Natural Resources Canada

1999-2000 Estimates

A Report on Plans and Priorities

Approved

Ralph Goodale
Minister of Natural Resources Canada

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NRCan's 1999-2000 Report on Plans and Priorities

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Thank you for your cooperation

Table of Contents

I Minister's Message

Ralph Goodale
Minister of
Natural Resources Canada

I am pleased to present the 1999-2000 Report on Plans and Priorities for Natural Resources Canada (NRCan).

Canada's rich natural resources and the industries they support have long been a foundation of our country's economic strength. The natural resources sector is now transforming itself into a high-technology sector. Forestry, energy, minerals and metals, earth sciences, and other resource industries are competing as major-league players in the global market. And they are working to ensure the sustainable development of Canada's natural resources.

A Vision for Canada's Natural Resources Sector

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

All areas of natural resources are generating new opportunities. Growth — in jobs, revenues and markets — is written all over this sector. This expansion will include knowledge, new technologies and value-added goods and services for markets opened up by global trade.

Natural resources will continue to play a central part in Canada's future, remaining one of our country's biggest national breadwinners and a leading source of income and trade for the 21st century. The sector will provide new, high-quality jobs for Canadians in every region of Canada, including young people, Aboriginal people and those in rural and remote areas. To stay competitive, all Canadians have to work together to tackle environmental problems, enhance productivity and maximize the benefits of our natural resources heritage.

As Minister of Natural Resources Canada, I have made it a priority for my department to support a generation of knowledge-based, value-added natural resource firms. NRCan is well positioned to guide this sector. It is Canada's foremost centre of scientific knowledge and research for natural resources. Armed with informed and innovative policies and sound science, NRCan is addressing the many challenges facing our country as we enter the new century, including 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.

My department is committed to ensuring that both present and future generations of Canadians continue to reap the full benefits of our rich natural resources heritage. To make our vision a reality, we need to ensure that government policies and activities are complementary and build on each other. NRCan must use its partnerships and expertise in policy development and in science and technology to help Canada become the “smartest” developer, user and exporter of natural resources.

A major challenge for all Canadians is addressing the issue of climate change and helping Canada meet its commitments on reducing greenhouse gas emissions. NRCan will continue to play a major role in the efforts to address this challenge. Reaching our climate change target will mean changes in how we generate and use energy, how we move people and goods, how we heat our homes and how we produce goods. These changes will require some difficult choices and new capital investment, but will also lead to opportunities for economic expansion, job creation, technological innovation and export growth.

Our goal is to marry strong environmental and social performance with equally strong economic performance. This is what Canadians need, and this is what we seek to deliver.

II Departmental Overview

Our Mission

Natural Resources Canada provides the knowledge and expertise for the sustainable development and use of Canada's natural resources and the global competitiveness of the resource and related sectors for the well-being of present and future generations.

(Additional information can be found on NRCan's website at http://www.nrcan.gc.ca).

A. Introduction

NRCan's day-to-day operations are shaped by two guiding themes – sustainable development and good governance. The Department has established long-term goals that respond to the challenges of ensuring sustainable resource development and good governance: to enable Canadians to make balanced decisions regarding natural resources; to sustain the economic and social benefits derived from natural resources for present and future generations; to minimize the environmental impacts of natural resource development and use; to contribute to the safety and security of Canadians; and, to manage the Department efficiently and effectively.

Sustainable Development

The concept of sustainable development presents a very real challenge for Canadians. We rely on resources for a high standard of living and quality of life but, at the same time, want to ensure that they are used efficiently and that our natural environment is protected. We view the concept of resource development as an opportunity creator while recognizing that we must hold adverse impacts on the environment to a level safeguarding the ecological functions of ecosystems that support life. NRCan's five goals are based on the principle of sustainable development which 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 the future.

Good Governance

Canadians are concerned about the quality of their government. As our society grows and changes, and as we continue to contain the cost of government, increased responsiveness and accountability remain a necessity. Jurisdiction, sound policy development, efficient program delivery, and the need to make the best possible use of limited resources all need to be taken into account.

An adaptable workforce and commitment to improved service delivery will continue to be essential to the provision of high-quality government. Good governance is the guiding principle for furthering the public good in such areas as protecting public health and safety, strengthening the federation, and providing public services that are responsive to the needs of citizens. It is exercised through partnerships with other levels of government and a broad range of stakeholders.

B. External Factors

Challenges of the Knowledge-based Economy

On the threshold of the 21st century, Canada's natural resources sector faces three critical challenges:

- ensuring that resource development and use are sustainable;
- remaining internationally competitive in the knowledge-based and globalized economy; and,
- maintaining an infrastructure and business climate that attracts investment in the natural resources sector.

Among the specific trends and factors influencing the Department's strategic directions are:

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 Canada's commitment of six percent below 1990 levels by the period 2008 to 2012.

By signing the Kyoto agreement in December 1997, 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.

Innovation

Innovation is essential if Canada is to maintain and expand its global market share in the new international environment and to develop and market the new value-added products and services in demand internationally. Recent studies from the Organization for Economic Cooperation and Development (OECD) have suggested that Canada is experiencing an innovation gap, evident in low investment in research and development and relatively slow uptake of advanced technologies by Canadian industries.

As Canada's foremost centre for natural resource science and technology (S&T), NRCan has a central role to play. The Department must enhance its policy, program and science capacity as well as its laboratory equipment and facilities. Partnerships with other federal government departments, other levels of government, industry and universities are essential if Canada is to succeed.

Canada's International Interests

NRCan promotes global policies and agreements in the areas of trade, environment and social policy, which advance Canadian objectives relative to natural resource stewardship, products, technologies and services.

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.

Trends in Employment Levels and Labour Market Skills

Today's resource industries rely on scientific discoveries and the use of new technologies and processes. In the mining industry, for example, advanced technologies contributed to a 69 per cent increase in labour productivity between 1985 and 1995.

Investment in resource-related S&T increases skill requirements and pay scales and opens up new job opportunities in resource-related knowledge and service industries. Conversely, investment in technology results in job losses in primary industries as new technologies reduce the demand for labour. The federal government has pledged to help Canadians adapt to and take advantage of these changes, working in partnership with natural resource sector stakeholders. NRCan is committed to developing new scientific and policy knowledge, expertise and approaches to strengthen these partnerships.

Increasing Competition in International Markets and Investment

Canada's foreign competitors are pushing hard to increase their market share in natural resources. NRCan, in partnership with Industry Canada and other government departments (OGDs), is working to create the conditions in which strong value-added industries can develop and prosper. While recognizing the intense competition faced by these industries in today's open trading environment, NRCan believes our producers can meet this challenge and contribute to Canada's prosperity by building on our strengths within a supportive environment which respects our international trade obligations and the need for economic efficiency. These pressures are domestic as well. Increasingly, consumers are demanding that the products they purchase meet high environmental standards.

Building Consensus

The first step in mobilizing a national response to the challenges ahead is consensus among stakeholders of a vision for the future of the natural resource sector. Governments, industry, Aboriginal organizations, environmental groups and communities must cooperate on the basis of general agreement on critical issues of natural resource development if Canada is to become the world's "smartest" natural resource developer and user.

Science and Technology

In our knowledge-based society, information on Canada's land and resources and leading edge resource-based technologies are key to achieving government objectives. The S&T activities of the Department constitute an important element of NRCan's role in supporting sustainable resource development and the international competitiveness of Canada's natural resource sector.

That the Department allocates 75 cents of every dollar it spends to S&T activities demonstrates the importance it places on science and technology.

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.

For information on NRCan's S&T programs, consult the website at
http://www.nrcan.gc.ca/dmo/spcb/stlinks/st_links_e.htm

An Action Plan for Winning in the Knowledge-based Economy

Canada's continued prosperity in the 21st century will depend, in large part, on the ability of the natural resource industries to adapt to unprecedented change and competition in global markets. The ability of the sector to stay ahead of its competitors will depend in large part on its ability to innovate.

In particular, it will depend on the capacity of Canadian resource-based industries to develop lower-cost, value-added, environmentally sound products, technologies and services for the world market.

Winning in the Knowledge-based Economy – NRCan's action plan, designed to help Canada's natural resources sector meet the challenges it faces, calls for action in the following five areas:

- creating national consensus;
- tackling climate change;
- multiplying work opportunities;
- increasing resource trade and investment; and,
- spurring resource innovation.

This Report on Plans and Priorities addresses both departmental and government-wide goals. It also covers both ends and means – describing not only scientific, technical and operational objectives – but also the financial, administrative and management requirements for achieving these goals.

Knowledge

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.

C. Chart of Key Results

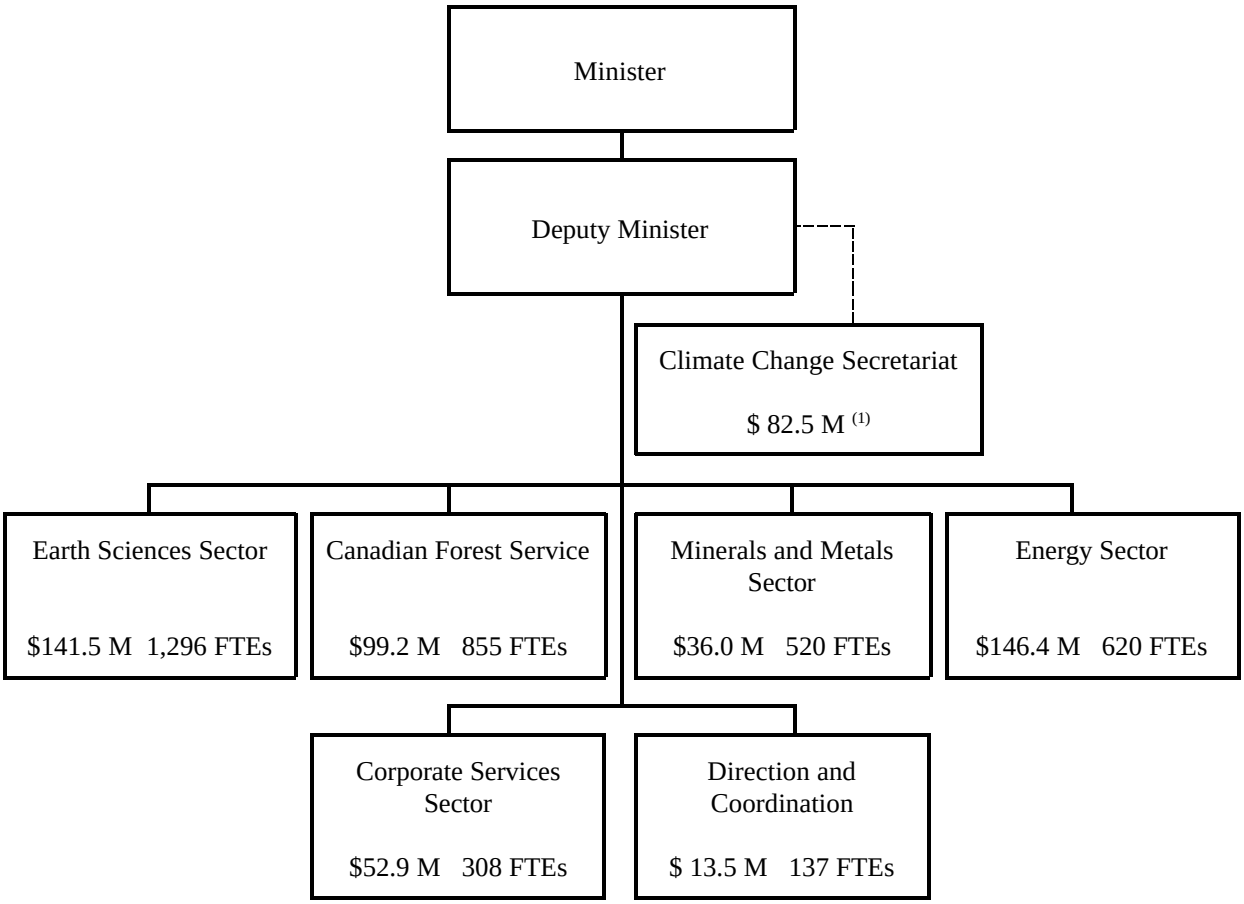
This Chart of Key Results consists of goals and objectives representing the top layer of the Department's overall draft Performance Measurement Framework. NRCan's complete framework, including of draft indicators and targets, can be found on page 53. Programs and initiatives to achieve these goals can be found in Section III, starting on page 12 of this report.

Goals	Objectives
1) To enable Canadians to make balanced decisions regarding natural resources.	• 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. • Promoting greater national and international cooperation and consensus on sustainable development issues, policies, goals and actions. • Developing and promoting fiscal, regulatory and voluntary approaches that encourage the sustainable development of natural resources.
2) To sustain the economic and social benefits derived from natural resources for present and future generations.	• 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. • Building the capacity of Aboriginal, rural and northern communities to generate sustainable economic activity based on natural resources.
3) To minimize the environmental impacts of natural resource development and use.	• Helping limit and adapt to climate change. • Promoting science, technology and stewardship practices that reduce environmental impacts, conserve biodiversity, and increase the efficiency of natural resource development and use. • Safeguarding Canadians from the risks associated with natural resource development and use.

Goals (continued)	Objectives
4) To contribute to the safety and security of Canadians.	• Safeguarding Canadians from natural hazards. • Maintaining a national framework for spatial positioning, mapping and boundary maintenance. • Promoting the safe use of explosives and pyrotechnics.
5) To manage the Department efficiently and effectively.	• Managing NRCan's resources responsibly. • Continuously improving NRCan products, services, and operations. • Using leading-edge environmental management tools and practices for NRCan operations. • Reducing wastes from NRCan operations. • Increasing the efficiency of energy and other resource use in NRCan operations. • Promoting the use of goods and services that are eco-efficient.

D. 1999-2000 Organization Chart

NRCan delivers on its goals and objectives with strong internal interdependency and sharing of knowledge and expertise across the following organizational groups and sectors:



The Earth Sciences Sector (ESS) provides the comprehensive geoscience and geomatics knowledge base to support public sector activities in Canada and investment decisions and operations by the Canadian private sector at home and overseas. It extends logistics support to Arctic science through the Polar Continental Shelf Project. Geomatics Canada provides topographic maps and aeronautical charts, legal surveys of Canada Lands, geodesy for precise positioning, and applications of remotely-sensed earth observation data. Through the Geological Survey of Canada, ESS provides the framework for mineral and petroleum exploration and helps Canadians mitigate the impact of hazards such as earthquakes and toxic substances in the environment.

(1) The Climate Change Secretariat reports to the Deputy Ministers of NRCan, Environment Canada and Industry Canada. The resources for 1999-2000 are allocated as follows: $60.0 million to NRCan, $15.8 million to Environment Canada and $6.7 million to Industry Canada.

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 establishment and ten national science research networks operating out of five forestry research centres located across Canada.

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. MMS promotes globally the safe use of minerals and metals, as well as the application of sound science to decisions involving minerals and metals, and facilitates the development of domestic and international partnerships to address important challenges concerning the responsible development and use of minerals, metals and their products.

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 technical innovation, 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.

Direction and Coordination consists of the Department's Executive Offices as well as a Strategic Planning and Coordination Branch, Legal Services, Communications Branch, and an Audit and Evaluation Branch.

E. Financial Spending Plan

($ millions)	1998-1999 Planned Expenditures	**1999-2000 Planned Expenditures**	2000-2001 Planned Expenditures	2001-2002 Planned Expenditures
Budgetary Gross Reference Levels	502.2	**546.7**	560.7	534.0
Plus: Planned Spending Items *	41.2	**40.1**	16.2	15.5
Gross Program Spending	543.4	**586.8**	576.9	549.5
Less: Revenue Credited to the Vote	19.6	**22.2**	22.3	22.3
Net Program Spending	523.8	**564.6**	554.6	527.2
Less: Revenue Credited to the Consolidated Revenue Fund	9.5	**4.8**	4.8	4.8
Plus: Non Budgetary	37.9	**39.4**	7.8	-
Plus: Cost of Services provided by other departments	23.0	**27.6**	27.6	27.6
Net Cost of Natural Resources Canada	575.2	**626.8**	585.2	550.0

* These Planned Spending figures include announcements made in the 1999 Budget Speech along with $25 million in reprofiling for the Climate Change Action Fund from 1998-1999 to 1999-2000. Resource profiles may change via the appropriate authorization mechanisms.

NRCan is in the process of shifting its reporting structure from business lines – S&T, developing federal policy and regulations, promoting Canada's international interests, knowledge infrastructure, corporate management and administration, Geomatics Canada Revolving Fund, and Sunset/Special Programs – to the goals shown in this report. One of the main repercussions of this shift is a disconnect in this year's report between textual and financial information. Consequently, NRCan's financial reporting system will be "re-tooled" and the situation corrected by April 1, 2000.

III Anticipated Results

Introduction

This section summarizes NRCan's anticipated results by the Department's five goals and supporting objectives. Its structure is based on the Department's draft Performance Measurement Framework, which guides the preparation of all required Expenditure Management System (EMS) planning and reporting documents, as well as all other reporting requirements such as the Department's Sustainable Development Strategy and the S&T Management Framework.

As one of the five pilot departments for this year's Report on Plans and Priorities, the Department has opted to present its anticipated results in the form of an integrated policy-science "storyline" over the planning period. This storyline approach reflects the horizontal management of the Department, presents examples of high-level results that support its five goals, and integrates information from key planned reviews and legislative initiatives. Information about anticipated results not appearing in this report can be found on the various web sites shown on pages 60 and 61, and is also available within sectors as part of their business and operational plans.

NRCan's anticipated results will be delivered in collaboration with other federal departments, provincial governments, industry, academia and key stakeholders. Associated costs have been factored into the storyline, where available.

GOAL 1

Goal 1

To enable Canadians to make balanced decisions regarding natural resources.

Why This is Important

As indicated in the introduction to Section II, 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 the best available scientific, technical and community-based knowledge in an easily understood format. NRCan's role is to influence the natural resource development decisions of federal and provincial governments, industry and consumers. It does this by providing balanced information and the latest scientific and technical knowledge, by promoting consensus on key issues and actions, and by supporting innovative policies, regulations and programs that actively promote sustainable development.

Goal 1 (continued)

Easily Accessible and Integrated Knowledge

Objective 1.1 – 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

The most recent Speech From the Throne stated, as one of its priorities, the need to invest in knowledge and creativity. NRCan is committed to integrating its information holdings and to ensuring that clients and stakeholders have an enhanced single-window access to its electronic files, especially in emergency situations. Our departmental knowledge initiatives such as *ResSources*, GeoConnections (formerly known as the Canadian Geospatial Data Infrastructure), and the Climate Change Information Project, will be developed with partners and placed on the information highway. This will enable Canadians to obtain world-class data on Canada's landmass and natural resources, as well as the economic, environmental and social dimensions of their use. An internal review of *ResSources* will identify risks and provide ongoing advice and assistance at the project level.

In addition to the development of these departmental information systems, the Department will develop and refine a variety of databases and systems that are resource-sector specific. These will include, for example:

- SoftAccess, NRCan's award-winning suite of integrated systems to provide easy access to information on a wide spectrum of mining and mineral industry statistics;
- the Canadian Spatial Referencing System (CSRS), which serves as the reference base for Canadian geospatial information and navigation that is consistent with global standards; this supports mapping, charting, boundary demarcation, transportation, economic development, national defense and public safety;
- the development of a National Forest Inventory to scientifically monitor, measure and report trends in the health and sustainability of Canada's forests;
- the Canadian Geoscience Knowledge Network, a collaborative initiative with provincial and territorial agencies, will form the geoscience content of GeoConnections, providing access to essential information;
- the National Energy Use Database to generate information on energy end-use in the residential, agricultural, commercial, institutional, industrial and transportation sectors ($1.9 million in 1999-2000);
- on behalf of the Inter-Agency Committee on Geomatics and the Canadian Council on Geomatics, the GeoConnections components, developed with partners, will provide a showcase of geographical land information, including an on-line ordering system of geospatial products and services (CEONet, GeoCommerce and GeoGratis);

Goal 1 (continued)

- on behalf of the Canadian Council of Forest Ministers (CCFM), the management of Canada's National Forest Database to ensure that stakeholders and users have access to complete and current national forest information; and,

- the National Forest Information System that integrates federal and provincial inventory and geographic information to respond to forest policy issues ($483,000 in 1999-2000).

NRCan's knowledge-based initiatives also incorporate the concept of developing, testing and transferring science and technologies, sustainable resource management practices and techniques to stakeholders and users. For example, NRCan will develop national cooperative strategies to transfer advanced genetics and tree biotechnology to forest managers responsible for tree breeding in Canada; further refine and review the potential of transferring its Spruce Budworm Decision Support System for use in insect protection in Russia, Finland and the United States ($705,000 in 1999-2000); and develop and transfer forest regrowth succession models designed to predict the effects of natural disturbances (e.g. fire and insects) on forest landscapes and vegetation to improve our understanding of environmental effects on forest productivity ($1.05 million in 1999-2000).

The preparation and distribution of national reports also serve as important vehicles for communication and knowledge transfer. For example, NRCan will continue to prepare statistical reports on mineral exploration spending, levels of ore reserves, international competitiveness and productivity in Canada's minerals and metals industry, and will prepare its annual reports to Parliament on the state of Canada's forests and energy efficiency.

In addition to legislated annual reports, a number of studies will be conducted on the social and economic impact of natural resource development on Aboriginal, rural and northern communities. These will be developed and integrated in the employment component of the Government's Northern Development Strategy.

Cooperation and Consensus are Key to Sustainable Development

Objective 1.2 – promoting greater national and international cooperation and consensus on sustainable development issues, policies, goals and actions

The first step in mobilizing a national response to challenges is a broad base of cooperation and consensus among stakeholders on the future of the natural resources sector. Consensus on sustainable development will become the basis for protecting existing resource-based benefits and building new opportunities in the knowledge-based economy.

NRCan will co-manage the federal process to develop a National Implementation Strategy on the mitigation and adaptation to climate change. This is being carried out in collaboration with Environment Canada, the Department of Foreign Affairs and International Trade (DFAIT), the Climate

Goal 1 (continued)

Change Secretariat, the Canadian Council of Ministers of the Environment, and other partners. Consultations with these stakeholders and others are essential to reaching Canada's emission reduction target. Furthermore, the National Energy Efficiency Conference and Trade Show in May 1999, with participants from Canada and abroad, will be one of the vehicles to promote greater awareness, a chance to share experiences on how to meet our climate change commitments, and to recognize the organizations that are most energy efficient.

In addition, the implementation of the action plans to address the commitments in the *National Forest Strategy (1998-2003)* by the Canadian Council of Forest Ministers and the various signatories of the Canada Forest Accord will help ensure that the forest community in Canada agrees on sustainable forest management principles and their application ($1.0 million over five years). NRCan will also implement Canada's new S&T course of action to shape the future of forest S&T management in Canada and set national priorities.

In an effort to measure progress toward sustainable forest management, the Department and its partners will continue to support national and international initiatives related to the development of criteria and indicators.

In a similar vein, NRCan supports the development of tools and testing of new and innovative forest management practices for transfer to partners through its Model Forest Program. This Program is conducted in collaboration with eleven local-level forest partnership groups ($8.0 million in 1999-2000).

Through a variety of means, NRCan promotes globally the responsible development and use of minerals and metals. This includes the transfer and dissemination of technology under the terms of bilateral and multilateral agreements as well as cooperation and dialogue on policy matters through regional fora (e.g., Asia-Pacific Economic Cooperation - Expert Group on Mineral and Energy Exploration and Development) and multinational bodies (e.g., United Nations Commission on Sustainable Development).

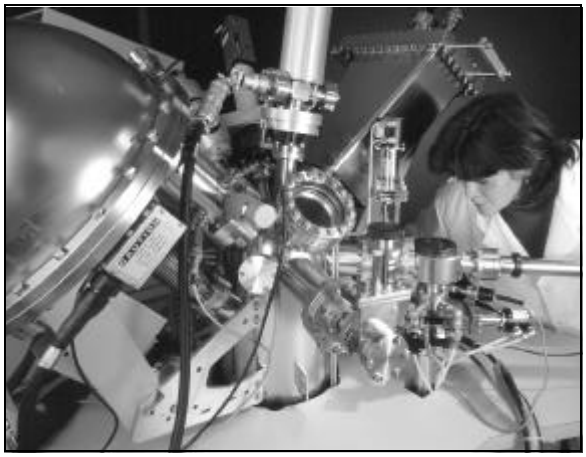
Participation in the 1999 Mines Ministers of the Americas Conference (MMA) in Mexico is yet another example of the Department's commitment to promote the sustainable development of minerals and metals internationally. This will reinforce Canada's leadership in the MMA process and underline Canada's role as a strong international player.

Partnerships with other federal departments, provincial and territorial agencies, Aboriginal organizations, academia, industry and international agencies are key to the delivery of NRCan's mandate. For example:

- NRCan is working to establish the Canada Micro-Characterization Centre which will provide invaluable training opportunities for Canadian graduate students with respect to value-added materials;

Goal 1 (continued)

- in collaboration with universities, industry and other federal and provincial government agencies, the Research Partnership Agreement with the Natural Sciences & Engineering Research Council (NSERC) will be implemented for geoscience and geomatics research projects, and the recently approved GeoID (Geomatics for Informed Decision-Making) Networks of Centres of Excellence Program will undertake research and development to facilitate further growth for Canada's world class geomatics industry; both initiatives support integrated social, environmental and economic decision-making which impact on the sustainable development of natural resources and the health, safety and security of Canadians; and,
- under the Geoscience Accord and associated bilateral accords with provinces and territories, collaborative projects will be conducted to stimulate resource exploration and facilitate sustainable development decision-making.



Analysis of Surface Solids Using a Spectrometer

Fiscal, Regulatory and Voluntary Approaches

Objective 1.3 – developing and promoting fiscal, regulatory and voluntary approaches that encourage the sustainable development of natural resources

Canadians understand that natural resources play an important role in their everyday lives, and that the sustainable development of these resources holds the key to future benefits for every sector of society and for future generations. If Canadians are to play a meaningful role in sustainable development decisions, NRCan has a responsibility to provide them with the best possible fiscal and regulatory information to allow them to make an informed contribution.

Toward this end, NRCan is working to ensure Canada gets the maximum possible economic and social benefits from its resource endowment consistent with sustainable development. A fundamental goal is to allow Canada to compete effectively for mineral investment by maintaining a positive investment climate and by ensuring that investors have accurate information on the advantages of investing in Canada.

While mining regulations are, in the first place, intended to achieve environmental and other goals, they also need to be designed with the needs of the investor in mind. In this regard, NRCan will prepare a report on the costs of environmental assessments to

Goal 1 (continued)

Canada's mining industry and will develop an Internet-based information system (MINTRACK) to enhance regulatory efficiency through information exchange. Furthermore, the Department is assessing, with responsible authorities, a number of possible improvements flowing from the recent federal/provincial/territorial review of environmental mining regulations. All of this work complements actions being taken to implement the Government's response to the recommendations of the House of Commons Standing Committee on Natural Resources and Government Operations on streamlining the environmental regulatory regime for mining.

With a view to improving Canada's mineral investment climate, NRCan will work with Revenue, Finance and Justice Canada in the administration of Canada's mining taxation regime. The Department will provide the technical basis for clear interpretation of mining tax provisions in federal statutes; assist in eliminating ambiguities in tax legislation; and assist in situations where litigation becomes necessary.

NRCan will work toward achieving the objectives of the Metals in the Environment (MITE) initiative in collaboration with other departments, mainly Environment Canada. Geoscientific research will be conducted and available to understand the results of metals studies will be completed and made released naturally from bedrock into soils and the processes which affect its distribution in the environment. These studies are crucial to the development of effective national and international environmental policies and regulations.

Voluntary initiatives are an important tool in NRCan's strategy to promote energy efficiency and renewable energy in all sectors of the economy. Toward that end, the Department will continue to engage Canadian organizations – which account for 70 percent of Canada's greenhouse gas emissions – in the Voluntary Challenge and Registry Program. More than 700 organizations have registered so far. Through the Canadian Industrial Program for Energy Conservation (CIPEC), NRCan will also continue to work with the industrial sector to increase energy efficiencies and reduce greenhouse gas emissions. Most sectors have committed to energy intensity improvements of one per cent per year. As well, in partnership with Industry Canada, NRCan is promoting voluntary initiatives by natural resource industries to conserve wildlife and habitat, and is illustrating voluntary biodiversity protection efforts by compiling inventories of current industry practices.

* *

Summary of Anticipated Results for Goal 1

To enable Canadians to make balanced decisions regarding natural resources.

Easily Accessible and Integrated Knowledge

- quick/easy electronic access to landmass and natural resource information by government organizations, businesses, academia and individuals under the *ResSources* framework
- electronic access to natural resource-specific databases and systems
- transfer of S&T technologies and sustainable resource management practices and techniques to stakeholders and users
- various annual statistical reports, reports to Parliament and impact studies

Cooperation and Consensus are Key to Sustainable Development

- progress toward cooperation and consensus on future of the natural resource sector
- a National Implementation Strategy on the mitigation and adaptation to climate change
- environment, health and safety concerns addressed for minerals and metals
- a common understanding and application of sustainable forest management practices
- resource exploration and sound environmental decision-making through geoscience mapping and research
- growth of Canada's geomatics industry through scientific research on geomatics applications

Fiscal, Regulatory and Voluntary Approaches

- a positive investment climate to effectively compete for mineral investment dollars
- development of effective national and international environmental policies and regulations
- increased energy efficiency and reduced greenhouse gas emissions

GOAL 2

Goal 2

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

Why This is Important

The natural 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 natural resource-based industry that makes fewer demands on the environment, creates economic opportunities and provides greater stability to Canadian communities.

Economic and Social Benefits

Objective 2.1 – creating economic opportunities and encouraging investment in innovative and higher-value uses of natural resources

Expert S&T, policy advice and innovation are essential if Canada is to maintain and expand its market share in the new global economy.

The Department will, therefore, work with the mining industry to enhance competitiveness through increased efficiencies. For example, it will develop, with its partners, non-explosive rock breaking technology, which eliminates the need for miners to wait while harmful gases associated with traditional explosives are removed after each blast. NRCan will also develop a practical analytical methodology, in partnership with a consortium of mining companies from Canada, Australia, South Africa and New Guinea, to control lead nitrate addition rates in the gold production process, thereby optimizing chemical consumption, increasing gold recovery and reducing overall processing costs.

As tax treatment is a key component of our investment climate, NRCan is currently leading a government-industry study group in evaluating the recommendations of the Technical Committee on Business Taxation as they relate to mining. The Department will also prepare a major report dealing with the international competitiveness of Canada's mining taxation regime.

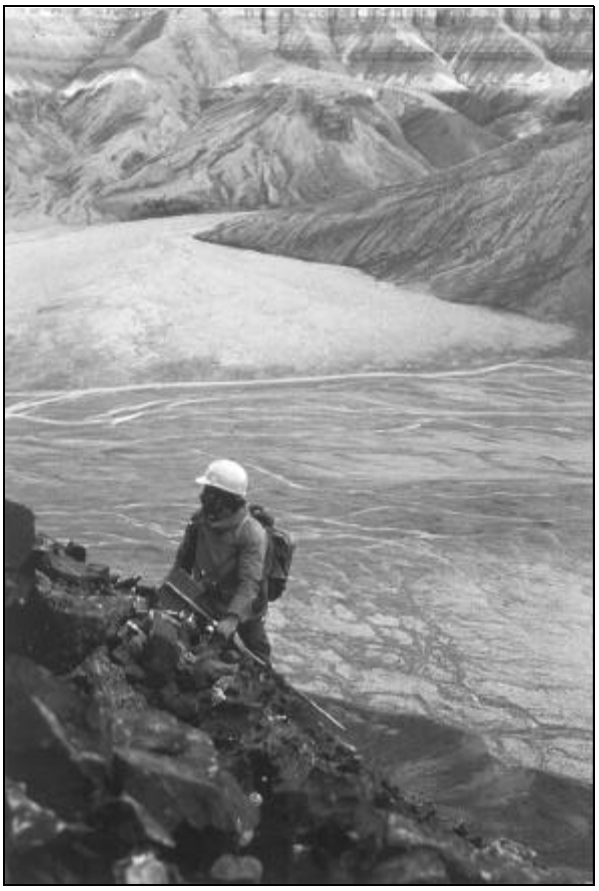
NRCan will work to ensure that improvements to Canada's mineral investment climate are reflected where it counts, i.e. in decisions by investors worldwide, by strategic activities aimed at publicizing the benefits of investing in Canada. In this regard, NRCan, with provincial and industry support, will organize investment seminars in select locations and participate in major international mining events. This will include a ministerial-led

Goal 2 (continued)

mission and involvement by NRCan's Deputy Minister in the Country Champion Program of Investment Partnerships Canada. The Department will also continue to participate in Team Canada missions and related activities.

To address national issues related to understanding the geological framework of the nation, stimulate exploration for new mineral and hydrocarbon deposits, and examine groundwater preservation and flood risk assessment, the Department will continue to work with provincial governments and industry on a number of major, cost-shared initiatives. Projects under NRCan's National Geoscience Mapping Program (NATMAP) are addressing these important issues in Ontario, Manitoba, the Northwest Territories (NWT), the Yukon, and the interior of British Columbia. NRCan's Hydrogeology program will continue to examine regional groundwater supply issues through projects in the greater Winnipeg and Portneuf areas, in partnership with provincial and municipal agencies. In addition, the Department, in partnership with NSERC, will continue its work on the LITHOPROBE project. This project enhances the understanding of the geological evolution of northern North America, using subsurface information, in support of exploration for minerals and hydrocarbon resources.

In an effort to address declining base metal reserves in Bathurst, New Brunswick, the five-year Exploration Science and Technology project (EXTECH II) will be completed. The comprehensive results from this study will provide industry with expanded knowledge for renewed mineral exploration in this region and serve as a basis for targeting future exploration for similar deposits in Canada and throughout the world. In addition, a new three-year EXTECH project, jointly supported by NRCan, the Government of the Northwest Territories, the Department of Indian Affairs and Northern Development (DIAND) and local mining companies, will address the problem of declining gold reserves in the Yellowknife mining district.



Geoscience mapping in the North

Goal 2 (continued)

In support of job creation, NRCan will continue to identify business opportunities for resource-based products, knowledge, technologies and services. For example, the development of Canada's bituminous oil sands will offer major economic benefits to Alberta and Saskatchewan, as well as spinoff benefits in other parts of Canada. Over $24 billion in new investment has been announced since 1995. The Department will continue to encourage a positive framework of fiscal and economic policies, and to work with other federal and provincial agencies to ensure that environmental and social issues associated with bituminous sands development are addressed. As well, technologies that will improve the energy efficiency and competitiveness of oil sands, heavy and conventional oil, and natural gas will be developed and transferred, thereby providing economic benefits while reducing greenhouse gas and other undesirable emissions ($5.6 million in 1999-2000).

To further develop the renewable energy market, the use of reliable, cost-effective renewable energy systems will be encouraged through the Renewable Energy Deployment Initiative and by proposing new initiatives for reducing greenhouse gas emissions ($3.9 million in 1999-2000).

In an effort to reduce the energy costs of buildings and fleets, NRCan will increase its partnerships with organizations in various energy end-use sectors. It will do so through initiatives such as Energy Innovators, FleetSmart, and the Federal Buildings Initiative (FBI) ($5.5 million in 1999-2000 for all the above). In addition to reducing greenhouse gas emissions, these energy savings will lead to economic benefits through reduced operating costs and increased competitiveness. An evaluation study of the FBI will assess whether it is meeting its stated objective, as well as identifying the impacts and lessons learned.

The Department will continue to conduct energy impact studies to identify and measure the economic, social and environmental impacts of its projects.

In the Mackenzie/Beaufort Sea, the Department's work on the jointly-funded Mallik research well will provide critical information on the formation processes of gas hydrates (a form of natural gas) in permafrost and the feasibility for future energy development. The project will also support studies of gas hydrates and their impact on climate change.

In consultation with the Minister of Finance, the Minister of NRCan will oversee a process to privatize the operations of the Cape Breton Development Corporation (DEVCO). Final approval of any sales agreement, expected to be completed in 2000, will require the approval of DEVCO's Board of Directors and Parliament.

NRCan and the Atlantic Canada Opportunities Agency (ACOA) will develop a strategy for investing and delivering an approved $68 million for economic development in Cape Breton. ACOA will deliver the elements of the strategy, which will focus on long-term job creation, economic development and diversification opportunities.

Goal 2 (continued)

Expanded Access to International Markets

Objective 2.2 – maintaining and expanding access to international markets for Canadian resource-based products, knowledge, technologies and services

Sustainable development is 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.

NRCan recognizes that Canadian companies must adopt advanced materials and technologies to be competitive in the international market. It will, for example, promote energy-efficient manufacturing processes, such as metal powder injection molding as a high-speed means of manufacturing small, intricate parts with little or no wastage of material. This technology will target specific markets such as sporting goods, fine gears, and other parts requiring excellent quality and durability.

Stimulating resource exploration, business growth and job creation is important to Canada. In this context, the Department will continue to assist the Canadian geoscience and geomatics industry in maximizing global markets opportunities through the implementation of a five-year International Business Strategy and trade missions. For example, a Latin American Trade Office was established in the fall of l998 in Buenos Aires, Argentina with the primary objective of increasing gross revenues of Canadian geomatics industry exports in Latin America to at least $30 million over three years. This export activity will enhance the international competitive advantage of Canadian firms in securing and servicing geomatics projects, reduce the risk and cost of doing business in Latin America, and provide small and medium-sized firms opportunities to participate on larger projects.

The Department's commitment to this objective is further demonstrated by its work on energy partnership programs that will result in increased market share of Canadian oil and natural gas in the United States (U.S.), and increased international market access for renewable and building energy technologies. For example, NRCan will help the competitiveness of Canadian energy-efficient housing technologies in Japan.

To address sustainable development and socio-economic issues in developing countries, NRCan will complete three major geoscience projects in Africa and South America; it will also continue to work on two minerals and metals environmental projects presently underway in South America. These projects are sponsored largely by the Canadian International Development Agency (CIDA) and the World Bank. In addition, the Department will aid Canadian natural resource exporters through its participation in Team Canada trade and investment missions.

Under the International Forestry Partnerships Program, NRCan will work cooperatively with provincial/territorial governments, DFAIT, and embassies in Europe, the U.S. and Japan to provide factual information on Canadian sustainable forest management policies and practices. The Department will do so by participating in a series of specialty workshops with investors and opinion leaders in Germany

and hosting forestry fact-finding missions for foreign delegations.

NRCan will also implement the renewed Memorandum of Understanding (MOU) on the forest sector between Canada and China covering a range of topics from forest and pest management to enhanced market opportunities.

Successful resolution of domestic and international trade disputes are key objectives for NRCan. At the national level, NRCan will continue its work on the Energy Chapter of the Internal Trade Agreement. Internationally, it will work with DFAIT on the resolution of international tariff and non-tariff trade barriers in all resource sectors including dealing with market access issues such as forest product plant health regulations, forest protection from non-native pests, softwood lumber, tariff escalation, certification and product labeling.

NRCan will be working to ensure that decision-makers in Europe and elsewhere are sensitized to the need to base regulatory decisions on sound science and the full consideration of the risks of all alternatives.

In partnership with DFAIT and CIDA, NRCan will support the U.N.'s Intergovernmental Forum of Forests in seeking international consensus on the need for a legally binding forest convention, during the eighth session of the U.N. Commission on Sustainable Development in April 2000. The objective is to elevate Canada's sustainable forest management agenda, level the playing field for Canada's forest industry, enhance Canada's social stability, address Aboriginal concerns, and maintain the livelihood of 337 forest-dependent rural communities in Canada.

Increased Aboriginal and Northern Community Capacity

Objective 2.3 – building the capacity of Aboriginal, rural and northern communities to generate sustainable economic activity based on natural resources

The natural resources sector is a major employer, providing jobs for more than 760,000 Canadians. Rural, Northern and Aboriginal communities, in particular, depend greatly on resource development. NRCan recognizes the importance of strengthening the natural resource base and the capacity of these communities to participate in new resource sector opportunities and initiatives.

Supported by the positive results of an interim internal review, NRCan will continue its delivery of Canada's five-year, $24.9 million First Nation Forestry Program ending in March 2001. The Department will provide financial assistance to First Nations project proposals in a number of key areas including the development of, and participation in, forest-based business opportunities; First Nations' capacity to develop viable forest-based businesses; and increasing First Nations skills and knowledge in sustainable forest management. NRCan is also working with the Innu Nation to develop satellite-based ecological mapping tools for improved natural resource management in Labrador communities.

Goal 2 (continued)

In response to the most recent Speech From the Throne, an Aboriginal Community-Mining Industry Partnerships for Sustainable Development strategy will be developed in 1999-2000. This will be done in conjunction with DIAND, provincial governments, Aboriginal groups, communities and industry. The strategy will propose a pro-active program to facilitate, support and report on the results of a series of pilot projects whereby mining companies and Aboriginal communities identify and agree to pursue common economic, social and environmental objectives.

NRCan's Community Capacity Building Strategy and Sustainable Communities Initiative – which will involve rural, Aboriginal and urban communities – will focus on work opportunities, economic diversification and decision-making related to sustainable land and resource development. In addition, NRCan will establish a physical presence in Nunavut, in 1999, through the creation of the Nunavut Geoscience Office and a Legal Surveys Client Liaison Unit. This will serve as a model for collaborative government program delivery and capacity building.

An internationally competitive royalty regime in the NWT is important to the economy and the social fabric of the North. NRCan will assist DIAND in revising Canadian mining regulations that will allow Aboriginal and other NWT residents to obtain a fair and equitable share of revenues from diamond and other mines. NRCan will also contribute toward a strategy for providing security in the transportation and processing of diamonds.

NRCan will foster the growth of the Canadian renewable energy industry by facilitating access to markets where renewable energy technologies ($6.1 million in 1999-2000) are cost competitive, such as in remote communities. One example of NRCan's efforts is RETScreen™, an Internet tool to evaluate renewable energy projects at the prefeasibility level. This tool, presently used in 72 countries, is becoming an international standard and a means to promote Canadian technology expertise in wind, small hydro and biomass energy.

* *

Summary of Anticipated Results for Goal 2

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

Create Economic Opportunities and Encourage Investment

- enhanced competitiveness of the mining industry through increased efficiencies
- greater certainty and consistency in the administration of Canada's mining taxation regime
- improvements in Canada's mineral investment climate
- improved understanding of Canada's geological framework
- improved mineral exploration in the Bathurst, New Brunswick region
- job creation through identification of international business opportunities for resource-based products, knowledge, technologies and services
- further development of the renewable energy market
- increased partnerships with energy end-use sectors to reduce greenhouse gas emissions and operation costs and to increase competitiveness
- economic, social and environmental impacts of NRCan work known
- privatization of Cape Breton Development Corporation operations

Maintaining and Expanding Access to International Markets

- more competitive Canadian companies and expanded access to international markets
- more global market opportunities for Canada's geoscience and geomatics industry
- progress towards the successful resolution of domestic and international trade disputes
- elevation of Canada's sustainable forest management agenda

Increased Aboriginal and Northern Community Capacity

- increased employment/business development opportunities for the First Nations peoples
- an Aboriginal-Mining Industry Partnerships for sustainable development strategy
- successful implementation of NRCan's Community Capacity Building Strategy and Sustainable Communities initiative
- creation of a Geoscience Office and a Legal Surveys Client Liaison Unit in Nunavut
- an internationally competitive royalty regime in NWT.
- growth in renewable energy industry in remote communities

GOAL 3

Goal 3

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

Why This is Important

We know that 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 key role in designing Canada's response options for climate change, which are central to the federal government's mitigation and adaptation strategy, and to the transformation of Canada's energy economy.

Understanding the science behind climate change is a critical element of studying the potential impacts of a changing climate. For example, the geological record of the past provides a reference point against which we can assess the nature and significance of contemporary changes. It allows us to separate the effects of natural and human-induced change and tells us much about the current state of the Canadian landmass and its coastal areas.

Climate Change

Objective 3.1 – helping limit and adapt to climate change

The Prime Minister has asked the Minister of Natural Resources to lead on Canada's domestic climate change strategy in response to the Kyoto Protocol commitments made in December 1997 – to reduce greenhouse gas emissions to six percent below the 1990 level by the period 2008-12, representing a 20 to 25 percent reduction from a business-as-usual scenario.

The first step is the development of the National Implementation Strategy on Climate Change. NRCan will co-manage the climate change file by working closely with the newly established Climate Change Secretariat (CCS), Environment Canada (EC) and other partners throughout the development of the strategy and its implementation. In that context, NRCan will engage stakeholders and decision-makers to work toward a shared objective and options relating to the strategy and public outreach programs.

Fifty million dollars per year from 1998-99 through 2000-2001 has been allocated by the federal government to be coordinated by the CCS for this work. Evaluation and

Goal 3 (continued)

accountability frameworks, developed at the outset of the initiative, will contribute to ongoing management and future evaluations. Over the planning period, a management audit will examine the control frameworks in place to ensure that funds and programs are managed cost-effectively.

Key areas of focus for NRCan will be:

- the analysis of policy options, including the electricity and transportation sectors;
- the application of energy efficiency, renewable and alternative energy programs and policies;
- the development of both a long-term technology strategy and an adaptation strategy; and,
- an understanding of the science of climate change.

On the international front, NRCan and its partners will develop and promote Canadian interests in meeting its Kyoto commitment through international mechanisms and will coordinate Canada's international climate change technology agenda. The results of analysis and consultations on international actions will help prepare Canada for the Fifth and Sixth Conferences of the Parties to the Framework Convention on Climate Change and for eventual ratification of the Kyoto Protocol, which will influence Canada's domestic implementation options.

NRCan will influence Canadians' energy use patterns at home, at work and on the road, through initiatives such as the EnerGuide for Houses, the Commercial Buildings Incentive Program and the EnerGuide for vehicles ($13.6 million in 1999-2000 for all the above).

EnerGuide Label for Vehicles (affixed on all 1999 models sold in Canada)

In addition, NRCan's technology initiatives for communities and industry ($11.8 million in 1999-2000) will accelerate the deployment of community energy systems and ensure a steady supply of new, increasingly energy-efficient technologies for the production and use of electricity. The Department will also develop and refine building energy technologies ($5.8 million in 1999-2000), and increase technology transfer and market awareness. This will enhance the Canadian capacity to meet the National Energy Code performance targets, improve domestic and international business opportunities, increase builder and consumer confidence, reduce knowledge barriers, and enhance international recognition for the cost competitiveness and performance of Canadian products.

In a similar vein, NRCan will improve the cost performance and reliability of transportation energy technologies resulting in cleaner, more efficient transportation fuels, greater numbers of vehicles using such fuels and an infrastructure to supply them ($6.7 million in 1999-2000).

Goal 3 (continued)

Minister Goodale (middle) talks to Brian Foody (right), President of IOGEN Corporation and Jim Stanford, President of Petro-Canada, beside a car which runs on 85% ethanol.

The market development of vehicles powered by alternative transportation fuels (ATFs) will be encouraged and the use of ATFs will be promoted where economically and environmentally attractive. Internal program evaluators will assess achievements, impacts and will make recommendations for improvement.

Starting this year, NRCan will deliver a three-year incentive program to encourage the development and use of natural gas vehicles. The development of national fuel standards that are based on sound science, rigorous analysis and a proper balance between economic costs and environmental benefits will also be encouraged.

In addition to NRCan's short- and medium-term technology development and deployment initiatives, NRCan is developing a long-term technology strategy. The Energy Technology Futures (ETF) project is examining the role potential energy technologies hold in altering the relationship between greenhouse gas emissions and economic growth over the longer term, that is 2030 and beyond. A principal output of the ETF project will be a set of scenarios on future Canadian energy economies and the underlying technology requirements. Each scenario will include a mix of options for energy technologies and fuels to meet Canada's energy service demands while better managing our greenhouse gas emissions. The most promising of these technologies will help establish priorities for research and development activities within the Climate Change Strategy.

NRCan's Climate Change Knowledge Base will help Canadians better understand the impacts of natural and human disturbances on the environment and will improve Canadians' daily decision-making in support of a better environment.

NRCan will develop adaptation strategies to deal with the impacts on various geographic locations such as the Palliser Triangle in the Prairie Region and the Arctic. For example, through NRCan's research on permafrost and slope stability, modelling can now be done on pipeline behaviour providing critical information to oil and gas companies on the vulnerability and viability of their infrastructures (e.g. pipelines). These studies will help to lessen the potential costs of climate change impacts.

The Department will further demonstrate its commitment to this objective by developing, and transferring to forest sector clients, models to predict changes to forest ecosystems. These predictive models, combined with NRCan-developed forest management options and techniques, will enable forest clients to select appropriate prescriptive treatments to address changing climatic and ecological conditions.

Goal 3 (continued)

Technologies and Stewardship Practices

Objective 3.2 – promoting science, technology and stewardship practices that reduce environmental impacts, conserve biodiversity, and increase the efficiency of natural resource development and use

75 tonne press and samples of lightweight formed parts

Canada's ability to respond to social, economic and environmental challenges will depend to a substantial degree on its S&T. Current trends in natural resource development will likely increase NRCan's role in this area in the future.

Together with other departments, NRCan will promote biodiversity stewardship within the natural resource sector to conserve wildlife and habitat, including a project to promote and facilitate stewardship initiatives. The Department will also assist other governments in the development and implementation of protected areas initiatives.

Through its interdepartmental Program of Energy Research and Development (PERD), the Department will explore opportunities, design collaborative research and allocate funding to new research and development areas that have an overarching focus on greenhouse gas emission reduction. PERD will also be the subject of an internal evaluation.

NRCan will increase its efforts to address air quality objectives and to reduce particulate emissions in the transportation sector, building on the PERD-funded interdepartmental program on particulates. Under the new PERD initiatives, the Department will support S&T to reduce greenhouse gas emissions through the lowering of vehicle weight. To that end, the Department is working with the industry in developing forming technologies for aluminum sheet metal. A prototype will also be developed for a lightweight rechargeable cell for electric or hybrid vehicles to create more energy-efficient automobiles.

NRCan is the federal government's primary source of technological expertise on Canada's mineral and metal resources. In 1999-2000, NRCan will establish its new International Centre for Sustainable Development of the Cement and Concrete Industry to globally market and transfer technologies that make use of waste products such as flyash, blast furnace slag and silica fume to replace cement in concrete. These technologies will contribute to the reduction of large quantities of carbon dioxide emissions that evolve in the production of cement (nearly a tonne of emissions for every tonne of cement produced). With a goal of 10 percent material substitution, this

Goal 3 (continued)

international market represents a potential for reduction in carbon dioxide emissions of 200 million tonnes annually.

Substantially reducing the liability for acidic drainage in Canada is important to the mining industry and NRCan. In this regard, the Department will continue to transfer technologies and establish international linkages under its Mine Environment Neutral Drainage (MEND) 2000 Program until the program expires in 2001. In addition, the Department will continue its S&T in support of international metals classification criteria and will work at finding technological solutions to environmental challenges facing the mining industry upon mine closures.

Rehabilitation of Mine Tailings in Northwest Quebec

Biotechnological, biological and natural control strategies for the management of major forest insect pests and unwanted forest vegetation will continue to be developed, tested and transferred to forest sector clients. In addition, biodiversity conservation strategies and ecological recovery plans will be developed for rare and threatened forest vegetation species.

Safeguarding Canadians

Objective 3.3 – safeguarding Canadians from the risks associated with natural resource development and use

The health and safety of Canadians is a top priority on NRCan's agenda. The Department will ensure that Canada continues to use and develop its resources in a manner that protects the health of its citizens, as well as its natural environment, landmass and offshore regions.

NRCan will advance the sustainable development of energy from Canada's offshore and frontier areas. It will do so by improving health and safety through the promulgation of Offshore Occupational Health and Safety Regulations and ensuring the integrity of survival and evacuation systems for frontier oil and gas exploration and development. The Department will also provide the essential geoscience information and maximize Canadian benefits through the review of offshore oil and gas developments.

NRCan is assembling recommendations to amend the *Nuclear Liability Act*. The purpose of these amendments is (i) to improve the fair and effective compensation of third parties in the event of a nuclear accident; and (ii) to reduce federal liabilities currently associated with the Act.

Goal 3 (continued)

NRCan recognizes that nuclear fuel waste management is a very important issue for Canadians. In December 1998, the federal government, in its response to the Seaborn Report, indicated that the waste producers and owners should form a waste management organization, as a separate legal entity, to carry out all activities related to the long-term management, including disposal, of used nuclear fuel in Canada. It also indicated that a federal oversight mechanism was needed to ensure that appropriate long-term solutions to nuclear fuel waste management are developed, funded and implemented. Through a consultation process, NRCan will develop options, including legislative options, to ensure that federal policy objectives for nuclear fuel waste are met. This addresses, in part, concerns raised by the Auditor General of Canada in a previous report to Parliament.

NRCan will continue its work on the cleanup and rehabilitation of low-level radioactive waste sites that are a federal responsibility. In particular, the Department will move forward on the cleanup of the Surrey, B.C. waste site and will continue discussions with the communities of Clarington, Hope Township, and the Town of Port Hope in order to define options for local solutions. These options will be put before Cabinet Ministers for the long-term management of radioactive wastes in those communities.

In partnership with the mining industry, NRCan will work on projects to further safeguard Canadians from the risks associated with mine development. Examples include development of a non-destructive, wire-rope testing system (total project value will be $220,000, of which $130,000 will be cost recovered), and of a prototype helmet for sound reduction and voice communication in mines (total project value will be $189,000 of which $70,000 will be cost recovered).

Prototype Sound Reduction Helmet

In addition, the Department and four mining partners, will examine deep rock behavior processes and develop design guidelines to optimize operation safety under the three-year Deep Mining Core Research Project.

To enhance the safety of Canada's pipeline infrastructure, NRCan will spend $2.2 million to develop new technologies, such as Engineering Critical Assessment technologies, to determine critical crack size in order to improve the structural reliability of pipelines. This work will be undertaken in conjunction with industry and regulatory bodies.

* *

Summary of Anticipated Results for Goal 3

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

Climate change

- development and implementation of a National Implementation Strategy on Climate Change
- ratification of the Kyoto Protocol
- energy efficiency programs that influence Canadians' energy use at home, at work and on the road
- a steady supply of new, increasingly energy efficient technologies for the marketplace
- improved cost performance and reliability of transportation energy technologies
- a long-term strategy of adaption to the environmental impacts of climate change

Technologies and Stewardship Practices

- conservation of wildlife and habitat
- increased focus on opportunities for greenhouse gas reduction through the Program of Energy Research and Development (PERD)
- reduction of particulate emissions in the transportation sector
- global marketing and transfer of technologies that make use of waste products
- reduction of the liability for acidic drainage in Canada
- reduction of timber loss due to pests and unwanted forest vegetation

Safeguarding Canadians

- advancement of the sustainable development of energy from Canada's offshore and frontier areas
- federal objectives for nuclear fuel waste are met
- progress is made on the cleanup and rehabilitation of low-level radioactive waste sites
- miners safety is enhanced
- pipeline infrastructure safety is enhanced

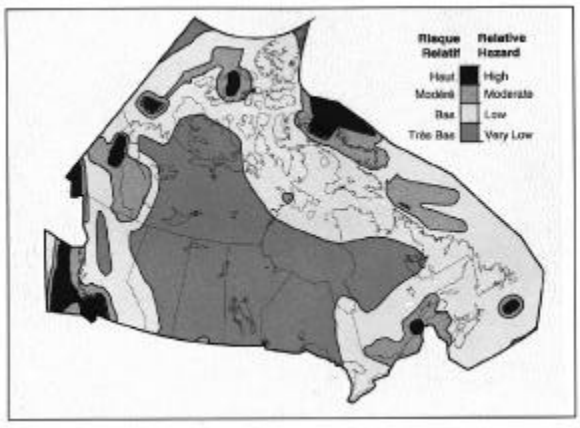
GOAL 4

Goal 4

To contribute to the safety and security of Canadians.

Why This is Important

Safeguarding Canadians from natural hazards and securing our territorial and economic sovereignty requires 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.



National Building Code, Year 2000 trial seismic hazard map

NRCan's products and services include scientific research expertise regarding the safe use of explosives and pyrotechnics, aeronautical charts, and topographical maps for search and rescue-related activities and emergency planning.

Natural Hazards

Objective 4.1 – safeguarding Canadians from natural hazards

Natural hazards such as earthquakes and floods are often unpredictable, devastating, and require immediate responses. NRCan plays a critical role in providing information and expertise to Canadians concerning the vulnerability or risk to natural hazards, (ie. the probability of incidence and the potential impact), and recommends steps to minimize the risk. Through the seismic risk assessments in the National Building Code, NRCan ensures that in the event of an earthquake, damage to buildings and threats to life are minimized, and, unnecessary expenditures are avoided where the risk is low. As well, the Department responds to anticipated increases in magnetic storm occurrences through continued monitoring of daily and long term variation of the earth's magnetic field to support weather forecasting services and to provide crucial information for emergency measures services.

Goal 4 (continued)

Andrea Simard

January 1998 Ice Storm

NRCan will continue to revise its topographic maps to provide the military with up-to-date information for use during serious situations such as, threats to national security, natural disasters, and search and rescue operations.

Even after crisis situations are over, NRCan continues to play an important role. For example, the Department will continue to provide affected provinces with satellite imagery and information about soil types, risk areas and erosion patterns to understand the causes of disasters (i.e., Red River and Saguenay floods). In this regard, NRCan will work with the Disaster Information Centre (University of Manitoba) and with Emergency Preparedness Canada to prepare response action plans. Similarly, a national forest fire monitoring system using weather satellite data will be completed and operational in the planning period to assist decision-makers in fighting forest fires.

There is a need to develop methodologies for quantitative landslide risk assessment to reduce service interruptions and increase transportation safety. In support of this, a research consortium – sponsored by Canadian Pacific, Canadian National, British Columbia Rail, British Columbia Ministry of Transportation and Highways, and British Columbia Geological Surveys Branch – will investigate landslide hazards along transportation corridors in southern British Columbia in 1999-2000.

As part of Canada's commitment to the Comprehensive Test Ban Treaty, NRCan carries out continuous seismic monitoring for nuclear explosions. During 1999-2000, Canada's International Monitoring System facilities will be completed, comprising nine stations of the Canadian National Seismograph Network, plus new hydro-acoustic and infra sound monitoring sites in B.C. and Manitoba.

Spatial Positioning, Mapping and Boundary Maintenance

Objective 4.2 – maintaining a national framework for spatial positioning, mapping and boundary maintenance

NRCan provides access to the Canadian Spatial Reference System which ensures that the Canadian reference framework for positions is sustainable and consistent with national and global standards. Continuous enhancements to this system are required to meet changing client needs and evolving positioning technologies. NRCan is leading the refinement and demonstration of spatial referencing and navigation at an accuracy of less than a metre, in real-time, through the Global Positioning System Correction service (GPS.C) and is working with commercial

Goal 4 (continued)

NRCan's Algonquin Radio Observatory: part of a global network that observes quasars in order to establish a framework of reference for spatial positioning.

partners for the delivery of GPS.C to subscribers. Accurate spatial positioning is critical and in demand in many areas, and widespread availability in real-time will result in the development of value-added innovations for a wide range of disciplines including resource management. This in turn leads to growth in geomatics and related industries and increased employment and services for Canadians. In partnership with provincial and territorial governments and stakeholders, NRCan will continue to serve as the national authority for geospatial positioning which is fundamental to such applications as surveying, mapping and navigation in Canada. To ensure Canadian aviation safety, NRCan must revise and deliver aeronautical charts and publications to civil and military clients on an internationally agreed 56-day cycle.

In support of sovereignty and good international relations, NRCan maintains the boundary between Canada and the United States, in partnership with its counterparts. Boundary survey work and inspections will be carried out over the planning period.

NRCan is also responsible for the Canada Lands Survey System which provides an archive of survey documents to the public. To ensure the safe archival of these records, standards for surveys and documentation will be updated. Quality monitoring of all surveys on Canada Lands and on private lands in the northern territories will be carried out, and contracts to the private sector for the repair of survey frameworks will be implemented, to prevent anomalies which could lead to legal challenges.

Explosives Safety

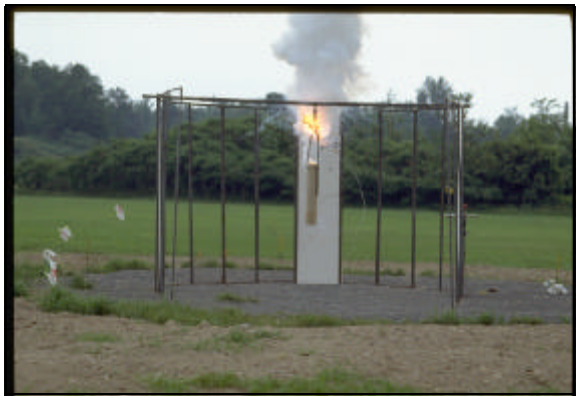
Objective 4.3 – promoting the safe use of explosives and pyrotechnics

NRCan is the government's primary source of expertise on explosives regulations and technology.

To ensure that users of explosives clearly understand their obligations, the Department will pass and implement new plain language explosives regulations during 1999-2000. In subsequent years, it will evaluate and refine these regulations through the amendment process.

In an effort to combat crime and terrorism and to increase controls over explosives, the Department will assist in negotiations of international agreements through expert advice to Canadian delegations. It will also expand its pilot Explonet web site to assist explosives regulators around the globe.

Goal 4 (continued)



Explosive Product Testing

To ensure the safety of its clientele and the Canadian public, NRCan will be utilizing comprehensive and up-to-date test methods and facilities to assess clients' explosive products and to test explosives submitted for authorization under the *Explosives Act*. NRCan will also test and/or certify hazardous products, such as new generation solid electrolyte batteries, which are being developed by industry for various applications such as electric vehicles.

* *

Summary of Anticipated Results for Goal 4

To contribute to the safety and security of Canadians.

Safety and Security of Canadians from Natural Hazards

- provision of environmental monitoring in a timely manner to decision-makers
- provision of up-to-date topographic maps to military for disaster relief
- landslide risk assessments to reduce service interruptions and increase rail transportation safety
- meeting of Canada's commitment under the Comprehensive Test Ban Treaty for seismic monitoring to detect nuclear explosions

Spatial Positioning, Mapping and Boundary Maintenance

- a Canadian reference framework that is consistent with global standards
- up-to-date aeronautical charts and publications to ensure Canadian aviation safety
- ongoing maintenance of the boundary between Canada and the United States
- safe archival of Canada Lands Survey System information

Explosives safety

- updated, understandable, plain language regulations
- updated methods and facilities for testing and/or certifying hazardous locations and products

GOAL 5

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.

The challenge of allocating scarce resources and getting a better return from the money it spends is leading the Government and NRCan to search for innovative approaches to management and accountability.

Managing Resources

Objective 5.1 – managing NRCan's resources responsibly

While the Department is refocusing and reorganizing many of its programs, client expectations and demands in certain program areas continue to rise. This includes the federal government's expectation that departments recover, where possible, part or all of the costs of programs, activities, or services from those specific users who benefit most directly. Cost recovery encourages NRCan to take a more business-like approach in the delivery of its programs by improving management accountability and minimizing operational costs. In that context, NRCan anticipates recovering in excess of $22.0 million annually from its net voted revenue authority and an additional $17.0 million annually from its revolving fund authority.

Goal 5 (continued)

The Department recognizes the importance of participating in broad government initiatives. For example, its work in the Financial Information Strategy (FIS) and Modernization of Comptrollership ($1.2 million and $950,000 respectively over the planning period) will help develop more innovative approaches to management and more transparent accountability.

The initiatives will move the Government's basis of accounting closer to that of the private sector resulting in a more open, accessible, values-driven and results-oriented organization. Both initiatives will be the subject of departmental reviews. The Department plans to be FIS compliant by April 1, 2001. Over the planning period, NRCan anticipates implementing its modern comptrollership priorities, particularly in the areas of risk management and values and ethics. Given the increased emphasis of providing assurance on financial and non-financial information for decision making, a combined audit and evaluation study will review various departmental planning and reporting documents for integrity and completeness of information.

In parallel with the science and policy capacity exercises currently under way, NRCan is developing a retention, rejuvenation and recruitment strategy to respond to the need of revitalizing the Public Service of Canada. The strategy will focus on learning, career development, succession planning and recruitment. As a large proportion of the Department's corps of science professionals approach retirement age, a critical aspect of that need will be to recruit and retain younger scientists, and to provide them with the necessary infrastructure including up-to-date facilities and technical support.

Products, Services & Operations

Objective 5.2 – continuously improving NRCan products, services and operations

Present challenges demand new strategies for success, including increased investment in the knowledge content and infrastructure required to prosper in the new knowledge economy. In this regard, the advancement of a common information technology infrastructure will be a high priority for NRCan over the planning period. The Department is presently developing an Information Technology/ Information Management Strategic Directions document which will capture both internal/external priorities and opportunities through a consultation process ($60,000 in 1999-2000). In addition, a study will examine departmental security issues and further opportunities for the Department to have a substantial presence in the growing field of electronic commerce on the Internet.

Other examples of departmental innovation are NRCan's Integrated Payment and Procurement System, enhancement of its human resources information system, and its approach to the implementation of the Universal Classification Standard which will improve service delivery and minimize manual processing.

As part of its contribution to the federal Greening of Government Initiative, NRCan is committed to integrating environmental considerations into its day-to-day activities. In order for NRCan to remain a foremost centre

Goal 5 (continued)

for natural resource S&T, the Department will continue the development of its Integrated Accommodation Project (IAP) which will provide the means and the methodology to recapitalize the Department's aging real property infrastructure with economic, program-responsive, environmentally-responsible and energy-efficient facilities. An internal review of this project will provide assurance that project risks are identified and addressed in a timely manner.

Canada's prosperity in the 21st century will depend to a large part on the ability of its natural resource and related industries to adapt to continual change and competition in the international markets. Government studies over the past three years have underlined the need to strengthen the policy research and development capacity of government departments and their ability to address policy issues that cross departmental mandates. NRCan recognizes this need and has launched an initiative to examine its policy capacity ($50,000 in 1999-2000). The Department's action plan will be in place early in 1999.

An evaluation of NRCan's quality initiative ($729,000 annually), "Excellence", launched in 1991, will focus on program achievements and impacts achieved through the Excellence initiative since its inception, and will consider recommendations on the future direction of this initiative. The Excellence initiative will be supported by the introduction of the NRCan Guide to Good Management which provides a template for a well-managed organization.

Over the planning period, senior management will continue to improve S&T management in conjunction with the interdepartmental community. The Department will also continue to implement initiatives under its S&T Management Framework, including introduction of S&T-specific performance indicators as part of the Performance Measurement Framework, the championing of best practices, the development of an S&T communications strategy, and the completion of an evaluation of the S&T Management Framework.

Canada's success in facing the challenges of the future will require that it maintain an adequate science and technology capacity – both within and beyond NRCan. In this respect, NRCan will complete an assessment of its capacity to deliver S&T programs over the next ten years and will develop plans to identify and address key issues. In addition, an evaluation study of the Canadian Forest Service S&T Networks will focus on objectives achievement, results and impacts.

Leading by Example

Objective 5.3 – using leading- edge environmental management tools and practices for NRCan operations

Objective 5.4 – reducing wastes from NRCan operations

Objective 5.5 – increasing the efficiency of energy and other resource use in NRCan operations

Objective 5.6 – promoting the use of goods and services that are eco-efficient

Goal 5 (continued)

The way departments operate their facilities, manage fleets, dispose of waste, and purchase goods and services can significantly influence Canada's ability to achieve its sustainable development goals.

NRCan intends to further reduce greenhouse gas emissions from its own internal operations through the development of a climate change action plan for departmental operations. Initial indicators and targets can be found in the Department's Performance Measurement Framework (page 53).

Year 2000 Status

NRCan is pleased to report that its four Government-Wide Mission Critical Systems ($2.0 million spent to date) and targeted Department-Wide Mission Critical Systems (DWMCS - $8.0 million spent to date) met the departmental Year 2000 readiness deadline of December 31, 1998, without seeking financial assistance from TBS. The Department is achieving significant progress for its remaining DWMCS systems.

NRCan is assisting the Minister in meeting his Year 2000 responsibilities as they apply to his natural resources Cabinet portfolio agencies (National Energy Board, Atomic Energy Control Board, Atomic Energy Canada Limited, the Canadian Wheat Board, Newfoundland and Nova Scotia Offshore Petroleum Boards, and the Cape Breton Development Corporation). NRCan will continue to monitor progress in this area.

With respect to Canada's energy infrastructure (i.e. the provision of electricity, natural gas, crude oil and petroleum products), NRCan is providing the National Contingency Planning Group – Year 2000 (NCPG) with the information it requires to produce ongoing infrastructure risk assessments, scenarios, and eventual contingency plans. NRCan has negotiated agreements with five major energy associations to cooperate in conducting periodic surveys of their members. NRCan will evaluate the survey results and provide feedback to the NCPG. NRCan will also investigate the status of energy allocation mechanisms in place at the company, provincial or federal level.

Finally, given the level of energy trade and infrastructure interdependency, the Department is working closely with its U.S. counterparts on energy Year 2000 readiness.

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IV Supplementary Information

A. Sustainable Development Strategy

NRCan's first Sustainable Development Strategy was tabled in Parliament on December 10, 1997. The strategy sets out a framework to assess the Department's work in promoting sustainable development. In this regard, NRCan's work can be assessed by stakeholders at three different levels. At the most basic level, through regular reporting on action commitments, stakeholders will have a clear indication of whether the Department is meeting these commitments. At a more objective level, through the refinement of indicators and establishment of targets, NRCan's performance can be measured against the Strategy's objectives. At a broader level, Canada's overall progress in the sustainable development of its natural resources can be assessed through indicators dealing with sustainable development practices and procedures in the areas of forest management, energy, and minerals and metals. This goes beyond the contributions of NRCan since it must reflect the work and efforts of all Canadians who have an interest in the sustainable development of our resources. These indicators are a key action commitment in NRCan's Sustainable Development Strategy.

In his May 1998 Report to Parliament, the Commissioner of the Environment and Sustainable Development recommended that "departments should establish a clear set of targets and present them to the House of Commons in their spring 1999 reports on plans and priorities." NRCan established a two-track process to address the Commissioner's recommendation. Through the first track, the Department's Sustainable Development Working Group established time-bound and measurable targets for the action commitments. These targets will provide NRCan's stakeholders with a clear indication of knowing when the actions have been met. For each goal, the following table highlights a few of the action commitments and associated targets. The actions address the new departmental goals and objectives and represent a subset of departmental activities that support sustainable development. Some of the actions are described in Section III of this report and are referenced in the table.

On a parallel track, NRCan's Performance Measurement Working Group refined the Department's draft performance indicators and established targets to facilitate the assessment of progress against the strategy's objectives. This work was undertaken using assessment criteria that reflect guidance from stakeholders. Section IV (D) presents the Department's draft Performance Measurement Framework, including indicators and associated targets for each goal and objective.

The complete list of action commitments and associated targets is available on the sustainable development home page on the NRCan website at http://www.nrcan.gc.ca/dmo/susdev.

Selected Action Commitments and Targets

Goal 1: Enabling Canadians to make balanced decisions regarding natural resources	
Commitment	**Target**
Report on progress in the sustainable development of Canada's resources: with Canadian Council of Forest Ministers; report on 6 criteria and 49 indicators of sustainable forest management; in consultation with various stakeholders develop sustainable development indicators for energy and minerals and metals.	• By 2000, produce first report on Sustainable Management of Forests in Canada, to be tabled at the United Nations Commission on sustainable development on April 15, 2000. • By 2000, identify values that are relevant to the environmental, social and economic impacts of the minerals and metals sector activities and products as a step to the development of credible sustainable development indicators. • By 1999, establish an historical data series on the energy economy to assist in the development of appropriate sustainable development indicators for the energy sector.
Develop with other government departments, an international sea-bed mining code as well as a plan to produce the marine geoscience information required to ratify the United Nations Convention on the Law of the Sea, by 1999.	• By 1999, provide guidance and expertise to DFAIT as needed in order to support them in their participation in international negotiations to develop an international sea-bed mining code. • By 1999, prepare maps and reports that describe the potential outer limits of the judicial continental shelf of Canada's Arctic and Atlantic coasts, identifying gaps and weaknesses in the database that need to be rectified with systematic surveys or related field work.
Goal 2: Sustaining the economic and social benefits from natural resources for present and future generations.	
Commitment	**Target**
Safeguard and improve Canada's trade and investment position in natural resources; the Minister of Natural Resources, in cooperation with DFAIT, will lead two *Team Canada* international trade missions with an emphasis on small and medium-sized companies in natural resource and related industries. **(See Section III, Objective 2.2, page 22)**	• By 2000, the Minister of Natural Resources will lead two *Team Canada* international trade missions.

Note: Target dates refer to fiscal year end. For example, a target beginning with, "by 1999" indicates that the target will be met by the end of fiscal year 1999-2000 (i.e. March 31, 2000).

Goal 2: Sustaining the economic and social benefits from natural resources for present and future generations (continued)	
Commitment	**Target**
Promote the sustainable development of minerals and metals internationally: providing technical training on acid mine drainage and life cycle assessment, and advice on ISO 9000 accreditation for the Canada-Brazil Project for Sustainable Development in the Minerals Sector, by 1998; providing baseline assessment and technical training in chemical analysis and environmental management, and by showcasing Canadian technologies and expertise for the Canada-Argentina Project for Technology Transfer in the Minerals Sector, by 1999; developing internationally-recognized protocols for heavy metals and the classification of risks posed by persistent organic pollutants, by 1999; and negotiating provisions for the sound management of minerals and metals in the "Prior Informed Consent Convention", and the UNEP (United Nations Environment Program) -sponsored global convention on 'persistent organic pollutants'.	• By 1999, provide baseline assessment and technical training in chemical analysis and environmental management, and by showcasing Canadian technologies and expertise for the Canada-Argentina Project for Technology Transfer in the Minerals Sector. • By 1999, develop internationally-recognized protocols for heavy metals and the classification of risks posed by persistent organic pollutants. • By 2000, negotiate provisions for the sound management of minerals and metals in the "Prior Informed Consent Convention", and the UNEP-sponsored global convention on 'persistent organic pollutants'.
Goal 3*: Minimizing the impacts of natural resource development and use on the environment and the safety of Canadians.	
Commitment	**Target**
Develop alternative harvesting practices that will provide forest managers with harvesting options to reduce the use of clear cutting as well as provide a natural means to reduce losses from insects and weeds.	• By 1999, publish, "Best Practices Guide" for avoiding negative effects of clear-cutting on forest soil productivity and aquatic systems in the Boreal Shield. • By 1999, produce a guide on stand manipulation systems to reduce susceptibility to pest damage in the Montane Cordillera and Atlantic Maritime ecozones. • By 2000, publish report on costs and benefits of partial cutting as an alternative to clear-cutting in Canada's forested ecozones, with a client advisory committee.

* The goals described in this section are consistent with NRCan's Sustainable Development Strategy, which was tabled in Parliament on December 10, 1997. The goals presented in Section III and IV (D) reflect continuous refinements to the department's draft performance measurement framework. The refined framework integrates the goals of the Sustainable Development Strategy.

Goal 3*: Minimizing the impacts of natural resource development and use on the environment and the safety of Canadians (continued)	
Commitment	**Target**
Broaden our scientific understanding of climate change and its impacts. **(See Section III, Objective 3.1, page 26)**	• By 1999, complete and release Geological Survey of Canada reports on the Palliser Triangle and, by 2000, produce an interactive multi-media CD-ROM presenting results of study in both official languages.
Modernize regulations governing the nuclear industry with respect to health, safety and environmental protection, by 1999. (**See Section III, Objective 3.3, page 30**)	• By 1999, promulgate new regulations and bring into force the Nuclear Safety and Control Act.
Produce a natural geological hazards atlas summarizing information on natural hazards (e.g. earthquakes, landslides) in Canada. (**See Section III, Objective 4.1, page 33**)	• By 2000, produce a natural geological hazards atlas.
Goal 4*: Establishing NRCan as a leader in the federal government in managing its operations in line with the principles of sustainable development.	
Commitment	**Target**
Review and upgrade NRCan's Environmental Management System to comply with international standards (i.e. ISO 14000 series)	• By 2000, review and upgrade NRCan's Environmental Management System to be compatible with international standards (i.e., ISO 14000 series).
Manage NRCan's Ozone Depleting Substances to meet international obligations.	• By 1999, evaluate and report on ozone depleting substances maintenance and performance. • By 1999, convert one of the three remaining large halon-containing fire extinguishing systems to non-ozone depleting and non-global warming potential one. • By 2000, convert one of the six remaining large chiller systems containing chlorofluorocarbons (CFC) to a non-ozone depleting potential system. This will reduce NRCan's CFC inventory to 1 tonne. • By 2000, dismantle and appropriately dispose of the two remaining large halon-containing fire extinguishing systems.

* The goals described in this section are consistent with NRCan's Sustainable Development Strategy, which was tabled in Parliament on December 10, 1997. The goals presented in Section III and IV (D) reflect continuous refinements to the department's draft performance measurement framework. The refined framework integrates the goals of the Sustainable Development Strategy.

B. Legislative/Regulatory Initiatives

The following table outlines planned NRCan regulatory initiatives which may interest, or have an impact on, Canadians and NRCan stakeholders. A complete list and description of all Acts for which the Minister of NRCan has sole and shared responsibility is available by accessing the NRCan Internet site at: **http://www.nrcan.gc.ca/dmo/spcb/regiss_e.html**.

Regulation/Act	**Initiative/Amendment**	**Anticipated Results**
Energy Efficiency Regulations *(Energy Efficiency Act, sections 20 & 25)*	NRCan expects to implement minimum efficiency requirements for incandescent reflector lamps exempted from the first amendment to the Energy Efficiency Regulations.	Bulged reflector and elliptical reflector incandescent lamps will be about 30 percent more efficient after regulation.
	More stringent efficiency requirements for refrigerators and new efficiency requirements for transformers will be published.	Refrigerators and freezers will be about 25 percent more efficient than that required previously. Transformer regulations will provide energy savings for a reduction of greenhouse gas emissions.
	More stringent efficiency requirements for fluorescent ballasts and gas furnaces will be pre-published in 1999-2000, along with new minimum performance and labelling requirements for gas fireplaces and windows.	Efficiency requirements for gas furnaces that are about 12 percent higher will be proposed. Labelling of gas fireplaces and windows will identify and promote the purchase of more efficient products.
Explosives Regulations *(Explosives Act)*	In 1999-2000, these regulations will be redrafted in plain language and implemented.	Improved clarity will result in a higher degree of compliance and safety. A compliance measurement system is being developed for 1999-2000 to set a baseline and targets.

Regulation/Act	Initiative/Amendment	Anticipated Results
Land Surveys Tariff *(Canada Lands Surveys Act)*	The tariff, which sets fees to be charged for maps, plans, field notes and other records or documents related to surveys will be amended. Currently, fees reflect production costs only.	An increase in present fees ranging from three to five percent will cover higher material costs and provide for service charges for the first time.
Frontier Lands Division and Minimum Area Regulations; Newfoundland Offshore Area Division & Minimum Area Regulations; Nova Scotia Offshore Area Division/Minimum Area Regulations	Parts of the *Canada Oil & Gas Land Regulations* dealing with land division and survey are based on the 1927 North American Datum (NAD) pursuant to the *Territorial Lands Act and the Public Lands Grants Act.*	A new satellite survey system, in combination with the updated reference, NAD 1983, offers more accurate surveying methods. New regulations are intended to reflect this technological advance.
Newfoundland/Nova Scotia Offshore Area Petroleum Occupational Safety Regulations	The offshore accord acts exclude Part IV of the *Canada Labour Code.* A separate set of regulations is needed for the safety and inspection of petroleum operations in offshore areas.	Promulgating these regulations would enhance the ability of government and industry to ensure workplace safety through development of comprehensive workplace safety action plans.
Newfoundland/Nova Scotia Offshore Area Petroleum Operations Regulations	An increase in fees is proposed under these regulations, setting out requirements for licencing and authorizing exploration or development and for reporting an oil spill.	The proposed amendment would increase the current $25 licence fee. The revised fee would be on a cost recovery basis, with the increase to be negotiated with industry.
Newfoundland/Nova Scotia Offshore Area Petroleum Drilling, Production and Conservation Regulations	Consultations will take place on combining these regulations. This will reflect technological change and other regulations, and remove overlap and duplication.	Amendments to the regulations would enhance work safety and environmental protection by allowing for the use of technological advancements.
Newfoundland Offshore Area Petroleum Diving Regulations and Nova Scotia Offshore Area Petroleum Diving Regulations	NRCan will consult on revising these regulations to reflect changes and other regulations, and to update administrative requirements.	Enhanced worker safety, environmental protection, and streamlined administration is expected to result from industry response to goal-oriented regulations.

C. Financial Information

Planned Spending Overview

NRCan will be at the forefront of the transition to the knowledge-based economy, providing an environment that ensures that our natural resources continue to be the foundation of the economy in the new millennium. The natural resource 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 will play 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 Department will do so by providing the sector with information and supporting the high-technology, knowledge-based marketplace. It will make sustainable development a core value that balances the economic, environmental and social considerations for the present and the future.

Winning in the Knowledge-based Economy is NRCan's action plan to help Canada's natural resource sector meet its challenges in the new economy. The Plan calls for strategic initiatives in five areas: creating national consensus, tackling climate change, multiplying work opportunities, increasing resource trade and investment, and spurring resource innovation. In addition, NRCan will continue to conduct basic science research and provide the knowledge upon which to build the natural resource products, processes and technologies of the future. It will also ensure that its policies, programs, and activities are guided by sustainable development and good governance. Finally, it will be proactive in ensuring that the health and safety of Canadians will be protected from natural resource development and use and from natural hazards.

NRCan is in the process of shifting its reporting structure from business lines – S&T, developing federal policy and regulations, promoting Canada's international interests, knowledge infrastructure, corporate management and administration, Geomatics Canada Revolving Fund, and Sunset/Special Programs – to the goals shown in this report. One of the main repercussions of this shift is a disconnect in this year's report between textual and financial information. Consequently, NRCan's financial reporting system will be "re-tooled" and the situation corrected by April 1, 2000.

1. Spending Authorities – NRCan 1999-2000 Planned Spending Figures

Financial Requirements by Authority

Vote	($ dollars)	1998-1999 Planned Expenditures	**1999-2000 Planned Expenditures**
1	Operating expenditures	372,776,000	**407,601,000**
5 [(1)]	Capital expenditures	12,591,000	**0**
10 [(2)]	Grants and contributions	42,630,644	**62,482,444**
(S)	Minister of Natural Resources – Salary and motor car allowance	49,000	**48,900**
(S)	Contributions to employee benefit plans	41,096,000	**40,296,000**
(S)	Canada/Nova Scotia Development Fund	4,097,000	**4,192,000**
(S)	Canada/Newfoundland Development Fund	5,500,000	**5,000,000**
(S)	Canada/Newfoundland Offshore Petroleum Board	1,443,000	**1,443,000**
(S)	Canada/Nova Scotia Offshore Petroleum Board	680,000	**680,000**
(S)	Payments to the Nova Scotia Offshore Revenue Account	500,000	**2,000,000**
(S)	Payments to the Newfoundland Offshore Petroleum Resource Revenue Fund	225,000	**600,000**
(S)	Geomatics Canada Revolving Fund	574,000	**(837,000)**
(S)	Nova Scotia Fiscal Equalization Offset Payments	400,000	**1,000,000**
	Total Budgetary Reference Levels	482,561,644	**524,506,344**
L15 [(3)]	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	37,926,000	**39,371,000**
	Total Budgetary and Non Budgetary Department	520,487,644	**563,877,344**
	Plus: Planned Spending Items [(4)]	41,200,000	**40,100,000**
	Total Department Planned Expenditures	561,687,644	**603,977,344**

(1) Due to a government change to the definition of Major Capital, NRCan capital expenditures will be included in Operating Expenditures (Vote 1) in 1999-2000.
(2) As a result of the inclusion of Capital Expenditures in Vote 1 in 1999-2000, the Vote for Grants and Contributions will change from 10 to 5 in 1999-2000.
(3) As a result of the inclusion of Capital Expenditures in Vote 1 in 1999-2000, the Vote for the Loan to Nordion International Inc. will change from L15 to L10 in 1999-2000.
(4) These Planned Spending figures include announcements made in the 1999 Budget Speech, along with $25 million in Climate Change Action Fund reprofiling from 1998-1999 to 1999-2000. Resource profiles may change via the appropriate authorization mechanisms.

2. Details of Transfer Payments by Business Line

Grants and contributions make up 14.8 percent of the budgetary expenditures of the Department. The figures below summarize planned expenditures for all grants and contributions.

($ millions)	1998-1999 Planned Expenditures	**1999-2000 Planned Expenditures**	2000-2001 Planned Expenditures	2001-2002 Planned Expenditures
Grants				
Science and Technology	0.2	**0.1**	0.1	0.1
Knowledge Infrastructure	0.2	**0.4**	0.2	0.2
Developing Federal Policy and Regulations	0.1	**0.1**	0.1	0.1
Promoting Canada's International Interests	-	**-**	-	-
Sunset/Special Programs	-	**-**	-	-
Corporate Management & Administration	0.1	**0.1**	0.1	0.1
Geomatics Canada Revolving Fund	-	**-**	-	-
Total Grants in Reference Levels	0.6	**0.7**	0.5	0.5
Contributions				
Science and Technology	18.2	**19.0**	18.7	16.5
Knowledge Infrastructure	9.5	**9.1**	8.9	8.9
Developing Federal Policy and Regulations	15.5	**18.6**	35.4	56.6
Promoting Canada's International Interests	-	**-**	-	-
Sunset/Special Programs	11.7	**30.0**	30.3	11.6
Corporate Management & Administration	-	**-**	-	-
Geomatics Canada Revolving Fund	-	**-**	-	-
Total Contributions in Reference Levels	54.9	**76.7**	93.3	93.6
Sub-Total Grants and Contributions in Reference Levels	55.5	**77.4**	93.8	94.1
Plus: Planned Spending Items*				
Grants	1.1	-	-	-
Contributions	-	**16.2**	2.2	1.5
Total Planned Grants and Contributions	56.6	**93.6**	96.0	95.6

* These Planned Spending figures include announcements made in the 1999 Budget Speech, along with $14.1 million Climate Change Action Fund reprofiling from 1998-1999 to 1999-2000. Resource profiles may change via the appropriate authorization mechanisms.

3. Geomatics Canada Revolving Fund Statement of Operations and Changes in Financial Position

($ millions)	1998-1999 Planned Expenditures	**1999-2000 Planned Expenditures**	2000-2001 Planned Expenditures	2001-2002 Planned Expenditures
Revenues				
Products	11.0	**12.6**	13.2	13.2
Services	2.9	**4.9**	3.8	3.7
Consulting	2.9	**1.7**	1.6	1.7
Total revenues	16.8	**19.2**	18.6	18.6
Expenditures (includes cost of goods sold)	16.4	**18.7**	17.9	17.9
Operating Surplus (deficit)	0.4	**0.5**	0.7	0.7
Changes in Working Capital	(1.0)	**0.2**	0.2	0.2
Capital acquisitions	(0.3)	**(0.2)**	(0.1)	(0.1)
Other items	0.3	**0.3**	0.3	0.3
Cash requirements	(0.6)	**0.8**	1.1	**1.1**

4. Projected Use of Geomatics Canada Revolving Fund Authority

($ millions)	
Authority April 1, 1994	**8.0**
Drawdown:	
• Anticipated Use at end of fiscal year 1998-1999	2.1
• Estimated Use for 1999-2000	(0.8)
Anticipated Authority Balance at the end of fiscal year 1999-2000	6.7

5. Outstanding Loans

($ millions)	Balance April 1, 1999	Receipts and Other Credits	Payments and Other Charges	Balance March 31, 2000
Atomic Energy of Canada Ltd.				
Housing	0.1	-	-	0.1
Heavy Water Inventory	9.5	1.0	-	8.5
Hibernia Development Project	132.0	-	-	132.0
Nordion International Inc.	52.8	-	39.4	92.2

D. Draft Performance Measurement Framework

NRCan's Performance Measurement Framework includes one set of goals, objectives and draft performance indicators. The framework provides the foundation for all departmental planning and reporting documents. In this regard, the framework addresses reporting and performance requirements of the Department's Sustainable Development Strategy, the Federal S&T Strategy, and internal management practices.

In spring 1998, the Department consulted with an independent advisory group, made up of 100 stakeholders, to review the draft indicators and seek guidance on refinements. Although stakeholder comments were generally favourable, many suggested that we strengthen the link between the indicators and the goals and objectives, and that we establish clear targets and benchmarks.

Using stakeholder comments, NRCan developed assessment criteria to refine each indicator and establish targets where appropriate. Furthermore, the Department identified data sources to support each indicator to establish existing levels of performance for each target. This initiative responds to the recommendation of the Commissioner of the Environment and Sustainable Development, in his review of federal sustainable development strategies in May 1998, that "departments should establish a clear set of targets and present them to the House of Commons in their spring 1999 reports on plans and priorities."

Many of the targets included in the draft Performance Measurement Framework are directional. In this regard, NRCan will establish current performance, based on credible data sources, and subsequently strive to maintain or improve on current performance. Following an evaluation of the Department's performance against the directional targets, NRCan would be in a position to consider replacing directional targets with numerical targets.

There are draft indicators included in the framework for which it would be too difficult to disentangle NRCan's contribution (e.g., contribution of the natural resource sector to the GDP) with any degree of precision. As such, targets were not identified for these 'macro' indicators. Nonetheless, the Department will track these indicators through trend analysis and monitoring.

NRCan proposes to use a four-part explanation to report on its performance to stakeholders. The first part would describe the numerical trend for the indicator. The second part would present an interpretation of the trend (i.e., what does it mean?) in terms of the indicator and the target. The third part would describe NRCan's role in terms of influencing the trend, and could include anecdotal information that would help to explain why a target was or was not achieved. The fourth part would focus on next steps and how the Department might assess activities based on the results of the performance measures.

The following tables present NRCan's draft Performance Measurement Framework, including indicators, and associated targets and approaches. The draft framework is also available on the sustainable development home page on the NRCan website at http://www.nrcan.gc.ca/dmo/susdev.

GOAL 1
To enable Canadians to make balanced decisions regarding natural resources.

OBJECTIVE 1.1 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.

Indicators:	Targets and approaches:
• User satisfaction with relevance, accessibility and quality of information.	• Maintain or improve current levels of use and satisfaction
• Public awareness of the importance and relevance of natural resources sectors, issues and NRCan's S&T.	• Maintain or improve awareness
• Adoption of NRCan-supported technology and practices.	• To be determined

OBJECTIVE 1.2 Promoting greater national and international cooperation and consensus on sustainable development issues, policies, goals and actions.

Indicators:	Targets and approaches:
• Participation in, and influence on, national and international multi-stakeholder approaches to sustainable development issues.	• Maintain or improve participation and influence
• Degree of leveraging by NRCan from shared S&T projects.	• Maintain or improve total funds and in-kind support leveraged

OBJECTIVE 1.3 Developing and promoting fiscal, regulatory and voluntary approaches that encourage the sustainable development of natural resources.

Indicators:	Targets and approaches:
• Participation in, and influence on, fiscal, regulatory and voluntary sustainable development initiatives.	• Maintain or improve participation and influence
• Influence of NRCan's S&T-based recommendations on regulatory regimes.	• Maintain or improve influence

GOAL 2

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

OBJECTIVE 2.1 Creating economic opportunities and encouraging investment in innovative and higher-value uses of natural resources.

Indicators:	Targets and approaches:
• Economic influence of NRCan S&T.	• Trend analysis and monitoring*
• Employment levels and productivity in resource and resource-related industries.	• Trend analysis and monitoring*
• Contribution of the natural resource sector to the Gross Domestic Product.	• Trend analysis and monitoring*
• Capital investment in resource and resource-related industries.	• Trend analysis and monitoring*

OBJECTIVE 2.2 Maintaining and expanding access to international markets for Canadian resource-based products, knowledge, technologies and services.

Indicator:	Target and approach:
• Value and percent of exports of resource-based products, technologies and services.	• Trend analysis and monitoring*

OBJECTIVE 2.3 Building the capacity of Aboriginal, rural and northern communities to generate sustainable economic activity based on natural resources.

Indicators:	Targets and approaches:
• Number of shared projects and funds leveraged with rural, Aboriginal and northern communities. (To be revisited after indicators established by Interdepartmental Committee on Sustainable Communities)	• To be revisited
• Employment level of Aboriginal peoples and northern residents in resource sectors.	• Trend analysis and monitoring*

* Target has not been identified as it is currently too difficult to determine NRCan's contribution with any degree of precision.

GOAL 3

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

OBJECTIVE 3.1 Helping limit and adapt to climate change.

Indicators:	Targets and approaches:
• a) Greenhouse gas emissions compared to Kyoto protocol. b) Greenhouse gas emissions to Gross Domestic Product ratio compared to other countries	• Canada's Kyoto protocol target is to reduce greenhouse gas emissions to six percent below the 1990 level between the years 2008 and 2012
• Trends in use of renewable energy.	• Trend analysis and monitoring*
• Trends in energy efficiency.	• After the energy efficiency index has been developed a desired directional target will be stated and a quantitative target will be considered.
• Greenhouse gas emissions from federal operations.	• By the year 2005, reduce greenhouse gas emissions from federal operations by 20 percent below 1990 levels
• Progress towards the identification of impacts and adaptation measures.	• To be determined

OBJECTIVE 3.2 Promoting science, technology and stewardship practices that reduce environmental impacts, conserve biodiversity, and increase the efficiency of natural resource development and use.

Indicator:	Target and approach:
• Environmental influence of NRCan's science, technology and stewardship practices.	• Maintain or improve NRCan's influence

OBJECTIVE 3.3 Safeguarding Canadians from the risks associated with natural resource development and use.

Indicator:	Target and approach:
• Progress towards the implementation of the 1996 Policy Framework for Radioactive Waste.	• Implementing the 1996 Policy Framework for Radioactive Waste.

* Target has not been identified as it is currently too difficult to determine NRCan's contribution with any degree of precision.

GOAL 4
To contribute to the safety and security of Canadians

OBJECTIVE 4.1 Safeguarding Canadians from natural hazards.

Indicator:	Target and approach:
• Impact of NRCan's S&T on the identification, mitigation and response to natural hazards.	• Hazard specific

OBJECTIVE 4.2 Maintaining a national framework for spatial positioning, mapping and boundary maintenance.

Indicator:	Targets and approaches:
• User satisfaction with aeronautical charts, the Canada Lands Survey System and the Canadian Spatial Reference System.	• Service standards exist in all three areas • Meet cycle deadlines 100 percent of the time • Maintain standards

OBJECTIVE 4.3 Promoting the safe use of explosives and pyrotechnics.

Indicator:	Target and approach:
• Accident and incident rate in the explosives and pyrotechnic industries in Canada.	• Zero accidents, no incidents

GOAL 5
To manage the Department efficiently and effectively.

OBJECTIVE 5.1 Managing NRCan's resources responsibly.

Indicators:	Targets and approaches:
• Employee satisfaction with NRCan management practices.	• Trend analysis and monitoring with corrective action as necessary*
• Progress towards the development and implementation of the Recruitment, Retention, and Rejuvenation Strategy and Integrated Accommodation Project.	• To be developed
• Savings realized from streamlining administrative processes, innovative service delivery, electronic commerce, improved facilities management, and information technology bulk purchasing and contracts.	• To be determined on a project-by-project basis.

OBJECTIVE 5.2 Continuously improving NRCan products, services and operations.

Indicators:	Targets and approaches:
• Response to recommendations from audits, evaluations, and other studies of NRCan management and operations.	• 80 percent implementation of audit and evaluation recommendations
• Progress towards the implementation of NRCan's Guide to Good Management.	• To be developed
• Progress towards the implementation of NRCan's S&T Management Framework.	• To be developed

OBJECTIVE 5.3 Using leading-edge environmental management tools and practices for NRCan operations.

Indicators:	Targets and approaches:
• Progress of the Department's Environmental Management System towards the implementation of ISO 14000 series of standards.	• By 2000, NRCan will be compatible with the ISO 14000 series of standards
• Progress towards the implementation of environmental health and safety audits and environmental assessment evaluation of NRCan operations.	• 100 percent implementation of action items stemming from findings of audit and evaluations

* Target has not been identified as it is currently too difficult to determine NRCan's contribution with any degree of precision.

GOAL 5 (Continued)

OBJECTIVE 5.4 Reducing wastes from NRCan operations.

Indicators:	Targets and approaches:
• Amount of solid non-hazardous waste from NRCan operations per capita per year.	• By 2000, 50 percent reduction in solid non-hazardous waste from level measured in 1995-96 audits
• Amount of greenhouse gases from NRCan operations.	• By 1999-2000, greenhouse gases reduced by a further 4,000 tonnes each year from the 1993-94 base level.

OBJECTIVE 5.5 Increasing the efficiency of energy and other resource use in NRCan operations.

Indicators:	Targets and approaches:
• Portion of fleet converted to alternative fuels.	• By 2004, 75 percent of fleet converted to alternative fuels where technically and operationally feasible.
• Energy consumption in NRCan owned and/or operated buildings.	• By 1999-2000, reduce energy consumption by 18 percent from 1993-94 levels.
• Water consumption at NRCan per year.	• By 2000, reduce consumption by 30 percent from the consumption in the 1994-95 base year.

OBJECTIVE 5.6 Promoting the use of goods and services that are eco-efficient

Indicators:	Targets and approaches:
• Rate of purchasing by NRCan of environmentally friendly goods and services.	• Establish baseline in 2000-01 after release II of Integrated Procurement and Payment System
• Rate of purchasing by NRCan of Green Power.	• 10,000 MWH of power purchased per annum

E. Contact and Internet Addresses for Further Information

Public Enquiries
Natural Resources Canada
Main Floor, 580 Booth Street
Ottawa, Ont.
K1A 0E4

Telephone: (613) 995-0947
Fax: (613) 992-7211
E-mail: questions@NRCan.gc.ca

Headquarters and Sector Internet Sites:

Natural Resources Canada Home Page	http://www.nrcan.gc.ca
Canadian Forest Service (Headquarters)	http://www.nrcan.gc.ca/cfs
Climate Change – Government of Canada	http://climatechange.gc.ca/english/html/index.html
Climate Change – NRCan	http://www.climatechange.nrcan.gc.ca/english/html/index.html
Climate Change Secretariat	http://climatechange.gc.ca/english/html/feature/feature.html
Corporate Services Sector	http://www.nrcan.gc.ca/css/css-pe.htm
Earth Sciences Sector	http://www.nrcan.gc.ca/ess
Energy Sector	http://www.es.nrcan.gc.ca
Minerals and Metals Sector	http://www.nrcan.gc.ca/mms
Statutes and Regulations	http://www.nrcan.gc.ca/dmo/spcb/regiss_e.html
Sustainable Development	http://www.nrcan.gc.ca/dmo/susdev

Earth Sciences Sector Internet Sites:

Aeronautical and Technical Services	http://aero.nrcan.gc.ca
Canada Centre for Remote Sensing	http://www.ccrs.nrcan.gc.ca
Canadian Geoscience Publications Directory	http://ntserv.gis.nrcan.gc.ca
Canadian Geospatial Data Infrastructure	http://cgdi.gc.ca
Canadian National Earthquake Hazards Program	http://www.seismo.nrcan.gc.ca
Canadian National Geomagnetism Program	http://www.geolab.nrcan.gc.ca/geomag
Centre for Topographic Information	http://maps.nrcan.gc.ca
Centre for Topographic Information – Sherbrooke	http://www.ccg.nrcan.gc.ca
Earth Sciences Information Centre	http://www.nrcan.gc.ca/ess/esic
Geodetic Survey	http://www.geod.nrcan.gc.ca
Geological Survey of Canada	http://www.nrcan.gc.ca/gsc
Geomatics Canada	http://www.geocan.nrcan.gc.ca
Legal Surveys Division	http://www.geocan.nrcan.gc.ca/lsd
National Air Photo Library	http://airphotos.nrcan.gc.ca
National Atlas of Canada	http://www-nais.ccrs.nrcan.gc.ca
National Atlas on SchoolNet	http://www-nais.ccrs.nrcan.gc.ca/schoolnet/
Polar Continental Shelf Project	http://polar.nrcan.gc.ca

Canadian Forest Service Internet Sites:

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

Minerals and Metals Sector Internet Sites:

Biominet	http://www.nrcan.gc.ca/mets/biominet/
Business Climate for Mineral Investment	http://mmsd1.mms.nrcan.gc.ca/business
Canadian Explosives Research Laboratory	http://www.nrcan.gc.ca/mms/explosif/cerldireng.htm
Canadian Certified Reference Materials Project (CCRMP)	http://www.nrcan.gc.ca/mets/ccrmp
Canadian Minerals Yearbook	http://www.nrcan.gc.ca/mms/cmy/index_e.html
CANMET Mining and Mineral Sciences Laboratory – Bells Corners	http://www.nrcan.gc.ca/mms/canmet-mtb/bells/homepge.htm
CANMET Mineral Technology Branch	http://www.nrcan.gc.ca/mms/canmet-mtb
Economic and Financial Analysis Branch	http://www.nrcan.gc.ca/mms/efab/
Experimental Mine (Val-d'Or)	http://www.nrcan.gc.ca/mms/canmet-mtb/valdor/menu_e.htm
Explonet (Pilot under Construction)	http://www.nrcan.gc.ca/mms/efab/mmsd/explonet/which.htm
Explosives Regulatory Division	http://www.nrcan.gc.ca/mms/explosif/
Materials Technology Laboratory	http://www.nrcan.gc.ca/mms/canmet-mtb/mtl
Mine Environment Neutral Drainage (MEND)	http://www.nrcan.gc.ca/mets/mend/
Minerals and Metals – A World to Discover	http://www.nrcan.gc.ca/mms/school/e_mine.htm
Minerals and Mining Statistics Division	http://www.nrcan.gc.ca/mms/efab/mmsd/
Mining Taxation World	http://www.nrcan.gc.ca/ms/efab/tmrd/
Mining and Mineral Sciences Laboratory	http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl.htm

Energy Sector Internet Sites:

CANMET Energy Technology Branch	http://www.nrcan.gc.ca/es/etb
CANMET Information Centre	http://www.nrcan.gc.ca/es/msd/cic/cicintro.htm
Energy Resources Branch	http://www.nrcan.gc.ca/es/erb/erb/index.html
Office of Energy Efficiency	http://www.oee.nrcan.gc.ca
Office of Energy Research and Development	http://www.nrcan.gc.ca/es/new/oerd.htm
Energy Policy Branch	http://www.nrcan.gc.ca/es/new/enquir2.htm#Energy Policy Branch

F. Subject Index

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