteen departments tabled performance reports as phase two of the IRPP. These performance reports have been evaluated and found to provide relevant and timely information, with broad support for providing separate performance reports on an ongoing basis.

The Report on Plans and Priorities is being tabled by the same sixteen pilot departments as phase three of the IRPP. These documents, and the separation of planning and performance information will be assessed, and if Parliament agrees, all departments and agencies will move to a spring Report on Plans and Priorities, and a fall Performance Report, with the first complete package of separate performance reports beginning in the fall of 1997.

These documents are available electronically from the Treasury Board Secretariat Internet site: http://www.tbs-sct.gc.ca/tb/key.html

Comments or questions about this document, or the Improved Reporting to Parliament Project, can be directed to the TBS Internet site, or to:

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NRCan Is

Natural Resources Canada (NRCan) is a federal government department that specializes in the areas of energy, minerals and metals, forests, and earth sciences. It brings a national and international perspective, as well as scientific and policy expertise, to bear on natural resources issues of importance to Canada.

Our Vision

Natural Resources Canada provides leading-edge science, knowledge, and expertise to position Canada as a world leader in the sustainable development of its land, energy, forest and mineral resources, and as a quality producer of resource-related products, technologies, services and research.

What NRCan Does

NRCan provides four main services to Canadians. It:

- conducts leading-edge science to create and transfer the ideas, knowledge, and technologies that Canada needs to use its resources wisely and efficiently, to reduce costs, to protect the environment, and to help Canadians create new products and services;
- builds a national knowledge infrastructure on Canada's land and resources, providing Canadians with easy access to the latest economic, environmental, and scientific information from a variety of sources;
- ensures that federal policies and regulations in areas such as the environment, trade, the economy, science and technology, Aboriginal matters, and federal lands will foster resource-based contributions to Canada's economy, while protecting the environment and the health and safety of Canadians; and
- promotes Canada's international interests, in cooperation with international agencies and other nations, in order to meet Canada's international commitments regarding natural resources and to maintain access to global markets for Canadian products, technologies, research, and services.

How NRCan Works

NRCan's management philosophy commits it to:

- maintaining integrity in the conduct of its work;
- providing dedicated and efficient service to Canadians;
- ensuring that its programs and priorities respond to the needs of its clients;
- building partnerships with provincial, territorial, and federal government agencies and with industry, First Nations, universities, environmental organizations, and other countries; and
- recognizing and supporting the development of its employees.

Table of Contents

I Minister's Introduction

I am pleased to present the Report on Plans and Priorities for 1997-1998 through 1999-2000 for Natural Resources Canada.

Our country is richly endowed with natural resources. Resource development has been a mainstay of our economy from Canada's beginning as a nation. One of my key priorities is to help Canadians develop our resources in a sustainable way, so that our natural heritage can provide jobs, economic opportunities, and enjoyment for generations to come.

Sound science provides a solid foundation for informed and innovative policies, which in turn will help to shape Canada's future. It will allow us to find new ways to manage our forests, use energy more efficiently, and extract our mineral resources in an environmentally friendly manner. NRCan, with its strong background in geosciences and technology, has a unique knowledge of our physical environment. Canadians can draw on our expertise for the information they need to make informed choices about managing our resources.

Given international competition and budget deficits, governments must now deliver high-quality essential services with fewer resources. This will, I expect, be a high priority for all federal departments in the foreseeable future. Government services must be broadly based and should foster economic and social unity.

The key is partnership. We must work cooperatively with provinces and the private sector to present a strong "Team Canada" image to the world and to build strong global trade links. I am personally committed to working with international partners on such global issues as climate change and the conservation of biodiversity.

The 1996 Speech from the Throne stated the Government's intention to withdraw from functions in forestry and mining that are more appropriately the responsibility of other levels of government or the private sector. We have fundamentally changed the business of this department. NRCan is well ahead in implementing the changes called for by the Speech from the Throne and Program Review. The policy goals set out in this Report on Plans and Priorities are in response to two priorities: sustainable development and good governance. My department is focusing its efforts to achieve its policy goals in four core business areas: developing federal policies and regulations; science and technology-related research, products, and services; expanding our knowledge infrastructure; and the international marketplace.

In support of sustainable development we have set five key policy goals: to integrate economic, environmental, and social factors into Canadians' decisions regarding natural resources; to expand the potential for economic growth and job creation based on the sustainable development of Canada's natural resources; to encourage efficient resource development and use to minimize the environmental impacts of resource development; to work with Canadians to achieve our international climate change commitments; and to maintain and expand access to foreign markets for resource-based products, technologies, and services.

Four key policy goals support good governance: to deliver federal responsibilities in partnership with provincial and territorial governments; to help Aboriginal communities manage their natural resources; to protect the health and safety of Canadians; and to provide the information on the Canadian land and resources needed for informed decision making.

We are striving to deliver the best possible services and are working to achieve our policy goals. My department is clarifying how our performance can best be assessed against the goals we have set ourselves. We are developing a performance management framework to guide us.

This document shows how NRCan plans to contribute to these two crucial priorities – sustainable development and good governance – in the years to come.

II Report on Plans and Priorities for 1997-98 through 1999-2000

A Summary of Key Plans, Priorities and Strategies

Natural Resources Canada has a planned budget of $472,172,000 in 1997-98, $444,823,000 in 1998-99 and $442,106,000 in 1999-2000. It will use these resources to manage and develop natural resource programs and policies, on behalf of stakeholders, in a manner consistent with sustainable development, and to integrate social, economic and environmental factors in decision-making on resource issues to support the Government's policy agenda on growth, human development and social cohesion. NRCan:

provides Canadians with:	as demonstrated by:
Science & Technology: **Scientific research and transfer of new technologies to contribute to the wise and efficient use of our resources, to reduce costs, and to protect the environment.**	• Broader understanding of climate change, developing corrective measures, and assessing the possible impacts of climate change • Better coordinated, more efficient, and cost effective research programs under the interdepartmental Program of Energy Research and Development and S&T for sustainable development • Geoscience input to assessing the impact of climate change • Ways to mitigate the impacts of mining and mill effluents by reducing acidic drainage • Enhanced productivity of mining, ore processing and metal processing operations • Technology development and transfer in the areas of: - reducing greenhouse gas emissions; - controlling emissions from fossil and biomass fuels; - acquiring and using remote-sensing data; - improving forest practices to further sustainable forest management; and - controlling the spread of leaf-eating insects in forests

provides Canadians with:	as demonstrated by:
Knowledge Infrastructure: **A national knowledge infrastructure on Canada's land and resources – a rich database of technical, scientific, and economic information that the public can use to make informed decisions, supported by NRCan's expertise.**	• Information and statistics of national interest gathered and disseminated in cooperation with federal departments, provinces, territories and industry associations through national databases for forest, energy and minerals industries • Increased understanding and reduced impact of natural disasters in Canada through the documentation of geological hazards • Improved geological database, both for resource industries and for environmental concerns, through the National Geoscience Mapping Program • On-line access to information about Canada's landmass through the National Atlas Information Services • Targeted geological mapping programs conducted to enhance resource exploration activities • Geographically referenced databases allowing easy user access across Canada through the Canadian Geospatial Data Infrastructure (GeoExpress) • Real-time component of Canadian Active Control for satellite surveying • A reliable survey system on Canada Lands, and a well-defined and regulated international boundary between Canada and the United States
Policy & Regulations: **Sound national policies and regulations for areas under federal responsibility to increase the contribution of natural resources to Canada's economy while protecting the environment, and the health and safety of Canadians.**	• Integration of economic, environmental, and social factors of importance to the natural resources sectors into policy frameworks • Sustainable development strategy developed and tabled in Parliament by December 1997 • Federal Minerals and Metals Policy implemented in 1997, and beyond • Federal policy framework implemented to manage radioactive waste • New *Nuclear Safety and Control Act* approved to modernize the nuclear regulatory regime • Strengthening of the Voluntary Challenge and Registry Program to limit greenhouse gas emissions

provides Canadians with:	as demonstrated by:
	• Improved federal environmental regulation regime for minerals and metals • Implementation of a new five-year First Nations Forestry Program • Passage and implementation of new plain language explosives regulations in 1997-98 • Recommendations to Indian Affairs and Northern Development on land claims issues and on the development of northern resources
International Representation: **The promotion of Canada's interests pertaining to natural resources and international commitments.**	• Improved access and penetration of Canadian products, technologies, and services in global markets • Development of the terms and implementation of a protocol to the Framework Convention on Climate Change and the Global Convention on Biodiversity • Organization and hosting of the APEC (Asia Pacific Economic Corporation) energy ministers meeting • Agreement on the development of a Global Forest Convention • Communication with foreign investors about the evolving regulatory and economic frameworks for investing in Canadian mining • Scientific analysis in support of Canada's claim to the Continental Shelf under the United Nations Convention on the Law of the Sea • Contribution to development of the Canadian International Business Strategy • Promotion of the international Model Forest Network • Promotion of the new federal Minerals and Metals Policy internationally

provides Canadians with:	as demonstrated by:
Corporate Management: **NRCan is committed to the good governance of the resources entrusted to it.**	• Increased client focus and more effective accountability through the development and implementation of the NRCan Management Framework • Improved performance target-setting, monitoring, and reporting, and setting service standards • Integration of quality management principles and concepts into NRCan's culture • New employment strategies developed to meet staff reduction targets and to address rejuvenation and revitalization needs • Corporate Services streamlined, including a reengineered classification process by the end of 1997-98; completion of the Integrated Payment and Procurement System by 1997-98; implementation of a Common Office Environment covering office automation tools

B Departmental Overview

1 Vision

NRCan provides leading-edge science, knowledge and expertise to position Canada as:

- a world leader in the sustainable development of its land, energy, forest, and mineral resources, and
- a producer of high-quality resource-related products, technologies, services, and research.

2 NRCan's Business

NRCan advances the development of Canada's economy by providing expert scientific and economic knowledge to Canadians, and by promoting the sustainable development and use of Canada's natural resources and the competitiveness of the energy, forest, mining, geomatic, and geoscience sectors. It is committed to good governance, to the delivery of high-quality products and services, to the protection of the health and safety of Canadians, and to partnerships with other private and public sector organizations. Additional information can be found in Section III, Part B, and on NRCan's home page located at **http://wwwNRCan.gc.ca/home/p2int_e.htm**.

3 The Environment that Shapes Our Business

NRCan's day-to-day operations are shaped by two factors: its mandate, as set out by the federal government; and the needs of Canadians for services that this department is uniquely equipped to provide. Recent polls suggest that Canadians are concerned about the country's economic prospects, national unity, deficit reduction, the size and nature of government, and the environment. This section examines some of the factors that influence our clients, our stakeholders, and our own operations.

(i) Sustainable Development: The Challenges We Face

Sustainable development is critical to Canada's future. It will be based on decisions that integrate social, economic, and environmental factors. NRCan's operations must therefore be sensitive to a number of issues and interests. Balancing these interests and taking an integrated approach, with an eye to the welfare of future generations, will pose problems and challenges – but will also open new opportunities.

> Sustainable development is development that "meets the needs of the present generation without compromising the ability of future generations to meet their own needs."
>
> *The World Commission on Environment and Development, Our Common Future (Brundtland Report), 1987*

(ii) Economic Trends

Canada's economy depends heavily on its natural resources, which accounted for 14 per cent of the country's GDP in 1995. Because of our small population, we rely on export markets. These markets demand high-quality, low-cost products and services tailored to meet consumers' needs. Secure access to these markets is crucial for many resource industries.

Minerals and Metals

- $20 billion of GDP with direct employment of 199,000 people in 1995
- Canada is the world's largest exporter of minerals; we produce more than 60 minerals
- Canadian firms have world leadership in exploration and production technologies

Increased Exploration Activity

- $945 million of spending on mineral exploration expected in 1996 in Canada
- 21 mines will likely come into production in 1996 and 27 more in 1997

International trade agreements are one way of improving our access to these markets. In spite of the protectionist opinions being voiced on the American political scene, the Free Trade Agreement has done much to stabilize and improve our relationship with our largest trading partner. NRCan has an important role to play in helping Canada's natural resource sector improve its access to markets for its technology, products, and services.

Major new resource discoveries and better prices for commodities mean that Canada can expect good returns from its resource industries in the next three to five years. Prices have recovered from the doldrums of the early 1990s. We can expect moderate growth in Canada's principal export markets – the United States, Japan, and Western Europe – and strong growth in our exports to the Pacific Rim countries.

To make the best use of our opportunities, Canada needs to attract investment. Canadian firms continue to face strong competition from other countries for investment funds. But we can offer much: abundant natural resources, a well-trained workforce, world-class expertise and experience, stable and well-developed financial and business structures, excellent information management, and access to and experience in a large export market. Our experience, stability, and fiscal regime all help to attract the capital our industries depend on.

(iii) Integrating Environmental Concerns

Canadians are concerned about the possible long-term effects of resource development on the environment. They want government to ensure that taking advantage of our natural resources does not jeopardize the future of our children and grandchildren. Research suggests that “a clean environment” ranked only behind “freedom” in the general public's assessment of what the federal government should be concerned about.

The pressure is international as well as domestic. Some Canadian products have faced the threat of boycotts as a result of “green consumerism” in Europe and elsewhere. Increasingly, consumers demand that the products they buy meet high environmental standards.

Concern about the environment is spurring the search for new approaches. For example, the renewable energy industry is engaged in producing energy from biomass, solar power, wind, and small-scale hydroelectric projects. Firms are pursuing the technical breakthroughs needed for these energy sources to compete with more conventional energy production. This sector is of great interest to NRCan because of the potential environmental benefits that could result if renewable energy takes a larger part in the domestic market. Moreover, this is an area in which Canada could export technology to a growing international market.

Sustainable development challenges are global. Canada now has important commitments to meet under our international agreements on biodiversity and climate change and is also pressing for an international convention on forests. Since the problems go beyond national boundaries, so must the solutions. International agreements on sustainable development must be based on good science and sound policy. NRCan has the expertise to advise on these issues on Canada’s behalf.

Energy Sector

- the sector is committed to reducing greenhouse gas emissions through development and deployment of renewable energy and energy efficiency technologies
- $51 billion of 1995 GDP: direct employment of 190,000 people
- includes oil, natural gas, electricity and renewable industries
- Canada has a total undiscovered potential of natural gas in western Canada of 258 Tef and a 1995 export market worth $5.8 billion
- oil production shifting towards bitumen (i.e., oil sands), heavy oil and frontier (including offshore), as conventional production levels decline modestly
- these sources represent 93 per cent of domestic in-place reserves and 1/3 of the world’s known useful petroleum resources
- Hibernia production should aid assessment of the economics of additional offshore reserves
- the electricity industry is in a period of profound change pressured by new generation technologies and deregulating markets.

Compliance with environmental guidelines and regulations, both voluntary and legislated, is an important issue. Monitoring compliance is essential. We must also determine and record pre-development environmental conditions in order to set reasonable guidelines and regulations.

Forest Sector

- forest products contributed $34.7 billion to Canada's balance of trade in 1996
- 880,000 direct and indirect jobs
- world's largest exporter of forest products, with 20 per cent of global trade
- promising gains in capturing a larger share of world trade in value-added products
- backdrop to $26 billion tourism and recreation industry

The earth sciences have a major role to play in these areas. For example, since the launch of the first Earth observation satellite in 1972, NRCan has routinely used remotely-sensed imagery of the Earth's surface to provide environmental and resource-related information. In 1995, the world's most advanced Earth observation satellite, Canada's RADARSAT, was launched. Canada continues to be in the forefront of the development and use of geomatics technology.

(iv) The Social Context

In spite of recent economic growth, unemployment is still a national problem, especially for young workers (aged 15 to 24) who face an unemployment rate of about 15 to 18 per cent, compared to roughly 10 per cent for the labour force as a whole. In an increasingly technical, competitive world, new jobs tend to require more skills than the jobs that are disappearing.

Moreover, many of these new jobs are in urban centres, a fact that forces people to move out of rural or remote areas. Rural communities are finding it difficult to retain their identity and keep up their infrastructure. Many of these communities depend on natural resource industries, which provide an economic foundation on which new industries can build.

NRCan Contributes to Rural Economies

- NRCan contributes to rural economies through the deployment of photovoltaic, small-scale hydro, wind and biomass technologies
- oil sands development will create 44,000 new permanent jobs over the next 25 years
- the forest industry benefits from NRCan's research in biological pesticides, forest fire research, and tree genetic research
- NRCan's GeoExpress will provide rural users with a wide variety of economic, social, and environmental information through the information highway
- NRCan helped the Cree Nation at Ougé-Bougoumou develop a district energy system fueled by wood waste

v) Good Governance

Canadians are concerned about the quality of their government. As our society grows and changes, and as we come to terms with the cost of government, increased responsiveness and accountability are a necessity. Budget deficits have forced both the federal and provincial governments to reconsider their roles and core responsibilities. Jurisdiction questions, making program delivery more efficient, and the need to make the best

possible use of limited resources all need to be taken into account. An adaptable workforce and commitment to improved service delivery will continue to be essential to the provision of high-quality government.

Good governance is exercised through partnerships with other levels of government and a broad range of stakeholders. It is the guiding principle for furthering the public good in such areas as protecting public health and safety, strengthening the federation and providing public services that are responsive to the needs of citizens. In our knowledge-based society, information on Canada's land and resources is key to achieving these fundamental government objectives.

(vi) Effective Government through Partnerships

Increasingly, governments are relying on partnerships with other stakeholders to respond to common challenges. NRCan is building partnerships with provincial/territorial governments and outside stakeholders to develop consensus on actions and to ensure the best use of limited resources. Within the federal government, the complexity of issues increasingly requires the involvement of several departments to develop effective responses.

(vii) Partnerships with the Provinces and Territories

Ensuring a clear understanding of respective federal and provincial roles has been a priority in the area of natural resources. NRCan now focuses its activities on areas of core federal responsibility and works in close cooperation with the provinces/territories and others in identifying solutions to problems and issues.

Provinces and territories actively support partnerships with the federal government as a means of addressing issues of common interest and providing public services in an efficient and effective way. Partnerships are also fundamental to ensuring coordination on issues of national importance to the natural resource sector (e.g., knowledge infrastructure, climate change, market access, foreign investment), avoiding duplication of services between the federal and provincial governments, and ensuring that there are no gaps in program delivery.

(viii) Aboriginal Peoples

The process of making decisions for natural resources must respect the rights and interests of Aboriginal peoples. Cooperative management of natural resources and the negotiation of Aboriginal self-government are now part of land claims settlements. The new territory of Nunavut is an example of how the settlement of land claims can lead to a more stable climate for environmentally responsible resource development. This trend should increase Canada's attractiveness to investors, address issues of social justice, help the Aboriginal population contribute to Canada's well-being, and strengthen the Canadian community.

The Canadian Forest Service, in conjunction with Indian Affairs and Northern Development, is implementing the First Nations Forestry Program that promotes the active involvement of Aboriginal people in forestry, helping to create jobs, encourage viable forestry operations, and build forest management skills in First Nations communities.

(ix) Health and Safety

Canadians continue to look to government to play a central role in protecting their health and safety. Canadians need information on natural hazards. They also want to know which are the safest and most efficient processes for resource development. NRCan has the unique ability to gather and disseminate the scientific knowledge needed to develop and enhance proper standards, processes, and technologies. Policies and regulations that are solidly based on this knowledge will help promote Canadians' health and safety, and the sustainable development and use of our natural resources.

(x) A Foundation in Real Knowledge

Knowledge is essential to the wise use of natural resources. We face a highly competitive global market. We must remember that our resource development can have a profound effect on our natural heritage. It is extremely important that we take decisions on the basis of the best available information. We need detailed, accessible data on all aspects of the Canadian landmass, including the offshore areas, and economic and statistical information on resources and resource industries

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Geomatics

- gathering, processing interpreting, and managing geographical referenced information
- $1 billion in sales, 1,500 firms, 15,000 employees
- 20 per cent annual industry growth; rate is expected to increase rapidly
- Canadian world market share: 80 per cent of earth observation satellite receiving stations, 30 per cent of image analysis stations, and 10 per cent of consulting services in data interpretation

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(xi) Science and Technology: Innovation at the Leading Edge

The 1996 Speech from the Throne reiterated the need for a strong focus on science and technology. The national S&T strategy addresses this priority, recognizing that our understanding and effective use of S&T are critical to our responses to social and economic change. Its implementation will be guided by the Advisory Council on Science and Technology. The strategy establishes three basic goals:

1 to ensure that Canada is among the best in the world in applying and commercializing S&T for sustainable jobs and economic growth;

2 to ensure that Canada applies S&T to improve the quality of life of our citizens through the creation of fulfilling jobs and through the most effective social, environmental, and health care programs in the world; and

3 to create in Canada world centres of excellence in scientific discovery, building a broad base of scientific enquiry, fostering Canadian participation in all major fields of S&T and ensuring that new knowledge from Canadian sources and from around the world is acquired and disseminated.

The strategy emphasizes the importance of setting priorities and the benefits of partnerships, including intergovernmental cooperation and coordination. It stresses the need for a proactive approach. Its priorities include sustainable development, positioning Canada competitively in the global economy, and building the country's knowledge infrastructure.

NRCan's reply to these challenges is set out in its paper New Directions in Science and Technology. In forestry, it will emphasize ecosystems information and environmentally benign forest protection. It will also increase its focus on strategic forestry science, rather than on applied research. In geoscience, NRCan will stress knowledge of the landmass as the basis for mineral and energy discoveries and the understanding of natural hazards. In energy and mineral technology, it will focus on energy efficiency, alternative energy, and value-added natural resource products. In geomatics, it will encourage technology transfer and exports. In each of these areas, the department will also have programs relating to health and safety.

NRCan's S&T capabilities are essential for meeting the challenge of sustainable development. If we are to integrate economic, social, and environmental considerations into resource decision making, we need first and foremost a base of sound scientific knowledge. NRCan is uniquely positioned to contribute to this process. For example:

- Canada's national framework of criteria and indicators will help us to measure the condition of Canada's forests and progress towards sustainable forest management.
- Our information on past climates and on the carbon cycle in Canadian forests can help scientists understand current issues of climate change.
- The Voluntary Challenge and Registry Program (VCR) promotes the exchange of knowledge and technologies for energy efficiency and other options to limit greenhouse gases.
- The use of remote-sensing technologies such as RADARSAT allows the large-scale monitoring of environmental conditions and changes, an example of the increasing importance of geographically referenced data in decision-making.
- The Program on Energy Research and Development (PERD) encourages the development of both energy efficiency and renewable energy technologies.

These activities both expand our knowledge about the effects of our decisions on resource management and help explore policy and development options for the future.

4 Approach to Delivering Our Business

As a result of Program Review and other government-wide initiatives, NRCan has emerged as a stronger, leaner, more sharply focused department. As part of this focus, NRCan has set nine Policy Goals depicting its long-term objectives. These goals are supported and fulfilled through the performance of four main business lines that synthesize NRCan's business aims: science and technology, knowledge information, policies and regulations, and international interests.

(i) Science and Technology

NRCan conducts leading-edge research in *science and technology* (S&T) in order to create and transfer the ideas, knowledge and technologies that Canada needs to use its resources wisely and efficiently, to reduce costs, to protect the environment, and to help Canadians create new products and services. The science and technology activities of NRCan are particularly important for meeting the challenge of sustainable development. The integration of economic, social and environmental considerations into resource decision-making requires a base of sound scientific knowledge.

(ii) Knowledge Infrastructure

In partnership with other government agencies, both federal and provincial/territorial, universities and the private sector, NRCan builds a national *knowledge infrastructure* on Canada's land and resources providing Canadians with easy access to reliable, up-to-date scientific, economic, environmental and social information from a variety of sources. Knowledge of our landmass, our offshore regions, and the natural resources they contain is critical to Canada's economic and social growth, and environmental health. The knowledge infrastructure consists of four inter-related components:

- the sources of knowledge (such as S&T, statistical and economic analyses);
- the intellectual value-added;
- the means to access and distribute the knowledge;
- the linkages among the different components of the knowledge.

(iii) Policies and Regulations

We ensure that federal *policies and regulations* in areas such as the environment, trade, the economy, science and technology, Aboriginal matters, and federal lands enhance the contribution of natural resources to Canada's economy, while protecting the environment and the health and safety of Canadians.

(iv) International Interests

We promote Canada's *international interests* in cooperation with international agencies and other nations to meet Canada's international commitments related to natural resources, and to maintain access to global markets for Canadian products, technologies and services;

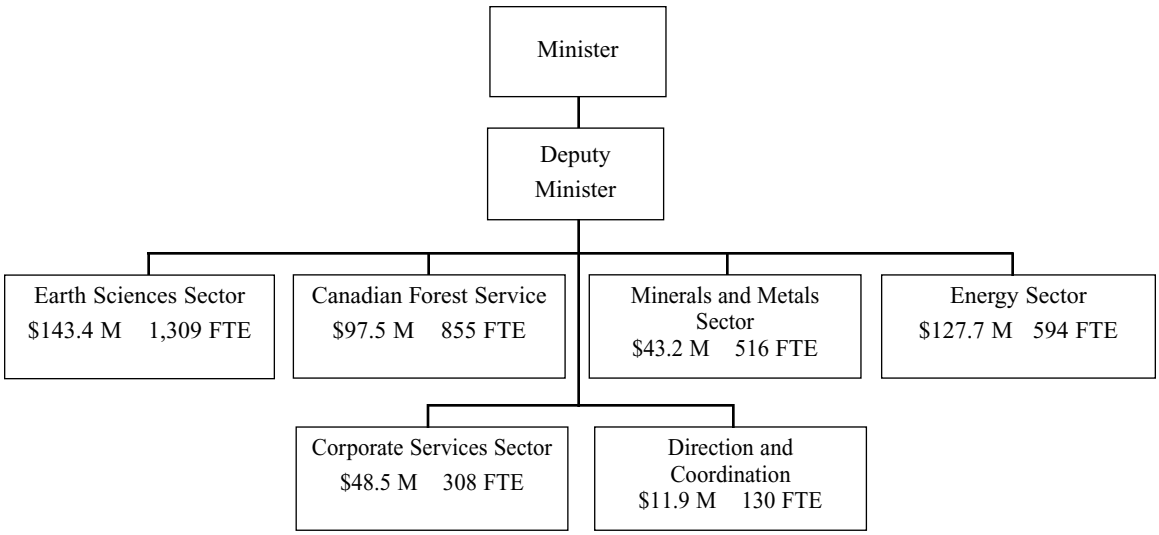
Three more Business Lines have been added (Corporate Management and Administration, Geomatics Canada Revolving Fund and Sunset/Special Programs) for administrative and accountability purposes.

Figure 1 lists the Policy Goals and Business Lines used in internal and external department planning and reporting documents (Business Plan, Performance Report, Report on Plans and Priorities and the Department's Planning Reporting and Accountability Structure (PRAS) document). Each business line is used to deliver on one or more of the policy goals.

Figure 1. NRCan Policy Goals and Business Lines

Policy Goals	Business Lines
1. To integrate economic, environmental, and social factors into Canadians' decisions regarding natural resources	**Science and Technology** 1. To conduct scientific research in support of land use and resource development and to promote Canadian economic development through the exploitation of the resulting technology.
2. To expand the potential for economic growth and job creation based on the sustainable development of Canada's natural resources	**Knowledge Infrastructure** 2. To build, maintain and disseminate information from a national knowledge infrastructure in support of the management and sustainable development of Canada's landmass, offshore regions and natural resources.
3. To encourage efficient resource development and use, and to minimize the environmental impacts of resource development	**Developing Federal Policy and Regulations** 3. To ensure that federal policy & regulations enhance the contribution of natural resources to Canada's economy while protecting the environment, the stability of rural communities and the health and safety of Canadians.
4. To work with Canadians to achieve our international climate change commitments	**Promoting Canada's International Interests** 4. To promote global policies and agreements in areas of trade, environment and social policy, which advance Canadian objectives relative to natural resource stewardship, products, technologies and services.
5. To maintain and expand access to foreign markets for resource-based products, technologies and services	**Corporate Management and Administration** 5. To assist the executive and business line managers of the department in setting priorities, planning and achieving goals and in effectively administrating the public resources entrusted to them.
6. To deliver federal responsibilities in partnership with provincial and territorial governments, and stakeholders	**Geomatics Canada Revolving Fund** 6. To assist the revenue generating operations of Geomatics Canada through the provision of an $8 million non-lapsing authority.
7. To help Aboriginal communities manage their natural resources	**Sunset/Special Programs** 7. To deliver sunset programs such as offshore development funds, mineral development agreements, forest research and development agreements that are being phased-out; and to deliver special programs such as boundary surveys for comprehensive Native Lands Claim settlements, and other special programs which have a definite end date.
8. To protect the health and safety of Canadians	
9. To provide information on Canadian land and resources needed for informed decision making	

5 1997-98 Natural Resources Canada Organization and Resource Relationships



- The **Earth Sciences Sector** provides the geoscience and geomatics knowledge base and infrastructure to support public policy decisions. It also provides NRCan's clients with logistics support for polar science and the information, expertise, and technologies they need to exploit domestic and foreign markets.
- The **Canadian Forest Service** promotes the sustainable development of Canada's forests and the competitiveness of the Canadian forest sector for the well being of present and future generations of Canadians. It delivers its S&T program through ten national science research networks operating out of five regional research centres and headquarters.
- The **Minerals and Metals Sector** promotes the sustainable development of Canada's minerals and metals resources industry by integrating economic, social and environmental objectives. It provides policy advice, S&T, and commodity and statistical information in support of decision-making. It is also the federal government's primary source of expertise on explosives regulations and technology.
- The **Energy Sector** promotes the sustainable development and safe and efficient use of Canada's energy resources through its policies, programs and S&T. It keeps in mind the potential economic, regional, international, and environmental implications of Canada's energy production and use. It also provides technical knowledge and advice to the energy industry and to government. Its knowledge base helps the Canadian government formulate policies, implement regulations, enhance job and wealth creation, and meet its international commitments.
- The **Corporate Services Sector** provides central financial, administrative, information management and human resource services. In addition, under **Direction and Coordination**, there is a Strategic Planning and Coordination Branch, a Communications Branch, and the Audit and Evaluation Branch, which contribute to improved performance measurement and accountability and an increased understanding of NRCan's mandate and programs among Canadians, clients and employees.

6 Resource Plans

Figures 2 and 3 provide departmental-level financial information for the period 1996-97 through 1999-2000. Figure 4 provides a more detailed net cost breakdown for fiscal year 1997-98.

Figure 2. Departmental Financial Overview

(millions of dollars)	1996-97 Planned Expenditures	**1997-98 Planned Expenditures**	1998-99 Planned Expenditures	1999-2000 Planned Expenditures
Gross Planned Expenditures	589.6	**505.0**	502.4	501.7
Less Revenue Credited to the vote *	0.6	**15.6**	17.2	17.2
Net Planned Expenditures	589.0	**489.4**	485.2	484.5
Less Revenue credited to the Consolidated Revenue Fund **	33.1	**15.1**	15.0	14.9
Plus Cost of Services provided by other Departments	31.4	**26.5**	N/A	N/A
Net Cost Natural Resources Canada	587.3	**500.8**	470.2	469.6

* The vote netting authority was expanded to all elements of the department during the 1996-97 fiscal year. Therefore, there is a significant increase in the vote netting authority from 1996-97 to 1997-98 and future years.

** Figures C1 and C2 on pages 62 and 63 provide additional details on revenue.

Figure 3. Gross Planned Expenditures by Business Line for the Planning Period

(millions of dollars)	1996-97 Planned Expenditures	**1997-98 Planned Expenditures**	1998-99 Planned Expenditures	1999-2000 Planned Expenditures
Business Lines				
Science and Technology	244.5	**241.8**	234.7	235.3
Knowledge Infrastructure	126.7	**112.2**	107.9	108.7
Developing Federal Policy and Regulations	61.5	**56.5**	54.6	54.7
Promoting Canada's International Interests	9.1	**8.7**	8.6	8.6
Sunset/Special Programs	105.9	**41.3**	54.2	53.1
Corporate Management & Administration	41.4	**43.4**	42.0	42.2
Geomatics Canada Revolving Fund	0.5	**1.1**	0.5	(0.9)
Gross Planned Expenditure	589.6	**505.0**	502.5	501.7

* 1996-97 amounts have been adjusted to reflect the new Natural Resources Canada Business lines.

Figure 4. Planned Expenditure Detail by Business Line for 1997-98

(millions of dollars)	FTE	Budgetary: Operating	Budgetary: Capital	Budgetary: Grants and Contributions	Budgetary: Gross Voted	Statutory Items *	Non-budgetary Loans and Investments	Gross Planned Expenditures	Less: Revenue Credited to the Vote	**Net Planned Expenditures**
Business Lines										
Science and Technology	1,784	206.9	8.9	26.0	241.8	–	–	241.8	13.0	**228.8**
Knowledge Infrastructure	954	107.5	3.2	1.5	112.2	–	–	112.2	1.3	**110.9**
Developing Federal Policy and Regulations	458	48.8	0.7	4.9	54.4	2.1	–	56.5	1.2	**55.3**
Promoting Canada's International Interests	72	8.5	0.2	–	8.7	–	–	8.7	0.1	**8.6**
Sunset/Special Programs	6	3.4	0.4	6.7	10.5	13.6	17.2	41.3	–	**41.3**
Corporate Management & Administration	438	43.3	–	0.1	43.4	–	–	43.4	–	**43.4**
Geomatics Canada Revolving Fund	–	18.3	–	–	18.3	–	–	18.3	17.2	**1.1**
Total Planned Expenditures	3,712	436.7	13.4	39.2	489.3	15.7	17.2	522.2	32.8	**489.4**
Other Revenues and Expenditures										
Revenue Credited to the Consolidated Revenue Fund **										**15.1**
Estimated Cost of services provided without cost by Other Departments ***										**26.5**
Net Cost										
Natural Resources Canada	3,712	436.7	13.4	39.2	489.3	15.7	17.2	522.2	32.8	**500.8**

* Does not include contributions to employee benefit plans and Minister's allowance which are allocated to operating expenditures or non-budgetary items.

** Figures C1 and C2 on pages 62 and 63 provide additional details on revenue.

*** Services Provided without cost by Other Departments include the following:

Charges for government payments to employee insurance plan	11.1
Charges for accommodation provided by Public Works and Government Services Canada	14.3
Charges for administration of pay processing provided by Public Works and Government Services Canada	0.2
Department of Justice Costs	0.6
Workers' Compensation Costs	0.3
Total	**26.5**

C Plans and Priorities by Departmental Policy Goals

This section links each policy goal to the expected outcomes, including their measurements for success and the related key deliverables of each business line. It should be noted that not all business lines contribute equally to all policy goals. It is also important to note that the measurement indicators are currently evolving.

Policy Goal 1:

To integrate economic, environmental, and social factors into Canadians' decisions regarding natural resources

Description

Sustainable development involves making better choices – finding ways to integrate economic, environmental, and social dimensions into decisions about resource development. The federal government, through its regulatory responsibilities and environmental and economic policies, can have a significant impact upon resource development.

NRCan works with other departments to ensure that federal policies, programs, and regulations, including those of NRCan itself, integrate economic, social, and environmental values and support sustainable development. NRCan also develops the information and technology to give Canadians user-friendly access to the latest scientific, economic, and social information, integrating data from a variety of sources.

Strategy

NRCan's strategy to achieve this objective is to:

- build an understanding of sustainable development principles and approaches;
- seek consensus on goals and action plans in specific areas;
- develop policy frameworks to support sustainable development;
- measure progress towards the sustainable development of natural resources; and
- create an easily accessible knowledge base on economic, environmental, and social factors to support decisions.

Outcomes for Policy Goal 1

1.1 A policy climate that increasingly incorporates principles of sustainable development in decisions made by the natural resources sectors, with a focus on growth, human development, and social cohesion.

1.2 Improved response by officials to policy changes and needs based on an appropriate knowledge base and expertise within NRCan, as required in the natural resources sectors.

1.3 Increased recognition of the relevance and value of NRCan's Science and Technology initiatives by stakeholders.

Measurements to Determine Progress Towards Outcomes

- The number of studies used in decision making and regulatory matters and processes.
- Canada's progress towards sustainable natural resources management.
- Compliance with, and acceptance of, regulations, policies and guidelines by stakeholders.
- Uptake and use of assessments, analysis, management practices and expertise provided by Natural Resources Canada.
- Increased awareness by clients and stakeholders of the environmental and socio-economic dimensions of Canada's natural resources.
- Relevance and utility of the criteria and indicators developed in support of sustainable development of Canada's natural resources.
- Reduced consumption of natural resources, lower emissions, less waste.
- Demonstrated cost-shared ventures with clients.

Deliverables by Business Line for Policy Goal 1

Business Line: Science and Technology

Over the Planning Period:

1 Assessment of the energy resources from gas hydrates.

2 Reports on biogeochemical cycling of metals.

3 Reports completed on the impact of climate change in the Mackenzie River basin.

Deliverables by Business Line for Policy Goal 1

Business Line: Knowledge Infrastructure

1997-98:

4 Report on federal implementation of the strategic directions on forests under the Canadian Biodiversity Strategy.

5 Assessment of the impacts of sea-level rise in Eastern Canada.

6 Biodiversity conservation strategies and ecological recovery plans for rare and threatened forest vegetation species, and guidelines for the conservation of genetic diversity in natural and managed forests (1998-99).

7 Sustainable development criteria and indicators for minerals and metals.

8 Reports completed on natural gas assessments for the mid-Cretaceous and Foothills realms of the Western Canada Sedimentary Basin.

9 Reports completed on the quality of selected Canada coal deposits and the coalbed methane potential of selected subsurface resources.

Over the Planning Period:

10 Models developed of the socio-economic impacts of global market changes and forest policies (including changes in land use and reductions in timber supply) on forest-dependent communities across Canada.

11 Canada's first report on criteria and indicators (C&I) framework released; forest indicators on biological diversity, conservation of soil and water, ecosystem resilience and global ecological cycles developed; and reports on forest health generated describing the role of forest fires, forest land-use changes and regeneration, and socio-economic values and trends.

12 State of Canada's Forests report tabled in Parliament annually (NRCan – $250,000 in 1997-98).

13 During the planning period, a Canadian Geospatial Data Infrastructure (a national electronic network for geographic information) developed, with the participation of the Inter-Agency Committee on Geomatics, using the GeoExpress and World Wide Web (WWW) technology; by 2000, federal and provincial geographic databases linked in an integrated network.

Deliverables by Business Line for Policy Goal 1 (cont'd)

Business Line: Knowledge Infrastructure (cont'd)

14 Improved estimates of the surface radiation balance and the contribution of aerosols from forest fires to absorption of radiation by the atmosphere.

15 Remote sensing applications to assess changes in seasonal and inter-annual vegetation condition and productivity, and to measure the impact of climate change on the environment.

16 Logistics support to Arctic programs, including a variety of geological mapping and mineral assessment projects; and support to a wide variety of research by federal/provincial/territorial agencies and universities, for work on determining environmental impacts of economic development of northern renewable and non-renewable resources.

Business Line: Developing Federal Policy and Regulations

1997-98:

17 Sustainable Development Strategy for Energy developed to reach a broad consensus on the objectives, principles and key instruments.

18 Indicators for a federal policy on sustainable development for energy.

19 Final evaluation report on Canada's National Forest Strategy (NFS) completed and a successor strategy released, in conjunction with CCFM and the NFS Coalition, for consideration by the National and World Forest congresses.

20 In collaboration with OGD's (other government departments), Aboriginal forestry associations and Canada's pulp and paper industry: finalizing a code of forest management practices for implementation on federal lands (1997-98); and completing studies on impact of environmental controls on pulp and paper industry and a national mechanism to evaluate and certify the environmental performance of pulp and paper products (1999-2000).

21 Canada's Model Forest Program expanded to include participant First Nations forest land in Canada; complete and assess results of socio-economic forest surveys; establish an interface between CFS's S&T networks and Canada's Model Forest Network (NRCan – $10.4 million on the management and delivery of Canada's Model Forest Program in 1997-98).

Policy Goal 2:

To expand the potential for economic growth and job creation based on the sustainable development of Canada's natural resources

Description

Natural resource industries employ almost 750,000 Canadians and indirectly support jobs for more than one million other workers. A substantial proportion of resource employment is in highly skilled, high-wage jobs.

Canadian resource firms are part of highly competitive global industries. Their success depends on their ability to market their products and services, and attract investment funds. Globalization will increase competitive pressures on both investment and market access into the next century.

The economic benefits from mining, forestry, and energy activities are of particular importance to rural Canada. Natural resources are the backbone of rural economic development in Canada, with more than 500 predominantly rural communities largely or solely dependent on mining, forestry, and energy. A significant portion of NRCan's work contributes directly or indirectly to rural communities, attracting more investment in resource development and stabilizing communities that depend on natural resource industries.

Strategy

NRCan's strategy to achieve this objective is to:

- develop policy and regulatory frameworks that support industry competitiveness and attract investment in natural resource industries;
- contribute to the development of an efficient fiscal regime for Canada's natural resources through work with the Department of Finance;
- enhance economic development opportunities for rural Canada;
- use S&T to increase productivity in resource industries and to develop new products and processes;
- support the development of "green" technologies; and
- provide the knowledge and information necessary to encourage resource development.

Outcomes for Policy Goal 2

2.1 Increased competitiveness in the global marketplace based on pro-competitive policies, taxes, and regulatory frameworks for Canadian private sector companies in natural resources sectors.

2.2 Improved export market access for Canadian natural resource based products, technologies and services.

2.3 Improved investment climate for the Canadian natural resources sector.

2.4 Increased international recognition that the Canadian natural resources sector integrates sustainable development principles in its products, technologies, and services.

2.5 Increased contribution to growth by the natural resources sector while balancing improvements (enhancements) to environmental integrity and quality of life.

2.6 Increased recognition among decision makers that natural resource industries are part of the knowledge based economy.

2.7 Progress toward attainment of NRCan's business goals through information management and utilization.

Measurements to Determine Progress Towards Outcomes

- Increased exports, costs savings, increased direct and indirect jobs, particularly high skilled jobs created/retained.
- Transfer and take-up of products, technologies, and services by private sector and other partners.
- Increased patents and licensing of intellectual property.
- Quality/productivity/efficiency, of technologies, processes, and products.
- Increase in demand for our information products.
- Increase in partnerships.
- Increased exploration and opening up of new resource frontiers.
- Decreased response time in approval processes.
- Increased investment in the natural resources sector.

Deliverables by Business Line for Policy Goal 2

Business Line: Science and Technology

1997-98:

1 Reports on the origin, emplacement, and evolution of ore deposits of gold, porphyry copper, nickel-copper-platinum, copper-lead-zinc, diamonds, rare metals and uranium, to help target mineral exploration and promote efficient exploitation of new and existing mines.

2 Process and chemistry for production of high-performance steel (NRCan – $300,000 in 1997-98)

3 Fifteen (15) foundry assessments with the Mobile Foundry Laboratory, resulting in recommendations for increasing foundry productivity and competitiveness (NRCan – $255,000 in 1997-98).

4 Initial technologies for improving recovery of precious metal from base metal refineries ($50,000 cost recovery).

5 National cooperative strategy developed for use in transfering tree biotechnology and advanced genetics to increase commercial forest productivity,

Over the Planning Period:

6 Technologies to reduce the costs of producing synthetic crude-derived transportation fuels from heavy oils and oil sands, and to mitigate the environmental impact of their production (NRCan – $3.8 million in 1997-98; Alberta – $2.1 million and industry – $1.2 million).

7 Technologies for reducing the economic and environmental costs of producing dry bitumen and heavy oil from surface-mined and in-situ production processes (NRCan – $3.0 million in 1997-98, external contribution is $1.7 million).

8 Technologies and techniques for the development of frontier oil and gas resources.

9 Three (3) remote sensing application technologies developed annually and transferred to industry each year.

10 Two cost recovery projects initialized utilizing the CANMET enhanced flotation process for copper-zinc separation ($150,000 cost recovery).

11 Prototypes fabricated for a wide range of industry sectors such as: the optical, electronics, communications, environmental, medical, aerospace, automotive and consumer products markets.

Deliverables by Business Line for Policy Goal 2 (cont'd)

Business Line: Science and Technology (cont'd)

Over the Planning Period (cont'd):

12 Mine mechanization/automation technologies developed to minimize mining costs and reduce the need for operators in potentially hazardous mining environments.

13 By 1999-2000, collaborative partnerships established with private partners to produce genetically improved seed and seedlings for commercial reforestation programs.

14 By 2000, research completed on the potential of Canadian terranes as hosts for specific major mineral deposits.

Business Line: Knowledge Infrastructure

15 Maps and reports on the bedrock geology of southern Baffin Island, Manitoba and Ungava (1997-98): Keewatin District, Labrador, and northwestern Ontario (1998-2000) to provide basis for mineral resource exploration in frontier areas.

16 Comprehensive geoscience compilations (digital databases) for southwestern B.C., southern Quebec, Labrador and parts of Atlantic Canada (1997-98); Yukon Territory (1999-2000) as the basis for mineral resouce assessments of this region.

17 Maps and reports on magnetic and gravity parameters over northern B.C. and adjacent regions of southern NWT and Yukon (1997-98): southern Saskatchewan and central alberta (1998-99); Victoria Island, NWT (1999-2000) to complement geological information used in mineral exploration.

18 By 1999, national standards for compilation and release of geoscience data in digital format with geoscience agencies.

19 By 1999-2000, a forest sector modeling framework developed which integrates economic and social values for use in analyzing socio-economic and other factors affecting the Canadian and North American forest products.

Over the Planning Period:

20 Reports and maps from successive phases of Lithoprobe Program geophysical transects from Great Slave Lake to the Pacific Coast (SNORCLE), and under northwestern Ontario (Western Superior), to determine the deep lithospheric structure and its physical properties.

21 Maps and reports completed from regional geochemical surveys of lakes, streams and vegetation to assist in mineral exploration in targeted regions.

Deliverables by Business Line for Policy Goal 2 (cont'd)

Business Line: Knowledge Infrastructure (cont'd)

Over the Planning Period (cont'd):

22 Annually, the Compendium of Canadian Forestry Statistics: biennially, the Selected Forest Statistics; a biennial report released on silviculture activity and timber harvesting on federal lands; and a comprehensive assessment completed on Canada's timber supply (NRCan – $562,000 in 1997-98 for the management of the National Forest Database and the production of reports).

Business Line: Developing Federal Policy and Regulations

1997-98:

23 Departmental position developed for responding to recommendations on Tax Reform by the Department of Finance's Technical Committee on Business Taxation.

24 Departmental position on changes to the *Income Tax Act* relating to the accelerated capital cost allowance, in conjunction with the Department of Finance.

25 A coordinated the Government response to the final report of the House Standing Committee on Natural Resources on streamlining of environmental regulation of mining.

26 Report to the Cabinet and Federal-Provincial-Territorial Mines Ministers on progress in regulatory reform.

1998-99:

27 Comparative study of fiscal regimes applicable in major established and emerging mineral producing jurisdictions.

28 Reports documenting the current rules and historical development of Canada's fiscal regime for mining and mineral exploration.

29 Implementation of the federal government's response to the National Task Force on Oil Sands Strategies.

30 "Mineral resource" certifications as submitted by the mining industry to obtain mining tax treatment under the *Federal Income Tax Act* and *Excise Tax Act*; rulings in response to specific requests to Revenue Canada, Justice Canada, Finance, the provinces, territories, the mining industry and individuals on the technical interpretation of the mining-related portions of Acts.

Deliverables by Business Line for Policy Goal 2 (cont'd)

Business Line: Developing Federal Policy and Regulations (cont'd)

Over the Planning Period:

31 Policy paper on electricity regulation.

32 By 2000, resolution of remaining Canadian Exploration Incentives Program and Petroleum Incentive Program cases.

Business Line: Promoting Canada's International Interests

Over the Planning Period:

33 International marketing of Canadian geomatics and geoscience capabilities and the initiation of partnerships and cooperative ventures to increase Canadian market exports.

34 A geomatics component to the Canadian International Business Strategy completed, which will contribute to the development of international joint ventures and partnerships of Canadian industry.

35 Approximately 25 investment seminars held in major foreign financial/mining centers.

Policy Goal 3:

To encourage efficient resource development and use, and minimize the environmental impacts

Description

Sustainable development can be advanced through policies, programs, and technologies. These should encourage efficient resource extraction, processing and use; support re-use and recycling; and develop environmentally sound alternatives. We need to develop and promote new processes, practices, materials, products, and energy sources that generate fewer pollutants and waste products, and present fewer risks to human health and the environment.

These measures can not only reduce environmental risks and conserve resources, but also have real economic benefits, by reducing costs and creating new business opportunities in the marketing of "green" technologies, services, and products, and contributing to the creation of new jobs.

Strategy

NRCan's strategy to achieve this objective is to develop and implement policies, programs and regulations, and to develop technologies that:

- increase efficient use and recycling of resources;
- minimize the impacts of resource development and use on the environment; and
- develop and promote renewable energy sources.

Outcomes for Policy Goal 3

3.1 A policy climate that increasingly incorporates principles of sustainable development in decisions made by the natural resources sectors, with a focus on growth, human development, and social cohesion.

3.2 Improved response by officials to policy changes and needs based on an appropriate knowledge base and expertise within NRCan as required in the natural resources sectors.

3.3 Greater contribution of natural resource development to economic growth, balanced against environmental integrity and quality of life.

3.4 Progressively decreasing or eliminating risks to the environment and to human health, using the latest analytic tools.

3.5 Attaining NRCan's business goals through information management and utilization.

3.6 Increased international recognition that the Canadian natural resources sector integrates sustainable development principles in its products, technologies, and services.

Measurements to Determine Progress Towards Outcomes

- Improving the environmental and health and safety performance of natural resources processing and use.
- Increased efficiency of natural resources use.
- Decreased natural resources waste.
- Quality/productivity/efficiency improvements of technologies, processes, and products.
- Transfer and uptake of products, technologies, and services by private sector and other partners.
- Increased awareness of the environmental and socio-economic dimensions of Canada's natural resources.
- Claims staked, increased revenues.

Deliverables by Business Line for Policy Goal 3

Business Line: Science and Technology

1997-98:

1 Reduction of the estimated mine closeout liability of $2 to $5 billion by a further 5% beyond the 10% already reported; initiation of a new post-MEND program to continue field studies and to report the data on acidic drainage mitigation.

2 Report on technically and economically acceptable water, sediment, and biological monitoring techniques, to be used to determine the biological and non-biological impacts of mine effluent on Canada's lakes, rivers, and streams.

3 Release of the Canadian Intersite Decomposition Experiment (CIDET) study on decomposition and nutrient cycles in forest ecosystems.

4 Synthesis produced on the roles of natural enemies in the population dynamics of the spruce budworm; and target-specific insect viruses developed with potential to control the spruce budworm.

5 Protocols developed for evaluating the potential impact of biological and microbial pest control agents on the environment.

6 Establishment of a national research program based on the identification of major issues related to the environmental impacts of the use of genetically engineered trees.

1998-99:

7 Completion of airborne geophysical surveys data in the Bathurst mining district of New Brunswick, to stimulate exploration.

8 Protocols for available biological, water, and sediment monitoring and chronic toxicity testing. The Full Aquatics Effects Technology Evaluation (AETE) program investment will have totaled $3.4 million when concluded in March 1998. AETE resources for 1997-98 are $900,000 from NRCan and $300,000 from industry.

Deliverables by Business Line for Policy Goal 3 (cont'd)

Business Line: Science and Technology (cont'd)

By 1999-2000:

9 Ecozone-based forest succession models developed to predict changes in forest vegetation and ecosystems after fire, pest infestation, and harvesting; models on the effects of varying levels of forest fire activity on sustainable forest management objectives.

10 Methods for the domestic production and release of natural enemies such as insect parasites, predators, and nematodes for control of exotic pests introduced to Canada and targeted native pests; commercially viable technologies for the mass production of several new bio-control products.

11 Options for controlling emissions from copper and zinc smelters, as identified under the Priority Substances List (PSL-2) process (1999-2000).

12 EXTECH II Project (Exploration Technology Program) final reports completed on the Bathurst Mining district (2000).

13 Aerial navigation and spray monitoring techniques improved for use by Canadian forest agencies for improved targeting, reduced pesticide volumes, and greater environmental safety (1997-99).

Over the Planning Period:

14 Identification of new microbial agents as ecological alternatives to chemical pesticides in foresty, and improvement of existing biological agents such as *Bacillus thuringiensis* (B.t.).

15 Technologies to improve industrial process efficiency and reduce emissions of nitrogen oxides, sulphur oxides, and particulates resulting from combustion (NRCan – $3.3 million in 1997-98).

16 Technologies developed under the Industry Energy Research and Development Program for new or improved products, processes, and systems that increase the efficiency of energy use (NRCan – $4.8 million in 1997-98).

17 Technologies for heat upgrading, transfer and storage to improve industrial energy efficiency (NRCan – $2.3 million in 1997-98).

18 Technologies to improve the energy efficiency, productivity, and environmental performance of steelmaking processes (NRCan – $1.5 million in 1997-98).

19 Technologies for energy-efficient farming operations and sustainable fisheries harvesting operations (PERD – $1.7 million, OGDs – $2.0 million, other – $1.7 million).

Deliverables by Business Line for Policy Goal 3 (cont'd)

Business Line: Knowledge Infrastructure

Over the Planning Period (cont'd):

20 Establishment of a national suite of permanent experimental sites in all Canadian ecozones having significant industrial forestry activity; completion of field studies on alternatives to clear-cut harvesting for three major forest ecozones (1997-98).

21 Development of a nation-wide synthesis of knowledge on the interactions between forestry practices and soil and water conservation (1998-99).

22 Development of new forest harvesting techniques and guidelines to minimize negative effects on site productivity, wildlife, soil fertility, biodiversity, and aquatic systems (1997-2000).

Business Line: Developing Federal Policy and Regulations

1997-98:

23 Passage of the *Nuclear Safety and Control Act*.

24 Review of, and consultations on, *Nuclear Liability Act*.

25 Creation of federal policy framework for radioactive waste management.

26 Establishment of departmental position on waste regulation for negotiation with the Council of Ministers of the Environment.

27 Implementation of voluntary program for rechargeable nickel-cadmium battery recycling in Canada.

28 Agreement with Saskatchewan on the regulation of uranium mining.

Over the Planning Period:

29 Development of departmental position on forest health and air pollution for use in the biennial reports to the International Joint Commission under the US/Canada Air Quality Accord.

30 Creation of federal-provincial environmental panels for assessing offshore energy products.

Business Line: Promoting Canada's International Interests

31 Implementation of the Canadian Arctic-Antarctic Exchange Program in partnership with the Canadian Antarctic Research Program (1997-98).

32 Completion of bipolar scientific research exchanges between Antarctic and Canadian Arctic scientists under the Canadian Arctic-Antarctic Exchange Program (1998-2000).

Policy Goal 4:

To work with Canadians to achieve our international climate change commitments

Description

Climate change is an important issue for NRCan. An estimated 87 per cent of Canada's greenhouse gases are energy related. Forests play a crucial role in climate stability, removing carbon dioxide from the air and storing it in vegetation and soils.

Canada, along with 150 other nations, is a signatory to the international Framework Convention on Climate Change. The convention commits Canada and other developed nations to work towards the stabilization of their emissions of greenhouse gases (such as carbon dioxide) at 1990 levels by the year 2000. Current estimates indicate that Canada's emissions levels will be approximately 13 per cent above 1990 levels by the year 2000.

Canada must actively work with other nations to develop coordinated international responses to global climate change issues. International negotiations are under way to amend the convention to include possible further commitments for beyond the year 2000.

Within Canada, action on climate change requires the cooperation of federal, provincial, and local governments, as well as industry, environmental groups, and the general public. Canada's response is coordinated through the federal, provincial, and territorial ministers of energy and environment. Working in partnership, Canada has developed the National Action Program on Climate Change that will help reduce emissions of greenhouse gases.

Strategy

Working in partnership with Environment Canada, NRCan's strategy to achieve this objective is to:

- monitor progress towards objectives;
- encourage action by individuals and companies;
- conduct research to increase the understanding of climate change and its potential impacts and to develop cost-effective mitigation options;
- develop technologies to reduce greenhouse gas emissions; and
- build international consensus for cooperation and action.

Outcomes for Policy Goal 4

4.1 Increased international recognition that the Canadian natural resources sector integrates sustainable development principles in its products, technologies and services.

4.2 Improved response by officials to policy changes and needs based on an appropriate knowledge base and expertise within NRCan as required in the natural resources sectors.

Outcomes for Policy Goal 4 (cont'd)

4.3 Increased recognition/consideration by NRCan's partners and/or stakeholders of the department's economic, environmental, and social concerns with respect to sustainable development principles for decision-making processes.

4.4 Increased recognition among the general public of the contribution of the natural resources sector to their overall well-being.

4.5 Progress toward decreasing or eliminating risk to the environment and human health, based on the latest analytical tools.

4.6 Increased protection of Canadian natural resource sectors' interests in international environment-related agreements through effective management.

4.7 Progress toward attainment of NRCan's business goals through information management and utilization.

Measurements to Determine Progress Towards Outcomes

- Reduced negative environmental health and safety impacts of natural resources processing and use.
- Increased efficiency of natural resources use.
- Uptake and use of assessments, analysis, management practices, and expertise provided by NRCan.

Deliverables by Business Line for Policy Goal 4

Business Line: Science and Technology

1997-2000:

1 By 1998-99, initial estimates produced on the impact of climate change on fire activity in Canada.

2 Technologies for cost-effective district energy systems, as well as feasibility studies and installations of these systems (NRCan – $1.4 million in 1997-98).

3 Technologies to improve the competitiveness of energy-efficient options for buildings (NRCan – $2.6 million in 1997-98).

4 Technologies to expand biomass applications and to enhance the environmental performance of biomass combustion systems (NRCan – $3.6 million in 1997-98).

Deliverables by Business Line for Policy Goal 4 (cont'd)

Business Line: Science and Technology (cont'd)

1997-2000 (cont'd):

5 Technologies for photovoltaics, small-scale hydro, wind, active solar, and hydrogen power for domestic and international application (NRCan – $5.3 million in 1997-98).

6 Technologies and techniques for optimizing waste management, to increase the energy efficiency, the improvement of incineration processes, and landfill gas separation and treatment processes (PERD – $300,000; other partners – $100,000).

7 Technologies for alternative transportation fuels such as natural gas, propane, alcohol fuels, hydrogen and electricity and their infrastructure (PERD – $3.1 million; NRCan A-base – $1.8 million; OGDs – $250,000; other partners $3.9 million).

8 Storage and engine technologies for alternative transportation fuels.

9 Research reports leading to a better understanding of the effects of alternative transportation fuels and their emissions on urban air quality and on human health and translating this into new standards.

10 Improved vehicle efficiency and environmental performance through the use of lightweight materials and emission-control technologies.

11 Technologies and techniques for the safe operation of the marine fleet and for improving the energy efficiency of navigation systems and ship propulsions systems (PERD – $2.9 million, NRCan A-base – $4.8 million, OGDs – $4.8 million, other partners – $800,000).

12 Technologies to minimize and capture carbon dioxide emissions resulting from industrial processes.

13 Methodologies and tools for the measurement and assessment of greenhouse gas emissions and their role in natural cycles and storage (PERD – $1.6 million, OGDs – $2.3 million, other partners – $700,000).

14 Techniques for understanding historical records for present-day detection and for prediction of climate change in the areas of land cover, water, biota, and the atmosphere (PERD – $1.0 million, OGDs – $2.5 million, other partners – $1.3 million).

15 Technologies for the capture of greenhouse gases (after their formation) and for their disposal.

16 Study of the possible impact of climate change on the Canadian energy sector and identification of appropriate adaptive strategies (PERD – $900,000, OGDs – $1.0 million, other partners – $300,000).

Deliverables by Business Line for Policy Goal 4 (cont'd)

Business Line: Knowledge Infrastructure

1997-98:

17 Completion of a national Carbon Budget Model of Canada's forests that incorporates climate effects on carbon storage and release; completion of analyses of forest ecosystem; climate studies undertaken as part of the Canada-USA Boreal Ecosystem Atmosphere Study (BOREAS).

18 In 1997-98, report on energy efficiency trends in Canada completed and a survey of Household Energy Use conducted, under the National Energy Use Database (NRCan – database budget of $1.8 million in 1997-98).

19 Over the planning period, analysis of BOREAS researchers' data and reports to predict interaction between climate change and the boreal forest; publish findings on the WWW.

Business Line: Developing Federal Policy and Regulations

1997-98:

20 Development of a synthesis of the state of climate change effects on Canadian forests for inclusion in the Intergovernmental Panel on Climate Change Third Assessment Report.

21 Establishment of the Voluntary Challenge and Registry as a not-for-profit corporation to ensure greater collaboration and accountability between the public and private sectors.

22 Renewable Energy Strategy to promote the development and use of emerging and promising renewable resources.

23 Definition of role of CANDU reactors in limiting greenhouse gas emissions.

24 Amendments to regulations under the *Energy Efficiency Act* to improve the energy efficiency of equipment (NRCan – $2.0 million budget).

25 An energy-efficiency retrofit program that could be used by municipalities to replicate the Federal Buildings Initiative.

1997-2000:

26 Development and implementation of a National Energy Code for Buildings (1997-99).

27 A Canadian Home Energy Efficiency Rating System that will offer home builders, renovators, buyers and vendors a tool to assess the energy performance of a house.

Deliverables by Business Line for Policy Goal 4 (cont'd)

Business Line: Developing Federal Policy and Regulations (cont'd)

1997-2000 (cont'd):

28 Benchmarking reports provided to industrial clients comparing their energy efficiency to nationaal and international averages.

29 Improvements in the energy efficiency of the federal building stock through the Federal Buildings initiative and in the commercial institutional and municipal sectors through the Energy Innovators Program.

30 An energy efficiency module to educate the more than 300,000 students who enrol in driver education training each year.

31 A new labelling initiative to provide consumers with vehicle fuel-efficiency information.

Business Line: Promoting Canada's International Interests

32 Development of an international negotiating position for Canada and long-term strategy papers on climate change.

33 Program for joint implementation of climate change initiatives in other countries under the Canadian Joint Implementation Initiative.

Policy Goal 5:

To maintain and expand access to foreign markets for resource-based products, technologies, and services

Description

Canada's natural resource industries are strongly oriented to international markets, and market access is therefore crucial. These industries have benefitted from the free trade that has been established with many of Canada's trading partners. Maintaining international agreements and trading rules will help to preserve this market access.

International consumers are demanding assurance that the products they buy do not compromise the quality of the environment. NRCan is working through international agencies, including international commodity organizations, to ensure that trade in natural resource products is not unnecessarily restricted on the basis of environmental considerations. NRCan's expertise helps assess the scientific basis of proposed trade restrictions or develops alternative processes acceptable to our trading partners. NRCan is also working with industry, and the provinces and territories to demonstrate that the development and management of our natural resources are based on the principles of sustainable development.

Strategy

NRCan's strategy to achieve this objective is to:

- support rules-based trading;
- produce the expertise and information necessary to ensure that rules of trade are based on sound science;
- develop internationally accepted standards and criteria for sustainably developed products and services; and
- promote the export of Canadian natural resource related products, services, and technologies through the Canadian International Business Strategy and in cooperation with industry.

Outcomes for Policy Goal 5

5.1 Increased competitiveness in the global marketplace based on pro-competitive policies, taxes and regulatory frameworks for Canadian private sector companies in natural resources sectors.

5.2 Improved export market access for Canadian natural resource based products, technologies, and services.

5.3 Increased international recognition that the Canadian natural resources sector integrates sustainable development principles in its products, technologies, and services.

5.4 Improved response by officials to policy changes and needs based on an appropriate knowledge base and expertise within NRCan, as required in the natural resources sectors.

Outcomes for Policy Goal 5 (cont'd)

5.5 Increased protection of Canadian natural resource sectors' interests in international environment-related agreements through effective management.

5.6 Progress toward attainment of NRCan's business goals through information management and utilization.

Measurements to Determine Progress Towards Outcomes

- Increased exports, costs savings, creation or retention of more jobs, both direct and indirect, particularly highly skilled jobs.
- Transfer and uptake of products, technologies, and services by the private sector and other partners.
- Increase in partnerships.
- Compliance with and acceptance of regulations, policies, and guidelines.
- Satisfactory resolution of trade and market access issues (e.g. softwood lumber trade dispute with the US); etc.
- Increased International trade and cooperation agreements and harmonization of standards and regulations.
- Increase in demand for our information products.

Deliverables by Business Line for Policy Goal 5

Business Line: Science and Technology

1997-98:

1 Canada-Brazil Project for Sustainable Development in the minerals sector (technical training, conference, ISO 9000 accreditation, seminar) ($164,000 cost recovery).

2 Canada-Argentina Project for Technology Transfer in the minerals sector (technical/managerial training, baseline study training, Argentinean visit to demonstrate Canadian techniques and experiences) ($418,000 cost recovery).

1998-99:

3 Canada-Argentina Project for Technology Transfer in the minerals sector (seminar series on components of baseline assessment) ($232,000 cost recovery).

Deliverables by Business Line for Policy Goal 5 (cont'd)

Business Line: Developing Federal Policy and Regulations

1997-98:

4 Cooperative agreements established with international research organizations to develop harmonized test methods and wood products standards.

5 Mutual recognition agreements established with other countries concerning eco-labeling, especially with prime markets for pulp and paper products.

6 Resolution of the trade restrictions, relating to pinewood nematodes, on softwood lumber exports to the European Union (EU).

7 Over the planning period, the Canada-US Softwood Lumber Trade Agreement implemented.

Business Line: Promoting Canada's International Interests

1997-98:

8 Establishment of a priority framework for managing international relations and promoting Canadian energy interests internationally, including a pilot industry survey.

9 Organization and hosting of the APEC (Asia Pacific Economic Cooperation) energy ministers meeting.

10 Recognition of the special characteristics of metals and minerals at the United Nations General Assembly special session to review the Rio United Nations Conference on Environmental Development.

11 Recognition of the principles of sustainable development of minerals and metals in the action plan of the Second Annual Mines Ministers of the Americas meeting.

12 Adoption of an acceptable heavy metals protocol under the convention on Long-Range Transboundary Air Pollution (LRTAP) of the United Nations Economic Commission for Europe.

13 Implementation of Multinational Andean Project (MAP) to provide uniform, fundamental geoscience data over parts of Argentina, Bolivia, Chile, and Peru for general development, land use planning, and environmental studies.

14 First report produced on Canada's implementation of the Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests (Montreal Process); and a first approximation report produced, bringing together country reports from the 12 countries involved in the cooperative work of the Montreal Process.

15 Release of Canada's position on ten global issues, for discussion at the Intergovernmental Panel on Forests (IPF); launch of the International Forestry Convention, in conjunction with the IPF, at the Special Session of the United Nations General Assembly.

16 Canadian geomatics and geoscience products and services promoted resulting in increased Canadian business activity.

Policy Goal 6:

To deliver federal responsibilities in partnership with provincial and territorial governments and stakeholders

Description

NRCan has a strong record as a partner in providing natural resource related programs, economic and scientific information, and services to Canadians. With its provincial and territorial partners, NRCan has learned that cooperation between governments and with other stakeholders is the best way of identifying and addressing natural resource issues and opportunities. NRCan is committed to working with its partners to coordinate policy and planning in areas of shared interest and to identify issues for joint resolution.

Within this partnership, NRCan will provide leadership and coordination in addressing natural resource issues of a national or international nature.

Strategy

NRCan's strategy is to:

- establish frameworks for common action with its partners, including other federal government departments;
- develop cooperative mechanisms to address high-priority issues; and
- take a "Team Canada" approach to national and international opportunities.

Outcomes for Policy Goal 6

6.1 A policy climate that increasingly incorporates principles of sustainable development in decisions made by the natural resources sectors, with a focus on growth, human development, and social cohesion.

6.2 Improved response by officials to policy changes and needs based on an appropriate knowledge base and expertise within NRCan, as required in the natural resources sectors.

6.3 Increased recognition/consideration by NRCan's partners and/or stakeholders of the department's economic, environmental, and social concerns with respect to sustainable development principles for decision-making processes.

6.4 Increased recognition among decision makers that natural resource industries are part of the knowledge based economy.

6.5 Progress toward decreasing or eliminating risk to the environment and human health, based on the latest analytical tools.

Outcomes for Policy Goal 6 (cont'd)

6.6 Increased recognition of the relevance and value of NRCan's Science and Technology initiatives by stakeholders.

6.7 Progress toward attainment of NRCan's business goals through information management and utilization.

Measurements to Determine Progress Towards Outcomes

- Increased exports, costs savings, and creation or retention of more jobs, both direct and indirect, particularly highly skilled jobs.
- Increase in partnerships, as well as the transfer and uptake of products, technologies and services by private sector and other partners.
- Improvements in quality, productivity, and efficiency of technologies, processes and products.
- Increased trade and cooperation agreements and harmonization of standards and regulations.
- Increased exploration and opening up of new resource frontiers.
- Increased investment in the natural resources sectors.
- Increased efficiency of natural resources use; decreased natural resources waste.
- Reduced negative effects of natural resources processing and use on the environment and on health and safety.
- Increased number of accident-free days.
- Uptake and use of assessments, analysis, management practices, and expertise provided by NRCan.

Deliverables by Business Line for Policy Goal 6

Business Line: Science and Technology

1997-2000:

1 Establishment of the National Centre for Upgrading Technology as a joint venture between NRCan and the province of Alberta, and the centre's evolution to a strategic alliance of federal, provincial, and industrial interests.

2 Implementation of the three-year plan, "Towards a Refined Gravimetric Geoid for Canada 1996-1999."

Business Line: Knowledge Infrastructure

1997-98:

3 Establishment of working agreements with provincial/territorial governments and other federal departments, for monitoring different elements of forest health.

Deliverables by Business Line for Policy Goal 6 (cont'd)

Business Line: Knowledge Infrastructure (cont'd)

1997-98 (cont'd):

4 Creation of national forest S&T forum, in cooperation with the CCFM, to agree on priorities and opportunities for strategic forest S&T across Canada.

5 Accords on collaboration in geoscience programming within the framework of the inter-governmental geoscience accord, signed with Ontario and Newfoundland and (in 1998-99) with British Columbia.

6 Memoranda of Understanding or Letters of Agreement with all provinces/territories on statistical collection, data processing, data sharing, and dissemination. At least four are anticipated.

7 A new height transformation system, to connect sea-level heights to satellite-derived heights, delivered to provincial agencies.

8 WWW site providing detailed production, trade, exploration, development, and consumption data on 60 commodities and over 700 producers in Canada.

9 Higher accuracy (less than one metre) technology available from the real-time Canadian Active Control System in 1997-98 and completion, in cooperation with the provinces, of phase I of the Canadian Base Network (CBN) by the year 2000 (the CBN is a sparse, country-wide network of the highest accuracy survey control points).

1998-99:

10 Report prepared on acid rain and Canada's forests, based on an analysis of the 10-year Acid Rain National Early Warning System (ARNEWS).

11 Ninth biennial federal-provincial conference held on industrial minerals.

Over the Planning Period:

12 Provide chapters on forest health and air pollution for the biennial reports to the International Joint Commission under the US/Canada Air Quality Accord (1998-2000).

13 Completion of over 100 surveys per year on mineral production, consumption, and exploration.

14 Joint federal/provincial geoscience and geomatics program plans.

15 Release of over 30 major periodic publications and information products per year, based on the statistical information collected and analyzed.

16 Establishment of bilateral or multilateral arrangements with provincial and territorial governments in priority areas identified under the Framework for Federal-Provincial/Territorial Cooperation in Forestry.

Deliverables by Business Line for Policy Goal 6 (cont'd)

Business Line: Knowledge Infrastructure (cont'd)

Over the Planning Period (cont'd)

17 Establishment of four new or improved partnerships with industry, other sectors and other federal government departments for sharing and/or disseminating minerals and mining information.

18 Organization of and hosting annual meeting of the Federal-Provincial Committee on Mineral Statistics.

19 Preparation of annual reports on the levels of Canadian reserves, production decisions and promising deposits; on Canadian penetration of global markets for mineral exploration; and on Canadian mineral discovery trends.

20 Preparation of an annual edition of the "Mineral Map of Canada by Electoral Ridings", with CD-ROM and Internet versions, to meet demands from Members of Parliament and the public.

21 Development of Canadian Road Network (data maintenance program) with the Canadian Council on Geomatics member agencies.

Business Line: Developing Federal Policy and Regulations

1997-98:

22 National Air Issues Coordinating Mechanism in cooperation with Environment Canada, leading to effective working arrangements with the provinces and territories and improved priority setting.

23 Implementation of training and certification program across Canada for pyrotechnic special effects technician.

1998-99:

24 Termination of all MDAs; completion of programming and socio-economic impact assessment under the Quebec MDA (NRCan – $1.9 million in 1998-99).

Business Line: Promoting Canada's International Interests

25 Twenty incoming/outgoing geomatics and geoscience missions with private sector and the provinces in each planning year.

Policy Goal 7:

To help Aboriginal communities manage their natural resources

Description

Aboriginal communities are increasingly involved in the management and development of their natural resources. NRCan is working in partnership with Aboriginal groups on issues related to resource development and providing skills, expertise, and training that Aboriginal peoples need to manage their lands and resources.

Strategy

NRCan's strategy to achieve this objective is to:

- work with other government departments to develop policy and governance frameworks dealing with Aboriginal involvement in the management of natural resources;
- provide Aboriginal communities with the skills and training they need to manage their lands and natural resources; and
- transfer to Aboriginal communities technologies related to resource management that respond to their specific needs.

Outcomes for Policy Goal 7

7.1 A policy climate that increasingly incorporates principles of sustainable development in decisions made by the natural resources sectors, with a focus on growth, human development, and social cohesion.

7.2 Increased recognition/consideration by NRCan's partners and/or stakeholders of the department's economic, environmental, and social concerns with respect to sustainable development principles for decision-making processes.

7.3 Increased Aboriginal involvement in the management of their resources.

Measurements to Determine Progress Towards Outcomes

- Increased efficiency of natural resources use.
- More jobs, direct and indirect.
- Progress towards sustainable natural resource management.
- Increase in partnerships.

Deliverables by Business Line for Policy Goal 7

Business Line: Science and Technology

1 Feasibility studies and installations of district energy systems in Aboriginal communities and implementation of a program for training Aboriginal students.

Business Line: Knowledge Infrastructure

2 Implementation of 50 annual survey contracts in support of the comprehensive Native Land Claim settlements and other surveys totaling over $10 million annually.

Business Line: Developing Federal Policy and Regulations

3 Implementation of a Memorandum of Understanding established in conjunction with other federal departments (DIAND, HRD, IC), the provinces, the forest industry, and First Nation associations (1997); establishment of a First Nation Advisory Committee to help steer the management and delivery of the program regionally and nationally (1997); and, ongoing communication of research results, sustainable forest management practices, and technological innovations to participating First Nation communities (NRCan – $1.5 million in 1997-98 for the management and delivery of the First Nations Forestry Program).

In conjunction with other federal departments, agencies, industry, and First Nation associations:

4 Preparation by September 1997 of a report on timber harvesting and forest management activities on federal lands.

5 Establishment of an interdepartmental Memorandum of Understanding for the management of federal lands (1998-99).

Policy Goal 8:

To protect the health and safety of Canadians

Description

NRCan programs and expertise involve a wide range of public health and safety issues. For example, our knowledge of Canada's landmass includes an understanding of such natural hazards as earthquake zones, unstable soils, and possible volcanic activity. These pose potential problems both for public health and safety and for sustainable development. While natural disasters cannot be prevented, we can do our best to predict them better, improving public safety. We also help minimize such public health concerns as dangerous mining conditions (for example, rockbursts) through our solid understanding of the geosciences.

The department's programs also address some aspects of health and safety that are not specifically or uniquely related to resource development. For example, NRCan administers the *Explosives Act*. It is a principal player in the international detection and reporting of nuclear weapons tests. In addition, the department's national aeronautical charting program is critical to the safety of navigation for both civil and military aviation.

Strategy

NRCan's strategy to achieve its objectives in the area of health and safety is to:

- provide information on dynamic natural events such as earthquakes and landslides, and an understanding of the processes that cause them;
- contribute knowledge on the hazards of resource development, such as rockbursts in mines and melting permafrost around such northern installations as pipelines;
- administer the *Explosives Act*;
- play a principal international role in the detection and reporting of nuclear weapons tests;
- ensure the safety of navigation for both civil and military aviation through its national aeronautical charting program; and
- provide information and a forecasting service on geomagnetic storms, which can have serious indirect health and safety effects by disrupting communications channels and navigation and by their effect on electrical power grids.

Outcomes for Policy Goal 8

8.1 Increased recognition among the general public of the contribution of the natural resources sector to their overall well-being.

8.2 Progress toward decreasing or eliminating risk to the environment and human health, based on the latest analytical tools.

Outcomes for Policy Goal 8 (cont'd)

8.3 Increased protection of Canadian natural resource sectors' interests in international environment-related agreements through effective management.

8.4 Increased recognition of the relevance and value of NRCan's Science and Technology initiatives by stakeholders.

Measurements to Determine Progress Towards Outcomes

- Increased number of accident-free days.
- Compliance and acceptance of reports, policies and guidelines.
- Increase in partnerships.
- Transfer and uptake of products, technologies and services by private sector and other partners.
- Improvements in quality, productivity, and efficiency to technologies, processes, and products.
- Increase in demand for our information products.
- Reduced negative effects of natural resources processing and use on the environment and on health and safety.

Deliverables by Business Line for Policy Goal 8

Business Line: Science and Technology

1997-98:

1 New and revised explosives safety manuals and standards.

2 Report on diesel particulate sampling protocol developed to meet new exposure guidelines.

3 Engineering Critical Assessment (ECA) pipeline methodology and software developed to determine critical crack size and crack driving force ($267,000 in 1997-98).

4 Report on propagation of stress corrosion cracks in pipelines ($600,000 from government, $320,000 from industry, over the period 1993-97).

1998-99:

5 Establishment of the Diesel Exhaust Emission Program (DEEP), a North American consortium for diesel exhaust particulate control, sampling and analysis.

6 Development of enhanced magnetic forecasting services in order to mitigate damage to power transmission utilities (1999).

Deliverables by Business Line for Policy Goal 8 (cont'd)

Business Line: Science and Technology (cont'd)

Over the Planning Period:

7 Reports on assessment of geomagnetic hazard to pipelines and renewable hydro-electric power systems.

8 Technologies to improve the reliability of Canadian oil and gas pipelines.

Business Line: Knowledge Infrastructure

9 Reports on the Saguenay floods and mass sediment movements in southern Quebec (1997-98).

10 Reports on the expected behaviour of sediments during a major earthquake (reports on the Fraser Delta and Saanich Inlet in 1998; and on the Georgia Strait in 1999).

11 Automation of 90 per cent of aeronautical chart production (l998-99).

12 Seismic hazard assessments revised for all regions of Canada (1999-2000).

13 Reports on seismic monitoring to detect and locate underground nuclear explosions in support of Canada's agreement to the Comprehensive Test Ban Treaty.

Business Line: Developing Federal Policy and Regulations

1997-98:

14 Passage of the *Nuclear Safety and Control Act.*

15 Federal policy framework for radioactive waste management.

16 Passage and implementation of new plain-language explosives regulations.

1998-99:

17 Evaluation and refinement of the explosives regulations through the amendment process.

Policy Goal 9:

To provide the information on Canadian land and resources needed for informed decision-making

Description

Canada's landmass has an area of almost 10 million square kilometres, and its offshore claims add half as much to the country's territory. Canada has some of the world's oldest rocks and some of the youngest. We have barren Arctic tundra and some of the world's richest farmland. We have 10 per cent of the world's forests and 20 per cent of its fresh water.

We are highly urbanized, yet rural Canada is a critically important component of our social and economic fabric, particularly when it comes to agriculture and natural resources. We also have remote Aboriginal communities with widely different cultures and needs.

This richness and diversity creates a real challenge for government at all levels. Managing the sustainable development of our natural resources, planning land use, exercising good stewardship over our natural environment – these activities will require reliable, timely, and accessible information on a wide range of issues.

Strategy

NRCan's strategy to achieve this objective is to:

- develop and maintain a national knowledge infrastructure for natural resources, including geoscience, geomatics, forestry, economic and statistical data;
- ensure that the department's information, knowledge, and expertise are easily accessible;
- link the department's databases to relevant databases maintained by other agencies to the maximum extent possible;
- maintain a reliable survey system for Canada Lands as set out in the *Canada Lands Surveys Act*;
- maintain an effective boundary line between Canada and the United States in accordance with the international treaties and the *International Boundary Commission Act*; and
- strengthen cooperation with other government departments, both federal and provincial/territorial, to ensure that there is no duplication among different agencies, and that there are no gaps in the provision of information.

Outcomes for Policy Goal 9

9.1 Improved response by officials to policy changes and needs based on appropriate knowledge base and expertise within NRCan as required in the natural resources sectors.

9.2 Enhanced belief that decision-making related to sustainable development in the natural resources sectors reflects informed public participation.

9.3 Increased recognition among the general public of the contribution of the natural resources sector to their overall well-being.

9.4 Increased recognition of the relevance and value of NRCan's Science and Technology initiatives by stakeholders.

9.5 Progress toward attainment of NRCan's business goals through information management and utilization.

Measurements to Determine Progress Towards Outcomes

- Increase in partnerships as well as the transfer and take-up of products, technologies and services by private sector and other partners.
- Canada's progress towards sustainable natural resource management.
- Uptake and use of assessments, analysis, management practices and expertise provided.
- Reduced negative environmental health and safety impacts on natural resources processing and use.
- Increased efficiency of natural resources use; decreased natural resources waste.
- Increased exports, costs savings, increased direct and indirect jobs, particularly high skilled jobs created/retained.
- Increased investment of the natural resources sector.
- Increased exploration and opening up of new resource frontiers.
- Increased demand for our information products.
- Number of studies used in decision-making and regulatory matters and processes.
- Compliance and acceptance of regulations, policies and guidelines.

Deliverables by Business Line for Policy Goal 9

Business Line: Science and Technology

1 By 1998-99, Canada's National Ecological Land Classification System completed in collaboration with provincial governments.

2 Over the planning period, simulation models to predict effects of varying levels of forest fire activity on ecosystems, landscapes, and sustainable forest management objectives.

Business Line: Knowledge Infrastructure

1997-98:

3 Prototype Decision Support Systems for use by model forests and a major forest products company, integrating geographic databases and models of forest landscape dynamics.

4 Cartographic products redefined based on user study.

5 National assessment of Canada's forest health released based on critical levels of acidic pollutants; ozone monitoring incorporated as part of Canada's national forest health monitoring.

Over the Planning Period:

6 Techniques and systems developed for integrating spatial data, remote sensing and field plot measurements to generate comprehensive, multi-attribute forest databases and landscape design tools.

7 Report on critical levels of acidic pollutants on forest productivity. First national assessment of forest health in Canada released.

8 First phase of the automated aerial photo retrieval system completed in partnership with a number of provincial governments.

9 Agreement signed with Canada Post to receive change detection information for road network database.

10 Final reports and maps for the Magdalen Basin, Southeastern Cordillera, Nechake and Oak Ridges projects and start four new projects.

11 A framework for a Spatial Data Infrastructure developed, consolidating multiple geographic data sets on Canadian forest resources and ecosystems.

Deliverables by Business Line for Policy Goal 9 (cont'd)

Business Line: Knowledge Infrastructure (cont'd)

Over the Planning Period (cont'd)

12 A report comparing multi-factor productivity in Canadian mining with that in other sectors such as manufacturing.

13 Three (3) remote sensing applications and technologies annually developed and transferred to industry each year.

14 Annual reports on investment opportunities in Canada for major metals and on the outlook for investment in new mines in Canada.

15 Mid-year and annual reports on new mine developments, mine openings and closings in Canada, with analysis of impact on production, reserves and employment to support the federal government's effort in its ongoing assessment of Canada's mineral supply capability, investment opportunities and job creation agenda.

16 An annual update of Map 900A – Principal Mineral Areas of Canada to support federal government's ongoing effort in the assessment of sustainable development and investment promotion.

17 Annually: Canadian Minerals Yearbook, Non-ferous Metals Outlook, Iron Ore Industry Statistics, Statistical Review of Coal in Canada.

18 In 1998-99, topographical digital elevation models of the Canadian landmass completed.

Business Line: Developing Federal Policy and Regulations

Over the Planning Period:

19 Geoscience studies on natural resources and structure of Canada's extensive coastal and offshore regions for policy decisions.

20 Report on the implications of an assessment of Canada's claim to the continental shelf under the United Nations Convention on the Law of the Sea.

21 A resource assessment completed of the area of interest for a National park in Natural Region 38 – (Arctic Islands).

D Change Management Issues

1 NRCan S&T Management Framework

Issue: The March 1996 federal S&T strategy *Science and Technology for the New Century* emphasized the need for improved management of the federal S&T investment. In response, NRCan is continuing to implement a S&T management framework aimed at improving its focus on clients' needs and providing more effective and responsible accountability and better S&T management.

NRCan's S&T Management Framework, developed in 1995 with the endorsement of the Privy Council Office (PCO) and Treasury Board Secretariat (TBS), addresses NRCan's commitments set out in the federal S&T strategy. Good management of S&T is crucial to the department, given that more than two-thirds of NRCan's activities are either research and development or related scientific activities. These activities support the key departmental business lines.

Sector heads are responsible for implementing the S&T Management Framework in their sector. At the departmental level, the implementation of the S&T Management Framework triggered a move towards developing a departmental framework that would include more than S&T activities. For example, each departmental activity will carry out strategic planning, business planning, and priority setting activities.

The department's milestones include the following:

- developing and implementing a priority-setting process for all of NRCan's activities;
- communicating details of the framework with central agencies, other government departments, external clients and stakeholders;
- assessing and negotiating with TBS on aspects of management flexibility and authority deemed essential to the department;
- developing a departmental training and development strategy and priorities to meet the specific needs of the S&T community, and implementing programs and initiatives that foster good management;
- completing an interim assessment of the framework's implementation early in 1997-98; and
- preparing and conducting an evaluation of the management framework in 1998-99.

2 Quality Service Initiative

Issue: To integrate quality-management principles and concepts into NRCan's corporate culture.

Quality Initiative (Excellence NRCan) Plans and Priorities for 1997-98

The Quality Service Initiative is part of the Corporate Management and Administration Business Line.

The Quality Service Initiative (Excellence NRCan) has been ongoing since 1991. It seeks to focus onsatisfying the client, improving processes, and empowering and equipping employees to do theirjobs well. The initiative currently emphasizes the integration of quality-management principles and concepts into NRCan's culture; development of measurement tools to support management by fact, and effective management of change.

Key plans and priorities	Key indicators for measuring success
Applying of the National Quality Institute quality criteria to NRCan work groups	One work group in each sector has applied the criteria to its operations. Two additional work groups in each sector have agreed and planned to assess their operations according to the criteria.
Measuring client satisfaction	An inventory of client satisfaction measurement procedures now exists for the department's use. Complaint handling procedures have been documented and are now practiced in 50 per cent of the branches. A method for assessing client satisfaction on both a sector-wide and department-wide basis has been developed.
Service standards publicized	Half of all branches have publicized their service standards to their clients.
Common management framework	Creation of an integrated management framework will be based on best practices, both from within NRCan and from outside sources. All managers and supervisors have attended briefing sessions on the common management framework

3 Managing the Workforce

Issue: Impact on the workforce resulting from downsizing, competing priorities, and continued client expectations requires new employment strategies that will carry the department towards the year 2000.

By the end of 1997-98, NRCan expects to meet its downsizing targets under Program Review I. In 1995-96, NRCan reduced its workforce by 748 FTEs, mainly through departure incentive programs (722 FTEs). The department will lose an additional 714 FTEs in the remaining years. Recent results of Program Review II identified a further reduction of approximately 70 FTEs. By the end of 1998-99, NRCan's total number of FTEs will be approximately 3570.

Downsizing of this magnitude presents a major challenge to departmental managers. Most employees who were eligible for the Early Retirement Incentive/Early Departure Incentive programs have already left. Given current private sector employment trends, surplus employees are apt to focus on job opportunities within the public service, even as job opportunities within the public service are on the decline.

To help ease the process of downsizing, NRCan will focus its efforts on:

- developing and promoting a strategic departmental approach to finding alternative mechanisms for service delivery; and
- identifying alternative service delivery opportunities with employees and stakeholders.

Given declining resources at all levels, the need for close cooperation among employees and between employees and managers has never been greater.

NRCan is now focusing on new employment strategies to carry out its mandate and strategic business objectives. This will be achieved by the recently-developed Revitalization Strategy. La Relève at NRCan is a departmental response designed to rejuvenate and revitalize the organization by ensuring leadership continuity, building sound management and employee culture, and by facing environmental and cultural changes.

Key initiatives for the planning period include: developing a succession plan for the EX category in the first year and, in future years, for EX equivalents and other managerial levels; addressing labour management and surplus employee issues; and developing a human resources management framework to set the direction for the management of human resources in the department.

The federal initiative of La Relève is supported by several departmental programs, including the Learning Priorities Strategy, the Upward Feedback process, and the S&T Human Resources Management Framework. These programs are designed to address the issues of rejuvenating the workforce, managing workloads, establishing core competencies, developing the workforce, and improving the quality of life at the workplace.

4 Re-engineering

Issue: Organizational restructuring and downsizing caused by Program Review requires a rethinking of how the department provides corporate services.

By 1997-98, NRCan's budget will be reduced by approximately 50 per cent from 1994-95 levels. As a result, close cooperation will be required between finance, administrative, informatics, information management, and human resources groups across the department. These functions will need a new direction, one that focuses on:

- providing the department with leadership on business performance and departmental accountability;
- providing expert administrative and systems advice to line sectors;
- managing a common office environment and information technology infrastructure integrated with the line sectors (NRCan – $9.15 million in 1997-98);
- maximizing automation and cost savings, and the provision of accurate, on-line and timely information; and
- reducing duplication of information inputs and paper burden.

The success of this new direction will be ensured by a combination of re-engineering efforts and changes in its operations. Plans include:

- re-engineering the classification process and creating a databank of broad work descriptions, to be implemented in 1997-98 (NRCan – $1.65 million in 1997-98);
- completing the Integrated Payment and Procurement System by the end of 1997-98 (NRCan – $2.17 million in 1997-98);
- over the same period, implementing an Information Management Infrastructure, including a Common Operating Environment, an Electronic Document Management System and an integrated wide area network and telecommunications infrastructure;
- implementing an integrated management of HR information system in three stages in the period 1996-99 (NRCan – $2.0 million in 1997-98); and
- assessing financial management and planning, looking for re-engineering and improvement opportunities, starting in 1997-98.

Training will focus on improving employees' skills in new systems and tools developed as part of these initiatives.

5 Impact Assessment and Performance Measurement

Issue: With growing requirements to get government right and provide high-quality service to Canadians, departments are asked to clearly articulate what they are trying to achieve, how they are going to achieve it, and what measures they will use to assess their performance and demonstrate accountability to stakeholders.

Individual sectors within NRCan use a variety of approaches to assess their performance and the impact of their activities. These approaches include performance indicators, programs evaluations, internal audits, self assessments, impact assessment studies, cost-benefit analyses, and client surveys. Nonetheless, given more stringent requirements for performance information, the department needs an ongoing approach. It must be able to gather and analyse data on its performance and impact. This information is needed both for the department's own decision making process and to show accountability to Parliament and the Canadian public.

An essential step in this process is to make staff aware of the need for performance measurement. Staff must understand both the rationale behind this approach and the different methods that can be used to assess performance and the impact of our programs. To this end, NRCan plans to:

- find improved ways of measuring the impact of its programs, activities, and initiatives and of integrating the process into each sector's management processes;
- provide training and advice to employees to develop their understanding of results-based management and their ability to create and use performance indicators;
- publish a manager's guide to S&T impact assessment, in order to help managers carry out and direct the gathering, analysis, and use of impact assessment data; and
- support the revitalization and launch of the Canadian R&D Impact Network to advance the state of S&T impact assessment in government, industry, universities and elsewhere.

NRCan will also continue to measure and communicate the impact of its activities, and to use the information in decision making. The department will:

- increasingly set performance targets as part of its business plans, identifying the output, likely outcomes and – when possible – the impacts of its activities;
- measure, report, and communicate the results of its activities to Parliament, stakeholders, and the public;
- develop evaluation frameworks to permit monitoring and reporting on performance information and to provide the basis for future evaluations; and
- conduct impact assessment studies for the CANMET Energy Technology Branch, the CANMET Mineral Technology Branch, the Canada Centre for Remote Sensing, the mapping programs of the Geological Survey of Canada, and projects funded by the Program of Energy Research and Development (PERD) to assess the benefits derived from these activities.

Success will be measured by indicators such as the following:

- the development and use of performance indicators, information management systems, evaluation and performance frameworks, and accountability instruments; and
- the increased use of analysis information in decision making, such as project selection and priority setting; and increased use of performance and impact information in NRCan communications material to enhance the department's profile (measured by media analysis, public opinion, and evaluation reports).

III Supplementary Information

A Summary of Authorities Contained in Part II of the 1997-98 Main Estimates

Financial Requirements by Authority

(millions of dollars)		1996-97 Main Estimates	**1997-98 Main Estimates**
Vote			
1	Operating expenditures	400.6	**369.7**
5	Capital expenditures	20.0	**13.4**
10	Grants and contributions	51.5	**39.2**
(S)	Minister of Natural Resources – Salary and motorcar allowance	0.1	**0.1**
(S)	Contributions to employee benefit plan	31.0	**33.0**
(S)	Canada/Nova Scotia Development Fund	6.0	**3.9**
(S)	Canada/Newfoundland Development Fund	6.5	**7.0**
(S)	Canada/Newfoundland Offshore Petroleum Board	1.6	**1.4**
(S)	Canada/Nova Scotia Offshore Petroleum Board	0.7	**0.7**
(S)	Payments to the Nova Scotia Offshore Revenue Account	2.5	**1.4**
(S)	Payments to the Newfoundland Offshore Petroleum Resource Revenue Fund	–	**0.1**
(S)	Geomatics Canada Revolving Fund	0.5	**1.1**
(S)	Nova Scotia Fiscal Equalization Offset Payments	–	**1.2**
(S)	Payments to Interprovincial Pipe Line Incorporated in respect of deficiencies related to the Montreal extension	2.0	**–**
Total Budgetary		523.0	**472.2**
L15	Loan to Nordion International Inc. for the construction of two nuclear reactors and related processing facilities to be used in the production of medical isotopes	–	**17.2**
–	Loans pursuant to the Hibernia development project	66.0	**–**
Total Natural Resources Canada		589.0	**489.4**

B Gross Resource Requirements by Sector and Business Line for 1997-98

(millions of dollars)	Business lines: Science and Technology	Knowledge Infrastructure	Developing Federal Policy and Regulations	Promoting Canada's International Interests	Sunset/ Special Programs	Corporate Management and Administration	Geomatics Canada Revolving Fund	**Total**
Sector								
Earth Sciences	35.9	98.3	7.8	1.4	–	–	1.1	**144.5**
Forest	85.1	1.4	6.5	3.1	2.0	–	–	**98.1**
Minerals and Metals	30.2	3.5	8.6	1.9	7.6	–	–	**51.8**
Energy	82.1	2.9	32.4	1.9	30.9	–	–	**150.2**
Corporate Services	8.5	6.1	1.2	0.4	0.8	31.5	–	**48.5**
Direction and Coordination *	–	–	–	–	–	11.9	–	**11.9**
Total Natural Resources Canada	241.8	112.2	56.5	8.7	41.3	43.4	1.1	**505.0**

* Direction and Coordination includes: the Strategic Planning and Coordination Branch, the Communications Branch, and the Audit and Evaluation Branch.

C Revenues

Revenue received is deposited to the Consolidated Revenue Fund and is not available to finance activity expenditures with the exception of the Geomatics Canada Revolving Fund. However, revenue credited to the vote is available to offset expenditures up to 125 per cent of the amount of revenue printed in the Main Estimates. Revenue is shown by Class (Figure C1) and by Business Line (Figure C2).

C1 Revenue by Class

(millions of dollars)	1996-97 * Planned Revenue	**1997-98 Planned Revenue**	1998-99 Planned Revenue	1999-2000 Planned Revenue
Privileges, licenses and permits	16.5	**14.8**	15.3	15.3
Return on investments	1.9	**1.3**	1.2	1.1
Proceeds from sales	0.9	**0.8**	0.8	0.8
Services and service fees	13.3	**12.5**	13.6	13.6
Refunds of previous years' expenditures	–	**–**	–	–
Adjustments to Payables at Year End	–	**–**	–	–
Provision of Departmental Services to the Geomatics Canada Revolving Fund *	1.0	**1.1**	1.1	1.1
Revenue credited to the Geomatics Canada Revolving Fund **	17.1	**17.2**	16.8	15.4
Miscellaneous	0.1	**0.2**	0.2	0.2
Total Revenue	50.8	**47.9**	49.0	47.5
Less available for respending:				
Revenue credited to the vote ***	0.6	**15.6**	17.2	17.2
Geomatics Canada Revolving Fund **	17.1	**17.2**	16.8	15.4
Revenue Credited to the Consolidated Revenue Fund	33.1	**15.1**	15.0	14.9

* These amounts are taken from the Pro-Forma Statements presented in the Geomatics Canada Transitional Business Plan.

** This amount represents the actual cash received by the revolving fund and consequently does not take into account the receivables.

*** The vote netting authority was expanded to all elements of the department during the 1996-97 fiscal year. This has resulted in a significant increase in the vote netting authority from 1996-97 to 1997-98 and future years.

C2 Revenue by Business Line

(millions of dollars)	1996-97 * Planned Revenue	**1997-98 Planned Revenue**	1998-99 Planned Revenue	1999-2000 Planned Revenue
Science and Technology	15.6	**0.3**	0.3	0.3
Knowledge Infrastructure	1.6	**0.3**	0.3	0.3
Developing Federal Policy and Regulations	2.0	**2.9**	2.9	2.9
Promoting Canada's International Interests	0.1	**–**	–	–
Sunset/Special Programs*	12.7	**10.4**	10.3	10.2
Corporate Management & Administration	1.1	**1.2**	1.2	1.2
Geomatics Canada Revolving Fund	–	**–**	–	–
Revenue Credited to the Consolidated Revenue Fund	33.1	**15.1**	15.0	14.9

* The Energy Activity excludes revenues related to the Newfoundland and Nova Scotia offshore activities for which offsetting statutory payments will be made to the respective provinces.

D Transfer Payments by Business Line

Grants and contributions make up 11.6 per cent of the budgetary expenditures of the Department. The figure below summarizes all grant and contribution planned expenditures.

(millions of dollars)	1996-97 * Planned Expenditures	**1997-98 Planned Expenditures**	1998-99 Planned Expenditures	1999-2000 Planned Expenditures
Business Lines				
Science and Technology	28.8	**26.0**	23.9	23.9
Knowledge Infrastructure	1.6	**1.5**	1.5	1.5
Developing Federal Policy and Regulations	8.9	**7.0**	6.6	6.6
Promoting Canada's International Interests	–	**–**	–	–
Sunset/Special Programs	31.6	**20.3**	13.0	10.5
Corporate Management & Administration	–	**0.1**	0.1	0.1
Geomatics Canada Revolving Fund	–	**–**	–	–
Total Grants and Contributions	70.9	**54.9**	45.1	42.6

* 1996-97 amounts have been adjusted to reflect the new Natural Resources Canada Business Lines.

E Geomatics Canada Revolving Fund Financial Summary

This Fund was established under Appropriation Act No 3 in 1993-94 for the purpose of carrying out the operation of the revenue generating activities of Geomatics Canada. At the same time, the Fund received a continuing non-lapsing authority from Parliament to make payment out of the Consolidated Revenue Fund, not to exceed $8 million at any time.

The Fund's revenue generating activities can be broken down into three elements: products, services, and consulting. They provide to various clients an increasing volume of products and services suitable for industry distribution, as well as value-added services and help to strengthen the geomatics industry on the international market.

The following financial tables provide highlights of the Fund's operations for fiscal years 1996-97 and 1997-98:

- Even though revenues are decreasing by 5 per cent from 1996-97 to 1997-98, there is a significant increase in the product activity and a decrease in expenses. This is mainly attributable to the transfer of the Map Printing Unit from the Canada Communications Group to the Revolving Fund. This will allow the provision of new products and will have a positive impact on the cost of goods sold. This should help the Fund to keep its prices at a suitable level for the benefit of its Canadian and foreign clients.

- As stated in the 1995-96 Performance Report, the working capital requires some improvement. The Management Team has addressed this issue and positive results are expected during fiscal years 1997-98 and 1998-99.

Geomatics Canada is committed to provide quality products and services to the Canadian geomatics industry and all other clients while respecting government rules and directives concerning the management of the Revolving Fund. The Fund is entering its fourth year of operation in 1997-98.

E1 Revolving Fund Statement of Operations and Changes in Financial Position

(millions of dollars)	1996-97 Planned Expenditures	**1997-98 Planned Expenditures**
Revenues		
Products	8.8	**10.1**
Services	4.2	**3.5**
Consulting	3.9	**2.4**
Total revenues	16.9	**16.0**
Expenditures (includes cost of goods sold)	16.9	**15.6**
Operating Surplus (deficit)	0.0	**0.4**
Changes in Working Capital	(0.6)	**(1.7)**
Capital acquisitions	(0.1)	**(0.2)**
Other items	0.2	**0.4**
Cash requirements	(0.5)	**(1.1)**

E2 Projected Use of Geomatics Canada Revolving Fund Authority

(millions of dollars)	
Authority April 1, 1994	**8.0**
Drawdown:	
• Anticipated Use at end of fiscal year 1996-97	3.9
• Estimated Use for 1997-98	1.1
Anticipated Authority Balance at the end of fiscal year 1997-98	**3.0**

F Presentation by Standard Object

(millions of dollars)	1996-97 * Planned Expenditures	**1997-98 Planned Expenditures**
Personnel		
Salaries and wages	211.5	**192.2**
Contributions to employee benefit plans	31.8	**34.0**
Other personnel costs	6.3	**6.2**
Subtotal Personnel	249.6	**232.4**
Goods and Services		
Transportation and communications	21.8	**18.0**
Information	14.1	**12.6**
Professional and special services	97.2	**107.6**
Rentals	7.1	**5.9**
Purchased repair and maintenance	8.0	**7.0**
Utilities, materials and supplies	20.3	**18.1**
Other subsidies and payments	2.3	**8.1**
Construction and/or acquisition of machinery and equipment	29.4	**27.0**
Subtotal Goods and Services	200.2	**204.3**
Total Operating	449.8	**436.7**
Capital **	20.0	**13.4**
Transfer Payments		
Voted	51.5	**39.2**
Statutory	19.4	**15.7**
Total Transfer Payments	70.9	**54.9**
Total Gross Expenditures	540.7	**505.0**
Less:		
Revenue credited to the Geomatics Canada Revolving Fund	17.1	**17.2**
Revenues credited to the vote	0.6	**15.6**
Net Budgetary Expenditures	523.0	**472.2**
Non-budgetary (loans and investments)	66.0	**17.2**
Total Natural Resources Program	589.0	**489.4**

* A recent change in government reporting practices results in the inclusion of Minor Capital in the Operating Vote.

** Capital contains budgetary expenditures for investment in: the acquisition of land, building and engineering structures and works; the acquisition or creation of other capital assets considered essential to ongoing program delivery; and major alterations, modifications, or renovations that extend the use of capital assets or change their performance or capability.

G New Loans and Investments

(millions of dollars)	1996-97 Planned Expenditures	**1997-98 Planned Expenditures**
Loans		
Loan to Nordion International Inc. for the construction of two nuclear reactors and related processing facilities to be used in the production of medical isotopes	–	**17.2**
Loans to facilitate the implementation of the Hibernia Development Project.	66.0	**–**

H Outstanding Loans

(millions of dollars)	**Balance April 1, 1997**	**Receipts and Other Credits**	**Payments and Other Charges**	**Balance March 31, 1998**
Regional Electrical Interconnections				
New Brunswick Electric Power Commission	3.8	0.1	–	3.7
Atomic Energy of Canada Ltd.				
Housing	0.4	0.2	–	0.2
Gentilly II Nuclear Power Station	11.5	1.0	–	10.5
Hibernia Development Project	132.0	–	–	132.0
Nordion International Inc.	–	–	17.2	17.2

I Topical Index

J Internet Addresses

General:

Natural Resources Canada Home Page – **http://www.NRCan.gc.ca/home/p2int_e.htm**
Canadian Forest Service (Headquarters) – **http://www.NRCan.gc.ca/cfs**
Corporate and Executive Services – **http://www.NRCan.gc.ca/css/emp/corp_e.htm**
Earth Sciences Information Centre – **http://www.NRCan.gc.ca/ess**
Energy Sector – **http://www.es.NRCan.gc.ca**
Minerals and Metals Sector – **http://www.NRCan.gc.ca/mms/ms-home.htm**

Selected Specialized Sites:

Aerial Photography – **http://www.geocan.nrcan.gc.ca/napl-pna**
Aeronautical Charts – **http://www.ccrs.nrcan.gc.ca/linc/ps/paper/aero/indexe.html**
CANMET – **http://www.es.nrcan.gc.ca/msd/cic/cicintro.htm**
Canada Centre for Remote Sensing – **http://www.ccrs.nrcan.gc.ca/ccrs/homepg.pl?e**
CFS Pacific Forestry Centre – **http://www.pfc.cfs.nrcan.gc.ca**
CFS Northern Forestry Centre – **http://www.nofc.forestry.ca**
CFS Great Lakes Forestry Centre – **http://www.glfc.forestry.ca**
CFS Laurentian Forestry Centre – **http://www.cfl.forestry.ca**
CFS Atlantic Forestry Centre – **http://www.fcmr.forestry.ca**
Climate Change-Voluntary Challenge and Registry – **http://www.vcr-mvr.ca**
Energy Efficiency Programs – **http://eeb-dee.nrcan.gc.ca**
Earthquakes – **http://www.seismo.nrcan.gc.ca/welcome.html**
Geodetic Surveys – **http://www.ccrs.nrcan.gc.ca/linc/ps/digital/geo/indexe.html**
Geophysical data centre – **http://gdcinfo.agg.nrcan.gc.ca/gdc/gdc0eng.html**
Geological Survey Commission – **http://www.nrcan.gc.ca/gsc/**
Geological Survey of Canada (Atlantic) – **http://agcwww.bio.ns.ca**
Legal Surveys – **http://www.geocan.nrcan.gc.ca:80/lsd**
Legal Surveys Division Offices – **http://www.geocan.nrcan.gc.ca:80/lsd/offic_en.html**
Magnetic Field – / north magnetic pole – **http://www.geolab.nrcan.gc.ca/geomag/**
National Atlas Information Service – **http://www-nais.ccm.nrcan.gc.ca/**
National Atlas on Schoolnet – **http://www-nais.ccm.nrcan.gc.ca/schoolnet/Home.html**
NATMAP – **http://www.nrcan.gc.ca/gsc/cpdnew/natmap_e.html**
Natural Gas Division – **http://www.es.nrcan.gc.ca/erb/ngd/homepage/home.html**
Polar Continental Shelf Project – **http://www.nrcan.gc.ca/ess/pcsp/pcsp.htm**
Sherbrooke Office – **http://www.ccg.nrcan.gc.ca/**
Topographical Map Service – **http://www.geocan.nrcan.gc.ca/topo/index.html**