



# Natural Resources Canada

## Performance Report

For the period ending  
March 31, 1998

Canada

## **Improved Reporting to Parliament Pilot Document**

The Estimates of the Government of Canada are structured in several 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 *Report on Plans and Priorities* provides additional detail on each department and its programs primarily in terms of more strategically oriented planning and results information with a focus on outcomes.

The *Departmental Performance Report* provides a focus on results-based accountability by reporting on accomplishments achieved against the performance expectations and results commitments as set out in the spring *Report on Plans and Priorities*.

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## Foreword

On April 24, 1997, the House of Commons passed a motion dividing on a pilot basis what was known as the annual *Part III of the Estimates* document for each department or agency into two documents, a *Report on Plans and Priorities* and a *Departmental Performance Report*.

This initiative is intended to fulfil the government's commitments to improve the expenditure management information provided to Parliament. This involves sharpening the focus on results, increasing the transparency of information and modernizing its preparation.

This year, the Fall Performance Package is comprised of 80 Departmental Performance Reports and the government's "*Managing For Results*" report.

This ***Departmental Performance Report***, covering the period ending March 31, 1998, provides a focus on results-based accountability by reporting on accomplishments achieved against the performance expectations and results commitments as set out in the department's *Part III of the Main Estimates* or pilot *Report on Plans and Priorities* for 1997-98. The key result commitments for all departments and agencies are also included in *Managing for Results*.

Results-based management emphasizes specifying expected program results, developing meaningful indicators to demonstrate performance, perfecting the capacity to generate information and reporting on achievements in a balanced manner. Accounting and managing for results involve sustained work across government

The government continues to refine and develop both managing for and reporting of results. The refinement comes from acquired experience as users make their information needs more precisely known. The performance reports and their use will continue to be monitored to make sure that they respond to Parliament's ongoing and evolving needs.

This report is accessible electronically from the Treasury Board Secretariat Internet site:  
<http://www.tbs-sct.gc.ca/tb/key.html>

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# **Natural Resources Canada**

## **Performance Report**

**For the  
period ending  
March 31, 1998**

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**Ralph Goodale**

*Minister of Natural Resources Canada*



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## I Minister's Message

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At the end of this century, the natural resource sector remains pivotal in Canada's economy but in a new form. Resource companies are equipping themselves with the knowledge, skills and technology to compete successfully in global markets and to ensure sustainable development at home and abroad. The sector has become a high-technology, knowledge-based, vibrant economic force that contributes valuable high-end jobs and stability to hundreds of communities across Canada. It is an evolution that brings opportunity in jobs, revenues and markets.



**Ralph Goodale**  
Minister of  
Natural Resources Canada

Natural Resources Canada (NRCan) has been at the forefront of this transition, providing an environment in which our natural resources continue to be an anchor of the economy in the new millennium. It has provided industry with information and support for the high-technology, knowledge-based marketplace. It has made sustainable development a core value that balances the economic, environmental and social considerations for the present and the future.

These are priorities with this government, fitting squarely within its commitment to good governance and to government responsibilities such as helping Aboriginal communities manage their resources, protecting resources for all Canadians and providing vital geoscientific information for decision-making.

NRCan is well positioned to guide this transition. It is Canada's foremost centre of scientific knowledge and research for energy, minerals and metals, forests and earth sciences. Armed with informed and innovative policies and sound science, NRCan is addressing the many challenges facing our country as we enter the new century: new and shifting rules in world markets, growing competition for investments, international commitments on climate change, slow Canadian investment in value-added industries and reaching consensus on future direction among a wide variety of stakeholders and interest groups.

As Minister of this Department, I am committed to its mission of establishing Canada as the world's "smartest" natural resource developer – the most high-tech, the most environmentally friendly, the most socially responsible and the most productive.

The complexity of issues and the diversity of the stakeholders offer a unique opportunity for NRCan to provide informed and supportive leadership. In this pursuit, we have developed an approach that draws all the elements into a cohesive action plan for national growth and prosperity.

Winning in the Knowledge-based Economy (WINS) is that action plan. It builds on achievements already in place. It charts specific courses for action to mobilize our partners, resolve skill shortages in some resource-based industries and encourage investment in value-

added industries. The five priority areas are: creating national consensus; tackling climate change; multiplying work opportunities; increasing resource trade and investment; and spurring innovation in the natural resource sector and resource-related industries. As well as offering tangible evidence of the Department's commitment to good governance, this plan provides for skill-development opportunities in rural and Aboriginal communities and valuable assistance in developing new, innovative value-added industries.

In a related and major step, NRCan played a lead role in a meeting of Canadian ministers of energy and environment where they agreed on a process to develop a National Implementation Strategy on climate change that will enable us to address the Kyoto Protocol commitments made in Kyoto to reduce greenhouse gas emissions to six percent below 1990 levels by the period 2008 to 2012. Internationally, I am personally committed to working with global partners on climate change and to the conservation of biodiversity.

Within its own operations, NRCan tabled its Sustainable Development Strategy in December 1997. This document, illustrating NRCan's commitment, was recognized by the Commissioner of the Environment and Sustainable Development as a strategy from which other departments can learn. It reinforces our determination to put our plans into action.

I believe that WINS and the spirit of cooperation forged by ministers this year are major milestones in NRCan's quest for sustainable development. The activities underway, and the strategy for progress, place the natural resources portfolio in a central role of job creation, economic growth, environmental stewardship and knowledge innovation.

I am pleased to provide this document that reports on our progress and achievements in 1997-98, which I believe are our passport to continued prosperity and ensuring a natural resources legacy for future generations.



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## Executive Summary

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This *Departmental Performance Report* covers the period ending March 31, 1998, and reports performance against the plans presented in Natural Resources Canada's 1997-98 *Estimates, A Report on Plans and Priorities*. It responds to the government's commitments and reflects the goals set by Parliament to improve accountability for results.

NRCan completed or made progress on all its commitments. Section III sets out, in clear terms for each departmental goal, what the Department is trying to achieve, why this is important to Canada and the benefits to Canadians. This report also provides information on NRCan's key accomplishments.

### **Goal 1: Making Balanced Decisions**

Sustainable development is about making better decisions – finding ways to integrate economic, environmental and social dimensions into decisions about the development of natural resources. To make decisions, people need access to the best available scientific and community-based knowledge – in an easily accessible format. NRCan's role is to influence the resource development decisions of federal and provincial governments, industry and consumers. It does this by providing comprehensive information and the latest scientific knowledge, by promoting consensus on key issues and actions, and by supporting innovative policies that actively promote sustainable development.

### **Goal 2: Sustaining Economic and Social Benefits Derived from Natural Resources**

The resource sector is a cornerstone of our economy – integral to job creation, economic growth and community development. Maintaining a healthy economy while protecting the environment means we must make the most efficient use of our natural resources. Sustainable development should result in a resource-based industry that makes fewer demands on the environment, creates economic opportunities and provides greater stability to Canadian communities. Sustainable development is also grounded in the reality that we must maintain our ability to compete in world markets as well as open up new markets abroad if Canadians are to continue to enjoy their high standard of living.

### **Goal 3: Minimizing the Environmental Impacts of Natural Resource Development and Use**

The environment is constantly undergoing change – some as a result of natural processes, some caused by human activity. We know the environment can adjust to human and natural stresses, provided these stresses remain within the ecosystem's ability to adapt and renew itself. This places the onus on Canadians to develop natural resources in a way that respects and protects the integrity of natural ecosystems. Because energy production and use are responsible for 85 percent of greenhouse gas emissions, NRCan has a central role in designing Canada's response options for climate change, which are central to the federal government's strategy and to the transformation of Canada's energy economy. The Minister of Natural Resources has taken a domestic leadership role in implementing Canada's response to its Kyoto climate change commitments.

#### **Goal 4: Delivering Federal Responsibilities for Surveys and Mapping, and Explosives**

Environmental preservation, national defence, sovereignty, economic development – these objectives call for an increasingly detailed knowledge of our country and its resources. NRCan provides many products and services that support the institutions of public governance as part of a strong economic and social fabric. It does so through legislation, regulations, codes and standards, which reduce the health and safety risks associated with disasters and the development of resources.

#### **Goal 5: Managing the Department**

NRCan is committed to good governance and the sustainable development of Canada's natural resources. To implement this agenda, flexibility has to be an integral part of our corporate culture and structures. Today's climate of continual change gives rise to several management and organizational challenges. These issues need to be identified and properly managed. The way the Department deals with its employees, its accountability and its own performance must continue to be strengthened.

#### **Financial Performance**

NRCan endeavors to use its resources effectively. The information in Section IV provides a summary of the Department's financial performance. There were no significant variances to report.

#### **Consolidated Reporting**

As part of the initiative to consolidate reporting to Parliament, information is provided in Section V on the Department's Sustainable Development (SD) Strategy, regulatory initiatives, and fuel storage tanks. NRCan's first SD Strategy was tabled in Parliament in December 1997, and Section V provides a summary of progress towards some of the commitments reported in the SD Strategy. With respect to regulatory initiatives, this section summarizes the intended results and performance measurements for three key regulatory initiatives. Finally, information is included on the status of fuel storage tanks on land managed by NRCan.

#### **Conclusion**

Throughout the period, NRCan remained responsive to client needs and contributed to the key government-wide priorities of building a stronger Canada, creating opportunity for young Canadians, investing in knowledge and creativity, expanding opportunities in Aboriginal communities, renewed federalism, economic growth and Public Service revitalization. NRCan will continue to be guided by an organization-wide commitment to achieve excellence in its services to government, stakeholders, partners and the general public.

The Department will also continue to work towards development and commercialization of new technologies, processes and value-added natural resource industries that will keep Canada in the vanguard internationally.

## Chart of Key Results Commitments

Natural Resources Canada		
provides Canadians with:	as demonstrated by:	achievements reported in: <sup>(1)</sup>
Information to make balanced decisions regarding natural resources	<ul style="list-style-type: none"> <li>• Easily accessible and integrated knowledge on the state of Canada's landmass and natural resources and the economic, environmental and social dimensions of their use.</li> <li>• Greater national and international cooperation and consensus on sustainable development issues, policies, goals and actions.</li> <li>• Fiscal, regulatory and voluntary approaches that encourage the sustainable development of natural resources.</li> </ul>	Section III of this report  <i>NRCan Sustainable Development Strategy 1998</i>  <i>The State of Energy Efficiency in Canada 1998</i>  <i>1997-1998 State of Canada's Forests</i>
Sustainable economic and social benefits derived from natural resources for present and future generations	<ul style="list-style-type: none"> <li>• Greater economic opportunities and investment in innovative and higher value uses of natural resources.</li> <li>• Expanded access to international markets for Canadian resource-based products, knowledge, technologies and services.</li> <li>• Increased capacity of Aboriginal, rural and northern communities to generate sustainable economic activity based on natural resources.</li> </ul>	Section III of this report
Strategies to minimize environmental impacts of natural resource development and use	<ul style="list-style-type: none"> <li>• Canada meeting its international Kyoto commitment to reduce greenhouse gases.</li> <li>• Technologies and stewardship practices that reduce environmental impacts, conserve biodiversity and increase the efficiency of resource development and use.</li> <li>• Canadians safeguarded from natural hazards and the risks associated with natural resource development and use.</li> </ul>	Section III of this report  <i>The State of Energy Efficiency in Canada 1998</i>

Natural Resources Canada		
provides Canadians with:	as demonstrated by:	achievements reported in: <sup>(1)</sup>
<b>Effective delivery of federal responsibilities for surveys and mapping and explosives</b>	<ul style="list-style-type: none"> <li>• A national framework for geospatial positioning, mapping, and boundary maintenance.</li> <li>• Safe use of explosives and pyrotechnics.</li> </ul>	Section III of this report
<b>Efficient and effective management of Natural Resources Canada</b>	<ul style="list-style-type: none"> <li>• Responsible use of approved resources.</li> <li>• Continuous improvement in NRCan products, services and operations.</li> <li>• Strengthened partnerships and increased knowledge transfer.</li> <li>• Continuous improvement in S&amp;T management.</li> <li>• A stronger federal science culture.</li> <li>• Increased use of leading-edge environmental management tools and practices for NRCan operations.</li> <li>• Increased waste reduction from NRCan operations.</li> <li>• Increased efficiency of energy and other resources used in NRCan operations.</li> <li>• Increased use of goods and services that are eco-efficient.</li> </ul>	Section III of this report  <i>NRCan Sustainable Development Strategy 1998</i>

(1) This column represents Parliamentary reports only. Many other departmental reports exist as well.

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## II Departmental Overview

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### A. Mission and Business

#### Our Mission

For the next century, Canada must become the world's "smartest" natural resource developer: the most high-tech; the most environmentally friendly; the most socially responsible; the most productive.

#### Our Business

Natural Resources Canada provides the knowledge and expertise for the sustainable development of Canada's natural resources and the global competitiveness of the resource and related sectors for the well-being of present and future generations of Canadians (additional information can be found in Section III, and on NRCan's website at <http://www.nrcan.gc.ca>).

### B. Operating Environment

Canada is a land rich in natural resources and natural beauty. Canadians are both the beneficiaries and stewards of a land that enjoys 10 percent of the earth's fresh water, 10 percent of its forests and 25 percent of its wetlands.

The essence of NRCan's business is natural resources – forests, metals and minerals, the land mass and our rich energy resources. We situate our science and technology, policies, programs and activities in a framework of sustainable development, and we aim to open up new domestic and international opportunities based on Canadian technologies and know-how.

Increasingly complex issues cross lines of departmental responsibility and affect a wide range of stakeholders. No one department has all the tools or the expertise to respond. In such an environment, effective decision-making requires the integration of information from many sources. NRCan's unique knowledge base, with expertise in both science and policy, helps ensure that government initiatives take into account and build on the potential of the natural resource sector.

The Department is building partnerships with other departments and with provincial and territorial governments and other stakeholders, including universities, industry, labour and environmental groups, to address such global and horizontal priorities as climate change,

#### Science and Technology

**NRCan is committed 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.**

Aboriginal issues, rural communities and positioning Canadians to succeed in the knowledge-based economy and ensure the best use of scarce resources.

### **Creating National Consensus**

Helping Canadians to understand the value of their resource heritage is a fundamental step in setting the stage for national consensus on the future of sustainable resources in Canada. We are defining “national consensus” in the broadest possible context – economic, social, environmental and cultural. Through a multi-stakeholder process, NRCan will launch a national dialogue on basic questions concerning the development of natural resources, how to do so sustainably and how to add value to resource products and processes to ensure the sector continues to generate jobs and economic growth.

### **Tackling Climate Change**

NRCan is playing a lead role in developing the National Implementation Strategy on climate change. We have built a high standard of living on the strength of energy-intensive industries and natural resource exports. Our population, our economy and our trade are all growing as we want them to. But with that growth comes more demand, more energy consumption and more greenhouse gases. Under a business-as-usual scenario, Canada’s greenhouse gas emissions can be expected to climb over the next ten to twelve years. We will need to reduce our emissions by about 20 to 25 percent to meet our Kyoto obligations of six percent below 1990 levels by the period 2008 to 2012.

NRCan’s approach includes strengthening voluntary actions, increasing energy efficiency, promoting greater diversity of energy sources, using science to understand the nature of climate change, its impacts and adaptation options, and providing leadership within the federal government by upgrading the Department’s physical plant and providing opportunities for the deployment of Canadian technologies.

By signing the Kyoto agreement, Canada made a commitment to play its part in the world response to climate change. Under NRCan leadership, the initiatives Canadians undertake to tackle climate change are beginning the transformation into a more sustainable energy economy.

#### **Federal Policy and Regulations**

**NRCan ensures that federal policy and 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.**

## **Multiplying Work Opportunities**

The natural resource sector and related industries are the largest sectoral source of employment in Canada. On balance, all regions, and especially rural, northern and Aboriginal communities, are highly dependent on resources and the benefits they generate. The number of jobs in traditional extraction, harvesting and processing activities has been declining, not only because technology has replaced human labour, but also because we are seeing growth in well-paying jobs requiring specialized skills, particularly in the use of technology. There is also growth in new value-added industries, making use of new technologies to advance environmental goals while reaping economic benefits. Natural resources continue to be the economic mainstay of the country and provide stability to 652 rural, northern and Aboriginal communities on which new industries can build. NRCan strengthens the capacity of Aboriginal communities through initiatives such as the First Nations Forestry Program and the Whitehorse Mining Accord. The Department also helps rural and urban communities to expand and add value to their resource-based industries under initiatives such as the Sustainable Communities Pilot, the Renewable Energy for Remote Communities and other programs.

## **Increasing Resource Trade and Investment**

NRCan has expanded its efforts to open up new international markets for Canadian resource-related industries and firms. Canadian companies have world-class products, services and technologies to bring to the global marketplace. Current NRCan activities support trade-policy initiatives to position Canadian industries in the global market, including contributing directly to trade negotiations. These activities include the promotion of direct foreign investment in the forests, metals and minerals sectors by, for example, conducting investment seminars abroad. NRCan's efforts also support Canadian energy interests internationally to increase access to energy technology, products and services. We work with industry and other stakeholders to position Canada as the place to come to for leading-edge resource technologies and solutions.

### **Canada's International Interests**

**NRCan promotes 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.**

The first in a series of Team Canada-style trade missions to promote our excellent resource and resource-related companies and their products is planned for this fall in Latin America. We will continue to identify markets and to lead teams of business and industry people to countries that are open for the kinds of services and technologies at which Canadians excel.

## Spurring Innovation

Innovation and science and technology (S&T) are essential to the international competitiveness of Canada's resource sector. The resulting new Canadian-developed technologies, practices and processes contribute to productivity gains, enhanced competitiveness, economic growth and the protection of and increase in employment. Federal government investments in S&T are critical to resource sector innovation in Canada. The sector has become and must continue to grow as part of Canada's knowledge economy. Continued investment in S&T is critical, as is the creation and dissemination of knowledge.

NRCan has a critical role to play in positioning Canada as a world leader in sustainable resource development. In the spring of 1998, NRCan established its *ResSources*<sup>(1)</sup> knowledge-management initiative, which will become operational over the course of the mandate. This initiative aims at providing "connectivity" among natural resource stakeholders. *ResSources* will also provide the information required by Canada's natural resource sector to compete in the knowledge-based economy. Initiatives such as the Canadian Geospatial Data Infrastructure/GeoConnection demonstrate this transition to a knowledge economy, that generates jobs and economic growth.

Small and medium-sized enterprises are springing up all over the country, supplying a wide range of products, technologies and services that will enable resource firms to work smarter, faster, cleaner, more efficiently and more cost-effectively. These companies are adding value to the Canadian resource sector. They also have the

products. These natural resource industries are part of the knowledge-based economy and contribute to the development of other high-tech industries by purchasing goods and services.

### **Knowledge Infrastructure**

**NRCan is committed 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.**

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(1) *ResSources* is the name NRCan has given to its national knowledge infrastructure.



## **Management Challenges**

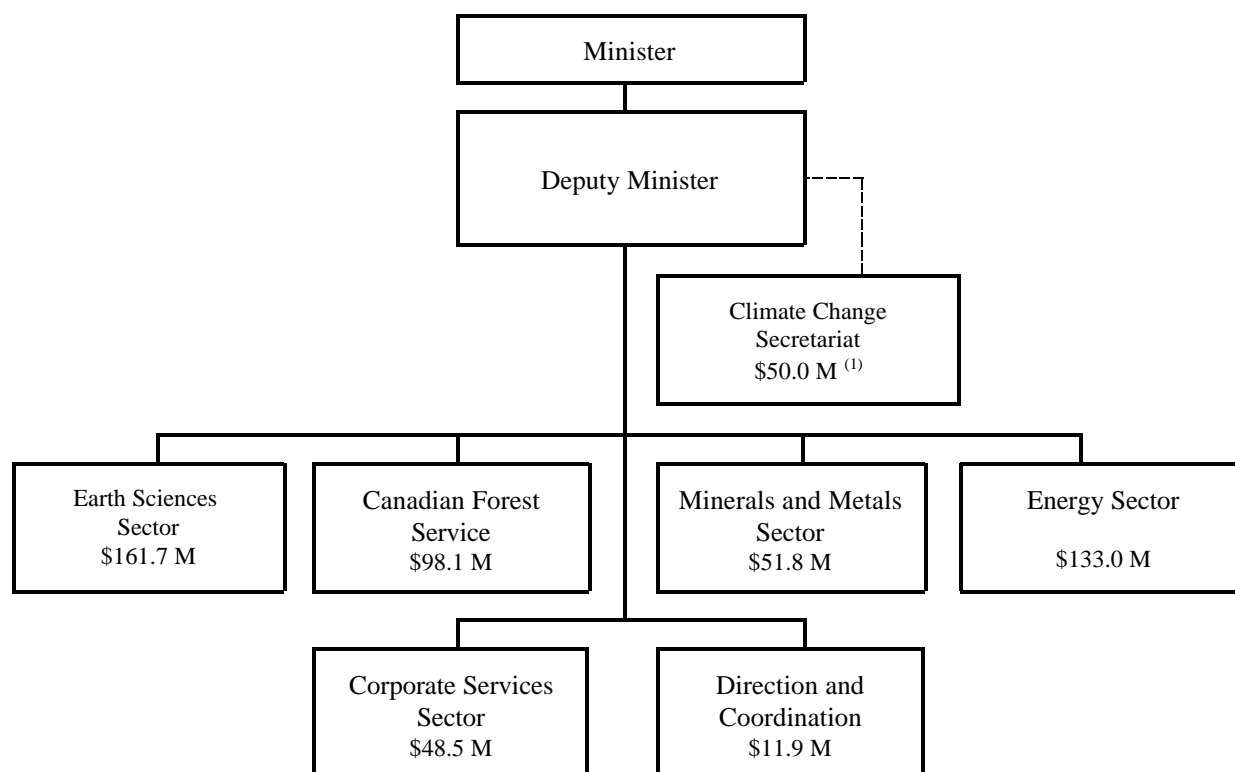
NRCan recognizes that today's dynamic of continual change gives rise to several management and organizational challenges in government.

The Department will deliver on its priorities that are clearly established in the WINS action plan. It has identified its management challenges, the linkages to its goals, objectives and deliverables, and the process by which it will implement its performance measures so that Canadians can clearly see the results.

### **Corporate Management and Administration**

**NRCan ensures that its managers set priorities, plan and achieve goals and effectively administer the public resources entrusted to them.**

## C. 1997-98 Organization Chart



The **Earth Sciences Sector (ESS)** provides the geoscience and geomatics knowledge base and infrastructure to support public policy decisions and sustainable development of natural resources. It also offers NRCan's clients logistics support for polar science as well as the information, expertise and technologies they need to exploit domestic and foreign markets.



The **Canadian Forest Service (CFS)** 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. As the premier forestry S&T research and national policy coordination agency in Canada, the CFS plays a pivotal role in building a consensus on key forest issues; shaping national and international forest agendas, and generating and transferring knowledge through its world-class forestry research. Its policy development and S&T research programs are delivered through a headquarters and ten national science research networks operating out of five forestry research centres located across Canada.

(1) The Climate Change Secretariat reports to the Deputy Ministers of NRCan and Environment Canada. The resources are notionally allocated as follows: \$40.0 million to NRCan and \$10.0 million to Environment Canada as of 1998-99.



The **Minerals and Metals Sector** (MMS) 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 to support decision-making. It is also the federal government's primary source of expertise on explosives regulations and technology.



The **Energy Sector** (ES) fosters the sustainable development and responsible use of Canada's energy resources to meet the present and future needs of Canadians. It focuses on S&T, policies, programs, knowledge and international activities in the areas of energy efficiency, renewables and alternatives, and energy resources to further sustainable development. Through its work, the sector promotes better environmental and consumer choices, contributes to job creation and economic growth, facilitates environmental protection and increased public health and safety, and helps to ensure reliable and secure energy supplies for Canadians.



The **Corporate Services Sector** (CSS) provides central financial, administrative, information management and human resource services.

Under **Direction and Coordination**, there are the Executive Offices as well as a Strategic Planning and Coordination Branch, Legal Services, Communications Branch, and an Audit and Evaluation Branch.

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## III Departmental Performance

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### Natural Resources Canada

Planned Spending	\$472,171,640
<i>Total Authorities</i>	<i>\$528,433,383</i>
<b>1997-98 Actuals</b>	<b>\$515,274,268</b>

(see pages 39-40 for an explanation of variances.)

## Key Accomplishments by Goal

This section presents accomplishments made, by departmental goal, toward selected key commitments from NRCan's 1997-98 *Report on Plans and Priorities*. NRCan completed or made progress on all commitments. Specific departmental accomplishments for commitments not reported in this document can be obtained from departmental contacts identified on page 55.

The following five departmental goals represent the top layer of the Department's overall *Performance Measurement Framework*, which encompasses more detailed objectives and draft performance indicators (see page 59).

### Policy Goal 1

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#### Goal 1

To enable Canadians to make balanced decisions regarding natural resources.

#### Why This is Important

Sustainable development is about making better decisions – finding ways to integrate economic, environmental and social dimensions into decisions about the development of natural resources. To make decisions, people need access to the best available scientific and community-based knowledge – in an easily understood format. NRCan's role is to influence the resource development decisions of federal and provincial governments, industry and consumers. It does this by providing balanced information and the latest scientific knowledge, by promoting consensus on key issues and actions, and by supporting innovative policies that actively promote sustainable development.

## Key Commitments

NRCan works toward reaching its objectives of: creating easily accessible and integrated knowledge on the state of Canada's landmass and natural resources and the economic, environmental, and social dimension of their use; promoting greater national and international cooperation and consensus on sustainable development issues, policies, goals and actions; and developing and promoting fiscal, regulatory and voluntary approaches to encourage the sustainable development of natural resources.

## Key Accomplishments for Policy Goal 1

- In the first year of development, NRCan worked closely with the Inter-Agency Committee on Geomatics (IACG), the Canadian Council on Geomatics, academia and the private sector toward government-wide implementation of the Canadian Geospatial Data Infrastructure (CGDI/GeoConnection), an Internet/world wide web network for accessing geographic information. Six workshops were held to discuss and seek common applications resulting in consensus on data access, framework data, geomatics standards, partnerships and supportive policy environments. A statement of partnership principles for CGDI/GeoConnection has been reached by the federal, provincial and territorial governments.



**Leo Ussak Elementary School, NWT.  
CGDI/GeoConnection**

These principles will enhance cost-sharing for data production and reduce data maintenance costs among levels of government. CGDI/GeoConnection has been nationally recognized for its positive impact on future job creation and economic growth and for the provision of geographic information to support a multitude of applications such as natural resource and environmental management.

- The 1998 edition of Map 900A, Principal Mineral Areas of Canada, which depicts producing mines, oil and gas fields and pipelines and provides updated geological information, supports the federal government's ongoing effort to assess sustainable development and promote investment. This map, a joint venture between NRCan and the National Energy Board, has been the most popular mineral map in Canada over the years. Approximately 8,600 copies of the 1997 edition were produced.
- An advanced computer-based system for managing forest fires, the Spatial Fire Management Information System, has been developed for use by Canadian fire management agencies. This technology, which integrates software components on fire, weather, danger, prediction and control, has been implemented in Saskatchewan, Alberta, Manitoba and British Columbia for testing in the 1998 fire season.

## **Key Accomplishments for Policy Goal 1 (cont'd)**

- NRCan has played a leading role in the development of the National Implementation Strategy for Canada's commitment under the Kyoto Protocol. As part of this strategy, and in cooperation with Environment Canada, NRCan has conceived, developed and received approval for the Climate Change Action Fund, stemming from the 1998 federal budget provisions of \$150 million over three years for climate change-related projects. From this fund, NRCan has developed mechanisms such as the Technology Early Action Measures (TEAM) to help deliver the technology component of climate change initiatives. As well, NRCan and Environment Canada will develop an evaluation and accountability framework that will provide information to demonstrate what is being accomplished under this fund. To ensure the full engagement of other departments, NRCan designed and helped implement the federal Climate Change Secretariat, in cooperation with Environment Canada. NRCan has also engaged several hundred stakeholders as active participants in Canada's climate change initiatives, and has started implementing the analytical work program.
- NRCan launched the Renewable Energy Deployment Initiative (REDI) to promote investments in renewable energy systems for heating and cooling. By strengthening markets for the renewable energy industry, REDI will contribute to greenhouse gas reductions as well as job creation and export sales. This initiative builds on the momentum created with the release of NRCan's Renewable Energy Strategy and helps promote the development and use of emerging and promising renewable resources such as the sun, wind, biomass, hydro and earth energy.
- An impact study on the Use of Geological Information in Urban and Regional Planning and Development demonstrated the value of geological maps within Eastern Ontario and Western Quebec and confirmed the positive role of government in their production. The fact that geology is the foundation on which, and in which, natural and human systems operate gives geological maps potentially broad applications and long-term shelf-lives. Recent advances in Geographic Information System (GIS) technology increase the possible range of applications, especially for those who have not traditionally been users of geological maps.
- In support of the Government of Canada's Minerals and Metals Policy and the understanding of the concept of sustainable development, NRCan hosted an international workshop in May 1998 on the development of sustainable criteria and indicators for minerals and metals. During this workshop, NRCan officials presented a conceptual framework for the development of the aforementioned criteria and indicators.
- NRCan incorporated ozone monitoring as part of national monitoring and reporting on Canada's forest health, and a report on critical levels of acid pollutants was released. Research continues on determining acid deposition loads and levels and their effects on tree and soil conditions, drawing from the ten-year analysis of the Acid Rain National Early Warning System (ARNEWS).

## Key Accomplishments for Policy Goal 1 (cont'd)

- Canada's Model Forest Program, designed to promote the effective application and adoption of sustainable forest management technologies and to explore models of community-based involvement in forest management and shared decision making, successfully completed the first year of its Phase II operation in March 1998. Contribution agreements were renewed for all 10 original model forest sites and the network expanded to include an 11<sup>th</sup>, the Aboriginal-led Waswanipi Cree Model Forest in Quebec. A Network Strategic



**Minister Goodale signing the  
Waswanipi Cree Model Forest Agreement**

Committee was also established to provide broad strategic guidance and coordinate initiatives to develop local-level measures of sustainable forest management, to enhance Aboriginal involvement throughout the network, and to increase knowledge transfer and communications to clients. Federal Funding was \$8.6 million in 1997-98.

- NRCan is committed to achieving consensus with the provinces and territories, industry, advisory bodies, and special interest groups on key national forest issues and in establishing approaches toward their resolution. To this end, an independent nation-wide "Blue Ribbon Panel" released its final evaluation report on Canada's 1992 National Forest Strategy on August 11, 1997. The final evaluation found that "Canada continues to be a leader in advocating the importance of the global sustainability and wise use of the world's forest resources. There is reasonable evidence that Canada is moving toward sustainable forest management."

The evaluation was used as a backdrop to the cross-country public consultations that resulted in the new National Forest Strategy (1998-2003) which outlines the vision, values, strategic directions and action items that Canadians have for their forests. The new Strategy was tabled at the May 1998 National Forest Congress and, on May 1, 1998, an increased number of government and non-government organizations signed the second Canada Forest Accord confirming their commitment to work together to pursue the collective goal of sustainable forests nationwide.

- NRCan is actively involved in the development of an integrated approach to allow access to its knowledge of natural resources. NRCan's leadership role has resulted in the development of many database resources including, for example, SoftAccess and "Business Climate for Mineral Investment" <http://mmsd1.mms.nrcan.gc.ca/business/>. As well, NRCan's Metadata strategy will be used to develop the ability to search numerous websites, and thus, to enhance access to relevant information in support of better decision making. (NRCan – approximately \$25,000)

## Key Accomplishments for Policy Goal 1 (cont'd)

- The First Nations Forestry Program (FNFP), a partnership program between Indian and Northern Affairs Canada and NRCan, successfully completed its second year of operation in March 1998. The program is designed to enhance First Nations economic opportunities in the forest sector and increase their capacity to sustainably manage reserve forests. In 1997-98, 213 proposals received \$5.5 million in FNFP program funding and an additional \$14.0 million in support from First Nations and other partners. An interim review of the program should be completed by December, 1998.

Successful projects included a joint venture between the Ditidaht First Nation and British Columbia Forest Products leading to the construction of a First Nation sawmill; a capacity-building initiative with the Beren River First Nation in Manitoba to provide log home building courses to First Nations people, which has led to permanent employment in this sector for a number of students; the successful establishment of a forest nursery by the Makwa Development Corporation of the Algonquins of Golden Lake; the transformation of a 2,600 hectare forest on the Eel Ground Reserve in New Brunswick into a well managed forest that has led to increased employment opportunities on the reserve.

- NRCan transferred three remote sensing applications to Canadian industry: an ocean monitoring workstation to detect ships and monitor sea state; a geoscience workstation (GEOANALYST) to incorporate remote sensing with conventional geophysics and geochemistry; and a crop information system adapted for use by the Polish government. Techniques and systems were developed for integrating spatial data, remote sensing and field plot measurements with comprehensive forest databases and landscape-design tools. (NRCan – \$220,000)
- Considerable progress was made in strengthening Canada's ability to measure and report its progress toward sustainable forest management and to meet its national and international commitments and obligations established at the Earth Summit (Rio de Janeiro 1992). Under the auspices of the Canadian Council of Forest Ministers (CCFM):
  - S NRCan released the technical report entitled, "Criteria and Indicators of Sustainable Forest Management in Canada" (October, 1997) describing Canada's present ability to measure the forest values that Canadians want to sustain and enhance;
  - S the CCFM approved the Department's implementation plan for measuring and reporting progress using 49 scientifically-based indicators by the year 2000; and,
  - S the federal-provincial Canadian Forest Inventory and National Forestry Database Program Steering Committees endorsed a new method of conducting a national forest inventory to obtain data for 24 indicators using a combination of permanent sample plots and remote sensing.



## Key Accomplishments for Policy Goal 1 (cont'd)

- NRCan's National Geoscience Mapping Program (NATMAP) addresses geoscience issues related to resource development and environmental concerns, and provides integrated, comprehensive knowledge bases for provincial and territorial government agencies, the private sector and Canadian universities. In 1997-98, the NATMAP Southeastern Cordillera project identified a previously unrecognized potential for major rock slides in highly populated areas of the Rocky Mountain Foothills and thus, significantly altered further land use in that area. The NATMAP projects in central British Columbia and in the eastern Northwest Territories developed new geoscience information and models, influencing the type, location and cost of mineral exploration activity for the next year. (NRCan NATMAP – \$1.2 million; participants – \$9.6 million)
- NRCan is developing techniques and systems for integrating spatial data, remote sensing and field plot measurements with comprehensive forest databases. The federal-provincial Canadian Forest Inventory Committee endorsed NRCan's proposal for a new method of conducting the national forest inventory, based on a combination of permanent sample plots and remote sensing. The field component involves a plot-based national grid system that would require provincial monitoring of the sites in their boundaries. A second major component is the joint program developed in collaboration with the Space Agency to obtain earth observations of Canada's forests under the next ten-year Space Plan.
- A major paper was prepared for the 100<sup>th</sup> Annual General Meeting of the *Canadian Institute of Mining, Metallurgy & Petroleum* (CIM) in Montreal, Quebec, in May 1998, entitled *Implications of New Mine Developments in Canada for Canadian and Global Mining and Production: 1997–2000*. It is available on CD ROM and is in the process of being published. CIM will cover the total costs for this publication. The paper assessed the adequacy of Canada's current and future mineral production capabilities for sustainable mineral development in Canada beyond the year 2000.
- NRCan published and tabled its *1997-1998 State of Canada's Forests* Report to Parliament (June, 1997) ([http://www.nrcan.gc.ca/cfs/proj/ppiab/sof/home\\_e.html](http://www.nrcan.gc.ca/cfs/proj/ppiab/sof/home_e.html)); managed the National Forest Database Program (NFDP) on behalf of the Canadian Council of Forest Ministers and produced the Compendium of Canadian Forestry Statistics and other statistical reports using Internet technology; published and circulated to a wide national and international audience, the *Canadian Forest Services's Strategic Plan (1998-2003)*; and, created the Canadian Forestry Researcher Database to provide a nationwide source of information on forest projects and prospective collaborators. 1997-98 expenditures for the management of the NFDP, and for the preparation, production and distribution of all cited publications (excluding costs associated with the Canadian Forestry Researcher Database) are estimated at \$912,000.

## Policy Goal 2

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### Goal 2

To sustain the economic and social benefits derived from natural resources for present and future generations.

### Why This is Important

The resource sector is a cornerstone of our economy – integral to job creation and community development. Maintaining a healthy economy while protecting the environment means we must make the most efficient use of our natural resources. Sustainable development should result in a resource-based industry that makes fewer demands on the environment, creates economic opportunities and provides greater stability to Canadian communities. Sustainable development is also grounded in the reality that we must maintain our ability to compete in world markets and maintain access to those markets if Canadians are to continue to enjoy their high standard of living.

### Key Commitments

NRCan works toward reaching its objectives of: creating economic opportunities and encouraging investment in innovative and higher-value uses of natural resources; maintaining and expanding access to international markets for Canadian resource-based products, knowledge, technologies and services; and building the capacity of rural, northern and Aboriginal communities to generate sustainable economic activity based on natural resources.

### Key Accomplishments

- NRCan completed field studies in the three-year geoscience project covering a large part of the bedrock geology of southern Baffin Island and the adjacent northern Ungava Peninsula. Publication of geological maps immediately after each field season allowed exploration companies to effectively target their subsequent year's activities, which resulted in a dramatic increase (\$6 million) in exploration activity in this largely unexplored region.
- NRCan completed the geomatics component of the Canadian International Business Strategy (CIBS), which is intended to contribute to the development of international joint ventures and partnerships with Canadian industry. The report is available on the CIBS website at <http://strategis.ic.gc.ca/SSG/bi17964e.html#CIBS>.

## Key Accomplishments for Policy Goal 2 (cont'd)

- The integrated geology, geochemistry and geophysics studies of the EXTECH II (Exploration Technology Program) have been successfully completed at a Bathurst, N.B., mining camp. The objective of this program is to address the problem of Canada's diminishing base-metal ore reserves. Over the course of the five-year project, the release of preliminary results from these studies have sparked a major rejuvenation of mineral exploration activities, and as a result, at least one massive occurrence of sulphide has been discovered. The CD-ROM of the complete multi-parameter GIS database of the Bathurst mining camp is the most comprehensive of any mining district in Canada and is expected to form the basis for prolonged exploration in this region. (NRCan – \$600,000)
- The pursuit of sustainable forest management requires the development and implementation of a focused and coordinated strategy to increase the efficiency and effectiveness of Canada's forest S&T. Toward this end, under the direction of the Canadian Council of Forest Ministers, a major national S&T forum was held in June 1997 to agree on priorities and opportunities for strategic forest S&T across Canada. The forum resulted in the development of a National S&T Course of Action that was endorsed by the CCFM and other stakeholders in Ottawa (May 1998) and incorporated into the new five-year National Forest Strategy (1998-2003).
- To enhance the growth and investment opportunities from a natural resource base, a continuing series of international investment seminars were conducted in London, Paris, Geneva, Las Vegas, Portugal, Santiago, Montreal and Istanbul, in collaboration with federal and provincial colleagues as well as the World Bank and the Organization for Economic Cooperation and Development. The objective of these seminars was to bring high-level analysis and views to key decision-makers regarding investment in Canada and by Canadian mining companies worldwide. Benefits are reaped by Canadian mining companies, worldwide and domestically, and result in spin-off benefits to mining equipment and service suppliers in Canada.
- Through its Froth treatment facility, the only one of its kind in the world, NRCan has advanced the understanding of froth treatment technologies and has transferred the results to industry. In 1997-98, the number of private sector partners increased to five and the facility was expanded. R&D ensuing from this investment resulted in the proof of concept of an advanced process. These results were an integral part of Shell Canada's design of a \$1.3 billion oil-sands processing plant. Technologies like these help 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, Alberta – \$2.1 million, industry – \$1.2 million)

## Key Accomplishments for Policy Goal 2 (cont'd)

- NRCan hosted 31 foreign delegations from 23 countries in an effort to promote business opportunities in Canada. Through this effort, not only were international partnerships initiated with Korea, the Commission of European Communities, Colombia, Honduras, and the Ivory Coast but Canadian companies were afforded the opportunity to compete for international contracts to provide geomatics services. Although the international economic situation has temporarily affected the requirement for Canadian geomatics and geoscience products and services, NRCan will continue to monitor the progress of international events in order to safeguard and expand Canada's position within foreign markets.
- At the second annual Mines Ministers of the Americas Conference held in Arequipa, Peru in November 1997, ministers signed the Arequipa Declaration agreeing *inter alia* to work on a common approach and coordinate policies on sustainable development in their countries and on the safe use of minerals and metals. Ministers also agreed to promote mining and sustainable development within the community of nations, among ministries, and public and private sector institutions, so as to create a culture of sustainable development in the mining sector.
- A proposal to establish a Canadian Poplar and Aspen Genetics and Biotechnology Cooperative was presented to the Poplar Council of Canada to respond to an increasing interest by the industry to establish plantations of this fast growing species to mitigate wood shortages and alleviate pressures on natural forests. As well, a collaborative research agreement was signed with B.C. Research Inc. for the transfer of NRCan technology on single-cell culture of pines. NRCan is also collaborating with B.C. Research Inc. on producing weevil-resistant spruce seedlings with funding from the B.C. Forest Fund. These efforts will support the future competitiveness of Canada's forest sector based, in part, on Canada's ability to grow stronger and more pest-resistant trees from genetically improved seeds and seedlings.
- NRCan developed technologies and conducted feasibility studies for cost-effective, district energy systems. It completed the evaluation of the district energy system for the Davis Inlet Aboriginal community and an Aboriginal student was hired. As well, a verification of the economic performance of other community energy systems was completed, and environmental authorities in Ontario have accepted the concepts. The Windsor system is expanding, and advances were made in community energy planning in Revelstoke, B.C., and the Regional Municipality of Ottawa-Carleton, Ontario. With public sector leadership and private sector involvement, these systems offer attractive returns on investment.
- To address the individual forest management objectives of First Nations Communities, a project was initiated with the Nicola Tribal Association in British Columbia to combine modern computer technology with traditional anecdotal knowledge. Working with the Nicola Tribal Association, the Nicola Valley Institute of Technology (First Nations College) and five bands in the area, approaches are being developed for the analysis and storage of codes of environmental ethics, anecdotal and forest management information.

## Key Accomplishments for Policy Goal 2 (cont'd)

- The Mobile Foundry Laboratory, housed in a propane-powered vehicle, performed technical and energy audits in foundries across Canada. The Mobile Foundry Laboratory Program was successfully completed ahead of schedule. Since the summer of 1995, 45 foundries were visited (a study of the total impact of the program should be completed by August 1998). Some of the impacts include a saving of \$12,000 per month at a foundry in St. Catharines, Ontario through preventive maintenance on a muller motor; and a 15 percent reduction in rejections by improving the gating system and a 10 percent increase in casting yield by eliminating ineffective risers at a foundry in St. Romuald, Quebec. (NRCan – \$350,000 in 1997-98)
- NRCan organized and hosted the Asia Pacific Economic Cooperation (APEC) energy ministers meeting in Edmonton in August 1997, which made substantial progress toward creating open, efficient and sustainable energy markets that support environmentally sound, economic growth and social development in the Asia Pacific region.
- NRCan is committed to working with international forest nations to gain a common understanding of forest issues and to develop acceptable resolutions to sustainable development challenges. To this end, a draft report on Canada's implementation of the Criteria and Indicators for the Conservation and Sustainable Development of Temperate and Boreal Forests (i.e. the Montreal Process) was produced for review by a Working Group representing 12 participating countries at its 9<sup>th</sup> meeting in July 1997, and subsequently presented at the World Forestry Congress in Turkey in October 1997.
- New legislation and administrative guidelines were prepared, in cooperation with the federal departments of Finance and Revenue, the provinces of Alberta and Saskatchewan and the mining, oil and gas industries, on the designation of *in-situ* oil-sands projects as mines for income tax purposes. The "extractive unit" concept proposed by NRCan was accepted by all parties as the best method of designation.
- NRCan's renewable energy technology developments have led to economic benefits for Canadian industry. A Memorandum of Understanding (MOU) was signed by NRCan and the Chinese Ministry of Water Resources, resulting in small hydro-system product sales by Canadian companies. Huron Windpower Inc., now fully Canadian-owned, has received multi-million dollar orders to supply high-quality wind turbine blades to international and domestic clients. The first hybrid Ultra High Frequency site with 1.5 kW of photovoltaics was erected by Northwestel and nine Very High Frequency sites are being converted. (NRCan – \$5.3 million)

## Key Accomplishments for Policy Goal 2 (cont'd)

- NRCan has been a leading proponent of an international forest convention (preferably legally binding) since the Houston G-8 summit in 1990. The convention, which forms an important part of Canada's foreign policy, is intended to:
  - S elevate Canada's sustainable forest management agenda and level the playing field for Canada's forest industry by establishing common management commitments applicable to all nations;
  - S promote our environmental stewardship and enhance our social stability by promoting employment in forest related sectors; and,
  - S address Aboriginal concerns and maintain the livelihood of 350 forest-dependent rural communities in Canada.

In 1997-98, Canadian positions were developed, on all issues on the agenda of the Intergovernmental Panel on Forests (IPF), in consultation with provinces, territories and the range of domestic stakeholders in the forest sector, which formed the basis of Canada's interventions during international deliberations. With respect to a "legally binding global convention," Heads of State at the Special Session of the United Nations General Assembly (June 1997) were unable to reach a consensus on this issue. Discussions are continuing within the context of the IPF's institutional successor, the Intergovernmental Forum on Forests and a report will be submitted to the Commission on Sustainable Development in April 2000.

- NRCan initiated a major cost-shared partnership project with the Qikiqtani Inuit Association's Qikiqtaaluk Corporation and the government of the Northwest Territories for the development of a digital geoscience knowledge base and mineral potential assessment of northern Baffin Island and Melville Peninsula. The outcome of this initiative will be a one-stop shopping for geoscience products, the establishment of critical linkages with the newly evolving government of Nunavut, and attracting mineral exploration investment to the Qikiqtaaluk (Baffin) region. (NRCan – \$230,000; partners – \$220,000)

## Work in Progress for Policy Goal 2

- NRCan monitors the Canada/US Softwood Lumber Agreement on an ongoing basis and provides analytical and policy support to the Department of Foreign Affairs and International Trade. It also coordinates the quarterly notification and certification reporting requirements related to the implementation of the Agreement and the Annual Report. To this end, in 1997-98, three issues of the Canada/US Softwood Lumber Agreement *Quarterly Statistical Monitor* were produced, reporting progress on the second year of the Agreement.

## **Work in Progress for Policy Goal 2 (cont'd)**

- In collaboration with its partners, including the government of Quebec and the industry, the Department continued its actions to counter the effects of the French asbestos ban. Major activities accomplished are the co-sponsoring of a scientific workshop on the health risks of chrysotile asbestos and the organization of an international conference in Montreal. The latter attracted close to 300 delegates representing 45 countries. A \$250,000 training program was also announced by Minister Goodale at the conference. NRCan was also successful in obtaining the active support of other chrysotile-producing countries such as Brazil, Russia, South Africa, Swaziland and Zimbabwe in promoting the safe use of chrysotile. However, because the United Kingdom announced its intention to ban chrysotile asbestos despite a scientific exchange with Canadian scientists, the Department is expecting to remain very much involved in this area in the foreseeable future. The asbestos issue is an important step in the establishment of the Safe Use Principle of the Government of Canada Minerals and Metals Policy.
- NRCan, in collaboration with DFAIT, continued its efforts to resolve the longstanding trade dispute with the European Union (EU) which has severely restricted Canada's ability to export softwood lumber to the EU as a result of the EU's restrictive plant health regulations. Canada held formal consultations with the EU thereby taking the first steps required to challenge the regulations through the dispute resolution facilities of the World Trade Organization (WTO).

In June 1993, the EU took the final step to establish a plant health regime requiring all Canadian softwood lumber (cedar is exempted) to be heat treated to deal with the supposed risk of the transmission and establishment of pinewood nematode (a microscopic pest) in the European forest. The regulations and supporting documentation requirements under the regime has curtailed Canadian shipments of softwood lumber resulting in an annual trade loss of not less than \$400 million. Despite all the accumulated scientific, forest and product surveys which confirm Canada's contention that the risk of transmission is virtually nil, the severity of the EU regulations far exceed the demonstrated risk and the regulations remain in place.

## Policy Goal 3

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### Goal 3

To minimize the environmental impacts of natural resource development and use.

### Why This is Important

The environment is constantly undergoing changes – some as a result of natural processes, some caused by human activity. We know the environment can adjust to human and natural stresses provided these stresses remain within the ecosystem's ability to adapt and renew itself. This places the onus on Canadians to develop natural resources in a way that respects and protects the integrity of natural ecosystems. Because energy production and use are responsible for 85 percent of greenhouse gas emissions, NRCan has a central role in designing Canada's response options for climate change, which are central to the federal government's strategy and to the transformation of Canada's energy economy. The Minister of Natural Resources has taken a domestic leadership role in implementing Canada's response to its climate change commitments.

### Key Commitments

NRCan works toward reaching its objectives of: helping to limit and adapt to climate change; promoting technologies and stewardship practices that reduce environmental impacts; conserving biodiversity and increasing the efficiency of resource development and use; and safeguarding Canadians from natural hazards and the risks associated with natural resource development and use.

NRCan programs and technologies as well as international activities have played, and will continue to play, a key role in addressing climate change and in meeting Canada's Kyoto commitments to reduce greenhouse gas emissions to six percent below those of 1990 by the years 2008-2012, representing 20 to 25 percent less than our business-as-usual scenario.

### Key Accomplishments

- NRCan has helped advance Canada's international climate change interests. Leading up to the Kyoto meeting and in consultation with Environment Canada and DFAIT, NRCan prepared three Memoranda to Cabinet on international climate change negotiations and obtained a final negotiating mandate for the Third Conference of the Parties (COP3).



## Key Accomplishments for Policy Goal 3 (cont'd)

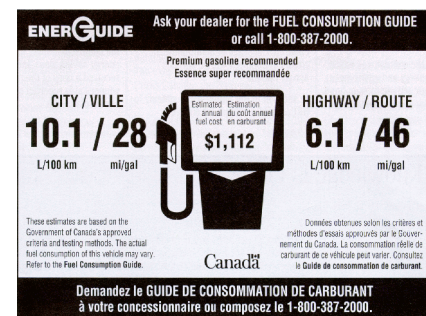
This analytical work has helped NRCan developed strategy and position papers toward the Fourth Conference of the Parties in Buenos Aires in 1998.

- Program achievements were made to increase energy efficiency and reduce greenhouse gas emissions at work, at home and on the road.

*At work.* The Federal Buildings Initiative (FBI) led to private sector investment commitments of \$125 million in federal energy-efficiency-improvement projects, resulting in estimated annual energy savings of \$20 million. The FBI model is being replicated by other levels of government in Canada. Energy Innovators, an initiative covering organizations whose annual energy bills total over \$3 billion, recruited 43 new organizations in the commercial and institutional sectors.

*At home.* Model National Energy Codes for Buildings and Houses were published through the Canadian Codes Centre, National Research Council, and training material and software were made available. Three pilots of the EnerGuide for Houses Program were completed and software was developed, offering home builders, renovators, buyers and vendors a tool to assess the energy performance of a house.

- *On the road.* The EnerGuide label for vehicles, providing consumers with fuel consumption information, was launched and will be implemented by all vehicle manufacturers for the 1999 model year. A student driving kit was completed and delivered through partnerships with six Canadian provinces: Manitoba, Saskatchewan, Alberta, Ontario, New Brunswick and Nova Scotia.



Sample EnerGuide Label

- Technologies were also developed and transferred to increase energy efficiency and reduce emissions in the industrial (\$11.9 million), buildings (\$2.6 million) and transportation (NRCan – \$4.9 million, other partners – \$3.9 million, OGDs – \$250,000) sectors.

*For industry.* CANMET's (Canada Centre for Mineral and Energy Technology) Circulating Fluidized Bed Combustion ash processing technology was demonstrated and shown to be the most cost-competitive technology on the market today. The impact of design and fuel changes to a coke oven was simulated and led to substantial savings. An expert control system was successfully developed and demonstrated for the Greater Vancouver Regional District incinerator. It is being deployed because it offers potential savings of \$300,000 per year.

## Key Accomplishments for Policy Goal 3 (cont'd)

*For buildings.* Advances in standards and technologies were made for the C-2000 commercial buildings. Energy savings of 28 to 35 percent were achieved in demonstrations of energy efficiency building technologies. The annual fuel efficiency for a fireplace increased from 48 to 71 percent.

*For transportation.* An electric vehicle charging standard, which applies to the installation of off-board vehicle chargers, was added to the Canadian Electric Code Part I, making the introduction of future standards for electric vehicles easier. Integrated emission-control technologies, which adapt to a variety of driving conditions, were developed, resulting in a 30 to 40 percent gain in vehicle efficiency.


- NRCan has helped Ballard Power Systems to develop the next generation of efficient, clean engines for the world's vehicles. Ballard Fuel-Cell Powered Transit Buses, the only environmentally clean vehicle system in the world that uses renewably generated hydrogen, were delivered to Chicago and Vancouver in October 1997. In December 1997, Ballard, Ford Motor Company and Daimler-Benz announced the formation of a global alliance to accelerate the development of fuel-cell powered components for cars and trucks. Ballard has stated that the Canadian Government Fuel Cell Engine Project played a critical part in the development of the partnership. (NRCan – \$2.4 million since 1990)



**Prototype Zero-Emission Bus**

- The Mine Environment Neutral Drainage (MEND) Program was implemented to develop and apply new technologies to prevent and control acidic drainage. MEND was a cooperative research organization sponsored, financed and administered by a voluntary consortium consisting of the mining industry, the Government of Canada and eight provincial governments. Agreement was reached with the Mining Association of Canada (MAC) to extend the MEND Program for three years, starting January 1, 1998. In an evaluation of the MEND program, liability savings of approximately \$400 million were reported by five respondents who provided estimates of cost reductions based on MEND results (total Canadian liability caused by acid-mine drainage is estimated to be between \$2 and \$5 billion). Financial support from MAC will be \$140,000 annually, or 50 percent of the total estimated costs for the MEND 2000 program office.
- Results from the Aquatic Effects Technology Evaluation (AETE) Program are currently being used by industry and government to design a new environmental effects monitoring program under the Metal Mining Liquid Effluent Regulations (*Fisheries Act*). These results stem from site-report recommendations, technical evaluations on several specific environmental monitoring techniques, and a report on the applicability of data interpretation tools to assess mine impact information. (NRCan – \$900,000 and industry – \$300,000)

## Key Accomplishments for Policy Goal 3 (cont'd)

- The Diesel Emissions Evaluation Program (DEEP) was established to represent a North American consortium for diesel-exhaust particulate control, sampling and analysis. DEEP will reduce miners' exposure to diesel-exhaust pollutants and oil mists by reducing the emissions that form when diesel fuel burns. The DEEP Management Committee accepted NRCan's proposal to perform a central secretariat function for the consortium. Two major projects were completed with participation from industry, unions, provincial representatives and the Canadian Mining Research Organization (CAMIRO). Costs of operating the secretariat are shared equally between NRCan and the DEEP consortium. (NRCan – \$205,000 in 1997- 98)
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- Operation of a load-haul dump on biodiesel blend fuel
- With the termination of the international Boreal Ecosystem Atmosphere Study (BOREAS) field operations in April 1997, NRCan established a new Canadian-led project in collaboration with the Atmospheric Environment Service and Parks Canada. The Boreal Ecosystem Research and Monitoring Sites (BERMS) was initiated to continue long-term monitoring and ecological studies of climate change and forest ecosystems at three BOREAS sites. NRCan, in collaboration with the University of Quebec, also developed an initial Canadian Regional Climate Model for forecasting future fire weather patterns under changing climate scenarios for west-central Canada.
  - NRCan continued to study after-effects of the Saguenay Flood with a focus on the over 1,000 landslides caused by the torrential rains. The goal, under the Federal Action plan, is to provide the geoscientific information needed for safe land management. Two initiatives were carried out with Quebec agencies: one to develop tools that will help manage areas of landslide risk and redefine the geoscientific parameters used in risk assessment; the other to reconstruct the history of similar past events to document the recurrence of floods and landslides. In support of the Quebec Department of Transport, NRCan also undertook geomorphological surveys in Ville de la Baie. These surveys identified unstable slopes and resulted in ten geomorphological maps of the most vulnerable areas, as well as a 1:20,000 scale map of surface formations for the entire region.
  - NRCan produced the first land-cover map of Canada from remote-sensing data at a resolution of one kilometre, which has been used to calculate atmospheric carbon dioxide absorption by Canadian ecosystems, a major factor in climate change. (NRCan – \$35,000)

## Key Accomplishments for Policy Goal 3 (cont'd)

- NRCan, in cooperation with the Manitoba Geological Services Branch, carried out reconnaissance field work to study the geomorphic effects of the Red River flood in Manitoba. With systematic mapping and sampling, an analysis of the history of flooding in the region (based on archival records, tree rings, etc.) was initiated to clarify the factors that govern flooding. It is anticipated that this research will shed light on the long-term record of flood magnitude and frequency and assist scientists in assessing the geological factors that may influence flooding severity in the future.



**Red River Flood –  
Ste. Agathe, Manitoba, Spring 1997**

- NRCan successfully implemented the Metals in the Environment (MITE) initiative with funding and commitments secured to the year 2002. MITE's objectives are to: improve the understanding of how naturally occurring metals are released from bedrock into soils and the processes affecting their subsequent distribution; and, determine the relative contributions from both natural and man-made sources of metals. Results from activities under the MITE initiative will have a direct impact on the development of national and international policies concerning metals and their release into the environment as well as play an important role in the formulation of metals regulations for Canada. (NRCan – \$500,000)
- A national research program to evaluate the environmental impacts of the use of genetically altered trees was initiated as planned. A first field trial in Canada has been established, and criteria and requirements have been negotiated with Agriculture and Agri-Food Canada, which administers the governing regulations. A report addressing regulatory and other issues was produced by an NRCan-led federal working group on forest biotechnology as part of the government's renewal of the National Biotechnology Strategy.
- Continued progress was made in developing biodiversity conservation strategies and guidelines for rare and threatened forest species. A report was published on federal implementation of the commitments on forests in the Canadian Biodiversity Strategy entitled, "Biodiversity in the Forest: The Canadian Forest Service Three Year Action Plan" outlining key issues and actions to the year 2000. NRCan's research on the decline of native white pine populations in Newfoundland, and its links to the status of the threatened red crossbill, led to a recommendation (currently under consideration by the provincial Cabinet) for a complete moratorium on white pine harvesting in the province. Research on red spruce in Algonquin Park, Ontario, raised awareness of the impact harvesting has on this rare and declining native species. Modifications were made to forest management prescriptions by the Algonquin Forestry Authority. NRCan's research on genetic diversity and DNA mapping also received considerable attention.

### **Key Accomplishments for Policy Goal 3 (cont'd)**

- NRCan is accelerating its research efforts into preventing the introduction of harmful “exotic” or non-indigenous forest pests into Canada. The issue gained momentum as a result of NRCan documenting exotic insects introduced to B.C. through imported wood crating and packing material used to ship cargo. Supported by NRCan research, the Canadian Food Inspection Agency has submitted a proposal to the North American Plant Protection Organization (NAPPO) to establish new international regulations to control the accidental entry of forest pests into North America through cargo packing material.
- As part of NRCan’s commitment to develop ecologically sound pest management strategies, a computer-based Spruce Budworm Decision Support System was developed by integrating forest databases, simulation models and prediction tools to help forest managers make decisions during outbreaks and implement tactical harvest scheduling and silviculture to minimize future damage. After being tested by two New Brunswick companies, the technology has been transferred for use by all major forest companies operating in the province as well as by the N.B. Department of Natural Resources and Energy in preparation for the major outbreak expected in the year 2000. Efforts are underway to transfer the technology to industry partners in Alberta.
- A major multi-disciplinary experiment was established in northern Alberta comparing the effects of fire and harvesting on the Boreal forest. Ecosystem Management for the Emulation of Natural Disturbance (EMEND) will yield models and information bases on ecosystem response and recovery patterns after natural and human disturbances to support ecologically sound forest management practices.
- NRCan successfully established the Forest Ecosystem Research Network of Sites (FERNS) in Canadian ecozones for the conduct of multi-disciplinary/multi-partner research in areas such as innovative forest practices and biodiversity research. Since the initial announcement of sites in 1997, there have been several new additions, and the preliminary results of ongoing studies on alternatives to clearcut harvesting in the Pacific Montane, Montane Cordillera and Boreal ecozones were published in a number of major journals and technology transfer guides, as well as through FERNS.
- NRCan participated in the development of multi-jurisdictional joint agreements establishing a single environmental assessment process for each of the Terra Nova and Sable Gas projects. The single processes established for each of the projects prevented overlap and duplication, which otherwise would have resulted from separate environmental assessments by each jurisdiction. This multi-jurisdictional achievement was ground-breaking for NRCan and will serve as a guide for the development of future joint agreements, by all government departments, for projects requiring multi-jurisdictional review.
- NRCan has adjusted its energy-efficiency initiatives in response to changes in the operating environment. This was recognized by the Auditor General who encouraged NRCan to continue to expand its work to develop performance information on its energy-efficiency initiatives.

### **Work in Progress for Policy Goal 3**

- On March 13, 1998, the *Nuclear Fuel Waste Management and Disposal Concept Panel* released its recommendations regarding the safety and acceptability of the nuclear fuel waste management and disposal concept. NRCan, together with other federal government departments, is carefully studying the panel's recommendations. The Government of Canada will then provide a response to the recommendations and outline the next steps for the long-term management of nuclear fuel waste in Canada.



## Policy Goal 4

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### Goal 4

To effectively deliver federal responsibilities for surveys and mapping, and explosives.

### Why This is Important

Environmental preservation, national defence, sovereignty, economic development – these objectives call for an increasingly detailed knowledge of our country and its resources. NRCan provides many products and services that support the institutions of public governance, that is, good government as part of a strong economic and social fabric. It does so through legislation, regulations, codes and standards, which reduce the health and safety risks associated with disasters and the development of resources.

NRCan's products and services include scientific research, regulation development and training which promote the safe production and use of explosives and pyrotechnics; aeronautical charts for air safety; maintaining a geodetic reference framework for geospatial positioning and mapping; legal surveys to support effective land management; air photos and topographical maps for search and rescue-related activities and emergency planning; geographical and geological maps on our land and natural resources; national databases on resources and their use; earth observation data from remote sensing satellites for applications such as responding to the Manitoba flood and the January 1998 central-Canada ice storm; logistics support for scientific research in the Arctic; geoscience information on hazards such as earthquakes; and environmental issues such as metals in the environment.

NRCan carries out the majority of its responsibilities in partnership with other government departments, provinces, territories and stakeholders. It has a primary role to play in acquiring, maintaining and distributing information and knowledge that provide tools for Canadian resource industries and other knowledge-based industries.

### Key Commitments

NRCan works toward its objectives of: maintaining a national framework for geospatial positioning, mapping and boundary maintenance; and promoting the safe use of explosives and pyrotechnics.

## Key Accomplishments for Policy Goal 4

- During the 1998 central-Canada ice storm, NRCan supported Canadian Forces operations with aerial photographs, more than 17,000 topographic maps and a new topographic map of the entire affected area. These maps were instrumental in helping emergency response teams and work crews provide assistance to Canadians during and after this major natural disaster.
- NRCan provided \$3.1 million in logistics support to 181 Arctic scientific research programs, which involved a variety of federal, territorial, university and community groups assessing northern renewable and non-renewable resources, environmental protection, climate change, environmental and traditional knowledge field projects. In addition to these programs, NRCan supported two projects under the Canadian Arctic-Antarctic Exchange Program. These projects allowed Canadian Arctic research scientists and their Antarctic colleagues to conduct comparative bi-polar climate change studies.
- NRCan produced a digital topographic mass density map of Canada. This is the first time in the world that such a product will be used for calculations of the geoid (the extension of mean sea level under land). This project helps define the location of this surface as part of the effort to provide practical elevations with the Global Positioning System (GPS). University research towards a refined gravimetric geoid (using gravity data) continues under contract. (NRCan – \$50,000)
- Based on feedback received from provincial counterparts, NRCan completed a GPS Height Transformation software product to relate GPS-derived elevations to the national standard of sea-level elevations.
- NRCan conducted beta testing on the real-time GPS Correction (GPS-C) signal to confirm higher-accuracy (less than one metre) technology. This GPS-C is important to potential commercial distributors because it allows them to obtain metre-level accuracies. A national positioning service would provide unprecedented access to accurate positions. Applications for it range from navigation and transportation to agriculture.
- The Canadian Base Network, designed to establish a sparse, highly accurate survey control network using the latest satellite positioning technology, is now available in nine provinces. Final coordinates were made available to stakeholders and the general public on June 1, 1998. (NRCan – \$500,000)
- A pyrotechnics special effects technician certification program was introduced to improve industry safety. Three training tours were delivered and approximately 1,600 people across Canada received their Pyrotechnics Special Effects Certificate.



**Ice Storm of January 1998**



## **Key Accomplishments for Policy Goal 4 (cont'd)**

- In February 1998, NRCan delivered Phase I of an automated air photo retrieval system based on Internet technology. This system will allow clients from across the country to have improved access to this national archive of information and to increase their knowledge of our national aerial photography collection and its many uses. Financial contributions were received from Alberta, Ontario and Quebec. The system will be operational internally by the end of September 1998.
- In 1998, Memoranda of Understanding (MOU's) on statistical collection, data processing, data sharing and dissemination were, or are, in the process of being signed by NRCan and the Ontario's Ministry of Northern Development and Mines. MOU's were prepared and sent for discussion to Saskatchewan, the Northwest Territories (NWT), Newfoundland and British Columbia. The MOU's will clarify the respective responsibilities of the federal and provincial partners ensuring efficiency, minimum cost and respect for each other's mandate. They will also permit the dissemination of sound and consistent minerals and mining information and provide a solid basis from which to move forward into the future.
- In collaboration with the Nunavut Arctic College, NRCan and Human Resources Development Canada implemented a Canada Lands Survey training program. During a five-month period, 23 land administrators, from 21 NWT hamlets, attended the two-week program. A strong working relationship between NRCan and each of the NWT hamlets was built, sparking interest in the field of professional land surveying. The awareness in this area of land management will continue to increase as the trainees share their experience in their own communities.
- NRCan implemented 50 annual survey contracts in support of the comprehensive Native Land Claim settlements and other surveys. These contracts totaled over \$10 million annually, of which \$7 million was spent in the Yukon and Northwest Territories, and the remaining \$3 million was spread throughout the provinces.

## **Work in Progress for Policy Goal 4**

- Passage and implementation of new Plain Language Explosives regulations have been delayed until late 1998-99 because of the excessive workload in this area.

## Management Goal 5

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### Goal 5

To manage the Department efficiently and effectively.

### Why This is Important

NRCan is committed to good governance and the sustainable development of Canada's natural resources. To implement this agenda, flexibility has to be an integral part of our corporate culture and structures. Today's climate of continual change gives rise to several management and organizational challenges. These issues need to be identified and properly managed. The way the Department deals with its employees, its accountability and its own performance must continue to be strengthened.

### Key Commitments

NRCan's *1997-98 Report on Plans and Priorities* gave assurances that the Department would manage its resources responsibly; continue to improve its products, services and operations; strengthen its partnerships and transfer its knowledge; continue to improve its S&T management; and promote a stronger science culture.

### Key Accomplishments

- NRCan played a leadership role within the S&T community by piloting the Management and Scientific Development Training Program. This program emphasizes the importance of implementing and promoting a continuous learning environment (the results of this pilot will be analyzed and reported to all science-based departments in the fall of 1998).
- Employees were provided with a reliable information technology (IT) infrastructure to access common applications and related services. The Common Office Environment (COE) was a \$10 million IT project that was approved in March 1996 and delivered on time and under budget. Departmental benefits include enhanced user productivity, cost avoidance and lower IT costs.
- The *Manager's Guide to S&T Impact Assessment* and *S&T Impact Measurement Methodologies* were developed to help managers conduct impact assessments. NRCan helped launch the R&D Impact Network to promote the exchange of best-practices in assessing the impact of R&D among government, industry and academia in Canada and to improve value, decision-making and accountability in R&D.

## Key Accomplishments for Management Goal 5 (cont'd.)

- The *Framework for Revenue Generation, External Funding and Collaborative Activities* was implemented to allow the Department to assess quantitatively and in a uniform way, the value of its activities in revenue generation and cost and task sharing.
- NRCan's internal procurement and payment service delivery was significantly improved with Release 1 of the Integrated Payment and Procurement System. During the development of this system, NRCan conducted risk assessments to ensure that adequate controls would be in place. (NRCan – \$1.6 million)
- As a result of moving to an acquisition-card electronic system, an internal audit determined that NRCan realized savings of \$41 per transaction for total savings of nearly \$2 million in 1997-98, a 70 percent increase in process-cost savings since 1995-96.
- Impact assessments studies were conducted for the CANMET Energy Technology Branch, the CANMET Mineral Technology Branch, the Canada Centre for Remote Sensing S&T activities, and the Geological Survey of Canada Bedrock Geoscience Program. These impact assessments were important performance indicator tools.
- An interim assessment of the *S&T Management Framework and Compendium of Management Practices* was conducted. The assessment revealed that progress has been made toward achieving the goals of the framework (i.e., enhanced accountability, improved client focus, and better use of human resources). The integration of science with policy is strongly perceived to be successful.
- NRCan met its downsizing target under Program Review I. At the end of 1998-99, the Department will have met its Program Review II target, with approximately 3,600 full-time employees. Before the Program Review, there were 146 full-time executives. The Department met its reduction goal of 52 resulting in a current level of 94 executives – a 39 percent reduction.
- A databank of 240 broad-banded work descriptions was developed as part of the classification re-engineering process. NRCan was also very active in providing input to the Treasury Board Secretariat on the design and validation of the Universal Classification Standard.
- As part of the review of the federal experience in managing for results, CANMET's Energy Technology Branch management practices were reviewed and received favourable mention in the Auditor General's review of 1997, Chapter 11, *Managing for Results*. Shifting the focus from managing resources to managing results requires a change in management culture, including agreement on expected results, reliable measurement and communication of results. Specific mention was made of CANMET's accountability practices, the importance of the commitment of its senior management, its measurement of the results of research and development projects, and the external recognition they have achieved in this field.

## Work in Progress for Management Goal 5

- The NRCan *Guide to Good Management* was developed. The guide integrates and expands earlier work on the Department's *Science and Technology Management Framework*, the *Earth Sciences Sector Framework*, and the *National Quality Institute/Treasury Board Secretariat Framework for Effective Public Service Organizations*. A model contained in the guide provides a standard for organizational performance measurement throughout the Department.
- *Quality 2000*, a new five-point plan to address quality over the next three years, was developed. The plan includes continued integration of quality concepts into departmental operations; a common definition of "quality"; enhanced deployment of quality concepts; a better method to measure results; and more accountability for results. The NRCan *Guide to Good Management* is an essential working tool for implementing *Quality 2000*.
- A common *Performance Measurement Framework* was developed by all stakeholders to measure NRCan's performance (the Framework can be found on page 59). NRCan is committed to measuring the impact of its programs, activities and initiatives and reporting its accountability to Parliament and the Canadian public. This framework will be implemented in 1998-99.

- **Year 2000 Readiness**

Early in 1998, the Year 2000 Project Office presented senior management with a set of recommendations to respond to all precarious areas identified in the April 1997/January 1998 internal audits and the Treasury Board Secretariat survey results. The following recommendations were sanctioned by senior management:

- (i) Year 2000 will be a top priority for the Department and every ADM will be held accountable for the state of readiness for Year 2000 for their respective sectors;
- (ii) December 31, 1998 will be the deadline for the readiness of government-wide mission critical systems and department-wide mission critical systems and all Year 2000 plans will be revised and accelerated accordingly;
- (iii) the approval of a stronger project management structure that outlines: governance structure; project planning; specific major milestones; regular progress monitoring; internal auditing and monitoring; risk assessment; contingency planning; and the nomination of a senior manager as the departmental champion;
- (iv) to conduct an audit in the early fall of 1998 to help identify any systems that could fall short of Year 2000 compliance by the December 31, 1998, deadline; and
- (v) the Departmental Working Group will be expanded to include additional departmental representatives.

The Department is currently acting on these recommendations and is confident that it will successfully meet the Year 2000 challenge.

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## IV Financial Performance

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### Financial Performance Overview

Natural Resources Canada has been at the forefront of the transition to the knowledge-based economy, providing an environment that ensures that our natural resources continue to be an anchor of the economy in the new millennium. NRCan played a significant role in helping resource companies equip themselves with knowledge, skills and technology to compete successfully in global markets and to ensure sustainable development. The natural resources sector is evolving into a high-technology, knowledge-based, vibrant, economic force that contributes valuable high-end jobs and stability to hundreds of communities across Canada. NRCan has provided the sector with information and support for the high-technology, knowledge-based marketplace. It has made sustainable development a core value that balances the economic, environmental and social considerations for the present and the future.

The table on page 40 shows NRCan's Goals and Business Lines used in internal and external planning and reporting documents. Each business line relates to one or more goal. Financial information is presented by business line and departmental sector in support of the goals.

### Definitions

The financial tables in this section present financial information as "planned spending", "total authorities" and "actual spending". The definitions of these terms are:

- Planned Spending - These dollar figures match those shown in *Natural Resources Canada 1997-98 Estimates, A Report on Plans and Priorities, Pilot Document*. They represent what the plan was at the beginning of the year.
- Total Authorities - These dollar figures include the main and supplementary estimates for Natural Resources Canada and match the dollar figures shown in the *Public Accounts for 1997-98*. They represent what additional spending Parliament has approved for Natural Resources Canada to reflect changing priorities and unforeseen events.
- Actual Spending - These dollar figures match those shown in the *Public Accounts for 1997-98* for Natural Resources Canada. They represent what was actually spent.

### Variances

There are no significant variances between total authorities and actual spending. The variances between planned spending and total authorities are explained by the Supplementary Estimates items approved by Parliament (\$20.3 million for Central Reserve Funding for Workforce adjustment; \$18.3 million for carry forward; \$8.5 million in adjustments requested for statutory payments; \$5 million in contributions programs).

The variances between planned and actual revenues are attributed to: refund of previous year's expenditures, adjustments to previous years, interest on overdue accounts, Intellectual Property and the Revolving Fund payment of overhead costs.

The lapse in the Operating Vote is less than the 5 percent carry forward authorities allowed by the Treasury Board. The variances in the Capital and Grants & Contributions votes are not significant.

## Goals versus Business Lines

Goals*	Business Lines**
<b>1998-99 Policy Goals:</b> <ol style="list-style-type: none"> <li>1. To enable Canadians to make balanced decisions regarding natural resources.</li> <li>2. To sustain the economic and social benefits derived from natural resources for present and future generations.</li> <li>3. To minimize the environmental impacts of natural resource development and use.</li> <li>4. To effectively deliver federal responsibilities for surveys and mapping, and explosives.</li> </ol> <b>Management Goal:</b> <ol style="list-style-type: none"> <li>5. To manage the Department efficiently and effectively.</li> </ol>	<b>Science and Technology</b> <ol style="list-style-type: none"> <li>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.</li> </ol>
	<b>Knowledge Infrastructure</b> <ol style="list-style-type: none"> <li>2. To build, maintain and disseminate information from a national knowledge infrastructure in support of the management and SD of Canada's landmass, offshore regions and natural resources.</li> </ol>
	<b>Developing Federal Policy and Regulations</b> <ol style="list-style-type: none"> <li>3. To ensure that federal policy and 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.</li> </ol>
	<b>Promoting Canada's International Interests</b> <ol style="list-style-type: none"> <li>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.</li> </ol>

\* For a correlation between 1997-98 Policy Goals and the new 1998-99 Policy Goals see page 58.

\*\* In addition, the Department has three special-purpose business lines. These are: Corporate Management and Administration; Geomatics Canada Revolving Fund; and Sunset/Special Programs.

## 1. Summary of Voted Appropriations

### Authorities for 1997-98

#### Financial Requirements by Authority (millions of dollars)

<b>Vote</b>	<b>Program</b>	<b>1997-98 Planned Spending</b>	<b>1997-98 Total Authorities</b>	<b>1997-98 Actuals</b>
1	Operating expenditures	369.7	417.1	<b>410.6</b>
5	Capital expenditures	13.4	12.0	<b>12.0</b>
10	Grants and contributions	39.2	38.6	<b>38.4</b>
(S)	Minister of Natural Resources – Salary and motor car allowance	0.1	0.1	<b>0.1</b>
(S)	Contributions to employee benefit plans	33.0	33.0	<b>33.0</b>
(S)	Canada – Nova Scotia Development Fund	3.9	2.0	<b>2.0</b>
(S)	Canada – Newfoundland Development Fund	7.0	6.0	<b>6.0</b>
(S)	Canada – Newfoundland Offshore Petroleum Board	1.4	1.4	<b>1.4</b>
(S)	Canada – Nova Scotia Offshore Petroleum Board	0.7	0.8	<b>0.8</b>
(S)	Payments to the Nova Scotia Offshore Revenue Account	1.4	2.6	<b>2.6</b>
(S)	Payments to the Newfoundland Offshore Petroleum Resource Revenue Fund	0.1	0.8	<b>0.8</b>
(S)	Geomatics Canada Revolving Fund	1.1	5.8	<b>(0.6)</b>
(S)	Nova Scotia Fiscal Equalization Offset Payment	1.2	8.2	<b>8.2</b>
<b>Total Budgetary</b>		<b>472.2</b>	<b>528.4</b>	<b>515.3</b>
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	14.9	<b>14.9</b>
<b>Total NRCan</b>		<b>489.4</b>	<b>543.3</b>	<b>530.2</b>

## 2. Comparison of 1997-98 Total Planned Spending to Actual Spending and Total Authorities

**Departmental Planned versus Actual Spending and Total Authorities by Business Line (millions of dollars) (Budgetary)**

[illegible]



### 3. Historical Comparison of Total Net Planned Spending to Net Actual Spending and Total Authorities

#### Departmental Planned versus Actual Spending and Total Authorities by Business Line (millions of dollars) (Budgetary)

<b>Business Lines</b>	<b>Actuals 1995-96</b>	<b>Actuals 1996-97</b>	<b>Planned Spending 1997-98</b>	<b>Total Authorities 1997-98</b>	<b>Actuals 1997-98</b>
Science and Technology	280.0	249.7	228.8	205.2	<b>203.9</b>
Knowledge Infrastructure	146.4	126.3	110.9	138.7	<b>137.6</b>
Developing Federal Policy and Regulations	73.5	62.4	55.3	67.6	<b>66.5</b>
Promoting Canada's international interests	10.8	9.2	8.6	7.6	<b>6.5</b>
Sunset/Special Programs	259.4	52.1	24.1	25.8	<b>24.8</b>
Corporate Management & Administration	54.0	50.4	43.4	77.7	<b>76.6</b>
Geomatics Canada Revolving Fund	2.0	(1.2)	1.1	5.8	<b>(0.6)</b>
<b>Total Budgetary</b>	<b>826.1</b>	<b>548.9</b>	<b>472.2</b>	<b>528.4</b>	<b>515.3</b>

### 4. Crosswalk between Old Resource and New Allocation

Not applicable

## 5. Gross Resource Requirements by Organization & Business Line

**Comparison of 1997-98 Planned Spending to Actual Gross Expenditures by Organization and Business Line**  
(millions of dollars) (Budgetary)

Sectors	Business Lines							TOTALS
	Science and Technology	Knowledge Infrastructure	Developing Federal Policy and Regulations	Promoting Canada's International Interests	Sunset/ Special Programs	Corporate Management & Administration	Geomatics Canada Revolving Fund	
<b>Earth Sciences</b>								
Planned Spending	35.9	98.3	7.8	1.4	-	-	18.3	161.7
<b>Actuals</b>	<b>26.5</b>	<b>124.3</b>	<b>6.3</b>	<b>2.4</b>	<b>-</b>	<b>-</b>	<b>15.3</b>	<b>174.8</b>
<b>Forest</b>								
Planned Spending	85.1	1.4	6.5	3.1	2.0	-	-	98.1
<b>Actuals</b>	<b>75.0</b>	<b>9.1</b>	<b>13.5</b>	<b>1.1</b>	<b>1.0</b>	<b>-</b>	<b>-</b>	<b>99.7</b>
<b>Mineral and Metals</b>								
Planned Spending	30.2	3.5	8.6	1.9	7.6	-	-	51.8
<b>Actuals</b>	<b>35.6</b>	<b>5.6</b>	<b>6.7</b>	<b>2.1</b>	<b>4.1</b>	<b>-</b>	<b>-</b>	<b>54.1</b>
<b>Energy</b>								
Planned Spending	82.1	2.9	32.4	1.9	13.7	-	-	133.0
<b>Actuals</b>	<b>80.0</b>	<b>1.7</b>	<b>41.8</b>	<b>1.0</b>	<b>20.0</b>	<b>-</b>	<b>-</b>	<b>144.5</b>
<b>Corporate Services</b>								
Planned Spending	8.5	6.1	1.2	0.4	0.8	31.5	-	48.5
<b>Actuals</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>60.4</b>	<b>-</b>	<b>60.4</b>
<b>Direction &amp; Coordination</b>								
Planned Spending	-	-	-	-	-	11.9	-	11.9
<b>Actuals</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>16.2</b>	<b>-</b>	<b>16.2</b>
<b>TOTALS</b>								
Planned Spending	241.8	112.2	56.5	8.7	24.1	43.4	18.3	505.0
<b>Actuals</b>	<b>217.1</b>	<b>140.7</b>	<b>68.3</b>	<b>6.6</b>	<b>25.1</b>	<b>76.6</b>	<b>15.3</b>	<b>549.7</b>
<b>% of TOTAL</b>	<b>39%</b>	<b>26%</b>	<b>12%</b>	<b>1%</b>	<b>5%</b>	<b>14%</b>	<b>3%</b>	<b>100%</b>

**6. Revenues Credited to the Vote by Business Line (millions of dollars)**

<b>Business Lines</b>	<b>Actuals 1995-96</b>	<b>Actuals 1996-97</b>	<b>Planned Revenues 1997-98</b>	<b>Total Authorities 1997-98</b>	<b>Actuals 1997-98</b>
Science and Technology	0.2	14.4	13.0	13.2	<b>13.2</b>
Knowledge Infrastructure	-	0.2	1.3	3.1	<b>3.1</b>
Developing Federal Policy and Regulations	-	1.2	1.2	1.8	<b>1.8</b>
Promoting Canada's International Interests	-	0.1	0.1	0.1	<b>0.1</b>
Sunset/Special Programs	-	-	-	0.3	<b>0.3</b>
Corporate Management & Administration	-	-	-	-	-
Geomatics Canada Revolving Fund	13.1	17.6	17.2	15.9	<b>15.9</b>
<b>Total Revenues to the Vote</b>	<b>13.3</b>	<b>33.5</b>	<b>32.8</b>	<b>34.4</b>	<b>34.4</b>

**7. Revenues Credited to the Consolidated Revenue Fund by Business Line (millions of dollars)**

<b>Business Lines</b>	<b>Actuals 1995-96</b>	<b>Actuals 1996-97</b>	<b>Planned Revenues * 1997-98</b>	<b>Total Authorities 1997-98</b>	<b>Actuals * 1997-98</b>
Science and Technology	15.6	2.6	0.3	n/a	<b>1.7</b>
Knowledge Infrastructure	3.9	1.3	0.3	n/a	<b>2.8</b>
Developing Federal Policy and Regulations	3.0	3.8	2.9	n/a	<b>8.9</b>
Promoting Canada's International Interests	0.2	0.2	-	n/a	-
Sunset / Special Programs	15.1	22.2	10.4	n/a	<b>3.8</b>
Corporate Management & Administration	1.7	2.8	1.2	n/a	<b>2.3</b>
Geomatics Canada Revolving Fund	1.5	1.2	-	n/a	<b>0.1</b>
<b>Total Revenues to the Consolidated Revenue Fund</b>	<b>41.0</b>	<b>34.1</b>	<b>15.1</b>	<b>n/a</b>	<b>19.6</b>

\* The variances between Planned Revenues and Actuals are attributed to: refund of previous year's expenditures, adjustments to previous years, interest on overdue accounts, Intellectual Property and the Revolving Fund payment of overhead costs.

**8. Statutory Transfer Payments by Business Line (millions of dollars)**

<b>Business Lines</b>	<b>Actuals 1995-96</b>	<b>Actuals 1996-97</b>	<b>Planned Spending 1997-98</b>	<b>Total Authorities 1997-98</b>	<b>Actuals 1997-98</b>
Science and Technology	16.2	15.1	-	-	-
Knowledge Infrastructure	9.1	8.4	-	-	-
Developing Federal Policy and Regulations	6.7	6.5	2.1	2.1	<b>2.1</b>
Promoting Canada's International Interests	0.5	0.6	-	-	-
Sunset / Special Programs	46.4	29.3	13.6	19.7	<b>19.7</b>
Corporate Management & Administration	4.1	3.7	-	-	-
Geomatics Canada Revolving Fund	-	-	-	-	-
<b>Total Statutory Transfer Payments</b>	<b>83.0</b>	<b>63.6</b>	<b>15.7</b>	<b>21.8</b>	<b>21.8</b>

**9. Total Transfer Payments by Business Line (millions of dollars)**

<b>Business Lines</b>	<b>Actuals 1995-96</b>	<b>Actuals 1996-97</b>	<b>Planned Spending 1997-98</b>	<b>Total Authorities 1997-98</b>	<b>Actuals 1997-98</b>
<b>GRANTS</b>					
Science and Technology	0.1	0.2	0.2	0.1	0.1
Knowledge Infrastructure	0.1	1.2	0.2	0.1	0.1
Developing Federal Policy and Regulations	0.2	0.1	0.2	0.2	0.2
Promoting Canada's International Interests	-	-	-	-	-
Sunset/Special Programs	-	-	-	-	-
Corporate Management and Administration	-	-	0.1	-	-
<b>Total Grants</b>	<b>0.4</b>	<b>1.5</b>	<b>0.7</b>	<b>0.4</b>	<b>0.4</b>
<b>CONTRIBUTIONS</b>					
Science and Technology	31.6	27.1	25.8	18.0	17.9
Knowledge Infrastructure	1.4	1.3	1.3	4.1	4.1
Developing Federal Policy and Regulations	8.2	6.0	6.8	15.0	15.0
Promoting Canada's International Interests	-	-	-	0.1	0.1
Sunset/Special Programs	237.4	43.9	20.3	22.7	22.6
Corporate Management and Administration	-	-	-	0.1	0.1
<b>Total Contributions</b>	<b>278.6</b>	<b>78.3</b>	<b>54.2</b>	<b>60.0</b>	<b>59.8</b>
<b>Total Grants and Contributions</b>	<b>279.0</b>	<b>79.8</b>	<b>54.9</b>	<b>60.4</b>	<b>60.2</b>

**10. Capital Spending by Business Line**

Not applicable

**11. Capital Projects by Business Line**

Not applicable

**12. Status of Major Crown Projects**

Not applicable

**13. Loans, Investments and Advances by Business Line (millions of dollars)**

<b>Business Line</b>	<b>Opening April 1st 1996</b>	<b>Opening April 1st 1997</b>	<b>New loans issued</b>	<b>Repayments 1997-98</b>	<b>Outstanding Balance 1997-98</b>
<b>Loans</b>					
Sunset / Special Programs					
Regional Electrical Interconnections					
New Brunswick Electric Power Commission	5.1	5.0	-	5.0	-
Atomic Energy of Canada Ltd.					
Housing	0.6	0.4	-	0.1	<b>0.3</b>
Heavy Water Inventory	12.5	11.5	-	1.0	<b>10.5</b>
Loans to facilitate the implementation of the Hibernia Development Project	66.0	132.0	-	-	<b>132.0</b>
Nordion International Inc.	-	-	14.9	-	<b>14.9</b>
<b>Total Loans</b>	<b>84.2</b>	<b>148.9</b>	<b>14.9</b>	<b>6.1</b>	<b>157.7</b>
<b>Investments and Advances</b>					
Sunset / Special Programs					
Lower Churchill Development Corporation	14.7	14.8	-	-	<b>14.8</b>
Atomic Energy of Canada Ltd.	164.2	164.2	-	-	<b>164.2</b>
<b>Total Investments and Advances</b>	<b>178.9</b>	<b>179.0</b>	<b>-</b>	<b>-</b>	<b>179.0</b>
<b>Total</b>	<b>263.1</b>	<b>327.9</b>	<b>14.9</b>	<b>6.1</b>	<b>336.7</b>

## Geomatics Canada Revolving Fund

The Fund was established under *Appropriation Act No. 3* in 1993-94 to provide products and services suitable for industry distribution, value-added services, and to help strengthen the geomatics industry on the international market. The Fund received a continuing non-lapsing authority from Parliament to make payments out of the Consolidated Revenue Fund, not to exceed \$8 million at any time.

The Fund was able to maintain its improvement in cash management by reducing the utilization of the authority provided by Parliament by \$636,000 at the end of the government accounting period compared to 1996-97. The utilization of this authority is now at \$1.5 million leaving a free balance of \$6.5 million.

The accumulated surplus over the last three years has allowed the Fund to establish a special Financial Reserve for the replacement of the printing presses and to undertake marketing projects that will assist the geomatic industry in its positioning on the international market.

### 14. Revolving Fund Financial Summaries (thousands of dollars)

	<b>Actuals 1995-96</b>	<b>Actuals 1996-97</b>	<b>Planned Spending 1997-98</b>	<b>Total Authorities 1997-98</b>	<b>Actuals 1997-98</b>
<b>Revenues</b>					
Products	9,430	10,248	10,100	10,100	10,593
Services	4,191	3,519	3,500	3,500	4,158
Consulting	1,911	3,027	2,400	2,400	1,907
<b>Total revenues</b>	<b>15,532</b>	<b>16,794</b>	<b>16,000</b>	<b>16,000</b>	<b>16,658</b>
Expenditures	15,234	15,412	15,600	15,600	15,211
<b>Profit (Loss)</b>	<b>298</b>	<b>1,382</b>	<b>400</b>	<b>400</b>	<b>1,447</b>
Changes in Working Capital	(4,234)	407	(1,700)	(1,700)	207
Capital acquisitions	(293)	(47)	(200)	(200)	(1,771)
Other items	193	203	400	400	1,374
Cash requirements	(4,036)	1,945	(1,100)	(1,100)	1,257
Cash at April 1	387	(3,649)	(3,900)	(3,900)	(1,704)
Cash at March 31	(3,649)	(1,704)	(5,000)	(5,000)	(447)
<b>Year end adjustments</b>	<b>307</b>	<b>(463)</b>	<b>-</b>	<b>-</b>	<b>(1,084)</b>
<b>Cumulative Net Authority Used</b>	<b>(3,342)</b>	<b>(2,167)</b>	<b>(5,000)</b>	<b>(5,000)</b>	<b>(1,531)</b>

**15. Contingent Liabilities (millions of dollars)**

<b>List of Contingent Liabilities</b>	<b>Amount of Contingent Liability</b>	
	<b>March 31 1997</b>	<b>Current as of March 31, 1998</b>
<b>Loans</b>		
Loan Guarantee to NewGrade Energy Inc.	150.7	132.0
Loan Guarantee with respect to the Hibernia Development Project Act	1,494.7	1,039.0
<b>Total Loans</b>	<b>1,645.4</b>	<b>1,171.0</b>
<b>Claims and Pending/Threatened Litigation</b>	<b>54.9</b>	<b>7.9</b>
<b>Total Contingent Liabilities</b>	<b>1,700.3</b>	<b>1,178.9</b>



## V Consolidated Reporting

### A. Sustainable Development Strategy

NRCan's first Sustainable Development (SD) Strategy was tabled in Parliament on December 10, 1997. The Strategy provides a view of sustainable development that recognizes that Canada will continue to use and develop its resources in a way that protects the health of the natural environment and landmass and ensures a legacy for future generations. In developing the strategy, NRCan integrated its policy goals with the goals of the SD Strategy, establishing sustainable development as the overarching umbrella for departmental activities. Since tabling its strategy, NRCan has distributed it to stakeholders, refined draft performance measurement indicators, and initiated implementation of the 68 action commitments.

NRCan's revised draft performance indicators were published in the 1998-99 *Report on Plans and Priorities* and are presented in this report in Section VI. In addition, an external review of the draft indicators was conducted with approximately 100 stakeholders. NRCan is continuing efforts to advance its performance indicators based on comments received through the external review.

Implementation plans, including targets and time frames, have been prepared for each of the 68 action commitments. While fiscal year 1997-98 addressed only the initial phase of the three-year implementation period, achievements were realized for many of the commitments. Moreover, 7 action commitments have been met. Table 1 highlights the achievements made toward action targets for 1997-98. **Achievements shown in bold indicate that action commitments have been met.** The actions address the new departmental goals and objectives and represent a subset of departmental activities that support sustainable development. Progress achieved on many of the 68 action commitments is highlighted in Section III of this report and is referenced in the table below.

NRCan is on track in meeting its commitment to working with stakeholders to ensure the sustainable development of Canada's natural resources. Additional information on the implementation of the action commitments may be obtained by accessing the sustainable development home page on the NRCan web site at: <http://www.nrcan.gc.ca/dmo/susdev>.

**Table 1: Highlights of Progress on Sustainable Development Strategy**

Goal	Action Targets 1997-98	Achievements 1997-98
Enabling Canadians to make balanced decisions regarding natural resources.	Consult on development of Canadian Geospatial Data Infrastructure to facilitate wider use of geospatial data	Held six workshops involving federal, provincial and territorial agencies, academia and industry (see page 15)
	Draft framework for sustainable development criteria and indicators for minerals and metals to facilitate reporting of progress to stakeholders	Drafted conceptual framework for sustainable development criteria and indicators for minerals and metals and undertook preparations for indicators workshop with stakeholders (see page 16)
	Develop baseline study to identify barriers and disincentives to renewable energy and energy efficiency	Published <i>Tax Treatment of Electricity from Renewable Energy Sources and Energy Efficiency Technologies: An International Comparison</i>
	Seek stakeholder views on improving regulatory system related to mining	Undertook Canada-wide multi-stakeholder consultations of regulatory system related to mining
	Prepare new National Forest Strategy to guide Canada's efforts in sustainable forest management	<b>Completed successor strategy (see page 17)</b>

Goal	Action Targets 1997-98	Achievements 1997-98
Sustaining the economic benefits from natural resources for present and future generations.	Organize workshops on sustainable development of natural resources for Arctic Council's International Sustainable Development Conference	<b>Organized workshops on northern energy, sustainable forest management, sustainability of minerals and mining in the circumpolar world, in partnership with INAC, DFAIT and Environment Canada</b>
	Develop analytical tool in support of reducing barriers to renewable energy for remote communities	Developed a quick analysis tool (RETScreen) for preparing project pre-feasibility studies
	Develop means for demonstrating use of geospatial data and technology in rural northern and Aboriginal communities	Developed basic agreement with Industry Canada's Community Access and Smart Communities program to demonstrate value of geospatial information
	Produce geoscience information to stimulate interest in mineral exploration in northern Baffin Island and Melville Peninsula	Initiated partnership project with the Quikqtani Inuit Association's Qikiqtaaluk Corporation and the government of the NWT for the development of a digital geoscience knowledge base and mineral potential assessment (see page 24)
Minimizing the impacts of natural resource development and use on the environment and the safety of Canadians.	Expand coverage of Canada's <i>Energy Efficiency Regulations</i> to improve energy efficiency in Canada	Completed drafting of fourth amendment to <i>Energy Efficiency Regulations</i>
	Complete paper on S&T to reduce greenhouse gas emissions and understand climate change	Published <i>Impacts of Future Climate Change on the Southern Canadian Prairies</i>
	Launch new renewable energy program	Launched Renewable Energy Deployment Initiative (see page 16)
	Provide funding to 11 Model Forest partnership groups to demonstrate sustainable forest management	Negotiated contribution agreements for ten original Model Forests and completed competition for an 11 <sup>th</sup> Aboriginal-led Model Forest (see page 17)
	Implement post-Mine Environment Neutral Drainage (MEND) program	<b>Extended MEND program for three years (see page 28)</b>
	Establish three-year Diesel Emissions Evaluation Program (DEEP)	<b>Launched DEEP program (see page 29)</b>
	Consult on clean-up of low-level radioactive wastes	Initiated consultations with Port Hope communities
	Launch new Metals in the Environment Research Program	<b>Launched Metals in the Environment (MITE) program (see page 30)</b>
Establishing NRCan as a leader in the federal government in managing its operations in line with the principles of sustainable development.	Review and update the departmental environmental policy	Drafted new Environmental Policy for Departmental Operations
	Reduce and convert automobile fleet	Purchased 11 new alternative-fuel vehicles while reducing total fleet by ten vehicles
	Reduce energy consumption	<b>Completed implementation of energy saving measures</b>
	Purchase green power generated from renewable and alternative energy	<b>Signed agreement to purchase green power</b>

## B. Key Legislative/ Regulatory Initiatives

NRCan did not identify any initiatives that fell within the criteria for “major” or “significant” regulation. The following initiatives reflect highlights from the 1997 Federal Regulatory Plan (FRP) in this transition year.

Purpose of legislative or regulatory initiative	Expected Results (as reported in the FRP)	Performance Measurement Criteria	Results Achieved
The <i>Explosives Regulations</i> are being modernized and restructured, using plain-language drafting techniques. This includes removing old provisions, and reflecting current technology and industry practices as well as the United Nations explosives classification system.	Language and content of the regulations will be current, clearer and better organized. The state-of-the-art regulatory system will be easy to use and understand, promoting increased compliance and safety, without compromising competitiveness.	The impact of the clearer regulation will be determined in the short term by the number of critical, major and minor deficiencies identified during compliance inspection along with the accident/incident rate, including fatalities, injuries and property loss, occurring in the longer term.	No results to report as yet, pending implementation late in 1998. Reporting on results to be captured in the Departmental Performance Report for the period ending March 31, 2000.
The new <i>Canada Land Surveyors Act</i> authorizes the transfer of responsibility for the Board of Examiners for Canada Lands Surveyors (CLS) from NRCan to the private sector, the Association of Canada Lands Surveyors, thereby helping to fulfill one of the government's commitments to streamline government operations, including a small cost saving.	The Association will be self-regulating and responsible for: 1) creating new Canada Lands Surveyors, 2) standards of conduct for surveyors and 3) continuing education. It will have the same powers and responsibilities as provincial surveyor associations. Residents of Canada Lands will receive professional survey services of the same quality as other Canadians receive through provincial surveyor associations.	Success will be measured through the success of the Association: 1) number of members 2) number of CLS's created 3) number of CLS's available for work across Canada, and 4) activities of the Association in: a) resolving complaints b) disciplining members & CLSs c) doing practice reviews, and d) providing continuing education.	No results to report as yet, pending promulgation of associated regulations. Review of draft regulations started in June, 1998. Reporting on results to be captured in the Department's Performance Report for the period ending March 31, 2000.
A third amendment to the <i>Energy Efficiency Regulations</i> established a higher energy efficiency standard for 1 to 200 hp electric induction motors.	The expected result is higher energy efficiency of electric motors used in the commercial and industrial sectors, reduced energy use and consequently lower CO <sub>2</sub> emissions.	Criteria to include: the number of non-compliance complaints, and the results of border monitoring and enforcement and equipment audit testing as well as market behaviour confirmed by marketplace surveys.	No results to report as yet, pending further monitoring of implementation which began in early 1998.

## C. Status of Fuel Storage Tanks on Land Managed by NRCan

Annual report for April 30, 1998

As required under CEPA, Part IV, *Registration of Storage Tank Systems for petroleum Products and Allied Products on Federal Lands Regulations*, this report provides the information set out in Schedule II of the aforementioned regulation, updated to December 31, 1997.

### 1. The following number of aboveground storage tank systems:

Are registered with Natural Resources Canada: **5**

Comply with the *Federal Aboveground Storage Tank Guidelines*: **3**

Do not comply with the *Federal Aboveground Storage Tank Guidelines*: **2**

Should be upgraded in accordance with Schedule I of the *Federal Aboveground Storage Tank Technical Guidelines*:

a) **1** in 1998

b) **1** in 1999

### 2. The following number of underground storage tanks systems:

Are registered with Natural Resources Canada: **4**

Comply with the *Federal Underground Storage Tank Guidelines*: **1**

Do not comply with the *Federal Underground Storage Tank Guidelines*: **3**

Should be upgraded in accordance with Schedule I of the *Federal Underground Storage Tank Technical Guidelines*: **3** in 1998.

## VI Other Information

### A. Contacts for Further Information

<p><b>Jean McCloskey</b> Deputy Minister Natural Resources Canada 21-580 Booth Street Ottawa, Ont. K1A 0E4</p> <p>Telephone: (613) 992-3456 E-mail: jemcclos@nrcan.gc.ca</p>	<p><b>Earth Sciences Sector</b> Dr. Marc Denis Everell Assistant Deputy Minister Natural Resources Canada 14-580 Booth Street Ottawa, Ont. K1A 0E4</p> <p>Telephone: (613) 992-9983 E-mail: mdeverel@nrcan.gc.ca</p>	<p><b>Energy Sector</b> Mike Cleland Assistant Deputy Minister Natural Resources Canada 16-580 Booth Street Ottawa, Ont. K1A 0E4</p> <p>Telephone: (613) 996-7848 E-mail: mcleland@nrcan.gc.ca</p>
<p><b>Canadian Forest Service</b> Dr. Yvan Hardy Assistant Deputy Minister Natural Resources Canada 8-580 Booth Street Ottawa, Ont. K1A 0E4</p> <p>Telephone: (613) 947-7400 E-mail: yhardy@nrcan.gc.ca</p>	<p><b>Minerals and Metals Sector</b> Linda Keen Assistant Deputy Minister Natural Resources Canada 10-580 Booth Street Ottawa, Ont. K1A 0E4</p> <p>Telephone: (613) 992-2490 E-mail: lkeen@nrcan.gc.ca</p>	<p><b>Corporate Services Sector</b> Joanne Toews Assistant Deputy Minister Natural Resources Canada 3-580 Booth Street Ottawa, Ont. K1A 0E4</p> <p>Telephone: (613) 995-4252 E-mail: jtoews@nrcan.gc.ca</p>
<p><b>Strategic Planning and Coordination Branch</b> Patricia McDowell A/Director General Natural Resources Canada 20-580 Booth Street Ottawa, Ont. K1A 0E4</p> <p>Telephone: (613) 947-9831 E-mail: pmcdowel@nrcan.gc.ca</p>	<p><b>Communications Branch</b> Denis Saint-Jean Director General Natural Resources Canada 15-580 Booth Street Ottawa, Ont. K1A 0E4</p> <p>Telephone: (613) 996-3355 E-mail: desaintj@nrcan.gc.ca</p>	<p><b>Audit and Evaluation Branch</b> Elizabeth MacRae Director General Natural Resources Canada 14-580 Booth Street Ottawa, Ont. K1A 0E4</p> <p>Telephone: (613) 996-4940 E-mail: emacrae@nrcan.gc.ca</p>

## B. Internet Addresses

### Headquarters and Sector Sites:

Natural Resources Canada Home Page	<a href="http://www.nrcan.gc.ca">http://www.nrcan.gc.ca</a>
Canadian Forest Service (Headquarters)	<a href="http://www.nrcan.gc.ca/cfs">http://www.nrcan.gc.ca/cfs</a>
Corporate Services Sector	<a href="http://www.nrcan.gc.ca/css/css-pe.htm">http://www.nrcan.gc.ca/css/css-pe.htm</a>
Earth Sciences Sector	<a href="http://www.nrcan.gc.ca/ess">http://www.nrcan.gc.ca/ess</a>
Energy Sector	<a href="http://www.es.nrcan.gc.ca">http://www.es.nrcan.gc.ca</a>
Minerals and Metals Sector	<a href="http://www.nrcan.gc.ca/mms">http://www.nrcan.gc.ca/mms</a>
Statutes and Regulations	<a href="http://www.nrcan.gc.ca/dmo/spcb/regiss_e.html">http://www.nrcan.gc.ca/dmo/spcb/regiss_e.html</a>
Sustainable Development	<a href="http://www.nrcan.gc.ca/dmo/susdev">http://www.nrcan.gc.ca/dmo/susdev</a>

### Earth Sciences Sector Sites:

Aeronautical and Technical Services	<a href="http://aero.nrcan.gc.ca">http://aero.nrcan.gc.ca</a>
Canada Centre for Remote Sensing	<a href="http://www.ccrs.nrcan.gc.ca">http://www.ccrs.nrcan.gc.ca</a>
Canadian Geospatial Data Infrastructure	<a href="http://cgdi.gc.ca">http://cgdi.gc.ca</a>
Canadian National Geomagnetism Program	<a href="http://www.geolab.nrcan.gc.ca/geomag">http://www.geolab.nrcan.gc.ca/geomag</a>
Centre for Topographic Information - Ottawa	<a href="http://maps.nrcan.gc.ca">http://maps.nrcan.gc.ca</a>
Centre for Topographic Information - Sherbrooke	<a href="http://www.ccg.nrcan.gc.ca">http://www.ccg.nrcan.gc.ca</a>
Geodetic Survey	<a href="http://www.geod.nrcan.gc.ca">http://www.geod.nrcan.gc.ca</a>
Geological Survey of Canada	<a href="http://www.nrcan.gc.ca/gsc">http://www.nrcan.gc.ca/gsc</a>
Geomatics Canada	<a href="http://www.geocan.nrcan.gc.ca">http://www.geocan.nrcan.gc.ca</a>
Geophysical Data Centre	<a href="http://gdcinfo.aggr.nrcan.gc.ca/toc.html">http://gdcinfo.aggr.nrcan.gc.ca/toc.html</a>
Legal Surveys Division	<a href="http://www.geocan.nrcan.gc.ca/lrd">http://www.geocan.nrcan.gc.ca/lrd</a>
National Air Photo Library	<a href="http://airphotos.nrcan.gc.ca">http://airphotos.nrcan.gc.ca</a>
National Atlas of Canada	<a href="http://www-nais.ccrs.nrcan.gc.ca">http://www-nais.ccrs.nrcan.gc.ca</a>
National Atlas on Schoolnet	<a href="http://www-nais.ccrs.nrcan.gc.ca/schoolnet/">http://www-nais.ccrs.nrcan.gc.ca/schoolnet/</a>
National Earthquake Hazards Program	<a href="http://www.seismo.nrcan.gc.ca">http://www.seismo.nrcan.gc.ca</a>
Polar Continental Shelf Project	<a href="http://polar.nrcan.gc.ca">http://polar.nrcan.gc.ca</a>

### Canadian Forestry Sector Sites:

CFS Atlantic Forestry Centre	<a href="http://www.fcmr.forestry.ca">http://www.fcmr.forestry.ca</a>
CFS Great Lakes Forestry Centre	<a href="http://www.glfc.forestry.ca">http://www.glfc.forestry.ca</a>
CFS Laurentian Forestry Centre	<a href="http://www.cfl.forestry.ca">http://www.cfl.forestry.ca</a>
CFS Northern Forestry Centre	<a href="http://www.nofc.forestry.ca">http://www.nofc.forestry.ca</a>
CFS Pacific Forestry Centre	<a href="http://www.pfc.cfs.nrcan.gc.ca">http://www.pfc.cfs.nrcan.gc.ca</a>

**Minerals and Metals Sector Sites:**

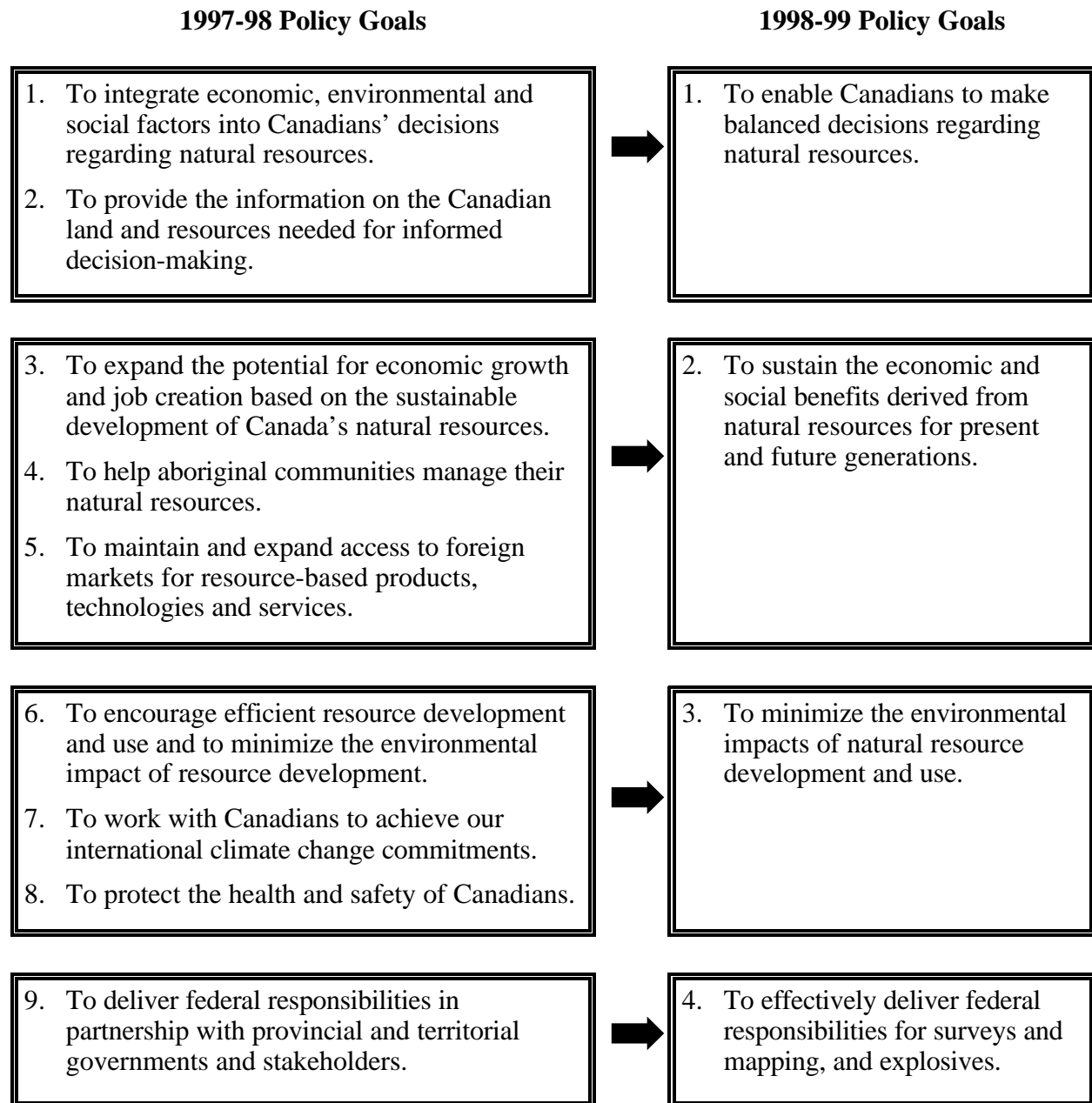
Biominet	<a href="http://www.nrcan.gc.ca/mets/biominet/">http://www.nrcan.gc.ca/mets/biominet/</a>
Business Climate for Mineral Investment	<a href="http://mmsd1.mms.nrcan.gc.ca/business">http://mmsd1.mms.nrcan.gc.ca/business</a>
Canadian Explosives Research Laboratory	<a href="http://www.nrcan.gc.ca/mms/explosif/incerle.htm">http://www.nrcan.gc.ca/mms/explosif/incerle.htm</a>
Canadian Certified Reference Materials Project (CCRMP)	<a href="http://www.nrcan.gc.ca/mets/ccrmp">http://www.nrcan.gc.ca/mets/ccrmp</a>
CANMET Mining and Mineral Sciences Laboratory - Bells Corners	<a href="http://www.nrcan.gc.ca/mms/canmet-mtb/bells/encorpge.htm">http://www.nrcan.gc.ca/mms/canmet-mtb/bells/encorpge.htm</a>
Economic and Financial Analysis Branch	<a href="http://www.nrcan.gc.ca/mms/efab/">http://www.nrcan.gc.ca/mms/efab/</a>
Experimental Mine (Val-d'Or)	<a href="http://www.nrcan.gc.ca/mms/canmet-mtb/valdor/menu_e.htm">http://www.nrcan.gc.ca/mms/canmet-mtb/valdor/menu_e.htm</a>
Explonet (Pilot under Construction)	<a href="http://www.nrcan.gc.ca/mms/efab/mmsd/explonet/which.htm">http://www.nrcan.gc.ca/mms/efab/mmsd/explonet/which.htm</a>
Explosives Regulatory Division	<a href="http://www.nrcan.gc.ca/mms/explosif/">http://www.nrcan.gc.ca/mms/explosif/</a>
Mine Environment Neutral Drainage (MEND)	<a href="http://www.nrcan.gc.ca/mets/mend/">http://www.nrcan.gc.ca/mets/mend/</a>
Mineral Technology Branch	<a href="http://www.nrcan.gc.ca/mms/canmet-mtb/homeeng.htm">http://www.nrcan.gc.ca/mms/canmet-mtb/homeeng.htm</a>
Minerals and Metals - A World to Discover	<a href="http://www.nrcan.gc.ca/mms/school/e_mine.htm">http://www.nrcan.gc.ca/mms/school/e_mine.htm</a>
Minerals and Mining Statistics Division	<a href="http://www.nrcan.gc.ca/mms/efab/mmsd/">http://www.nrcan.gc.ca/mms/efab/mmsd/</a>
Mining Taxation World	<a href="http://www.nrcan.gc.ca/ms/efab/tmrd/">http://www.nrcan.gc.ca/ms/efab/tmrd/</a>
National Mining Week	<a href="http://www.miningweek.org/">http://www.miningweek.org/</a>

**Energy Sector Sites:**

CANMET Energy Technology Branch	<a href="http://www.nrcan.gc.ca/es/etb">http://www.nrcan.gc.ca/es/etb</a>
CANMET Information Centre	<a href="http://www.nrcan.gc.ca/es/msd/cic/cicintro.htm">http://www.nrcan.gc.ca/es/msd/cic/cicintro.htm</a>
Climate Change	<a href="http://climatechange.nrcan.gc.ca">http://climatechange.nrcan.gc.ca</a>
Climate Change Voluntary Challenge and Registry	<a href="http://www.vcr-mvr.ca">http://www.vcr-mvr.ca</a>
Natural Gas Division	<a href="http://www.nrcan.gc.ca/es/erb/ngd">http://www.nrcan.gc.ca/es/erb/ngd</a>
Office of Energy Efficiency	<a href="http://www.oeo.nrcan.gc.ca">http://www.oeo.nrcan.gc.ca</a>
Office of Energy Research and Development	<a href="http://www.es.nrcan.gc.ca/WWW-data/new/oerd.htm">http://www.es.nrcan.gc.ca/WWW-data/new/oerd.htm</a>

## C. Correlation between 1997-98 and 1998-99 Policy Goals

During 1997-98, NRCan adopted a *Sustainable Development Strategy* and, as a result, revised its Policy Goals from nine to four in order to better reflect this new focus.





## D. Performance Measurement Framework

(Goals/ Objectives/ Performance Indicators)

<b><u>Policy Goal 1</u></b> <b>To enable Canadians to make balanced decisions regarding natural resources.</b>	
<b>Objectives</b>	<b>Draft Performance Indicators</b>
<b>1.1 Knowledge</b> - Creating easily accessible and integrated knowledge on the state of Canada's landmass and natural resources, and the economic, environmental, and social dimensions of their use.	<ul style="list-style-type: none"> <li>• User satisfaction with value, accessibility and quality of information (user surveys).</li> <li>• Public awareness of the importance and relevance of natural resources sectors and issues (survey).</li> </ul>
<b>1.2 Cooperation</b> - Promoting greater national and international cooperation and consensus on SD issues, policies, goals and actions.	<ul style="list-style-type: none"> <li>• Participation in, and results of, national and international multi-stakeholder approaches to SD issues (e.g. National Forest Strategy, Whitehorse Mining Initiative, Model Forests).</li> </ul>
<b>1.3 Policy Climate</b> - Developing and promoting fiscal, regulatory and voluntary approaches that encourage the SD of natural resources.	<ul style="list-style-type: none"> <li>• Participation in, and results of, voluntary SD initiatives (e.g. Federal Buildings Initiative, Voluntary Challenge and Registry program, Accelerated Reduction and Elimination of Toxins).</li> </ul>

<b><u>Policy Goal 2</u></b> <b>To sustain the economic and social benefits derived from natural resources for present and future generations.</b>	
<b>Objectives</b>	<b>Draft Performance Indicators</b>
<b>2.1 Growth and Investment</b> - Creating economic opportunities and encouraging investment in innovative and higher-value uses of natural resources.	<ul style="list-style-type: none"> <li>• Economic impact of NRCan S&amp;T.</li> <li>• Employment levels and productivity in resource and resource-related industries.</li> <li>• Value-added in the natural resource sectors.</li> <li>• Capital investment in resource and resource-related industries.</li> </ul>
<b>2.2 Trade and Markets</b> - Maintaining and expanding access to international markets for Canadian resource-based products, knowledge, technologies and services.	<ul style="list-style-type: none"> <li>• Value (\$) and percent of exports of resource-based products, technologies and services.</li> </ul>

<b><u>Policy Goal 2 (cont'd)</u></b>	
<b>Objectives</b>	<b>Draft Performance Indicators</b>
<b>2.3 Communities</b> - Building the capacity of Aboriginal, rural and northern communities to generate sustainable economic activity based on natural resources.	<ul style="list-style-type: none"> <li>• Number of shared projects and funds leveraged with rural, Aboriginal and Northern communities.</li> <li>• Number and wages of Aboriginal peoples and northern residents employed in resource sectors.</li> <li>• Delivery of coordinated logistics services in partnership with other agencies.</li> </ul>

<b><u>Policy Goal 3</u></b>	
<b>To minimize the environmental impacts of natural resource development and use.</b>	
<b>Objectives</b>	<b>Draft Performance Indicators</b>
<b>3.1 Climate Change</b> - Helping limit and adapt to climate change.	<ul style="list-style-type: none"> <li>• Greenhouse gas emissions to GDP ratio and compared to international commitments and other countries.</li> <li>• Trends in use of alternative and renewable energy.</li> <li>• Trends in energy efficiency by end use.</li> <li>• Greenhouse gas emissions from federal operations.</li> <li>• Greenhouse gas impacts from NRCan S&amp;T.</li> </ul>
<b>3.2 Reduce Environmental Impacts</b> - Promoting technologies and stewardship practices that reduce environmental impacts, conserve biodiversity, and increase the efficiency of resource development and use.	<ul style="list-style-type: none"> <li>• Environmental impact (other than greenhouse gas) of NRCan S&amp;T.</li> <li>• Trends in recycling of natural resources.</li> </ul>
<b>3.3 Safety and Well Being</b> - Safeguarding Canadians from natural hazards and the risks associated with natural resource development and use.	<ul style="list-style-type: none"> <li>• Impact of NRCan information and advice on the management of natural hazards.</li> <li>• Clean up of contaminated low level radioactive waste sites.</li> </ul>

<b><u>Policy Goal 4</u></b> <b>To effectively deliver federal responsibilities for surveys and mapping, and explosives.</b>	
Objectives	Draft Performance Indicators
4.1 Maintaining a national framework for geospatial positioning, mapping, and boundary maintenance.	<ul style="list-style-type: none"> <li>User satisfaction with relevant products and services (aeronautical charts, surveys).</li> <li>Success of projects undertaken in partnership.</li> </ul>
4.2 Promoting the safe use of explosives and pyrotechnics.	<ul style="list-style-type: none"> <li>Accident and incident rate in the explosives and pyrotechnic industries in Canada.</li> </ul>

<b><u>Management Goal 5</u></b> <b>To manage the Department efficiently and effectively.</b>	
Objectives	Draft Performance Indicators
5.1 Managing resources responsibly.	<ul style="list-style-type: none"> <li>Employee satisfaction with NRCan management practices (survey, upward feedback).</li> <li>Extent to which core organizational competencies are met (initially reporting on training and development).</li> <li>Savings realized from streamlining administrative processes, innovative service delivery, electronic commerce, improved facilities management, and IT bulk purchasing and contracts (dollars, time).</li> </ul>
5.2 Continuously improving NRCan products, services and operations.*  * <i>An indicator on policy capacity to be developed.</i>	<ul style="list-style-type: none"> <li>Response to recommendations from audits, evaluations, and other studies of NRCan management and operations.</li> <li>NRCan score on the National Quality Institute/TBS Quality Fitness Test.</li> </ul>
5.3 Strengthening partnerships and transferring knowledge.	<ul style="list-style-type: none"> <li>Total funds and in-kind support leveraged by NRCan from shared S&amp;T projects.</li> <li>Uptake of NRCan-supported knowledge, technologies, and practices.</li> </ul>
5.4 Continuously improving S&T management.	<ul style="list-style-type: none"> <li>Progress towards the implementation of NRCan's S&amp;T Management Framework.</li> </ul>

### **Management Goal 5 (cont'd)**

<p><b>5.5 Promoting a stronger science culture.*</b></p> <p><i>* An indicator on science capacity to be developed.</i></p>	<ul style="list-style-type: none"> <li>• Public awareness of the importance and relevance of NRCan's S&amp;T.</li> <li>• Number of recipients and value of NRCan science training initiatives (grants, scholarships, co-op students and internships)</li> </ul>
<p><b>5.6 Putting our Own House in Order</b> - Using leading-edge environmental management tools and practices for NRCan operations.</p> <p>Reducing wastes from NRCan operations.</p> <p>Increasing the efficiency of energy and other resource use in NRCan operations.</p> <p>Promoting the use of goods and services that are eco-efficient.</p>	<ul style="list-style-type: none"> <li>• Level of response to international standards in improving the Environmental Management System.</li> <li>• Application of environmental audits and evaluations to NRCan operations.</li> <li>• Amount of total waste from NRCan operations per year.</li> <li>• Amount of greenhouse gases from NRCan operations.</li> <li>• Number of vehicles and proportion of fleet converted to alternative fuels.</li> <li>• Energy consumption in NRCan buildings per square metre per year.</li> <li>• Water consumption in NRCan buildings per year.</li> <li>• Rate of purchasing by NRCan of environmentally friendly goods and services.</li> </ul>

## E. List of Statutes

### Acts for which the Minister of NRCan is the Sole Responsible Minister:

*Atomic Energy Control Act*

*Beauharnois Light, Heat and Power Company Act* <sup>(1)</sup>

*Canada-Newfoundland Atlantic Accord Implementation Act*

*Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act*

*Canadian Wheat Board Act*

*Canadian Home Insulation Program Act* <sup>(2)</sup>

*Canadian Exploration Incentive Program Act* <sup>(2)</sup>

*Canadian Exploration and Development Incentive Program Act* <sup>(2)</sup>

*Canadian Ownership and Control Determination Act*

*Cape Breton Development Corporation Act*

*Cooperative Energy Act*

*Department of Natural Resources Act*

*Energy Supplies Emergency Act*

*Energy Monitoring Act*

*Energy Administration Act*

*Energy Efficiency Act*

*Explosives Act*

*Forestry Act*

*Hibernia Development Project Act*

*Home Insulation (N.S. and P.E.I.) Program Act* <sup>(2)</sup>

*International Boundary Commission Act*

*Nuclear Safety and Control Act* <sup>(3)</sup>

*Nuclear Liability Act* <sup>(3)</sup>

*Oil Substitution and Conservation Act*

*Petroleum Incentives Program Act* <sup>(2)</sup>

*Prairie Grain Provisional Payments Act*

*Provincial Boundaries Acts*

(1) This is actually the following four separate statutes:

S.C., 1931, c. 19 Act Respecting the Beauharnois Light, Heat and Power Company, Limited

S.C., 1931, c. 20 Act to Declare Certain Works of the Beauharnois Light, Heat, and Power Company, Limited to be for the General Advantage of Canada

S.C., 1940, c. 20 Act Respecting the Beauharnois Light, Heat and Power Company

S.C., 1947, c. 46 Act Respecting the Beauharnois Light, Heat and Power Company

(2) Act in force but dormant

(3) Act has received Royal Assent but will come into force on a day when an Order of the Governor in Council is fixed

## **Acts for which the Minister of Natural Resources has shared Responsibility**

<i>Arctic Waters Pollution Prevention Act</i>	Minister of Transport; Minister of Indian Affairs and Northern Development; Minister of Natural Resources
<i>Canada Oil and Gas Operations Act</i>	Minister of Indian Affairs and Northern Development (in relation to any lands in respect of which that Minister has administrative responsibility for the natural resources therein); Minister of Natural Resources (in relation to any lands in respect of which that Minister has administrative responsibility for the natural resources therein)
<i>Canada Lands Surveys Act</i>	Minister of Natural Resources (except Part III); Minister of Indian Affairs and Northern Development (Part III)
<i>Canada Petroleum Resources Act</i>	Minister of Natural Resources; Minister of Indian Affairs and Northern Development
<i>National Energy Board Act</i>	Minister of Natural Resources (1994, c. 41, s. 37(2); Minister of Transport (ss. 108-111)
<i>Resources and Technical Surveys Act</i>	Minister of Natural Resources; Minister of Fisheries and Oceans (1978-79, c. 13, s. 34); Minister of the Environment (c. 14 (2 <sup>nd</sup> Supp), s. 9) see s. 2 of the Act

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