

Natural Resources Canada

2003-04 Estimates

A Report on Plans and Priorities

Approved

Herb Dhaliwal
Minister of Natural Resources

Table of Contents

| | Page |
|---|------|
| Section I Minister's Message | 1 |
| Management Representation | 2 |
| Section II Raison d'être and Planning Overview | 3 |
| Section III Plans and Priorities by Strategic Outcome | |
| To provide Canadians with: | |
| 1. Information to make balanced decisions regarding natural resources | 7 |
| 2. Sustainable economic, social and environmental benefits derived from natural resources for present and future generations | 12 |
| 3. Strategies that reduce environmental impacts in the natural resources sector | 20 |
| 4. Safety and security in the natural resources sector | 28 |
| 5. A department that is efficiently and effectively managed | 32 |
| Section IV Organization | |
| 1. Organization Chart | 36 |
| 2. Planned Spending Crosswalk by Strategic Outcome and Sector for 2003-04 | 38 |
| 3. Financial Spending Plan | 39 |
| Annexes | |
| 1. Summary of Transfer Payments | i |
| 2. Details of Transfer Payment Programs which exceed \$5 million in 2003-04 | ii |
| 3. Source of Respendable and Non-Respendable Revenues | iv |
| 4. Planned Expenditures for 2003-04 by Major Activities/Strategic Outcome..... | v |
| 5. Net Cost of Program for the Estimates Year 2003-04 | vi |
| 6. Geomatics Canada Revolving Fund Statement of Operations and Changes in Financial Position | vii |
| 7. Projected Use of Geomatics Canada Revolving Fund Authority | viii |
| 8. Loans, Investments and Advances | viii |
| 9. Internet Addresses and Statutory Annual Reports | ix |

Issues by Strategic Outcome

Strategic Outcome 1 - To provide Canadians with information to make balanced decisions regarding natural resources.

| | |
|---|----|
| Creating and sharing knowledge | 8 |
| Furthering strategic partnerships in Canada's forest sector | 8 |
| Promoting sustainable forestry | 9 |
| Delivering geospatial information on the Internet | 10 |

Strategic Outcome 2: To provide Canadians with sustainable economic, social and environmental benefits derived from natural resources for present and future generations.

| | |
|--|----|
| Promoting energy diversity | 12 |
| Ensuring an internationally competitive mining tax regime | 14 |
| Measuring sustainable development in Canada's minerals and metals industries | 15 |
| Stimulating new investments in mineral exploration | 16 |
| Goundwater: vital but vulnerable | 17 |
| Developing our resources sustainably | 17 |
| Enhancing the competitiveness of Canada's forest sector | 18 |

Strategic Outcome 3: To provide Canadians with strategies that reduce environmental impacts in the natural resources sector.

| | |
|--|----|
| Addressing climate change | 20 |
| Pursuing Canada's Kyoto GHG reduction targets through national forest-related initiatives .. | 24 |
| Developing technologies that reduce GHG emissions produced by the minerals and metals industries | 24 |
| Supporting Canada's clean air agenda | 25 |
| Long-term management of nuclear fuel waste | 27 |

Strategic Outcome 4: To provide Canadians with safety and security in the natural resources sector.

| | |
|--|----|
| Improving natural hazards knowledge and emergency response | 28 |
| Meeting Canadians' security and safety needs | 29 |
| Enhancing environmental safety and security of domestic supply through pipeline monitoring | 30 |
| Increasing the sustainability of mining | 31 |

Strategic Outcome 5: To provide Canadians with a department that is efficiently and effectively managed.

| | |
|---|----|
| Advancing modern management | 32 |
| Building a strong and diverse workforce | 33 |
| Strengthening our information management (IM)/information technology (IT) | 34 |
| Efficiently delivering our S&T programs | 34 |
| Fulfilling our environmental responsibilities | 35 |

I Minister's Message

I am pleased to present the 2003-04 Report on Plans and Priorities for Natural Resources Canada (NRCan).

Canada's natural resources are abundant and varied. They contribute to our high quality of life and create opportunities for all Canadians. NRCan plays a pivotal role in helping shape the important contributions of the natural resources sector and allied industries to the Canadian economy, society and environment. Its activities focus on the sustainable development, use and life-cycle management of natural resources, and the communities and industrial sectors they support.



Herb Dhaliwal
Minister of Natural Resources

As we perform this role, we must also adapt to the changing realities of our environment, our global economy and the growing demand for resources. As Minister of Natural Resources Canada, I want to ensure that we are recognized as a world leader in the sustainable development and wise use of natural resources. By improving how we manage and conserve our natural resources, we can better meet the Government of Canada's commitment to ensuring the quality of life in our communities, a healthy environment and continued economic prosperity.

This Report on Plans and Priorities explains how NRCan's policies, programs and science and technology (S&T) contribute to the Government of Canada's priorities regarding Aboriginal people, health, environment, youth and investment. In addition, it explains how we strive to enhance the natural resources sector's contribution to our economy, promote Canada's interests on the international stage, and work in partnership with government, industry, organizations and communities to achieve common objectives for the natural resources sector.

Our most urgent priority is our work to further reduce greenhouse gas emissions to meet our climate change commitments under the Kyoto Protocol. In this fiscal year alone, NRCan will spend \$234.5 million¹ in program areas that will help Canadians meet our obligations.

Within the Department, we are continuing to implement measures that will help us build a workforce that is fully representative of Canadian society and that better serves our clients and all Canadians. The diversity and talent of our workforce provide NRCan with the strength to face our challenges and ensure the responsible use of our natural resources. This will enhance our ability to protect our environment, create opportunities and encourage innovative approaches to balancing our economic, social and environmental objectives — for the Canada we want, for ourselves and for future generations.

¹ Does not include Budget 2003 planned spending announcements on climate change.



Management Representation

Report on Plans and Priorities 2003-04

I submit, for tabling in Parliament, the 2003-04 Report on Plans and Priorities for Natural Resources Canada.

To the best of my knowledge, the information:

- accurately portrays the Department's plans and priorities;
- is consistent with the reporting principles contained in the *Guide to the preparation of the 2003-04 Report on Plans and Priorities*;
- is comprehensive and accurate; and
- is based on sound underlying departmental information and management systems.

The Planning, Reporting and Accountability Structure on which this document is based has been approved by Treasury Board Ministers and is the basis for accountability for the results achieved with the resources and authorities provided.

Name: _____
Bruce C. Holden

Date: _____

II Raison d'être and Planning Overview

Raison d'être

Vision for Canada's natural resources sector "Quality of Life through Sustainable Resource Development"

Planning Overview

NRCan is mandated through the *Department of Natural Resources Act* (1994) to have regard to the sustainable development and wise use of Canada's natural resources. It delivers on this mandate and other legislated responsibilities through policy, S&T and programs delivered by offices across Canada with extensive domestic and international reach. The Department is the federal lead on forestry, energy supply and use, minerals and metals, and earth sciences, and works closely with partners and stakeholders in other levels of government, the private sector, non-governmental organizations (NGOs) and Aboriginal groups.

NRCan provides Canadians with:

- | | |
|----------------------|---|
| Strategic Outcome 1. | Information to make balanced decisions regarding natural resources |
| Strategic Outcome 2. | Sustainable economic, social and environmental benefits derived from natural resources for present and future generations |
| Strategic Outcome 3. | Strategies that reduce environmental impacts in the natural resources sector |
| Strategic Outcome 4. | Safety and security in the natural resources sector |
| Strategic Outcome 5. | A department that is efficiently and effectively managed |

The natural resources sector and allied industries form a cornerstone of Canada's economy. In 2001, the minerals and metals, forest and energy sectors contributed 13 percent of total GDP (\$129.1 billion). Its GDP contribution has remained constant at 13-15 percent over the past decade, despite substantial growth and diversification in Canada's economy. During the same period, direct employment has remained relatively stable at close to one million Canadians from urban, rural and Aboriginal communities across all regions. The international reach of this export-oriented sector and allied industries has grown substantially, establishing Canada as a platform for global enterprise. This sector and related industries, including geomatics and geoscience, are leading exporters of commodities, services, technologies and manufactured products, representing 40 percent of Canada's domestic merchandise exports in 2001 and contributing \$73.4 billion to Canada's positive trade balance.

The resources sector, in general, recorded a strong productivity performance over time, with the majority of the sector sustaining labour and total factor productivity growth rates well above the economy as a whole over the past decade. However, weaker performance has been recorded in a few areas, most significantly in the forest sector. During this time, the resources sector contributed close to 30 percent of total private capital investment annually (\$45 billion in 2001). Energy investment has grown substantially, whereas forest and minerals and metals sector investment has remained relatively flat or dropped off. Return on investment lags behind the

manufacturing sector, which has outperformed the natural resources sector (except for the oil and gas sector since 2001). Innovation in the sector is tightly tied to capital investments, which embody advanced technologies and new processes which improve productivity and environmental performance.

Canada's resource potential is substantial, but is increasingly from more remote and environmentally-sensitive areas. This is particularly true for the oil and gas and mining sectors, which are increasingly pursuing new opportunities in the North and offshore areas. Critical to the sustainable development of these resources is scientific knowledge for public and private sector decision-making, new technologies to maximize productivity and environmental performance, and the involvement of local communities in economic opportunities. NRCan plays a role in all of these areas, in collaboration with public and private sector partners and stakeholders.

The policy priorities of NRCan reflect the major themes outlined in the Government's September 2003 Speech from the Throne, as well as strategic issues requiring federal leadership such as climate change. NRCan's key policy priorities for the planning period are:

- enhancing the climate for investment, through competitive taxes and smart regulation;
- building a strong economy through innovation and learning, including positioning Canada as a world leader in clean energy;
- tackling the challenge of climate change and the environment through sustainable development;
- closing the gap between Aboriginal and non-Aboriginal Canadians through increased economic opportunities from the sustainable development of natural resources; and
- securing our place in North America and the world, with a focus on improving market access and expanding market development.

The planning context for 2003-04 is significantly shaped by progress made on these priorities over the past year, including:

Climate Change and the Environment – In December 2002, Parliament passed an historic resolution endorsing Canada's ratification of the Kyoto Protocol on climate change. To implement the Protocol, Ministers Dhaliwal and Anderson (Environment) released the *Climate Change Plan for Canada*, a balanced plan which will be further defined and implemented over the coming year through consultation and collaboration with governments, industry, NGOs and Canadians in general. Key areas of focus for NRCan include negotiating covenants with large industrial emitters, clean energy technology development and demonstration, alternative and renewable energy, and energy efficiency measures for governments, business and individual Canadians.

In 2002-03, NRCan renewed funding for Canada's Model Forest Program, which has made a substantial contribution to sustainable forest management in Canada and has become an international model. Model forests provide a mechanism for partners from industry, academia, environmental and other NGOs, Aboriginal and community groups and governments to work together to ensure that the forests remain a healthy and dynamic part of the communities.

Investment, Innovation and Learning – Innovation in the resources sector is closely linked to capital investment as well as R&D. Models of innovation based in R&D intensive manufacturing companies do not adequately capture the nature of both process and product innovation in the resources sector. Minister Dhaliwal convened a National Roundtable on Innovation and Skills in the Natural Resources Sector and Allied Industries on October 3-4, 2002, which brought together key leaders from industry, academia, governments, and Aboriginal and NGOs. The Roundtable provided coordinated, focused input from sector stakeholders to the National Summit on Innovation and Learning, and also served to renew the dialogue between government, industry and other key stakeholders on achieving common goals through partnership and collaboration.

Roundtable participants indicated that the single most important area for action was improving return on investment. NRCan has worked closely with other federal departments and stakeholders to analyze and advance specific measures to improve the competitiveness of the tax regime for the resources sector as well as to identify ways of improving the efficiency and effectiveness of regulatory regimes. An area of significant focus for advancing the Government's Smart regulation strategy has been related to offshore oil and gas development in Atlantic Canada. Ministers Dhaliwal, Rock (Industry), Thibault (Fisheries and Oceans) and Byrne (Atlantic Canada Opportunities Agency) convened the Atlantic Energy Roundtable in November 2002 to explore with provincial ministers and industry leaders how to work together to achieve greater regulatory efficiency and further regional economic opportunity with respect to offshore oil and gas development.

The creation and dissemination of new scientific knowledge and technology is a core component of NRCan's mandate, both through direct S&T performance as well as the funding and facilitating of work by external performers. Partnerships are central to NRCan's S&T activities and strategies, including the Intergovernmental Geoscience Accord, which was renewed in 2002 with the provinces and territories, as well as the Innovation Acceleration Centre through which industry can incubate new ideas and technologies alongside researchers from the Canadian Centre for Remote Sensing.

Market Access and Development – The softwood lumber dispute with the United States remains a critical issue for Canada's forest sector and the hundreds of communities which depend on it. Over the past year, NRCan led efforts which resulted in Government of Canada investments aimed at diversifying markets (Canada Wood Export Program), promoting the long-term competitiveness of the forest sector through R&D and technology transfer, assisting communities dependent on softwood lumber to develop their economies, and supporting workers.

Minister Dhaliwal led the first Canadian business development mission on natural resources to India in November. Representatives of 45 world-class Canadian companies specializing in geomatics, geoscience, energy, mining and forestry products showcased Canadian excellence in innovation, technology and the sustainable development of natural resources and helped promote economic ties with this large emerging market.

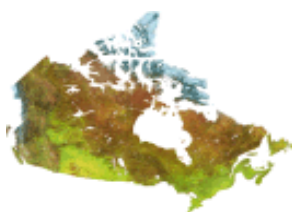
The Department has succeeded, in partnership with South Africa, in engaging world governments in a global dialogue on sustainable development in the minerals and metals sector as a follow-up to the World Summit on Sustainable Development. This is the first time that governments have agreed to discuss, at the global level, environmental, social and economic issues relevant to the minerals and metals sector. As an example of specific action taken, NRCan, Indian and Northern Affairs Canada (INAC) and the Department of Foreign Affairs and International Trade (DFAIT) worked to introduce legislation in fall 2002, now passed, to control the import, export and transit of rough diamonds in order to meet international obligations under the Kimberley Process. This process discourages trade in conflict diamonds that has had a devastating impact on peace, security and sustainable development in several African countries.

Looking ahead, there are essential steps to be taken in 2003-04 to advance the Government's priorities and address key challenges facing Canada, including continuing to take action on climate change and improving the climate for investment in our resources sector and related industries. As outlined in the RPP, NRCan will deliver on five strategic outcomes through a number of objectives aimed at delivering measurable results. These strategic outcomes map against the policy priorities for the Department and government, ensuring both responsiveness and transparency in the allocation of resources to priorities.

III Plans and Priorities by Strategic Outcome

Section III summarizes NRCan's key commitments by the Department's five strategic outcomes which are aligned with our Sustainable Development Strategy and performance indicators. Over the course of this year, these indicators may change as the Department consults with stakeholders on the development of its next strategy, which will be tabled in Parliament by December 2003.

In the spirit of better communicating our plans and priorities, the Department is providing an analysis of planned expenditures for 2003-04 by strategic outcome. This should help the Department provide greater disclosure along with evidence of value for money to Canadian taxpayers. Information about commitments not appearing in this report can be found on the Department's main web site at <http://www.nrcan.gc.ca> or at the various web sites on pages ix-xi.



Strategic Outcome #1 - To provide Canadians with information to make balanced decisions regarding natural resources.

| Short to medium-term objectives | Performance Indicators |
|--|--|
| Easily accessible and integrated knowledge on the state of Canada's landmass and natural resources, and the economic, environmental, and social dimensions of their use. | <ul style="list-style-type: none">• User satisfaction with relevance, accessibility and quality of information.• Public awareness of the importance and relevance of the natural resources sector, its issues, and NRCan's S&T.• Adoption of NRCan-supported technology and practices. |
| Greater national and international cooperation and consensus on sustainable development issues, policies, goals and actions. | <ul style="list-style-type: none">• Participation in, and influence on, national and international multi-stakeholder approaches to sustainable development issues.• Degree of leveraging by NRCan from shared S&T projects. |
| Fiscal, regulatory and voluntary approaches that encourage the sustainable development of natural resources. | <ul style="list-style-type: none">• Participation in, and influence on fiscal, regulatory and voluntary sustainable development initiatives.• Influence of NRCan's S&T-based recommendations on regulatory regimes. |

Planned Expenditures for 2003-04

Of NRCan's total planned expenditures of \$812.1 million, \$161.2 million or 20 percent is planned to be spent on informing Canadians regarding natural resources. Of this, \$92.5 million is attributable to information about departmental S&T programs. More details on major activities by strategic outcome can be found on page v, table 4.

Key commitments

Creating and sharing knowledge –

NRCan-on-Line (NOL) is a department-wide initiative that responds to citizens/clients expectations for high quality, comprehensive and accessible information and services through the Internet (\$1.5 million/year).

NOL Mission – Promote and enhance the generation and dissemination of knowledge and information to support sound decision-making on the sustainable development of Canada's natural resources for the social, economic and environmental well-being of Canadians.

Over the planning period, NOL will complete its e-government capacity check and prepare an action plan in response. The end result will be an assessment of the Department's current capabilities against the e-government capacity check criteria, and identification of opportunities for improvement.

NOL is also the foundation for NRCan's participation in Government on Line (GOL). Given that departments have to use their own resources to implement e-government, NRCan has begun the process of redefining its key service lines by clustering the common services offered to clients/citizens into broad groupings. During the planning period, the Department will further refine its service lines and undertake an inventory of services to ensure alignment of departmental efforts with the emerging federal government service vision for Canadians. NRCan will also continue to participate on key GOL, and Cluster and Gateway committees.



Visit www.nrcan.gc.ca to view NRCan's main web site.

In addition, NRCan currently leads an interdepartmental initiative to explore opportunities for an integrated approach to web mapping and visualization across federal departments. This initiative is funded by GOL under the Service Transformation allocation. By the end of the planning period, it is expected that a vision for an integrated approach to web mapping and visualization – across the government – will be developed.

Furthering strategic partnerships in Canada's forest sector

NRCan is actively engaged in a number of major sustainable forest management partnership initiatives. For example, in partnership with the Canadian Council of Forest Ministers (CCFM) and a governmental and non-governmental coalition (<http://nfsc.forest.ca>), NRCan will work to establish synergies among diverse forest interests and will coordinate the federal government's input of some 20 departments and agencies to a new and bolder *National Forest Strategy* (2003-08). The strategy addresses national and international issues and priorities and sets the overall direction for the stewardship and sustainable management of Canada's forests. It will be presented to Canadians at the 9th National Forest Congress (<http://nfc.forest.ca>) in Ottawa, May 1-2, 2003, and then to the world at the XII World Forestry Congress in Quebec City, September 21-28, 2003 (see next page). Costs associated with developing the strategy are estimated at \$750,000 consisting of approximately 2/3 government, 1/3 non-government, with NRCan's share estimated at \$166,500.



National Forest Strategy

NRCan's flagship programs of sustainable forest management – Model Forest Program (MFP) and First Nations Forestry Program (FNFP) – bring together industry, federal, provincial and municipal governments, First Nation, the forest research community, Aboriginal peoples, and local community groups to promote Canada's sustainable forestry agenda and the adaptation of sustainable forest management practices. The Department will be conducting various audits, evaluations and risk assessments over the planning period.

The MFP (www.modelforest.net) addresses sustainable forest management issues in 11 model forests located nation-wide. It does so through, for example, the application of Geographic Information System technologies for forest management and resources scenario planning, leading-edge wildlife research, alternative silviculture and harvesting practices, the development and implementation of local level indicators, and sustainability codes of conduct for woodlot managers and forest contractors.

The current phase of the program (2002-07) is focusing on strengthening model forest network activities and exhibiting influence on sustainable forest management both within and beyond the model forest boundaries. In addition to developing on-the-ground innovative solutions and tools for sustainable forest management nationally and at the local level, the program also focuses efforts on developing a carbon accounting model applicable at the operational level. The model, intended for widespread use in the forest sector across Canada, will be consistent with national carbon accounting procedures and international accounting rules, and will take into consideration all forest carbon stocks recognized by the Kyoto Protocol.

NRCan expenditures for implementing the MFP has been established at \$40 million over the five year period, with \$8 million earmarked for the 2003-04 fiscal year. Partners are expected to contribute an estimated \$6 million/year in the form of cash and in-kind support for a total estimated contribution of \$30 million over the five years.

Moreover, NRCan and the Department of Indian and Northern Affairs Canada (INAC) have been working toward improving economic conditions in status First Nation communities through the delivery of the FNFP (www.fnfp.gc.ca). For the next five years, the program – which has provided opportunities to form partnerships, build trust and respect – will continue to enhance the capacity of First Nations to sustainably manage their forest lands and to participate in forest-based development opportunities and benefits.

Operationally, in British Columbia, there will be a substantial effort to work with First Nations to address the Mountain Pine Beetle (MPB) infestation on reserve lands through various types of projects (\$7.5 million over five years from the MPB initiatives).

Total funding for the FNFP over the next five years is \$6.5 million annually; \$3.25 million from INAC, \$1.75 million from NRCan, and \$1.5 million from the MPB.

Promoting sustainable forestry – As a recognized world leader in sustainable forest management, Canada is proud to be hosting the XII World Forestry Congress “*Forests, Source of Life*” in Québec City from September 21-28, 2003. This year's prestigious event, which is organized through the joint efforts of NRCan and the *Ministère des Ressources naturelles du Québec*, will cover three broad areas: *Forests for People*,

Forests for the Planet, and People and Forests in Harmony. With an estimated 5,000 delegates from 180 countries scheduled to attend, the Congress will feature the latest developments in forest sector innovation, and provide an opportunity to exchange ideas, information and insights on a broad range of forest issues.



Logo for World Forestry Congress, September 2003
<http://www.wfc2003.org>

The Congress will offer participants a mix of over 200 presentations, 24 keynote speakers, 100 exhibits, 28 technical visits to research laboratories and natural areas, over 70 related side events, 12 in-depth study tours across Canada and Maine, and four training seminars on modelling, geomatics, wood processing, and forest inventories.

In the coming months, NRCan and the Congress Secretariat will make every effort to ensure that the Congress meets the needs and interests of the global forest community. For example, they will:

- promote the WFC to targeted national and international audiences to ensure that all community members are aware of opportunities;
- secure funding support for participating delegates, particularly those from developing countries;
- review some 950 voluntary papers and posters from around the world; and

- coordinate a range of key forest sector deliverables and initiatives that will be brought into position at the Congress.

NRCan is providing approximately \$2 million towards the cost of the Congress. Other major sources of funding include the support of the province of Quebec, forest products companies and associations, registration fees, sponsors, and contributions from a variety of other sources.

Delivering geospatial information on the Internet

– Into its fifth year of development (\$15.8 million in 2003-04), GeoConnections, a national partnership initiative led by NRCan, is a cornerstone in the efforts to enable Canadians to make balanced decisions regarding natural resources. With federal, provincial and territorial governments, the private sector and academia working together to build the infrastructure, Canadians will have easy access to geographic data, services and applications they require to make informed decisions whether they be social, economic, environmental, or simply on a personal interest level. Several initiatives are underway to ensure the provision of geospatial data becomes a reality for increasing the knowledge network to Canadians.

In 2003-04, the GeoConnections program will continue this collaborative effort addressing geospatial information in multi-disciplinary management areas (e.g., oceans research, resources, national security and disasters), and incorporate this knowledge within the infrastructure.

The following are a number of key outcomes that will facilitate this:

- increase partnership arrangements with federal and provincial organizations through the signing of the Canadian Geomatics Accord; to date, eleven provinces and territories, and three federal departments have signed the accord;

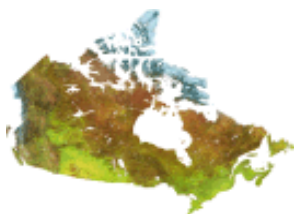


GeoConnections - partnerships for geographic information (map of Vancouver)

- increase Sustainable Communities Initiative partnership projects to promote and encourage rural and remote regions to learn geographic information systems; this transition of knowledge plays an important role in communities' decision-making and risk management;

- through GeoInnovations – an industry-led partnership program bringing together the expertise, technology and funding that enables Canadian small and medium-sized geomatics companies – pursue the development of new applications, tools and services for the Canadian geospatial infrastructure;
- launch a new version of the Discovery Portal of the access component of GeoConnections to provide Canadians with additional capabilities to access geographic data, software and services over the Internet; and
- provide the Canadian public with the capability to obtain decimeter to centimeter level accuracy Global Position System positions in relation to the nationally consistent frame of reference.

In addition, the Department will be conducting a risk assessment of GeoConnections in 2004. More information on program initiatives can be found at <http://www.geoconnections.org>.



Strategic Outcome #2 - To provide Canadians with sustainable economic, social and environmental benefits derived from natural resources for present and future generations.

| Short to medium-term objectives | Performance Indicators |
|--|--|
| Greater economic opportunities and encouraging investment in innovative and higher value uses of natural resources. | <ul style="list-style-type: none"> • Economic influence of NRCan S&T. • Employment levels and productivity in resource and resource-related industries. • Contribution of the natural resources sector to the GDP. • Capital investment in resource and resource-related industries. |
| Expanded access to international markets for Canadian resource-based products, knowledge, technologies and services. | <ul style="list-style-type: none"> • Value and percent of exports of resource-based products. |
| Increased capacity of Aboriginal, rural and northern communities to generate sustainable economic activity based on natural resources. | <ul style="list-style-type: none"> • Number of shared projects and funds leveraged with rural, Aboriginal and northern communities. • Employment level of Aboriginal people and northern residents in resource sectors. |

Planned Expenditures for 2003-04

NRCan plans to spend \$261.1 million or 32 percent of its total planned expenditures of \$812.1 million on sustainable benefits from our natural resources. Offshore oil resource support and revenue funds comprise 33 percent (\$86.3 million) and S&T activities comprise 30 percent (\$78.6 million) of planned spending. More details on major activities by strategic outcome can be found on page v, table 4. Of the planned spending for this strategic outcome, \$139 million will be attributed to transfer payment programs (over 50 percent), details of which can be found on page ii, table 2.

Key commitments

Promoting energy diversity – Energy is a strategic commodity for Canada. On the supply side, Canada produces energy beyond its own needs and is a net exporter, thus making an important contribution to Canada's balance of trade (\$37.6 billion). On the demand side, access to low-cost and secured energy promotes economic development and minimizes energy costs for Canadians, thus playing a key role in

maximizing the benefits of the energy sector to Canadians (\$64.5 billion or 6.5 percent of GDP in 2001).

Nuclear energy option – Nuclear energy will continue to play a vital role in Canada's overall mix of power sources given that it currently provides 13 per cent of Canada's total electricity needs. Nuclear energy is a proven

technology that is well positioned to play an even greater role in meeting Canada's energy needs, as well as its air quality and climate change commitments. Over the planning period, NRCan will assist the Minister in the review of Atomic Energy of Canada Limited, including its Advanced CANDU reactor concept, to ensure it remains an appropriate policy measure.

Production of renewable energy – Canada is a world leader in the production of renewable energy, with about 17 percent of its primary energy supply coming mainly from two sustainable sources: water (11 percent) and biomass (6 percent).

Emerging renewable energy sources such as wind power and solar energy, both for heating and electricity generation, are rapidly gaining in importance and acceptance by utilities and industry. In 2003-04, NRCan will spend \$1.74 million in S&T to improve the economics and efficiency of conversion of renewable energy to electricity, including related storage, hybrid, and systems technologies. Goals include:

- the development of advanced processes for converting biomass to fuels and electricity at a minimum 10 percent higher efficiency compared to existing combustion processes;
- the development of new and improved engineering design of small hydro power (less than 20MW) equipment to increase efficiency and reduce costs; and
- the development of high efficiency direct drive generator technology for small wind turbines (10-275 kW range).



Solar electricity for remote communities

Renewable energy technologies and integrated systems in off-grid/remote communities – In 2003-04, NRCan will spend \$730,000 in S&T directed at increasing the capacity of Canadians and Canadian industry to integrate renewable energy systems in off-grid applications, particularly in remote communities in Canada. Targets include:

- by 2006, a minimum of four technical and/or management tools for communities to undertake an integrated energy planning process;
- by 2006, communicate the results of field tests leading to a 10 percent increase in the ratio of renewable energy use to total energy use in off-grid residences by 2010; and
- by 2015, a 100 percent increase in installed capacity of renewable energy technologies in off-grid and remote communities.

Further information on renewable energy and energy technologies can be found at

http://www.nrcan.gc.ca/dmo/scitech/entech_links.htm

Hydrogen production and storage – Hydrogen will be an important component of Canada's energy infrastructure in the future. Using hydrogen in non-polluting fuel cells or internal combustion engines is a cleaner alternative to conventional or diesel-powered engines. NRCan has recently integrated its R&D activities (\$5.8 million/year) in the areas of fuel cells, hybrid vehicles and hydrogen. A new program will be developed in 2003-04 focusing on the development and testing of laboratory and prototype components and system, evaluation of promising new technologies, and development of health, safety and environmental policies, standards and guidelines.

Ensuring an internationally competitive mining tax regime –

Canada's reserves of most major metals have been declining for several years resulting in shortened lives for producing mines and an increasing number of mine closures. Given the importance of the tax regime in stimulating exploration and mine development, the federal and provincial governments have undertaken several initiatives to encourage investment in the mining industry. NRCan is involved in the following initiatives.



The 15 percent federal Investment Tax Credit for Exploration (ITCE) and the harmonized provincial tax credits, which aim at attracting interest in grass-roots exploration, have been instrumental in increasing the amount of money raised using flow-through shares from \$63 million in 1999 to over \$180 million in 2002. NRCan, in partnership with the provinces/territories, the Prospectors and Developers Association of Canada and the Canada Customs and Revenue Agency (CCRA), will hold awareness sessions to inform clients about the benefits of the ITCE. In accordance with recommendations of the intergovernmental committee reviewing the harmonized federal/provincial exploration tax credits, Budget 2003 proposes to extend the scheduled expiry date one year to December 31, 2004, and under specific circumstances, the credit may be applied to eligible expenses incurred up until 2005.

In response to a request from industry and the provinces, NRCan, Finance and the CCRA will review the costs that are eligible for the 100 percent income tax deduction accorded to Canadian exploration expenses. At issue is the inclusion among eligible expenses of costs related to early consultation with stakeholders on proposed mining exploration and development, and for environmental baseline studies.

In the area of corporate tax reform, Budget 2003 proposes to reform the corporate income tax system by incorporating the non-renewable resource sectors into the general corporate income tax rate reduction plan announced in Budget 2000. A technical paper, to be released shortly, will set out the detailed proposal for a lower overall taxation rate and the restructuring of some resource tax provisions. Consultations will provide feedback on the proposal before it is finalized and implemented. NRCan will review the technical paper and will continue to work with Finance, the provinces/territories, the Mining Association of Canada, the Canadian Fertilizer Institute and other industry associations to seek agreement on transitional rules and on ensuring that mining is not penalized by the proposed reform.

Finally, NRCan will assist South Africa in evaluating the possibility of using the highly successful mixture of tax credits and flow-through shares to provide financing for its junior mining sector, with the objective of using this as a possible means for historically disadvantaged groups to participate in mineral development. More information on mining taxation can be found at <http://www.nrcan.gc.ca/miningtax/>.

Measuring sustainable development in Canada's minerals and metals industries

– NRCan is developing indicators to measure the contribution of the minerals and metals industries to sustainable development. The Department is doing so in collaboration with other federal departments, provincial/territorial governments, industry, Aboriginal groups, non-government organizations, and other stakeholders. By the end of 2003-04, NRCan expects to receive recommendations on a suite of national indicators to measure the social, economic and environmental contributions of these industries to quality of life for Canadians.



Minerals and Metals Indicators (MMI)

NRCan is also working with stakeholders to identify common goals, objectives and indicators for sustainable development that can be applied to the minerals and metals industries. The conceptual approach builds on a framework developed and tested by The World Conservation Union and other organizations. The Department is facilitating the work of the multi-stakeholder Minerals and Metals Indicators (MMI) Initiative Steering Committee, which is supported by a broader multi-stakeholder advisory group. Ultimately, this framework could be applied to other economic sectors, resulting in data that are comparable across Canada and internationally with other developed countries.

NRCan will make presentations on MMI at the meetings for the Society for Mining, Metallurgy and Exploration in Cincinnati, Ohio in

February 2003; the Mineral Economics and Management Society in Golden, Colorado in April 2003; the Canadian Institute of Mining, Metallurgy and Petroleum in Montreal, Quebec in May 2003; and the international conference on Sustainable Development Indicators for the Minerals Industry in Greece, May 2003. In addition, NRCan will continue to share information and engage in discussions with peer indicator initiatives in the United States, the European Union, and Australia. The MMI website (<http://www.nrcan.gc.ca/mms/mmi/>) will share information on the indicators and collect peer and public comment on the MMI framework, indicators and process.

By aligning stakeholder assessment tools, such as performance measures, to the MMI framework, decision-makers in Canada's minerals and metals industries will be better able to evaluate and demonstrate their performance relative to the MMI indicators. This will enable better decision-making and stimulate change, contributing to national sustainable development goals, namely, increased well being for Canada's people and ecosystems.

Did you know? At the World Summit on Sustainable Development (WSSD), Canada announced the formation of the Global Dialogue (GD), in partnership with South Africa. This initiative is a new partnership of willing national governments who seek to implement the WSSD proposed actions relating to minerals and metals industries.

NRCan's co-leadership in the GD ensures that those with an interest in the long-term viability of the minerals and metals industries, and related export markets, continue to have an important voice in policy-making. NRCan has been chosen to act as the secretariat to prepare for the GD's inaugural meeting at the beginning of 2004. The international GD secretariat is expected to continue to be located in Canada.

Stimulating new investments in mineral exploration – Responsible development of mineral and energy resources is the basis for future economic sustainability and quality of life for northern Canadians. NRCan recognizes that the North's geoscience knowledge base is currently inadequate. This lack of data impedes the private sector investment that will drive the development of mineral and energy resources needed to build a robust Northern economy. NRCan's Northern Resources Development Program will assist northern Canadians in attaining economic self-sufficiency, social stability and improved quality of life.

Beginning in 2003-04, stepping stones towards this goal include:

- synthesizing and releasing geoscience knowledge relevant to petroleum exploration and exploitation for regions of northern British Columbia, the Mackenzie Valley and the Beaufort region;
- synthesizing existing information for mineral exploration for southern Yukon, the border regions of northern Alberta and B.C., the Slave craton of the Northwest Territories, and central Nunavut west of Hudson Bay; and
- applying new remote sensing techniques to identify/assess resource availability especially where ground-based geoscience knowledge is sparse or entirely lacking in the vast, largely unexplored regions of Canada's north.

Moreover, the Targeted Geoscience Initiative (TGI) – which received an additional \$10 million over the next two years in Budget 2003 – will continue to provide integrated geoscience knowledge pertaining to areas of elevated mineral potential with the intent of stimulating mineral exploration (\$5 million in 2003-04).

Did you know? Early results from the 29 TGI geoscience mapping and thematic studies carried out in nine provinces and three territories immediately stimulated exploration in more than two-thirds of the targeted areas.

Data acquired during the three-year research program, and released in preliminary reports and maps, will be merged, refined and interpreted in more detail in 2003-04, and will be published as final compilations, interactive maps and databases that will serve as the legacy of the program. As one example, TGI funding was used to establish the Canadian Geoscience Knowledge Network metadata catalogue. Scheduled for completion and full online operation in 2003-04, stakeholders will be able to use the catalogue to learn what geoscience data information is available from Canada's federal, provincial and territorial geological surveys, and how to access and use the information most relevant for their needs.

As well, some of this knowledge will be presented to the exploration industry in the newly mapped field areas as TGI project leaders guide stakeholders over the ground they have studied to provide on-site interpretations and understandings to augment the published knowledge of some prospective settings for exploration. More information about geoscience programs can be found at <http://www.nrcan.gc.ca/gsc>.



An NRCan scientist pulverizing and separating mineral samples on a vibrating water table

Did you know? The Polar Continental Shelf Project (PCSP) – which received an additional \$6 million over the next two years in Budget 2003 – is recognized internationally as a leader in High Arctic logistics service delivery and cost-effectiveness. By providing coordinated support and advice, the PCSP is making it easier for hundreds of scientists and researchers from around the world, to conduct research in a wide range of scientific disciplines, thus gaining valuable knowledge using Canada's North as a window into a multitude of issues of global concern. Some examples of PCSP-supported research programs are available at <http://polar.nrcan.gc.ca> (\$6.6 million in 2003-04).

Groundwater: vital but vulnerable –

Groundwater is a major component of Canada's water resources, supplying water to the homes of 30 percent of its people. NRCan's Groundwater Program provides hydro-geological knowledge that enables water management agencies, and well owners, to make decisions that result in a reliable groundwater supply. Critical to this program is the development of a national inventory of groundwater resources. As a start, groundwater research will commence on six key regional aquifer systems and one local system to measure and understand their sustainable yield and natural quality, and to assess their vulnerability to short- and longer-term influences. The knowledge will inaugurate the national groundwater database, which will encompass all of Canada's major aquifers in the future. The production of aquifer maps of groundwater quantity and quality, as well as computer models of their recharge capabilities, will be key products used in municipal planning in these communities. By 2005-06, 20 percent of the key aquifers in Canada will have been mapped. NRCan will work closely with OGDs, provinces and territories, and other stakeholders.

There is a growing need to improve our capability to assess the impact of surface processes (land use) on groundwater resources. Ultimately, it is hoped that remote sensing techniques can provide this information quickly and reliably over large areas. Local case studies, on the ground, in southern Ontario will provide the ground truth data to help interpret and evaluate the usefulness of remotely-sensed data.

Developing our resources sustainably

– The Geoscience for Ocean Management Program provides geoscience knowledge to help resolve conflicts of sea floor use, to provide a foundation for implementation of Canada's Ocean Strategy, to minimize environmental impact of offshore structures, and to support proposals to exploit offshore resources.

To these ends, sea floor mapping will be concentrated on areas that have multiple land use issues or where large-scale projects require extensive, multi-disciplinary knowledge. The program's activities will address four themes: integrated management of large

ocean areas, assessment of hazard potential and environmental impact of infrastructure, developing predictive models of geoscience control for locating habitats hosting commercial marine species, and assessing human impact on marine environmental quality.



Marine geological studies carried out by NRCan's Atlantic and Pacific geoscience centres

Among the seven areas to be targeted, beginning in 2003-04, are the Georgia Basin and Queen Charlotte Basin of Canada's west coast where ocean management will be the focus, the seabed conditions affecting potential hydrocarbon development in the Beaufort Sea, and the marine environmental quality of eastern coastal waters, including sea floor habitat mapping in the Gulf of Maine. Knowledge for all areas will be delivered through databases, interpretative maps and reports, tailored to the problems and the needs of the clients.

Did you know? NRCan is responsible for the Canada Lands Survey System (CLSS) and leads the Geomatics for Aboriginal Property Rights Infrastructure and the Property Rights for Sustainable Development programs which are based on the CLSS. This is important because about 500,000 people (mostly First Nations and Inuit) live on Canada Lands. The main objective is to provide the land survey component of the property rights infrastructure to local communities in support of peaceful occupation and orderly and unimpeded land-based sustainable economic development. About 3,000 legal land surveying documents are archived annually and can be accessed at <http://www.lsd.nrcan.gc.ca>. Through NRCan's involvement in the settlement of native land claims, the Minister is currently responsible for the second largest survey program in Canadian history.

Enhancing the competitiveness of Canada's forest sector – NRCan is actively engaged in programs and initiatives that enhance and protect international market access and the competitiveness of Canada's natural resources sector. The following presents forestry sector examples that support this objective.

Expanding Canada's offshore market development opportunities – Through the five-year \$35 million Canada Wood Export Program (Canada Wood), NRCan will expand

offshore development opportunities of Canadian wood products using the Team Canada approach. The Program focuses on wood products used in residential and commercial building such as wood-based panels, lumber, value-added and engineered wood products. The Department will be conducting various audits, evaluation and risk assessments of this program over the planning period.

In collaboration with forest industry partners, NRCan will concentrate on:

- branding Canada's wood products through enhanced and coordinated industry presence in offshore markets;
- increasing product knowledge in export markets through market development and promotional activities; and
- improving market access by providing technical support to issues such as building codes and products standards in offshore markets.

Protecting access to foreign markets – In partnership with DFAIT, NRCan will be engaged in the defence of the Canadian forest industry against current U.S. softwood lumber trade actions. Specifically, NRCan will be assisting DFAIT in legal challenges to the trade action before the World Trade Organization and the North American Free Trade Agreement panels, and with the ongoing government-to-government dialogue aimed at seeking a long-term durable solution to the dispute. Costs are estimated to be approximately \$300,000 in 2003-04.

Furthermore, in collaboration with the CCFM and DFAIT, NRCan will continue to provide factual and authoritative information and advice to Canada's embassies and missions

through the CCFM-led International Forestry Partnerships Program (IFPP). The program's objectives are to: counter-balance negative or incomplete forest information in the international community; position Canada as an environmentally responsible forest nation; support Canada's trade framework by promoting Canadian forestry initiatives and achievements; ensure that trade barriers based on forest policies are not erected in export markets; and promote forest products as an environmentally-friendly and renewable choice. Approved funding for the IFPP has been established at \$3.4 million over five years cost-shared between the federal government and the provinces.

Protecting Canada's forests' health – In October 2002, the Minister announced a five-year \$40 million program to address the Mountain Pine Beetle (MPB) epidemic in British Columbia; this was part of a \$246 million comprehensive forest sector federal assistance package. In partnership with stakeholders, NRCan will continue to conduct research into: understanding and predicting beetle outbreaks, developing tools to incorporate predictive capacity into higher level planning, understanding the impacts of a variable climate on MPB, and conducting stand management activities to control the beetle. As part of the Federal Lands component of the MPB program,



Mountain Pine Beetle - photo courtesy of Klaus Bolte

NRCan will conduct research into quantifying the impacts of the MPB so as to reduce the risk of future epidemics. In collaboration with Parks Canada, INAC, and National Defence, the Federal Lands component of the MPB program will address beetle impacts on Crown Lands including national parks, First Nations reserve lands and the Chilcotin Military Reserve lands. The Department will also be conducting various audits, evaluations and risk assessments of the MPB program over the planning period. More information can be found at

<http://www.pfc.cfs.nrcan.gc.ca:80/entomology/mpb/>

Financial sustainability of the research institutes – In May 2002, the Minister of NRCan announced a two-year \$30 million assistance package for Forintek Canada Corp., FERIC and Paprican. A total of \$6 million has been distributed to the three institutes for fiscal year 2002-03 to ensure their short term financial needs were met. The remaining balance will be invested based on recommendations brought forth by an industry-led task force established to examine ways of facilitating the long-term financial sustainability of the institutes.

Investing in value-added wood products research – In May 2002, the Minister also announced a five-year \$15 million initiative that provides resources for value-added wood products research, and technology transfer to disseminate information to the value-added wood products industry. The initiative will be delivered by Forintek Canada and universities across Canada.



Strategic Outcome #3 - To provide Canadians with strategies that reduce the environmental impacts in the natural resources sector.

| Short to medium-term objectives | Performance Indicators |
|--|--|
| Canada addressing its international Kyoto commitment to reduce greenhouse gas (GHG) emissions. | <ul style="list-style-type: none"> GHG emissions compared to Kyoto protocol; and GHG emissions to GDP ratio compared to other countries. Trends in use of renewable energy. Trends in energy efficiency. GHG emissions from federal operations. Progress towards the identification of impacts and adaptation measures. |
| Scientific research, technologies and stewardship practices that reduce environmental impacts, conserve biodiversity, and increase the efficiency of resource development and use. | <ul style="list-style-type: none"> Environmental influence of NRCan's science, technology and stewardship practices. |
| Canada's environment safeguarded from the risks associated with natural resource development and use. | <ul style="list-style-type: none"> Progress towards addressing hazards associated with resource development and use. |

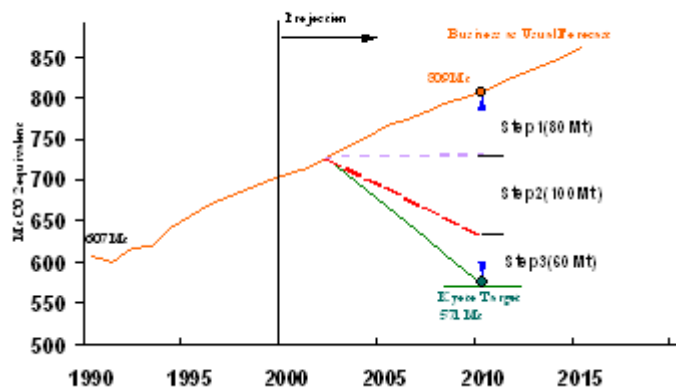
Planned Expenditures for 2003-04

\$304.2 million (or 37.5 percent) of NRCan's total planned expenditures of \$812.1 million will be spent on strategies that reduce environmental impacts in the resources sector. The Department's climate change activities (see table next page) and the core of our S&T research (\$116.9 million) account for the bulk of planned spending. More detailed information about major activities by strategic outcome can be found on page v, table 4. Of the planned spending for this strategic outcome, \$76.1 million or 25 percent will be attributed to transfer payment programs, details of which can be found on pages ii-iii, table 2.

Addressing climate change –

Ratification of the Kyoto Protocol reconfirms Canada's strong commitment to addressing climate change and to working with the international community in dealing with this global problem. As the lead federal departments, NRCan and Environment Canada will work closely with other federal departments and agencies to implement the Climate Change Plan for Canada. The Plan, which was released in November 2002, sets out a three-step approach for achieving Canada's climate change objective of

Steps To Achieving Canada's Kyoto Target



reducing annual greenhouse gas (GHG) emissions by 240 megatonnes (Mt), or six percent below 1990 levels by 2008-12 (see graphic). It is a framework for developing a responsible, innovative and energy-efficient society.

The Plan builds on a number of actions that have already been undertaken to address climate change. It outlines a variety of key measures in which NRCan is involved, some of which are highlighted in this document. To view the entire plan, visit

<http://climatechange.gc.ca>. Government-wide initiatives under Action Plan 2000 (AP 2000), which is a major part of the Plan, are expected to achieve GHG emissions reduction of about 65 Mt/year during the commitment period of 2008-12. Moreover, through the Climate Change Action Fund (CCAF), the federal government is taking concrete and immediate steps to engage governments, businesses, communities and individual Canadians to address climate change.

In 2003-04, NRCan will spend \$234.5 million in the following climate change program areas. More information on various departmental climate change-related programs can be found at www.climatechange.nrcan.gc.ca.

| Program areas supporting climate change objectives at NRCan | Planned expenditures 2003-04 (\$M) |
|---|------------------------------------|
| Action Plan 2000 (AP 2000)* | 85.9 |
| Climate Change Action Fund (CCAF) | 35.9 |
| Energy S&T programs | 63.5 |
| Energy efficiency and alternative transportation fuels | 34.4 |
| Renewable energy initiatives** | 10.7 |
| Forestry S&T | 3.7 |
| S&T research in minerals, metals and materials | 4.0 |
| Total NRCan*** | 234.5 |

* Includes housing, building & equipment; industry; transportation; federal leadership; and impacts & adaptation.

** Information on renewable energy initiatives can also be found in strategic outcome #2.

*** Does not include Budget 2003 planned spending announcements.

Housing, Buildings and Equipment – NRCan's programs and market transformation activities will continue to strive to ensure that all new houses are built to a higher standard (EnerGuide for Houses 80 rating) by 2010.

Canadian builders will be encouraged to construct houses that are more energy efficient, environmentally friendly and healthy to live in. The EnerGuide for Houses label will be introduced to the new homes market so that consumers have the ability and information to choose from the best. The same program will continue to support the provision of audit information to help Canadians as they improve the energy efficiency of their homes when undertaking home renovations or maintenance projects. The goal is to see 20 percent of existing housing retrofitted by 2010.

NRCan will work to improve the energy efficiency of new commercial, industrial and multi-residential buildings so that by 2010 all new buildings in Canada are built to a standard that is 25 percent higher than the energy efficiency standards in the Model National Energy Code for Buildings. By offering strategies, tools and financial assistance, NRCan will continue to support more efficient energy use in commercial businesses and public institutions, and target the existing building stock. The goal is to achieve an average of 20 percent energy savings in the retrofitted floor space of recipients of financial assistance.

Equipment ranging from household refrigerators to commercial heating, ventilating and air conditioning systems use energy. Targeting equipment used in new and existing houses and buildings, NRCan will use the *Energy Efficiency Regulations* (which cover products consuming 80 percent of the energy used in the residential sector and 50 percent of the energy used in the commercial-institutional sectors); EnerGuide labelling; and the recently

introduced ENERGY STAR® promotion to significantly increase the efficiency of energy-using equipment.

NRCan also conducts energy S&T (\$4.5 million/year) to provide the scientific foundation for market deployment of more energy-efficient and environmentally advanced commercial and residential buildings. This program will be evaluated in 2003-04.

New program launch – A new *Large Industrial Emitters Group* has been created within NRCan to establish the policy framework for covenants, which includes an effective and efficient emissions trading system. During 2003-04, negotiations will take place with the oil and gas, power generation, mining and manufacturing industries. This is important because these sectors are forecast to emit almost 50 percent of Canada's total GHG emissions by 2010. Negotiations will establish emissions reduction targets for each sector, leading up to 55 Mt/year reduction by 2008-12 (<http://climatechange.gc.ca>). These actions are in addition to those taken under AP 2000. This approach will take account of the competitiveness issues in each sector.

Industry – NRCan provides both sector-level and company-level programs that will help Canadian industry use energy efficiency investments to improve competitiveness and contribute to Canada's climate change goals. Over the planning period, NRCan will enhance and develop products and technologies to promote industrial energy and overcome barriers to continued energy efficiency improvements; and establishing and tracking improvements, plans, and targets (www.oeenrcan.gc.ca/cipec/ieep/ and <http://cedrl.mets.nrcan.gc.ca>).

NRCan will increase the focus on energy-efficient and sustainable practices in Canada's agriculture/agri-food and fishing industries with the aim of reducing energy consumption (\$1 million/year). Moreover, the realignment of

departmental activities related to biomass and bio-processes, as well as energy-efficient industrial systems and technologies, will also help to address energy efficiency and GHG reduction goals (\$5.4 million/year).

Transportation – Emissions from ground vehicles account for 20 percent of Canada's GHG emissions. With the ever-increasing demand for ground transportation, this percentage is on the rise. NRCan will continue to target increased fuel efficiency in the transportation sector through a suite of complementary programs, including the development of fuel cell and alternative transportation fuel technologies. A voluntary 25 percent fuel efficiency improvement in new light-duty vehicles sold in Canada is targeted by 2010. Additionally, consumer awareness of the impact of their choices and habits will be improved, ultimately supporting the purchase of fuel-efficient vehicles developed by manufacturers. Training and technical information will be provided to commercial and municipal fleets regarding fuel efficient maintenance and driving practices. The target is a 10 percent improvement in vehicle fuel efficiency by 2010.

Over the next four years, NRCan will invest more than \$1 million annually in the Canadian Lightweight Materials Research Initiative (CLiMRI). The objective of this government-industry partnership is to develop materials and manufacturing processes that reduce the weight of vehicles. To date, research undertaken by CLiMRI has contributed to the development of lighter bodies, frames, braking systems and thermal management systems for advanced power trains in vehicles. A 10 percent reduction in the weight of a vehicle results in a 6 to 8 percent improvement in fuel efficiency. This is equivalent to a reduction of about 17 to 20 kg of carbon dioxide emissions per kg of weight

reduction over the lifetime of the vehicle. These technological advances also enhance the competitiveness of Canadian auto part manufacturers and vehicle assemblers.

Moreover, in cooperation with OGDs, NRCan will conduct S&T to optimize energy efficiency of transportation systems by improving the interaction of vehicles, operators and infrastructure for the transfer of people and goods (\$2 million/year).

More information on transportation can be found at <http://oee.nrcan.gc.ca/>; <http://climri.nrcan.gc.ca/>; and <http://www.nrcan.gc.ca/es/etb/cetc/>.

Did you know? Municipalities are key players in efforts to reduce GHG emissions and have been particularly active in developing local action plans focused on improved energy efficiency, the use of renewable energy, landfill gas recovery, and more efficient waste management and land use. More information on the role of the Federation of Canadian Municipalities, the Green Municipal Enabling Fund, and the Green Municipal Investment Fund can be found at <http://www.fcm.ca>.

Federal leadership – The Government of Canada is working to get its own house in order and has set a target of 31 percent reduction in GHG emissions from its operations by 2010. The goal will be reached through additional building retrofits, continued fuel switching and increased use of renewable energy within government operations. Key departments, together responsible for 95 percent of government GHG emissions, have reported to date a 21 percent overall reduction from 1990 levels. In addition to its coordination and advisory responsibilities for the Federal House in Order Initiative, NRCan will target government operations with three programs: the Federal Buildings Initiative, the Federal Industrial Boiler Program, and the Federal

Vehicles Initiative. More information can be found at www.fhio.gc.ca.

Did you know? NRCan is currently developing the Canadian version of the National Energy Modeling System (NEMS) which will be operational by spring 2003. The NEMS will provide a common reference point for all climate change policy analysis; offering an assessment tool for the examination of policy options; and contribute to the dialogue among federal departments, provinces and stakeholders on the effectiveness of policy options.

Impacts and adaptation – "Climate Change Impacts and Adaptation: A Canadian Perspective" provides information to Canadians on the range of impacts and adaptation issues facing them. Under the leadership of NRCan, and in conjunction with other federal departments/governments/experts, the plan for the national assessment of Canada's vulnerability to climate change will be prepared and the national approach to implementation of the framework for adaptation will be completed. Over the planning period, the Department will conduct research to provide knowledge for adaptation decision-making.



Climate Change - Impacts and Adaptation: A Canadian Perspective (<http://climatechange.gc.ca> and <http://adaptation.nrcan.gc.ca>)

NRCan will fund research internally and externally to provide knowledge for adaptation decision-making in communities, industry and governments. It will also continue to build accessible databases of information on changes

in Canada's land and biomass to allow Canadians to detect and monitor changes.

Pursuing Canada's Kyoto GHG reduction targets through national forest-related initiatives – NRCan is implementing a number of significant forest-related initiatives designed to help Canada meet its GHG reduction target. These include the Feasibility Assessment of Afforestation for Carbon Sequestration (FAACS) initiative and NRCan's on-going research related to the measurement and monitoring of Canada's forest carbon. The Department is also considering implementing Forest 2020.

The FAACS is a three-year \$6 million national assessment initiative comprising three major components: determining the amount of private land in each province under some form of afforestation or reforestation program and estimating future forecasts; conducting afforestation and/or demonstration pilots at selected sites; and developing/implementing afforestation monitoring tools including initiatives to raise public awareness.

NRCan will continue to undertake research initiatives to measure and monitor Canada's forest carbon. Through collaborative research projects with partners – i.e., Fluxnet Canada Research Network, Boreal Ecosystem Research and Monitoring Sites, Canadian universities, OGDs, and provincial ministries – NRCan will:

- examine the absorption, sequestration and emission of carbon dioxide from Canadian forests and peatlands;
- study the role that the Canadian boreal forest plays in global carbon, water and energy cycles; and
- examine changes in forest fire frequency, pest frequency and intensity, forest biodiversity, net primary productivity, forest nutrient

cycling, water quality, and ecosystem carbon storage.

Forest 2020 is a major national initiative designed to address increasing economic and socio-cultural demands placed on Canada's forests and to meet Canada's commitments under the Kyoto Protocol. The concept consists of introducing fast-growing, high-quality, high-yield tree plantations into the Canadian landscape, improving silvicultural activities in second growth forests, and enhancing conservation. The potential benefits are far reaching.

Did you know? Forest 2020 has the potential of becoming the largest single Canadian initiative to sequester carbon – up to 14 Mt of carbon dioxide during the first commitment period of the Kyoto Protocol – and more over subsequent periods. This benefit is further enhanced by the potential for significant revenues from carbon credits and from the sale of plantation fibre. In addition, the tree plantations themselves would be assets with which to attract private investors. In 2003-04, NRCan is considering establishing the operational infrastructure to establish plantations, and implement, develop and accelerate research and wood product innovation, as well as negotiating federal-provincial agreements.

Developing technologies that reduce GHG emissions produced by the minerals and metals industries – NRCan is considering a new partnership initiative relating to resource recovery, to expand existing work on light-weight vehicle components and systems (see transportation, page 22), and to explore additional opportunities for developing new, environmentally-friendly materials and processes. This could contribute to Canada's GHG reduction targets.

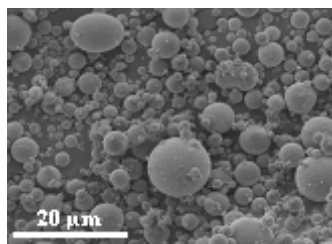
Canadian Resource Recovery Strategy (CRRS)
NRCan is currently refining its CRRS with a

view to increasing Canada's overall waste recovery through appropriate incentives, regulatory policies and by strengthening secondary markets.

Did you know? Work is underway at NRCan to better understand GHG emissions from the Canadian minerals and metals industries, with a particular focus on the potential of recycled materials. Further work will identify life-cycle flows from both a Canadian and an international perspective.

Materials and processes – In the construction industry, manufacturing of concrete – one of the most widely used materials in the world for buildings and infrastructure – results in considerable energy consumption and contributes about 5 percent of the world's carbon dioxide emissions. Virtually all of these emissions come from making limestone into Portland cement, an essential ingredient in concrete. The production of one tonne of Portland cement yields about one tonne of carbon dioxide.

NRCan's research has focussed on reducing the amount of Portland cement in concrete by substituting supplementary cementing materials (SCMs) – industrial by-products such as fly



A fine powder by-product emitted by coal-fired electricity generating stations, fly ash has long been championed by NRCan as a means of improving concrete properties and reducing GHG emissions.

ash, blast-furnace slag and silica fume. The fly ash content in concrete currently accounts for 10 to 20 percent of the total volume. The Department has developed a high-volume fly ash concrete containing up to 55 percent fly ash, which substantially reduces carbon dioxide emissions while still retaining the durability and mechanical properties of concrete.

As part of AP 2000, research is also underway to quantify the GHG savings possible from the use of concrete in road construction. Concrete roads are more rigid than conventional asphalt roads, resulting in reduced fuel consumption among heavy vehicles.

Did you know? Opportunities exist to develop new, environmentally-friendly materials and processes, such as corrosion resistant materials for electrical power generation plants; specialized materials and devices for pipelines; green construction materials; metal processing and production; sheet and tubes for hydro-forming; and research into sequestration of carbon dioxide in mineral tailings, such as those from asbestos mines. In the long term, this work has the potential to develop processes and technology to save up to 24 Mt per year, and provide mechanisms to sequester more than 100 Mt.

NRCan will continue promoting the use of SCMs through workshops, conferences and publications in Canada and technology transfer abroad. The Department recently initiated a three-year, \$4.9 million project in partnership with the Canadian International Development Agency and several organizations in India to implement the use of large volumes of fly ash in concrete in that country. Currently, India's annual production of Portland cement is about 100 million tonnes. The project will enhance the capacity of key stakeholders (e.g., governments, industry and research organizations) to effectively use higher volumes of fly ash in the construction of concrete structures while potentially lowering emissions by 20 to 40Mt per year.

Supporting Canada's clean air agenda

NRCan will provide policy advice on key energy sectors for the review of Canada-wide standards for Particulate Matter and Ozone to meet ambient air standards which must be achieved by 2010. With respect to transboundary air pollution, Canada and the United States have agreed to examine a

Canada-U.S. nitrogen oxide emissions trading regime for coal-fired power plants in both countries. NRCan will be actively engaged in this initiative. In addition, NRCan will continue to offer policy and S&T expertise for the development of a Canada-wide mercury standard for the reduction of mercury emissions from coal-fired electricity power plants; this should be in place by 2005.

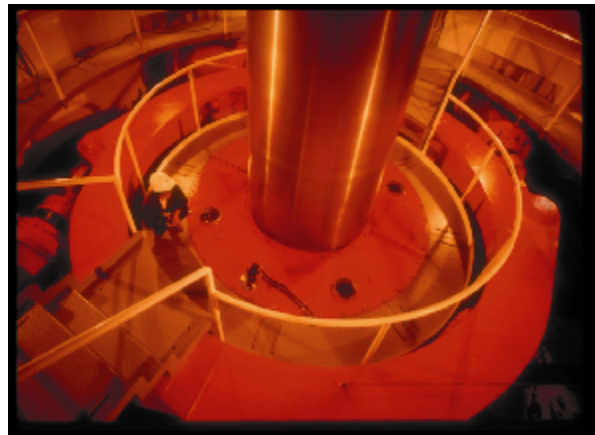
NRCan also works in partnership with Environment Canada, the National Research Council, Health Canada, the Department of National Defence and Transport Canada to conduct R&D to reduce emissions that have a harmful effect on air quality.

In the oil and gas industry, NRCan will stimulate technological advances to help reduce the potentially harmful products of incomplete combustion from flaring. By 2004, the program aims for improved flare designs which are 99 percent efficient, thereby reducing potential toxic emissions. In addition, tools and models regarding flare performance may be used by the International Energy Agency to establish worldwide baseline measures of GHG emissions against which improvements can be measured (\$557,000 from the Program of Energy Research and Development (PERD); expected to leverage a further \$3.2 million from industry and other programs).

In the transportation sector, NRCan will spend \$9.75 million from PERD and \$8.3 million A-Base in 2003-04 on initiatives that are expected to leverage a further \$8 million from industry, \$675,000 from universities and \$5.4 million from other programs. The Department is leading work in:

- technologies to analyze and reduce particle emissions from vehicles: by 2006, R&D activities should provide good baseline data for better regulation of vehicle emissions;

- developing fuel cells, hydrogen technologies and infrastructures, and hybrid-electric vehicle components;
- alternative gaseous and liquid fuels: by 2007, this R&D program is targeting a 50 percent reduction in toxic emissions from vehicles and a 10 percent improvement in fuel economy;
- fuels from renewable sources, e.g. ethanol and bio-diesel; and
- providing R&D support to projects such as the Iogen Corporation process for producing ethanol from agricultural residues.



Large scale electricity generation in British Columbia

In the industrial sector, NRCan aims to improve the performance and fuel flexibility of industrial combustors and their associated control systems. By 2007, the Department will develop and assess two new processes for the removal of toxic emissions, in particular from mercury (\$2 million from PERD and \$338,000 A-base in 2003-04; expected to leverage a further \$660,000 from industry and \$270,000 from other programs and organizations).

In electricity generation, coal-fired electrical generation may provide an acceptable solution to electricity supply deficits now being experienced in parts of Western Canada and the United States. By 2008, the aim is to contribute

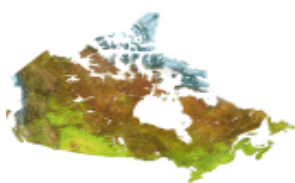
to a proposed 20 percent reduction from current levels of emissions of trace elements (e.g., mercury) from five power plants. By 2012, energy R&D led by NRCAN will contribute to the planned development of two new or expanded high-efficiency power plants and two coal-bed methane-fired turbines (\$741,000 from PERD and \$195,000 A-base in 2003-04; expected to leverage a further \$845,000 from industry, \$125,000 from provincial governments, and \$25,000 from other programs and organizations).

Long-term management of nuclear fuel waste – The *Nuclear Fuel Waste Act*, which came into force on November 15, 2002, is a major step forward in dealing with nuclear fuel waste in Canada. The Act is the culmination of many years of federal research, environmental assessments and discussions with stakeholders, including the nuclear industry, the provinces and the public. This is important because the long-term management of nuclear fuel waste could cost up to \$15 billion, over a span of 70 to 100 years.

Through its Nuclear Fuel Waste Bureau, NRCAN will support the Minister in discharging his responsibilities under the Act to oversee, monitor, review, comment on and approve, or have approved by the Governor in Council, long-term nuclear fuel waste management activities. The Act requires that:

- the nuclear energy corporations (Ontario Power Generation, New Brunswick Power and Hydro-Québec) and Atomic Energy Canada Limited establish and deposit money into a trust fund on an ongoing basis;
- the Nuclear Waste Management Organization (NWMO) submits annual reports to the Minister which will subsequently be tabled in Parliament; and
- the NWMO submit an options study on proposed approaches for the long-term management of nuclear fuel waste by November 15, 2005.

The Bureau will assist the Minister in his review of the study and his recommendation to the Governor in Council for the long-term management of nuclear fuel waste in Canada (<http://www.nfwbureau.gc.ca>).



Strategic Outcome #4 - To provide Canadians with safety and security in the natural resources sector.

| Short to medium-term objectives | Performance Indicators |
|---|---|
| Canadians safeguarded from natural hazards. | <ul style="list-style-type: none"> Impact of NRCan's S&T on the identification, mitigation and response to natural hazards. |
| A national framework for spatial positioning, mapping and boundary maintenance. | <ul style="list-style-type: none"> User satisfaction with aeronautical charts, the Canada Lands Survey System and the Canadian Spatial Reference System. |
| Safe use of explosives and pyrotechnics. | <ul style="list-style-type: none"> Accident and incident rate in the explosives and pyrotechnic industries in Canada. |
| Enhanced safety and security in Canada's natural resources sector. | <ul style="list-style-type: none"> Impact of regulatory frameworks for energy transmission, offshore development, and Canada's uranium and nuclear industry. |

Planned Expenditures for 2003-04

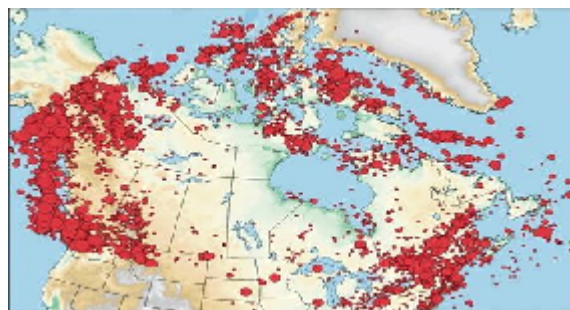
NRCan plans to spend \$32.9 million or 4 percent of a total planned expenditures of \$812.1 million on safety and security in the resources sector. Programs regarding the security of our resources, explosives research, and geoscience knowledge make up the bulk of the spending. More details regarding major activities by strategic outcome can be found on page v, table 4.

Key commitments

Improving natural hazards knowledge and emergency response – An understanding of the earth's structure and the dynamic processes that alter it is essential in mitigating the sometimes disastrous consequences of these events. Earth sciences knowledge and technology can be adapted and employed to aid in the detection and quantification of hazardous situations resulting, either accidentally or deliberately, from human activities.

NRCan addresses both the natural and man-made aspects under its Natural Hazards and Emergency Response Program. The following enhancements will be made over the planning period:

- the primary seismic monitoring function will be placed on a sound operational footing with the ensured provision of high-reliability information on Canadian earthquakes, and access to expert knowledge around the clock;



Obtain earthquake information at
<http://www.seismo.nrcan.gc.ca/>

- seismic hazard assessment used in preparing the new National Building Code (2005), and formerly only provided for Canada's twenty largest cities, will now be available for 650 additional sites, including neighborhoods within these cities and many smaller cities and urban communities;
- as part of Canada's commitment to assess worldwide compliance under the Comprehensive Test Ban Treaty, NRCan's capability to record, discriminate and quantify underground nuclear explosions through seismic monitoring techniques will be enhanced by upgraded reliability of seismic network instrumentation for detection and data management, and by the addition of a hydro-acoustic monitoring site on the Queen Charlotte Islands;
- the Canada-wide network of geomagnetic observatories will be upgraded to provide new and better data on magnetic field variations; this will result in an enhanced ability to forecast magnetic disturbances and storms, including the provision of new types of forecast products tailored to clients in public utilities, telecommunications and pipeline industries; such information will help them avoid millions of dollars in losses due to disruption of satellite communications and energy transmission;
- NRCan will compile a national inventory of landslides and a national assessment of landslide hazards in areas of critical societal infrastructure, particularly along critical transportation corridors; these are designed to help reduce disruption of railways, roads, and electrical, hydrocarbon and water transmission lines, and possible loss of life; and
- under the existing Federal Nuclear Emergency Plan and the new Chemical Biological Radiological Nuclear Research and Technology Initiative, NRCan will

enhance Canada's nuclear hazard response through development of a rapid radiation mapping capacity, deploying new, near real-time systems that can be mobilized to any area across the country.

Meeting Canadians' security and safety needs

– Following the tragic events of September 2001, public security has never been more important. In light of increased border security measures, the Canadian section of the International Boundary Commission has identified the following

areas as priorities and requiring better demarcation to minimize criminal activities: Quebec-New York, Vermont, New Hampshire and Maine boundaries and along the British Columbia-Washington boundary. The work will consist mainly in vista clearing and boundary monument reconstruction.



Portion of Quebec-Maine border

The project will provide, on an annual basis, at least 150 km of a well-defined and visible international boundary line.

Moreover, NRCan administers the *Explosives Act* which regulates the importation, manufacture, storage and sale of explosives, propellants, ammunition, fireworks and pyrotechnics, as well as some aspects of their transportation. In addition to protecting the public and worker safety, the Department's aim is to become a global leader in the protection of citizens from the use of explosives by terrorists, and for Canada to meet or exceed United Nations and G-8 requirements. More information on explosives can be found at http://www.nrcan.gc.ca/mms/explosif/over/over_e.htm.

Did you know? In January 2003, the Kimberley Process Certification Scheme for international trade in rough diamonds – which aims at eliminating the use of diamonds to fund conflicts in Africa – was implemented in accordance with the *Export and Import of Rough Diamonds Act*. As a result, all Canadian imports and exports of rough diamonds will be only with Kimberley Process participants. The costs of issuing Canadian certificates, inspecting exporter and importer goods and facilities, investigating infractions within the context of the law, and assessing the need for a comprehensive Canadian diamond strategy are approximately one million dollars per year.

In the context of energy security, recent events called into question the vulnerability of all major industrial infrastructure, including the energy infrastructure. Over the planning period, NRCan will focus on initiatives that strengthen the protection of energy infrastructure, working closely with regulatory authorities and Canada's Office of Critical Infrastructure Protection and Emergency Preparedness. More information can be found at <http://www.ocipec-bpiepc.gc.ca>.

Enhancing environmental safety and security of domestic supply through pipeline monitoring

– Over the planning period, NRCan will continue to develop new technologies to protect and extend the life of Canada's oil and gas pipelines. Most of Canada's \$30-billion annual output of oil and gas is shipped by pipelines, the safest and most economical transportation method. Since many pipelines use corridors adjacent to major highways, railways, waterways, and populated areas, it is important to maintain and improve the safety and integrity of Canada's pipeline infrastructure. Canada's current pipeline systems represent approximately a \$125 billion investment. It is in the interest of both industry and governments to minimize the impact of

pipelines on the environment while ensuring maximum continued economic contribution from new and existing pipelines.

NRCan will continue to carry out extensive R&D on pipeline susceptibility to stress corrosion cracking (SCC), a phenomenon caused by the combined effects of weather, a susceptible material, and physical mechanical stress. For example, NRCan's research has shown the effects of pressure, pressure fluctuation, and hydrostatic testing on crack growth rates, and has developed a method for determining critical crack size. This research ensures that pipeline operators and regulators have the technical information necessary for establishing pipeline repair strategies and for determining appropriate inspection intervals.

NRCan R&D will also evaluate specialized coatings for prevention of corrosion and SCC, and is assessing a wide range of steels for susceptibility to SCC. NRCan will invest about \$1 million over the next three years in this research, which is supported by a consortia of Canadian and foreign private sector companies.

Another project, Intelligent Systems for Pipeline Infrastructure Reliability (ISPIR), is a partnership between NRCan, PRECARN Inc., FOX-TEK Inc., and TISEC Inc. Created to develop a high-tech fibre-optic system that remotely monitors pipelines, NRCan will invest \$300,000 in this 3-year \$998,000 project, which will enable cost-effective preventive maintenance, provide fault alerts, and safeguard

An NRCan scientist preparing a sample to measure crack depth in a SCC test.

pipeline infrastructure and our fragile environment, contributing to the security of domestic oil and gas supplies. More information can be found at:
http://www2.nrcan.gc.ca/mms/picon/survey/ispir_intro_e.htm

NRCan organizes biennial workshops on managing pipeline integrity and maintains a Web sub-site which is a portal for disseminating information on general issues of pipeline safety, and information on online conferences, seminars, and surveys (http://www2.nrcan.gc.ca/mms/picon/whatispicon_e.htm).

Increasing the sustainability of mining

NRCan will continue to work towards increasing the sustainability of mining, both by extending the life of existing mines for the benefit of resource-dependent communities and by addressing issues related to orphaned mines to ensure public safety and environmental protection.

Mining deeper ore reserves is one strategy to extend the life of some of Canada's world-class underground mines. However, deep mining entails an entirely new set of technical challenges, such as heat, rock stability, the logistics of moving employees and equipment rapidly from the surface to the work face and back, and hoisting the ore from depths greater than 3000 metres.

NRCan has established a research consortium on deep mining, along with five operating mines. Efforts will be made to recruit at least four more companies, bringing the number of members to ten. A web site will be created and maintained by the Canadian Mining Industry Research Organization. The budget of the consortium is about \$17.5 million over its five-year life. NRCan will invest approximately \$200,000 during this period, and Ontario,

through its Heritage Fund, has already committed \$3.5 million.



Schist Lake, Manitoba, before and after reclamation, Hudson Bay Mining & Smelting Co., Limited

Canada has benefited from the wealth generated by mining for at least 100 years. Mine openings in remote regions of the country have allowed the development of areas of the country that would otherwise not have been settled. Older mines did not operate with today's environmental and safety standards, and several were just abandoned when ore ran out and the companies that operated them ceased to exist. The provinces/territories and the federal government (north of 60°) are now addressing the challenge of these orphaned and abandoned mines.

NRCan will provide the secretariat for a joint initiative on orphaned and abandoned mine sites called the National Orphaned and Abandoned Mines Initiative. Through this multi-stakeholder initiative, NRCan will coordinate projects including the collection and analyses of data on orphaned and abandoned mine sites, community involvement for decision-making, legal barriers to collaboration, and funding models. Over the next five years, NRCan will invest about \$250,000 towards these objectives through project coordination and the provision of technical expertise (<http://www.gov.mb.ca/itm/mrd>).



Strategic Outcome #5 - To provide Canadians with a department that is efficiently and effectively managed.

| Short to Medium-term Objectives | Performance Indicators |
|---|--|
| Managing NRCan's resources responsibly. | <ul style="list-style-type: none"> Employee satisfaction with NRCan management practices. Progress towards maintaining and enhancing NRCan's program integrity. Savings realized from streamlining administrative processes, innovative service delivery, electronic commerce, improved facilities management, and information technology bulk purchasing and contracts. |
| Continuous improvement of NRCan's products, services, and operations. | <ul style="list-style-type: none"> Implementation of recommendations from audits, evaluations and other studies of NRCan management and operations. Progress towards the implementation of leading-edge management practices. |
| Sustainable development in NRCan operations. | <ul style="list-style-type: none"> Progress of the Department's Environmental Management System towards the implementation of ISO 14000 series of standards. Progress towards the implementation of environmental health and safety audits and environmental assessment evaluation of NRCan operations. Amount of solid non-hazardous waste from NRCan operations per capita per year. Portion of fleet converted to alternative fuels. Rate of purchasing by NRCan of green power. |

Planned Expenditures for 2003-04

Of total planned expenditures of \$812.1 million, NRCan plans to spend 6.5 percent or \$52.8 million on its own efficient and effective management. Providing essential management support and administrative services accounts for the major spending focus. More details can be found on page v, table 4.

Key Commitments

Today's climate of continual change has given rise to several departmental and government-wide management initiatives which need to be prioritized and properly managed with finite resources. This strategic outcome is about sound departmental management and effective decision-making within this environment of change.

Advancing modern management –

Under the modern comptrollership initiative, NRCan will undertake a number of projects to improve service to employees, foster a culture of knowledge sharing, attract the people it needs to deliver on its mandate, expand its services to Canadians, and increase its stakeholder/client partnerships. These projects

will include assessing the Department's information management capabilities, developing risk profiles at the sector level, and facilitating risk self-assessments.



In addition, the Department will continue to build on its modern comptrollership accomplishments by expanding in other areas such as:

- the development of a leadership and learning continuum;
- the review of the departmental performance indicators;
- the provision of a capital demand analysis;
- the development of an active monitoring strategy;
- the development of a values and ethics framework;
- the review of the department-level governance system;
- responding to the results of the Public Service Employee Survey 2002 and customer satisfaction surveys; and
- the development of a Communications Strategic Framework.

Did you know? NRCan received an Association of Professional Executives of the Public Service of Canada (APEX) Award in the area of Innovation for its successes with the development and implementation of the On-line Statement of Qualifications and classification reform (Broad Banded Work Descriptions) projects.

Building a strong and diverse workforce

– NRCan is committed to attracting and retaining a highly skilled, knowledgeable and diverse workforce and supporting employees in their continuous learning and career development.

HR planning and recruitment – As departure rates are expected to increase by 2005, enhanced human resource planning will help in the development of specific community recruitment programs. The Department already has plans in place to implement the Government's new term employment policy. Improved HR planning will enable managers to better estimate needs for indeterminate, term or casual staff. This effort requires analytical tools and expertise to undertake demographic analysis, forecast recruitment needs, assess organizational health and to monitor trends. In addition, an HR planning model is being developed to help sector managers better integrate their HR needs with their business planning requirements.

Official Languages – NRCan is committed to meeting the objectives of the Official Languages Policy of the Government of Canada. Our goal is to ensure that NRCan will be a workplace where all employees are encouraged to feel comfortable to use their official language of choice in all departmental activities.

A working group on the Bilingual Workplace has been created and members have identified three main areas of recommendation: leadership and culture, positive work practices, and enhanced organizational capacity.

Public Service Employee Survey 2002 – As part of our commitment to enhance workplace well-being at NRCan, following the release of

the Public Service Employee Survey 2002 results in December 2002, NRCan will conduct an extensive feedback and consultation process with employees to ensure that management has a clear view of employee concerns and are in a position to take action on those areas where necessary.

Employment Equity (EE) –

In October 2002, the Canadian Human Rights Commission found NRCan to be compliant with the 12 statutory requirements of the *Employment Equity Act*. NRCan is now pursuing implementation of its Employment Equity Action Plan 2002-05 to achieve its EE objectives.



To accomplish these objectives, the Department will continue to ensure that HR, EE and business planning processes are integrated into day-to-day management activities. As well, NRCan will use performance management agreements as a means to ensure accountability for EE objectives by senior managers in the Department.

Strengthening our information management (IM) / information technology (IT)

– Further advancements in IM and IT are required to support growing demands from departmental programs and services. In response to increasing pressures to advance the e-government agenda with reliable information, high-performing systems and infrastructures, and to meet new government policies and legislative requirements, NRCan is making progress on many fronts including information governance (legislative and policy framework, decision making, organizational and strategic leadership, and oversight);

information management, and technology enhancements.

Efficiently delivering our S&T

programs – NRCan's *S&T Futures* study identified options concerning the vision, organization and delivery of S&T within the Department.

Based on recommendations from this study, NRCan will develop an S&T information system to improve availability and standardization of S&T information at the departmental level in support of departmental planning, reporting and decision-making. This approach will enable sectoral inputs to be coordinated on cross-cutting policy issues such as climate change.

In addition, NRCan will establish mechanisms to support and facilitate new S&T partnerships and cooperative delivery mechanisms (e.g., Oil Sands Tailings Research Centre, Explosives Research, Innovation Acceleration Centre, Canadian universities). This will promote synergies, risk-sharing and cost-effectiveness among the three pillars of Canada's national S&T and innovation system: the public and private sectors, and universities. As well, the Department will undertake a systematic review of the delivery options for existing S&T programs. This will support the identification of critical internal S&T capacity that NRCan must maintain, develop or acquire in the future, as well as the development of a national approach to major S&T issues.

Moreover, NRCan will better define its S&T infrastructure requirements regarding S&T capital assets and workforce. For example, within its real property management framework, NRCan is developing a long term accommodation strategy for its Booth Street



77 percent of NRCan's real estate holdings in the National Capital Region are at, or beyond, their useful life.

complex. In the interim, the strategy is to consolidate and rationalize inventory by targeting specific facilities for renovations and health and safety upgrades. For example, current renovations at 555 Booth Street will permit decommissioning of two older inefficient assets reducing both operating costs and GHG emissions. Capital deficiencies will continue to be addressed through the delivery of the final phases of the approved \$49 million Program Integrity plan. A new management agreement will be put in place to allow NRCan and its real property service partner, Public

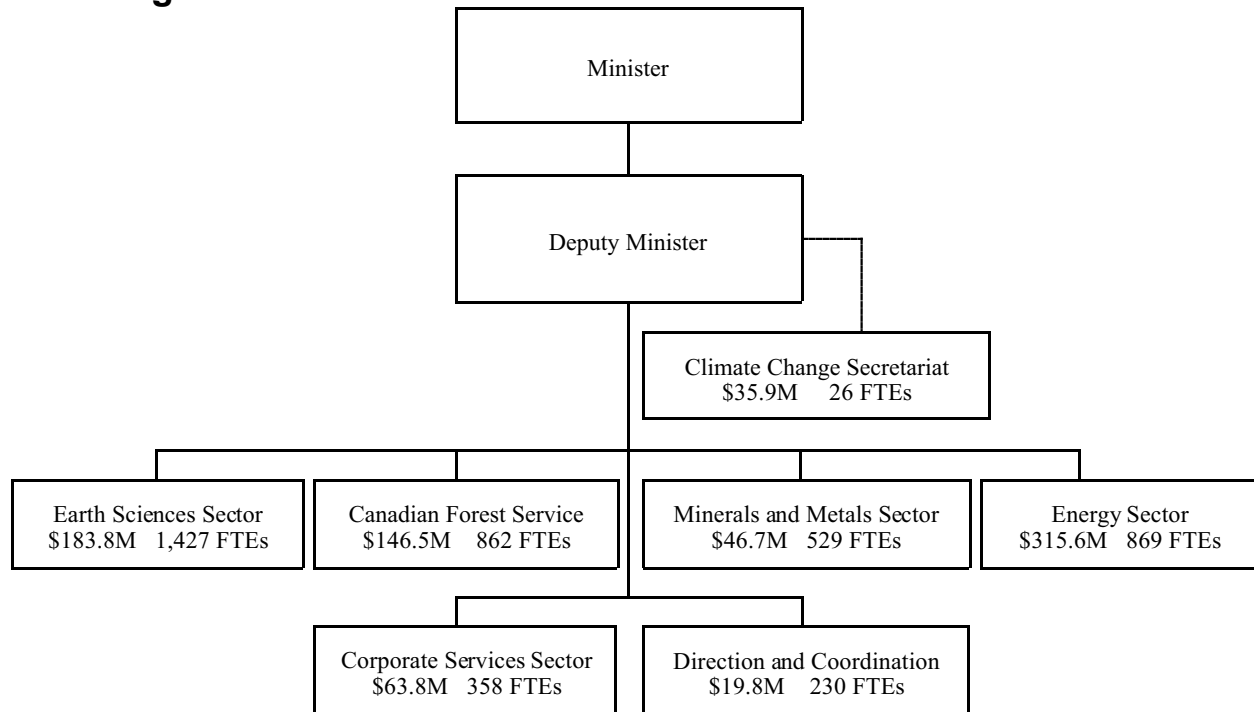
Works and Government Services Canada, to collaborate more effectively in the provision of safe, secure and effective physical working environments. The agreement, while offering the flexibility necessary to conform to changing requirements, will include performance measurement and monitoring provisions to enable NRCan to fulfill its responsibilities as a federal real property custodian.

Fulfilling our environmental

responsibilities – NRCan will strengthen its efforts to fulfill its environmental responsibilities. In response to various external drivers – e.g., *Canadian Environmental Assessment Act*; *Canadian Environmental Protection Act*; the Office of the Auditor General and other federal entities – the Department will update its environmental policy and supporting material to address additional obligations and a heightened level of scrutiny. NRCan will also respond to the new federal environmental commitment to finalize, as required, the assessment and remediation of contaminated sites under its responsibility.

IV Organization

1. Organization Chart



The **Earth Sciences Sector** is an organization aligned with government priorities and linked with other parts of Canada's innovation system. Its programs are an essential component of the S&T Canadians need to make informed economic, social and environmental decisions. It extends logistics support to Arctic science through the Polar Continental Shelf Project. Geomatics Canada, Canada's national mapping agency, provides geographic information of Canada's landmass and offshore including topographic maps and aeronautical charts, legal surveys of Canada Lands, geodesy for accurate positioning, and the archiving and application of earth observation data. Through their offices and labs across Canada, the Geological Survey of Canada provides the framework for mineral and petroleum exploration, helps Canadians mitigate the impact of hazards such as earthquakes and toxic substances in the environment, and contributes to climate change science, impacts and adaptation. Policy analysis, development and coordination is provided to support the Sector's mandate.

The **Canadian Forest Service** promotes the sustainable development of Canada's forests and the competitiveness of the Canadian forest sector for the well-being of present and future generations of Canadians. As the premier forestry S&T research and national policy coordination agency in Canada, the Canadian Forest Service 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 five national science research networks operating out of five forestry research centres located across Canada.

The **Minerals and Metals Sector** promotes the sustainable development of Canada's minerals and metals resource industries by integrating economic, social and environmental objectives. It provides policy advice, S&T, and commodity and statistical information to support decision-making. It is also the federal government's primary source of expertise on explosives regulations and technology. The sector 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** 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, renewable energy, alternative transportation fuels, and conventional energy to further sustainable development. Through its work, the sector helps address the climate change challenge, promotes better environmental and consumer choices, facilitates North American and international trade in energy, contributes to technical innovation, job creation and economic growth, facilitates environmental protection and increased public safety and security, and helps to ensure competitively priced, reliable and secure energy supplies for Canadians.

The **Corporate Services Sector** provides timely and reliable advice, products and services to support clients in achieving NRCan's objectives. The Sector is committed to providing leadership to the Department in the following functional areas of expertise: financial management; information management; human resources management; workplace well-being; environmental affairs; security, safety and emergency management; contracting and procurement; information technology; real property; and selected departmental services.

Direction and Coordination provides services to the Department's Executive Offices through the following branches. The **Corporate Policy and Portfolio Coordination Branch** provides a corporate policy and portfolio-wide coordination function which is responsive to evolving priorities thereby enabling it to provide timely and substantive advice to the Minister and Deputy Minister; it also enhances the contribution of the Natural Resources Portfolio within government and advances horizontal linkages across government with respect to the federal role in the sustainable development of natural resources. The **Audit and Evaluation Branch** provides senior management with independent, objective professional advice and assurances on the performance of management frameworks, departmental programs, policies and operations, and on risk management. The **Communications Branch** leads departmental communications in support of the Minister, government priorities and the natural resources sector; it provides advice for internal and external audiences. **Legal Services** provides day-to-day legal advice and guidance to ensure that NRCan's activities, policies and operations are consistent with the law, regulations and with high ethical standards. The **NRCan On-Line Secretariat** promotes, coordinates and facilitates alignment among on-line projects and activities designed to advance departmental and government-wide e-government priorities.

The **Climate Change Secretariat**, in cooperation with the provinces and territories, coordinates the development of the National Implementation Strategy on Climate Change, acts as a focal point for coordinating the federal government's domestic policy and programming on climate change, and manages the Climate Change Action Fund. The Secretariat reports to the Deputy Ministers of NRCan and Environment Canada.

2. Planned Spending Crosswalk by Strategic Outcome and Sector for 2003-04 (\$ millions)

| Strategic Outcome | NRCan Sectors | | | | | | Total |
|--|------------------------------------|-------------------------|----------------------------|---------------|---------------------------|----------------------------|--------------|
| | Earth Sciences Sector ¹ | Canadian Forest Service | Minerals and Metals Sector | Energy Sector | Corporate Services Sector | Direction and Coordination | |
| Information Dissemination and Consensus Building | 95.5 | 43.6 | 5.1 | 10.5 | 9.4 | 0.0 | 164.1 |
| Economic and Social Benefits | 47.5 | 78.1 | 20.0 | 114.0 | 9.5 | 0.0 | 269.1 |
| Environmental Protection and Mitigation | 26.5 | 24.1 | 23.0 | 193.7 | 8.5 | 35.9 | 311.7 |
| Safety and Security of Canadians | 17.1 | 2.5 | 7.3 | 6.0 | 3.4 | 0.0 | 36.3 |
| Sound Departmental Management | 0.0 | 0.0 | 0.0 | 0.0 | 33.1 | 19.8 | 52.9 |
| Total available authorities | 186.6 | 148.3 | 55.4 | 324.2 | 63.9 | 55.7 | 834.1 |
| Less spendable revenues | (2.8) | (1.8) | (8.7) | (8.6) | (0.1) | 0.0 | (22.0) |
| Approved reference levels | 183.8 | 146.5 | 46.7 | 315.6 | 63.8 | 55.7 | 812.1 |

1. Earth Sciences Sector figures include the Geomatics Canada Revolving fund (\$2.4M).

3. Financial Spending Plan

| (millions of dollars) | Forecast Spending 2002-03 | Planned Spending 2003-04 | Planned Spending 2004-05 | Planned Spending 2005-06 |
|--|---------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Budgetary Main Estimates | | | | |
| Information Dissemination and Consensus Building | 167.9 | 164.1 | 159.6 | 148.2 |
| Economic and Social Benefits | 208.1 | 269.1 | 233.4 | 234.6 |
| Environmental Protection and Mitigation | 279.2 | 311.7 | 262.1 | 251.0 |
| Safety and Security of Canadians | 40.1 | 36.3 | 37.0 | 36.3 |
| Sound Departmental Management | 53.5 | 52.9 | 52.3 | 52.1 |
| Less: Respendable Revenue | (22.6) | (22.0) | (22.0) | (22.0) |
| Budgetary Main Estimates | 726.2 | 812.1 | 722.4 | 700.2 |
| Non-Budgetary Main Estimates | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Reference Levels | 726.2 | 812.1 | 722.4 | 700.2 |
| Adjustments to Planned Spending* | 205.7 | 16.1 | 11.5 | 12.5 |
| Sub-total Planned Spending | 931.9 | 828.2 | 733.9 | 712.7 |
| Less: Non-respendable revenue | (27.2) | (49.8) | (57.7) | (71.7) |
| Plus: Cost of services received without charge | 33.1 | 34.7 | 34.4 | 33.4 |
| Total Planned Spending | 937.8 | 813.1 | 710.6 | 674.4 |
| Full-Time Equivalents (FTEs) | 4,233 | 4,301 | 4,200 | 4,204 |

* Does not include Budget 2003 planned spending announcements.

Increased adjustments to planned spending in 2002-03 are attributable to NRCan's involvement in Kyoto implementation and climate change initiatives (Environmental Protection and Mitigation, \$17.2 M before offsets) and other sunset measures in the natural resources sector such as softwood lumber (Economic and Social Benefits, \$11.1M in 2002-03). Adjustments in 2002-03 pertaining to fiscal equalization and royalty payments for the offshore oil industry increase planned spending by \$182.4M. Due to revenue volatility in the industry, forecasts into 2003-04 and beyond are not performed for this statutory vote.

NRCan will operate with a program funding base (A-base funding) of \$407.9M in 2003-04, less than half of our planned spending. This underlines our versatility in meeting commitments to climate change, S&T research, and other sunset funding as required by Canadians. Sunset funding is made available in the short term, thus adjustments in 2002-03 exceed known adjustments in 2003-04 and beyond.

Annexes

1. Summary of Transfer Payments

Grants and contributions make up \$226.8 million or 28 percent of the total budgetary planned spending of the Department (2003-04 Main Estimates). The figures below summarize all grants and contributions planned spending.

| (\$ millions) | Forecast Spending 2002-03 | Planned Spending 2003-04 | Planned Spending 2004-05 | Planned Spending 2005-06 |
|--|---------------------------------|---|--------------------------------|--------------------------------|
| GRANTS | | | | |
| Information Dissemination and Consensus Building | 0.3 | 1.2 | 0.2 | 0.2 |
| Economic and Social Benefits | 0.3 | 0.3 | 0.3 | 0.3 |
| Environmental Protection and Mitigation | 1.9 | 0.3 | 0.3 | 0.7 |
| Safety and Security of Canadians | 0.0 | 0.0 | 0.0 | 0.0 |
| Sound Departmental Management | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Grants | 2.6 | 1.9 | 0.9 | 1.3 |
| CONTRIBUTIONS | | | | |
| Information Dissemination and Consensus Building | 13.1 | 12.9 | 10.3 | 9.1 |
| Economic and Social Benefits | 78.4 | 130.3 | 103.7 | 110.2 |
| Environmental Protection and Mitigation | 54.7 | 75.8 | 61.9 | 63.7 |
| Safety and Security of Canadians | 5.1 | 5.8 | 6.4 | 6.4 |
| Sound Departmental Management | 0.1 | 0.1 | 0.1 | 0.1 |
| Total Contributions | 151.4 | 224.9 | 182.4 | 189.5 |
| Sub-Total Grants and Contributions | 154.0 | 226.8 | 183.3 | 190.8 |
| Plus: Adjustments to Planned Spending | | | | |
| Grants | (0.5) | 0.0 | 0.0 | 0.0 |
| Contributions ¹ | 193.7 | 8.4 | 5.9 | 5.9 |
| Total Planned Grants and Contributions | 347.2 | 235.2 | 189.2 | 196.7 |

1. Increased adjusted contributions in 2002-03 are attributable mainly to new and increased statutory obligations to Newfoundland & Labrador and Nova Scotia offshore oil industries. Production volume and revenues in this sector increase royalty payments and provincial offsets which flow through NRCan's statutory contribution vote.

2. Details of Transfer Payment Programs which exceed \$5 million in 2003-04

Information Dissemination and Consensus Building

Objectives: (i) 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; (ii) greater national and international cooperation and consensus on sustainable development issues, policies, goals and actions; and (iii) fiscal, regulatory and voluntary approaches that encourage the sustainable development of natural resources.

| Planned Results | Milestones |
|------------------------------------|--------------------------|
| GeoConnections (\$4.8 million) | See Section III, page 10 |
| Model Forest Program (\$7 million) | See Section III, page 9. |

Economic and Social Benefits

Objectives: (i) greater economic opportunities and encouraging investment in innovative and higher-value uses of natural resources; (ii) expanded access to international markets for Canadian resource-based products, knowledge, technologies and services; and (iii) increased capacity of Aboriginal, rural and northern communities to generate sustainable economic activity based on natural resources.

| Planned Results | Milestones |
|--|---|
| Increase investment in energy development and infrastructure, while creating jobs and protecting the environment (\$39.1 million) | Hibernia Interest Assistance (\$39.1 million), as a repayable contribution to assist the owners in meeting current project interest payments on the guaranteed loans, if current oil prices for the oil produced by the project fall below U.S. \$25 per barrel (in 1987 dollars). |
| The exploration, development, production or transportation of oil and gas in the offshore area of Nova Scotia (\$18 million) and Newfoundland (\$26.6 million) | Statutory payments to: <ul style="list-style-type: none"> • pay to Nova Scotia an amount equal to various offshore revenues, including royalties, rentals, forfeitures, fees and corporate offshore income tax through the Nova Scotia Offshore Revenue Account (\$18 million); • pay to Newfoundland an amount equal to various offshore revenues, including royalties, rentals, forfeitures, fees and corporate offshore income tax through the Newfoundland Offshore Petroleum Resource Revenue Fund (\$26.6 million); and compensate the province for part of its losses in fiscal equalization entitlements as a result of offshore revenues included in the equalization program, through the Newfoundland and Labrador Revenue Fiscal Equalization Offset payment. |
| Assistance to Canada's forest sector (\$33.7 million) | See Section III, page 18 for Canada Wood Export Program (\$7.1 million), page 19 for both value-added research initiatives (\$4.3 million), and financial sustainability of the research institutes (\$22.3 million). |

Environmental Protection and Mitigation

Objectives: (i) Canada addressing its international Kyoto commitment to reduce greenhouse gases; (ii) scientific research, technologies and stewardship practices that reduce environmental impacts, conserve biodiversity, and increase the efficiency of resource development and use; and (iii) Canada's environment safeguarded from the risks associated with natural resource development and use.

| Planned Results | Milestones |
|---|--|
| Work with electricity distributors to promote the sale of electricity from emerging renewable energy sources (\$6.8 million) | The Market Incentive Program's goal is to seek proposals from electricity distributors interested in developing market-based programs that will increase the sale of green power to their residential and small business customers. To date, we have received 16 notices of intent to participate in the program. Once the proposals are evaluated, we will initiate the negotiation of contribution agreements with the successful project proponents. |
| Wind Power Incentive Contribution Program (\$4.5 million) | Support the development of wind farms by providing a 1.2 or 1 cent incentive per kilowatt-hour to producers of wind electricity. |
| Improve energy efficiency and the adoption of alternative sources of energy which contribute to reducing greenhouse gas emissions (\$32.8 million which includes \$0.5 million from strategic outcome 1) | Support energy efficiency and alternative energy programs for all end-use sectors of the economy and all significant fuel types, seeking to enhance the effectiveness of energy use through encouraging investments and changing behaviours. Support for energy efficiency research and development in the industrial sector. |
| Climate Change Action Fund (\$14.4 million) - as part of NRCan's contribution to the Climate Change Plan for Canada, continued support of technology development, adaptation, research and forest carbon stock measurement. | Impact and adaptation – By year end, allocate funds to research that will better quantify Canada's vulnerability to climate change in key sectors such as water resources, human health, agriculture, fisheries and coastal zone management. Technology Early Action Measures (TEAM) – facilitate the development of new technologies in support of early action on climate change in Canada and abroad, while sustaining economic and social development. TEAM will also maintain its role as one of the leading initiatives for project-based GHG measurement, reporting and accountability. Forest carbon stock measurement – implementation of new standards and data collection; evaluation of methodologies for monitoring and tracking forest change; update of carbon budget model for operational use; and work to ensure that the best scientifically available information is used and that information gaps are addressed in the model applications. |
| Action Plan 2000 for Climate Change – in support of organizations associated with impact and adaptation research related to climate change (\$7.2 million) | Allocate funds to research projects that will better quantify Canada's vulnerability to climate change in key sectors such as water resources, human health, agriculture, fisheries and coastal zone management. When completed, the results of these projects will provide a base of information for future actions and decisions on adaptation in these sectors. |

3. Source of Respendable and Non-Respendable Revenues (Excludes the Geomatics Canada Revolving Fund)

Respendable Revenues

| (\$ millions) | Forecast Revenue ¹ 2002-03 | Planned Revenue 2003-04 | Planned Revenue 2004-05 | Planned Revenue 2005-06 |
|--|---|-------------------------------|-------------------------------|-------------------------------|
| Information Dissemination and Consensus Building | 3.1 | 2.9 | 3.1 | 3.1 |
| Economic and Social Benefits | 8.5 | 8.1 | 7.9 | 7.9 |
| Environmental Protection and Mitigation | 6.6 | 7.5 | 7.5 | 7.5 |
| Safety and Security of Canadians | 3.5 | 3.4 | 3.4 | 3.4 |
| Sound Departmental Management | 0.0 | 0.1 | 0.1 | 0.1 |
| Total Respendable Revenues | 21.7 | 22.0 | 22.0 | 22.0 |

Non-Respendable Revenues

| (\$ millions) | Forecast Revenue ¹ 2002-03 | Planned Revenue 2003-04 | Planned Revenue 2004-05 | Planned Revenue 2005-06 |
|--|---|-------------------------------|-------------------------------|-------------------------------|
| Information Dissemination and Consensus Building | 0.3 | 0.1 | 0.2 | 0.2 |
| Economic and Social Benefits ² | 26.6 | 49.4 | 57.3 | 71.3 |
| Environmental Protection and Mitigation | 0.1 | 0.0 | 0.0 | 0.0 |
| Safety and Security of Canadians | 0.2 | 0.2 | 0.2 | 0.2 |
| Sound Departmental Management | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Non-respendable Revenues | 27.2 | 49.7 | 57.7 | 71.7 |

| | | | | |
|---|-------------|-------------|-------------|-------------|
| Total Respendable and Non-respendable Revenues | 48.9 | 71.7 | 79.7 | 93.7 |
|---|-------------|-------------|-------------|-------------|

1. Revenue forecasts for 2002-03 have been revised as part of the 2003-04 ARLU exercise. Original forecasts for 2002-03 in the 2002-03 RPP have been replaced.
2. Increases forecasted from 2003-04 to 2005-06 stem from increased offshore revenue sharing and royalty agreements in the east coast offshore oil industry.

4. Planned Expenditures for 2003-04 by Major Activities and Strategic Outcome (\$ millions)

| Major Activities (consolidated) | Strategic Outcomes | | | | | Planned Expenditures |
|---|--|---|---|----------------------------------|-------------------------------|----------------------|
| | Information Dissemination and Consensus Building | Economic, Social and Environmental Benefits | Environmental Protection and Mitigation | Safety and Security of Canadians | Sound Departmental Management | |
| Connecting Canadians to geospatial information | 17.6 | | | | | 17.6 |
| Creating an Aboriginal property rights infrastructure | | 19.2 | | | | 19.2 |
| Departmental services | | | | | 37.4 | 37.4 |
| Developing Canada's North through geoscience and geospatial information | 15.6 | 22.4 | | | | 38.0 |
| Ensuring a clean and safe environment for Canadians* | | | 23.0 | | | 23.0 |
| Investments in and support of forest sector programs and special initiatives | 0.5 | 13.2 | | | | 13.7 |
| Low level radioactive waste management | | | 13.9 | | | 13.9 |
| Leveraging investments in climate change* | | | 35.9 | | | 35.9 |
| Market transformation and incentives for energy efficiency and renewable energy* | 4.9 | | 85.3 | | | 90.2 |
| Meeting Canadians' security and safety needs | | | | 14.9 | | 14.9 |
| Policy research, development, and program support* | 23.7 | 78.6 | 27.9 | 3.2 | 8.2 | 141.6 |
| Providing science, technology and innovation support for the sustainable development of Canada's natural resources* | 92.4 | 39.4 | 117.0 | 2.4 | | 251.2 |
| Regulation and assistance for the development of offshore oil industry | | 86.4 | | 6.3 | | 92.7 |
| Regulation, research, and control of explosives use | | 0.5 | | 6.2 | | 6.7 |
| Stewardship of NCR facilities and workplace environment | 9.4 | 9.4 | 8.7 | 3.3 | 7.3 | 38.1 |
| Less: Respendable Revenues | (2.9) | (8.1) | (7.5) | (3.4) | (0.1) | (22.0) |
| Total Planned Expenditures | 161.2 | 261.0 | 304.2 | 32.9 | 52.8 | 812.1 |

*Note: Funding in this activity includes climate change and Kyoto Protocol implementation funding. See page 21 for more information on climate change planned spending for 2003-04.

5. Net Cost of Program for the Estimates Year 2003-04

| (\$ millions) | Total NRCan |
|--|--------------|
| Planned Spending (budgetary main estimates plus adjustments) | |
| Information Dissemination and Consensus Building | 161.2 |
| Economic and Social Benefits | 275.1 |
| Environmental Protection and Mitigation | 306.2 |
| Safety and Security of Canadians | 32.9 |
| Sound Departmental Management | 52.8 |
| Sub-Total Planned Spending | 828.2 |
| Plus: Services received without charge | |
| Accommodation provided by Public Works and Government Services Canada (PWGSC) | 13.2 |
| Contributions covering employers' share of employees insurance premiums and expenditures paid by TBS | 20.2 |
| Workmen's compensation coverage provided by Human Resources Development Canada | 0.3 |
| Salary and associated expenditures of legal services provided by Justice Canada | 1.0 |
| Total Services Received without Charge | 34.7 |
| Less: Non-respendable revenue | (49.8) |
| Net Program Cost (Total Planned Spending) | 813.1 |

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

| (\$ millions) | Forecast Revenue 2002-03 | Planned Revenue 2003-04 | Planned Revenue 2004-05 | Planned Revenue 2005-06 |
|--|--------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Respendable revenues¹: | | | | |
| Products | 13.4 | 13.1 | 13.1 | 13.1 |
| Services | 3.3 | 3.6 | 3.6 | 3.6 |
| Consulting | 1.5 | 1.0 | 1.0 | 1.0 |
| Total respendable revenues | 18.2 | 17.7 | 17.7 | 17.7 |
| Operating Expenses: | | | | |
| Cost of sales | 3.6 | 3.5 | 3.5 | 3.5 |
| Salaries and employee benefits | 6.2 | 6.6 | 6.6 | 6.6 |
| Depreciation | 0.4 | 0.4 | 0.4 | 0.4 |
| Repairs and Maintenance | 0.5 | 0.5 | 0.5 | 0.5 |
| Administrative and support services | 2.1 | 2.2 | 2.2 | 2.2 |
| Utilities, materials, and supplies | 0.4 | 0.5 | 0.5 | 0.5 |
| Rental | 0.2 | 0.3 | 0.3 | 0.3 |
| Interest | 0.1 | 0.1 | 0.1 | 0.1 |
| Transportation and communication | 0.7 | 0.7 | 0.7 | 0.7 |
| Professional and special services | 2.4 | 2.4 | 2.4 | 2.4 |
| Total operating expenses | 16.6 | 17.2 | 17.2 | 17.2 |
| Operating surplus (deficit) | 1.6 | 0.5 | 0.5 | 0.5 |
| Add non-cash items: Depreciation | 0.6 | 0.6 | 0.6 | 0.6 |
| Changes in working capital | 0.4 | 1.3 | 1.3 | 1.3 |
| Others | (0.3) | 0.2 | 0.2 | 0.2 |
| Investing activities: | | | | |
| Capital acquisitions | (0.3) | (0.2) | (0.2) | (0.2) |
| Surplus (Deficit) | 2.0 | 2.4 | 2.4 | 2.4 |

1. Variances between the mix of planned revenues for 2002-03 from the 2002-03 RPP and those shown are due to a transcription error. Amounts shown here are re-stated in the mix of revenues; the gross forecast revenues are unchanged.

7. Projected Use of Geomatics Canada Revolving Fund Authority

| (\$ millions) | Forecast 2002-03 | Planned 2003-04 | Planned 2004-05 | Planned 2005-06 |
|--------------------------------------|---------------------|--------------------|--------------------|--------------------|
| Authority* | 5.0 | 5.0 | 5.0 | 5.0 |
| Draw down: | | | | |
| Balance as at April 1 | (0.8) | 1.2 | 3.6 | 6.0 |
| Projected surplus (drawdown) | 2.0 | 2.4 | 2.4 | 2.4 |
| | 1.2 | 3.6 | 6.0 | 8.4 |
| Projected balance at March 31 | 6.2 | 8.6 | 11.0 | 13.4 |

* \$5 Million is the maximum amount that may be drawn down from the Consolidated Revenue Fund (CRF) at any time.

8. Loans, Investments, and Advances (Non-budgetary)

| (\$ millions) | Forecast balance April 1 st , 2003 | Receipts and other credits | Payments and other charges | Forecast balance March 31 st , 2004 |
|------------------------------|---|-------------------------------|-------------------------------|--|
| Atomic Energy of Canada Ltd. | | | | |
| Housing | 0.0 | 0.0 | 0.0 | 0.0 |
| Heavy Water Inventory | 5.5 | (1.0) | 0.0 | 4.5 |
| Hibernia Development Project | 55.2 | (9.2) | 0.0 | 46.0 |
| Nordion International Inc. | 88.0 | (4.0) | 0.0 | 84.0 |
| Total | 148.7 | (14.2) | 0.0 | 134.5 |

9. Internet Addresses and Statutory Annual Reports

Natural Resources Canada

Headquarters Library
Public Enquiries
Main Floor, 580 Booth Street
Ottawa, ON, K1A 0E4
Telephone: (613) 995-0947
Fax: (613) 992-7211

Statutory Annual Reports:

1. The State of Canada's Forests

http://www.nrcan-mcan.gc.ca/cfs-scf/national/what-quoi/sof/latest_e.html

2. Report to Parliament under the *Energy Efficiency Act*

http://ee.nrcan.gc.ca/publications/infosource/PDFs/Report_to_Parliament.pdf

Headquarters and Sector Internet Sites:

| | |
|---------------------------------------|---|
| Natural Resources Canada Home Page | http://www.nrcan.gc.ca |
| Aboriginal Portal | http://www.nrcan.gc.ca/aboriginal |
| Audit and Evaluation | http://www2.nrcan.gc.ca/dmo/aeb |
| Canadian Forest Service | http://www.nrcan.gc.ca/cfs |
| Climate Change – Government of Canada | http://climatechange.gc.ca/ |
| Climate Change – NRCan | http://www.climatechange.nrcan.gc.ca/ |
| Corporate Services Sector | http://www.nrcan.gc.ca/css |
| Earth Sciences Sector | http://www.nrcan.gc.ca/ess |
| Energy Sector | http://www.nrcan.gc.ca/es/ |
| Minerals and Metals Sector | http://www.nrcan.gc.ca/mms |
| S&T at NRCan | http://www.nrcan.gc.ca/dmo/scitech |
| Statutes and Regulations | http://www.nrcan.gc.ca/dmo/spcb/regiss_e.html |
| Sustainable Development | http://www.nrcan.gc.ca/sd-dd/ |

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 |
| Costa Rica-Canada Initiative | http://www.nrcan.gc.ca/cfs/crc/ |
| Criteria and Indicators (C&I) | http://www.NRCan.gc.ca:80/cfs/proj/ppiab/ci/ |
| First Nation Forestry Program | http://www.fnfp.gc.ca/ |
| Model Forest Network | http://mf.ncr.forestry.ca/ |
| Montreal Process C&I | http://www.mpci.org/ |
| National Forest Strategy | http://www.nrcan.gc.ca/cfs/nfs/strateg/control_e.html |
| United Nations Framework Convention on Climate Change | http://www.unfccc.de/ |

Earth Sciences Sector Internet Sites:

Geomatics Canada:

- Aeronautical Charts and Technical Services
- Canada Centre for Remote Sensing
- Centre for Topographic Information
- Legal Surveys & International Boundary Commission
- Geodetic Surveys

<http://nrcan.gc.ca/geocan/>

Canadian Earth Observation Network

<http://ceonet.cgdi.gc.ca>

Earth Sciences Sector (continued)

Canadian Geoscience Publications Directory

<http://ntserv.gis.nrcan.gc.ca>

Canadian National Earthquake Hazards Program

<http://www.seismo.nrcan.gc.ca/>

Canadian National Geomagnetism Program

<http://www.geolab.nrcan.gc.ca/geomag/>

Earth Sciences Information Centre

<http://www.nrcan.gc.ca/ess/esic/>

GeoConnections

<http://www.geoconnections.org>

Geological Survey of Canada

<http://www.nrcan.gc.ca/gsc>

Geomatics Canada

<http://www.geocan.nrcan.gc.ca>

Polar Continental Shelf Project

<http://polar.nrcan.gc.ca>

Energy Sector Internet Sites:

CANMET Energy Technology Centre (CETC)

<http://www.nrcan.gc.ca/es/etb>

CETC Varennes

<http://cedrl.mets.nrcan.gc.ca/>

CETC Ottawa

<http://www.nrcan.gc.ca/es/etb/cetc/>

CETC Devon

<http://www.nrcan.gc.ca/es/etb/cwrc/>

Canadian Renewable Energy Network

<http://www.canren.gc.ca/>

EnerGuide for Houses

<http://energuide.nrcan.gc.ca/houses/>

Energy Innovators Initiative

<http://oe.nrcan.gc.ca/eii>

Energy Resources Branch

<http://www.enres.nrcan.gc.ca/>

Energy, Minerals and Metals Information Centre

<http://www.nrcan.gc.ca/es/msd/emmic/web/index.html>

Energy Technology Futures

<http://www.nrcan.gc.ca/es/etf>

National Energy Use Database

<http://oe.nrcan.gc.ca/neud/>

Nuclear energy, uranium and radioactive waste

<http://nuclear.nrcan.gc.ca>

Office of Energy Efficiency

<http://www.oe.nrcan.gc.ca>

Office of Energy Research and Development

<http://www2.nrcan.gc.ca/es/oerd/>

Renewable Energy Deployment Initiative

<http://www2.nrcan.gc.ca/es/erb/english/View.asp?x=455>

RETScreen™

<http://132.156.62.20/>

Technology Early Action Measures (TEAM)

http://climatechange.gc.ca/english/actions/action_fund/techno.shtml

Minerals and Metals Sector Internet Sites:

Applied Mineralogy

<http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl-lmsn/minproc/minproc-e.htm>

Aquatic Effects Technology Evaluation Program

<http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl-lmsn/enviro/enviro-e.htm>

Annual Conference of the Mines Ministries of the Americas

<http://www.camma.org>

Canada's Mining Taxation

<http://www.nrcan.gc.ca/ms/efab/tmrd/>

Canadian Explosives Research Laboratory (CERL)

http://www.nrcan.gc.ca/mms/cerl/home_e.htm

Canadian Certified Reference Materials Project (CCRMP)

<http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl-lmsn/ccrmp/ccrmp-e.htm>

Canadian Lightweight Materials Research Initiative

<http://climri.nrcan.gc.ca>

Canadian Minerals Yearbook

<http://www.nrcan.gc.ca/mms/cmy/index.htm>

| | |
|--|---|
| Canadian Resource Recovery Strategy | http://www.recycle.nrcan.gc.ca/crrs_e.htm |
| CANMET Environment Group | http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl-lmsm/enviro/enviro-e.htm |
| CANMET Materials Technology Laboratory | http://www.nrcan.gc.ca/mms/canmet-mtb/mtl |
| CANMET Mineral Technology Branch | http://www.nrcan.gc.ca/mms/canmet-mtb |
| CANMET Mining and Mineral Sciences Laboratories | http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl-lmsm/ |
| Catalogue of Social Practices in the Canadian Minerals and Metals Industry | http://www.nrcan.gc.ca/mms/sociprac/intro_e.htm |
| Economic and Financial Analysis Branch | http://mmsdl.mms.nrcan.gc.ca/efab/default.html |
| Explosives Regulatory Division | http://www.nrcan.gc.ca/mms/explosif/ |

Minerals and Metals Sector (continued):

| | |
|---|---|
| Family Fireworks Safety | http://www.nrcan.gc.ca/explo-net/defaultnoflash.htm |
| Federal Minerals and Metals Sites | http://www.nrcan.gc.ca/mms/topi-suje/fmms_e.htm |
| Inventory of Mining Industry Practices to Conserve Wildlife and Habitat in Canada | http://www.nrcan.gc.ca/mms/wildlife/awdsrec_e.htm |
| Investing in Canada's Natural Resources Sector | http://invest.nrcan.gc.ca/ |
| Investment Tax Credit for Exploration In Canada | http://www.nrcan.gc.ca/mms/efab/tmrd/d_inv_2d2_taxcredit2000.htm |
| Kimberley Process Certification Scheme for International Trade in Rough Diamonds | http://mmsd1.mms.nrcan.gc.ca/kimberleyp process/note_e.asp |
| Mapping Federal-Provincial-Territorial Mining Knowledge | http://mmsd1.mms.nrcan.gc.ca/maps/ |
| Mines Ministers Conference | http://www.nrcan.gc.ca/mms/mmc/index_e.htm |
| Minerals and Metals – A World to Discover | http://www.nrcan.gc.ca/mms/scho-ecol/toc_e.htm |
| Minerals and Metals Fact Sheets and Information Bulletins | http://www.nrcan.gc.ca/mms/prod-serv/fs_e.htm |
| Minerals and Metals Indicators (MMI) | http://www.nrcan.gc.ca/mms/mmi/mmi_e.htm |
| Minerals and Mining Statistics Division | http://mmsd1.mms.nrcan.gc.ca/mmsd/default.html |
| Mineral Industry Info-Guide | http://www.nrcan-nrcan.gc.ca/mms/pdf/infoguide-e.pdf |
| NDT (non-destructive testing) Certifying Agency | http://ndt.nrcan.gc.ca/ |
| Pipeline Integrity Internet Icon (PICon) | http://www2.nrcan.gc.ca/mms/picon/default.htm |
| Recycling Web Site | http://www.recycle.nrcan.gc.ca/default_e.htm |
| Research and Innovation | http://www.nrcan.gc.ca/mms/topi-suje/ri_e.htm |