



ESTIMATES

# Natural Resources Canada

2002-2003  
Estimates

Part III – Report on Plans and Priorities

Canada

## The Estimates Documents

Each year, the government prepares Estimates in support of its request to Parliament for authority to spend public monies. This request is formalized through the tabling of appropriation bills in Parliament. The Estimates, which are tabled in the House of Commons by the President of the Treasury Board, consist of three parts:

**Part I – The Government Expenditure Plan** provides an overview of federal spending and summarizes both the relationship of the key elements of the Main Estimates to the Expenditure Plan (as set out in the Budget).

**Part II – The Main Estimates** directly support the *Appropriation Act*. The Main Estimates identify the spending authorities (votes) and amounts to be included in subsequent appropriation bills. Parliament will be asked to approve these votes to enable the government to proceed with its spending plans. Parts I and II of the Estimates are tabled concurrently on or before 1 March.

**Part III – Departmental Expenditure Plans** which is divided into two components:

- (1) **Reports on Plans and Priorities (RPPs)** are individual expenditure plans for each department and agency (excluding Crown corporations). These reports provide increased levels of detail on a business line basis and contain information on objectives, initiatives and planned results, including links to related resource requirements over a three-year period. The RPPs also provide details on human resource requirements, major capital projects, grants and contributions, and net program costs. They are tabled in Parliament by the President of the Treasury Board on behalf of the ministers who preside over the departments and agencies identified in Schedules I, I.1 and II of the *Financial Administration Act*. These documents are tabled in the spring and referred to committees, which then report back to the House of Commons pursuant to Standing Order 81(4).
- (2) **Departmental Performance Reports (DPRs)** are individual department and agency accounts of accomplishments achieved against planned performance expectations as set out in respective RPPs. These Performance Reports, which cover the most recently completed fiscal year, are tabled in Parliament in the fall by the President of the Treasury Board on behalf of the ministers who preside over the departments and agencies identified in Schedules I, I.1 and II of the *Financial Administration Act*.

The Estimates, along with the Minister of Finance's Budget, reflect the government's annual budget planning and resource allocation priorities. In combination with the subsequent reporting of financial results in the Public Accounts and of accomplishments achieved in Departmental Performance Reports, this material helps Parliament hold the government to account for the allocation and management of public funds.

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# **Natural Resources Canada**

## **2002-03 Estimates**

A Report on Plans and Priorities

**Approved**

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**Herb Dhaliwal**  
*Minister of Natural Resources*



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## Section I - Minister's Message

I am pleased to present the 2002-03 Report on Plans and Priorities for Natural Resources Canada (NRCan).

Canada's natural resources are the lifeblood of more than 650 communities across Canada, many of them rural, remote, northern and Aboriginal. The sector contributes significantly to the national economy, accounting for \$106 billion (or 12 percent) of our GDP and more than one-third of Canada's export sales.



**Herb Dhaliwal**  
Minister of Natural Resources

We must ensure that our natural resources are developed and used in a way that balances economic, environmental and social objectives. By matching NRCan's expertise and activities to the needs of various regions, and by promoting partnerships with public and private sector stakeholders, my Department can continue to implement our vision of improving the quality of life of Canadians through sustainable natural resources development.

NRCan is working toward sustainable development by focussing on four objectives — knowledge, communities, innovation and stewardship. A key to our success is our work in pursuing consensus through dialogue and partnerships with a wide array of stakeholders such as the provinces and territories, other federal departments, environmental groups, academia, Aboriginals and the natural resources industry. As Minister of Natural Resources, I am pleased that these stakeholders are embracing corporate social responsibility as a way to improve Canada's economic prosperity, environmental performance and social well-being. In addition, my Department's work with the international community provides us with the opportunity to promote sustainable resource development, and to maintain and expand Canada's competitive position in export markets.

The world is evolving into a high-tech, knowledge-based society, and Canada needs the knowledge created and applied with NRCan's help to sustain our competitive advantage in natural resources development. Key knowledge initiatives, such as NRCan On-Line and GeoConnections, provide Canadians with access to information through the Internet, which they can use to make informed decisions about natural resources.

NRCan is helping rural, remote, northern and Aboriginal communities enhance their sustainability through initiatives such as the First Nation Forestry Program, the Model Forest Program and the Sustainable Communities Initiative. The Department will continue to contribute its scientific and policy expertise to enhance the capacity of communities to achieve greater self-sufficiency, and to address areas of increasing Canadian concerns such as groundwater.

Partnerships with stakeholders are resulting in the development of world-class innovative technologies. For example, NRCan will be pursuing opportunities in areas such as Alberta's oil sands and in the emerging fields of geomatics and climate change technologies.

Climate change is a particular focus. My Department is investing in strategically targeted research and development, and in alliances and partnerships to address the climate change challenge. On the international and domestic fronts, we and our partners will continue to implement initiatives to further reduce greenhouse gas emissions. It is clear that co-management, shared stewardship and enhanced public consultations are key to the success of our programs. Extensive consultations are planned to seek the views of Canadians, stakeholders, the provinces and territories about climate change issues and the approach Canada should take to meet Kyoto Protocol commitments.

Recent world events have raised questions about security and safety. NRCan will continue to work with Canada's Office of Critical Infrastructure Protection and Emergency Preparedness, other Government of Canada departments and other levels of government to further safeguard our natural resources and energy infrastructure from natural hazards and terrorist attacks. On the health and safety side, the Department is proposing amendments to the *Explosives Act*, and we are partnering with Precarn Incorporated to use the latest intelligence systems and fibre optic technologies to help detect and diagnose leaks and ruptures in oil and natural gas pipelines.

As Minister of Natural Resources, I want to ensure that Canada is recognized as a world leader in the sustainable development and wise use of natural resources. This leadership is particularly critical this year, since Canada is participating in the World Summit on Sustainable Development. Improving the quality of life of Canadians through sustainable resource development delivers on our priorities as a government — ensuring that future generations can also benefit from the economic, social and environmental benefits of our natural resources.

## Management Representation

### Report on Plans and Priorities 2002-03

I submit, for tabling in Parliament, the 2002-03 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 2003-03 Report on Plans and Priorities*;
- is comprehensive and accurate; and
- is based on sound underlying departmental information and management systems.

I am satisfied as to the quality assurance processes and procedures used for the RPP production.

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: \_\_\_\_\_





## Section II - Raison d'être

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### A Vision for Canada's Natural Resources Sector

*"Quality of life through sustainable resource development"*

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#### **A 21<sup>st</sup> Century Sustainability Agenda for Canada's Natural Resources Sector - Departmental Priorities Over the Planning Period**

NRCan has a legislated mandate to promote the sustainable development of natural resources, meeting the needs of the present without compromising the ability of future generations to meet their own needs. Balancing the perspectives on natural resource development and use – economic, social and environmental sustainability – requires a clear vision and a strategy to advance it.

While opportunities abound, Canada is facing increasingly complex challenges, including:

- the impact of uncertainty on the domestic investment climate due to the evolving environmental regulatory process, Aboriginal litigation and unsettled land claims;
- challenges to trade and market development relating to market access issues and intensifying competition for investment and markets;
- meeting international commitments under the Kyoto and Biodiversity protocols, among others;
- the sustainability of rural, Aboriginal and Northern communities because of limited infrastructure, capital, skills and capacity to diversify economies;
- public safety and security related to terrorist threats and natural hazards, including the need to protect the economic security of Canadians and Canada's critical infrastructure; and
- globalization of the economy and deregulation of financial markets leading to the need to strengthen the global system of governance – laws, conventions, treaties, institutions and other mechanisms to develop partnerships and strengthen networks among stakeholders.

NRCan has identified four strategic directions, under the theme of *A Sustainability Agenda for the 21<sup>st</sup> Century*, that derive from consultations with stakeholders in preparing NRCan's Sustainable Development Strategy, and the priorities established by the Government of Canada. The Agenda contributes to an improved quality of life for Canadians as well as to their safety and security. It builds on the Department's strategic outcomes and encompasses four mutually reinforcing and complementary pillars:

- creating and sharing **knowledge** for balanced decisions on Canada's landmass and resources and enhanced security;
- strengthening the economic performance of Canada's natural resources sector through **innovation**;

- advancing excellence in resource **stewardship**; and
- turning the potential of the resource sector into new social and economic opportunities for all Canadian **communities**.

**Knowledge** – Creating and sharing integrated knowledge for balanced decisions about Canada's landmass and resources is central to ensuring the viability of social, economic and environmental benefits from one generation to the next. This pillar is aligned closely with Strategic Outcome #1, starting on page 7.

Knowledge is re-setting the limits of sustainable economic growth in the natural resources sector and provides a competitive advantage to our industries. NRCan creates, disseminates and shares integrated information and knowledge in support of the sustainable development of Canada's natural resources and the international competitiveness of our resource sector.

**Innovation** – Positioning Canada's natural resources sector as a world leader in innovation will sustain our comparative global advantage in natural resources products and services. This pillar is aligned closely with Strategic Outcome #2, starting on page 12.

Innovation remains the best route to improving the economic performance of the natural resources sector and attaining economic, social, environmental and security objectives. NRCan is focusing on research and development (R&D), skills, diffusion of knowledge and technology, investment climate and market development and access – with emphasis on areas where Canada can be the first in the world to develop and capitalize on emerging sustainable development technologies.

**Stewardship** – Establishing Canada as an international model for resource stewardship and environmental responsibility encompasses global obligation, sustainable resource management and health, safety and security. This pillar is aligned closely to Strategic Outcomes #3 and #4, beginning on pages 22 and 31 respectively.

Stewardship embodies understanding and communicating the importance of Canada's land, water, air and biological resources to the economy, environment and society. It demands an open, multi-disciplinary approach to decision-making that encourages cooperation among stakeholders, considers new governance models and develops innovative partnerships among governments. Key areas of challenge and opportunity for NRCan include natural resource management, climate change, conservation and biodiversity, and international leadership.

**Communities** – Strong, secure communities are an integral component of Canada's competitiveness and an indicator of our quality of life. This pillar is aligned to Strategic Outcomes #2 and #4, starting on pages 12 and 31 respectively.

NRCan is advancing community sustainability, strengthening partnerships, including those with Canada's Aboriginal communities, enhancing NRCan's on-line initiatives that are linked to broad government priorities, expanding renewable energy and energy efficiency community

initiatives as well as green infrastructure, and leading in horizontal efforts to coordinate federal efforts to foster community sustainability.

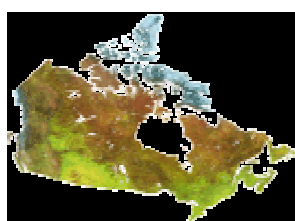
### **Governance**

Success in implementing the *Sustainability Agenda* and achieving NRCan's strategic outcomes requires a firm foundation, innovative management practices, a clear vision, and implementation of the principles of good governance. These include the democratic principles of adherence to the rule of law, transparency, accountability, effectiveness and efficiency and the participation of all stakeholders.

The Department's greatest asset is its skilled and committed people. NRCan's capacities in science and technology (S&T) and policy are complemented by the resources and ideas of our partners in other governments, communities, non-government organizations and industry. Strategic partnerships in pursuit of shared goals form the backbone of the Department's ability to further the public good and the quality of life.

## Section III - Plans and Priorities by Strategic Outcome

This section presents NRCan's key commitments by the Department's five strategic outcomes and supporting objectives which also provide the planning and reporting structure for NRCan's Sustainable Development Strategy (SDS). As such, key commitments found in Section III correspond to the SDS' action items found at <http://www.nrcan.gc.ca/dmo/susdev/>.



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

**Forecast Spending 2001-02: \$165.7M**  
**Planned Spending 2002-03: \$165.2M**  
**Planned Spending 2003-04: \$161.1M**  
**Planned Spending 2004-05: \$153.3M**

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"> <li>• User satisfaction with relevance, accessibility and quality of information.</li> <li>• Public awareness of the importance and relevance of the natural resources sector, its issues, and NRCan's S&amp;T.</li> <li>• Adoption of NRCan-supported technology and practices.</li> </ul>
Greater national and international cooperation and consensus on sustainable development issues, policies, goals and actions.	<ul style="list-style-type: none"> <li>• Participation in, and influence on, national and international multi-stakeholder approaches to sustainable development issues.</li> <li>• Degree of leveraging by NRCan from shared S&amp;T projects.</li> </ul>
Fiscal, regulatory and voluntary approaches that encourage the sustainable development of natural resources.	<ul style="list-style-type: none"> <li>• Participation in, and influence on fiscal, regulatory and voluntary sustainable development initiatives.</li> <li>• Influence of NRCan's S&amp;T-based recommendations on regulatory regimes.</li> </ul>

## What we aim to achieve

### *Creating and sharing knowledge –*

NRCan On-Line (NOL) is a key initiative in support of NRCan's public interest roles and contributions to government priorities. NOL is revolutionizing how NRCan delivers its programs and services to Canadians on-line. Through NOL, NRCan is integrating natural resources information and knowledge across scientific and policy disciplines, making it available to and accessible by Canadians. Sharing knowledge and information through client-focussed, on-line access, will enable Canadians to make better economic, social and environmental decisions on the sustainable development of their natural resources.

In launching NOL, NRCan committed to transforming its business practices. Consequently, NOL is proposing to carry

out an e-government capacity check to assess the Department's e-government practices and providing assistance in developing improvement plans. During the planning period, NRCan will update the results-based management and accountability framework, undertake an assessment of risks and an evaluation study.

As part of NRCan's commitment to Government On Line (GOL), the Department will lead the development of the S&T Cluster on the Canadians Gateway – which is one of the three components of the Canada site (<http://www.Canada.gc.ca>) – over the planning period. The cluster will be much more than an information portal; it will eventually be a strategic knowledge broker fostering increased understanding among citizens, S&T



practitioners, business and public policy makers. Key objectives include engaging Canadians to contribute to public debates on S&T; demonstrating the relevance and benefits of S&T to Canadians; improving science and evidence-based policy and decision-making in government and society; and fostering partnerships among S&T institutions nationally and internationally to create better products, services, and sound policies and regulations for a stronger, more innovative and competitive economy. Initial steps include creating integrated S&T information and knowledge in partnership with other levels of government. Future phases will include integration of contributions from academia, the private sector, non-government organizations and international institutions.

In addition, NRCan has committed to seven other interdependent on-line services under the GOL banner. Examples include the NRCan S&T On-Line Service Line and the Natural Resources Gateway. More information can be found at:

[http://www.nrcan.gc.ca/nrcanonline/gol\\_e.html](http://www.nrcan.gc.ca/nrcanonline/gol_e.html).

NOL is coordinating the Department's participation in developing the Environment, Natural Resources, Fisheries and Agriculture and Agri-Food (ENRFA) Cluster – a cluster focussed on sustainable development. NOL is also developing a strategy for participation in other key GOL clusters and activities (e.g. Health; Innovation; Youth; Consumers Gateway; Canada and the World; and Persons with Disabilities).

More information on NOL can be found at: <http://www.nrcan.gc.ca/nrcanonline/>.

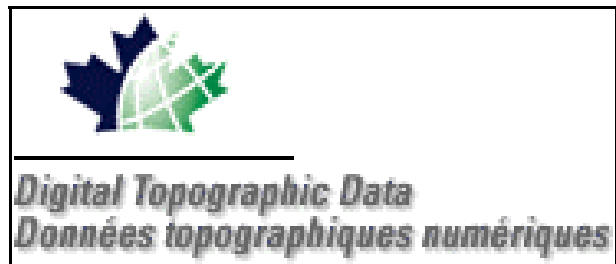
***Delivering geospatial information on the Internet*** – Economic, environmental and social considerations must be factored into Canada's policies and decision-making to achieve sustainable development of our natural resources. Critical issues such as sustainable resource development, public health and safety and environmental protection apply geomatics data and functionality as an instrument of first choice to plan, execute and assess interventions. Crucial to the new economy, quality geographic information – along with the continuing revolution in technology – enable the emergence of new and more powerful applications spurring domestic efficiencies and international competitiveness.

Now entering its third year of infrastructure development, GeoConnections (<http://www.geoconnections.org>) is NRCan's cornerstone to delivering Canada's geospatial information on the Internet. Announced in the 1999 Federal Budget (\$60 million over five years), the initiative is building partnerships with other federal agencies, provincial and territorial governments and the private sector. Many of the benefits of geospatial information technology and management are delivered through integration between systems, improving productivity and enhancing the quality and timeliness of data used throughout business processes. Delivery of GeoConnections is guided through a results-based management and accountability framework that includes ongoing evaluation of GeoConnections work. NRCan will undertake regular evaluation and audit interventions to assess risks and progress throughout the framework implementation.

Working with government partners, academia and the private sector, the Department will

intensify its efforts to deliver on-line access to information, innovative technologies and services that support national information systems related to health, the environment, forestry and sustainable development.

GeoBase, which is partially supported by GeoConnections, is the fundamental geographic information that describes Canadian landmass above and below water. Managed by NRCan with a \$12 million/year budget, this national strategy is the single most important initiative undertaken by the Canadian Council of Geomatics. Over the planning period, the Department will open a GeoBase distribution model which will include key features such as road networks. This will be done in collaboration with other government departments, the provinces and territories.



***Developing a new national forest strategy / Canada forest accord:*** The current National Forest Strategy (1998-2003) *Sustainable Forests: A Canadian Commitment* and its related *Canada Forest Accord* expire on May 1, 2003. As a member of the Canadian Council of Forest Ministers (CCFM), NRCan is actively participating in delivering the CCFM decision to lead the development of a new and bolder national forest strategy (2003-2008), in partnership with the National Forest Strategy Coalition, its governmental and non-governmental members, and others having an interest in the future of Canada's forests. In doing so, NRCan coordinates the federal government's

input (some 20 federal departments and agencies) into this initiative.

The approach for developing this fifth strategy, and its related accord, calls for a consultation paper on the vision and priority issues of Canadians, and cross-country public consultations. The final independent evaluation of the current strategy, to be completed in the fall of 2002, will also be used as a backdrop to the consultations. The new strategy/accord will be presented at the 9<sup>th</sup> National Forest Congress in early 2003, well in advance of the XII World Forestry Congress that Canada will host in Québec City in September 2003 (<http://www.wfc2003.org/>). Development costs total \$750,000 (2/3 government and 1/3 non-government, NRCan \$166,500).

Additional information on Canada's National Forest Strategy is available at:  
[http://www.nrcan.gc.ca/cfs/nfs/strateg/control\\_e.html](http://www.nrcan.gc.ca/cfs/nfs/strateg/control_e.html).

***Forest 2020: further enhancing the long-term sustainability of Canada's forests*** – Forest 2020, a new vision put forth by the CCFM, is designed to further enhance the long-term sustainability of Canada's forests by promoting greater social and economic prosperity, as well as to improve the conservation of our forest heritage. Based on world and domestic trends in the forest sector, and supportive dialogue with a cross section of



Canadians, the CCFM continues to develop the Forest 2020 concept.

Forest 2020 focuses on ensuring Canada's future as a major supplier to the world's growing demand for fibre, and being a leader in forest conservation and community stability. The Forest 2020 vision – which complements Canada's National Forest Strategy (1998-2003) and the Canada Forest Accord – consists of a tiered approach that would see:

- increased wood fibre production through the establishment of plantations of fast growing high-yield tree species, and intensified silviculture in previously harvested, or second growth, forest areas;
- a level of forest ecosystem conservation that is scientifically and socially acceptable; and
- greater community stability and self-sufficiency grounded in the wise use of all forest resources.

The ability to enhance forest conservation while ensuring Canada's commercial timber supply is the most important benefit, or outcome, arising from this initiative. Forest 2020 also provides the basis for a strong agro-forestry program by providing a new crop alternative. This will contribute to strong, sustainable communities and will help diversify the rural economy by bringing together environmental leadership, economic development and recent advances in S&T to enhance and sustain the high contribution of forests to the quality of life of all Canadians.

NRCan and provincial/territorial governments are working together to articulate this new approach. At the September 18, 2001 CCFM meeting in Toronto, the Ministers endorsed Forest 2020 principles that will guide the implementation of Forest 2020. The federal government has taken on the role of developing

the new fibre asset from tree plantations. The December 10, 2001 budget states that the Ministers of NRCan and Agriculture and Agri-Food “will examine affordable ways to encourage more of Canada’s land base to be dedicated to permanent and/or conservation cover crops, agro-forestry and tree plantations.” This decision followed from Cabinet approval of a Fast-Growing Plantation Demonstration Program through the Greencover Canada Action Plan on November 20, 2001. Provincial partners continue to be responsible for the duties of forest management.

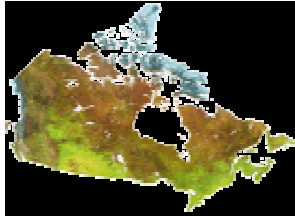


In 2002-03, the CCFM Forest 2020 Task Force – chaired by NRCan – will develop a Forest 2020 implementation plan, investment scenarios and business models, a communications plan, and continue the public dialogue, including closing the loop with those

who have already contributed to the Forest 2020 dialogue. NRCan continues to house a Secretariat that coordinates and supports Forest 2020 activities. NRCan costs are estimated at \$420,000 in 2002-03.

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

**Forecast Spending 2001-02: \$279.3M**  
**Planned Spending 2002-03: \$198.9M**  
**Planned Spending 2003-04: \$193.9M**  
**Planned Spending 2004-05: \$182.6M**

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

## What we aim to achieve

### ***Oil and gas: ensuring a good energy mix through policy and technologies*** –

As Canada and the world will continue to utilize hydrocarbon-based fuels for the foreseeable future, it is important to provide a safe, efficient, reliable and increasingly environmentally clean mix of energy options. As demonstrated in the commitments that follow, and through its policy and technologies, NRCan will continue to contribute to economic

growth while reducing the environmental impact of the production of bitumen, heavy oil and natural gas.

*Diversifying Canada's oil and gas* – Canada's oil sands and heavy oil deposits, which represent one-third of the world's useful petroleum resources, are expected to provide 48 percent of total Canadian supply by 2010 and be a major export commodity to the United States. Maximizing economic benefit while

minimizing adverse environmental consequences requires enhanced competitiveness of the industry, increased export of value-added products, improved energy efficiency, and reduced greenhouse gases (GHG) and other environmental emissions. To achieve these goals, NRCan will invest \$11 million/year to undertake S&T that improves economic and environmental performance. This will include S&T to develop processes that produce clean, dry oil, sustainable reclamation options for oil sands tailings and energy-efficient separation technologies of multi-phase mixtures of oil, water and solids. GHG emissions per unit of production will be reduced by 10 percent within ten years and energy consumed in processing by 5 percent within five years. More information can be found at

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



Bitumen recovery from tailings stream

NRCan also conducts R&D with other federal departments, small- and medium-sized enterprises, universities, and other research institutes to support the regulation of offshore oil and gas production on the east coast as well as in Canada's north. This ensures that future developments respect the environment and limit the negative consequences of air and water emissions and spills while maximizing economic benefits. In response to renewed

interest in northern oil and gas production, beginning in 2002-03, NRCan will increase its R&D funding from \$427,000 to \$627,000.

***Stimulating new investment in mineral exploration*** – NRCan is playing an important role in stimulating new investment in mineral exploration. The Mallik Gas Hydrate Research well program is a \$14 million program aimed at investigating the production potential and economic viability of gas hydrates. Gas hydrates are a new energy source that is the cleanest burning alternative to conventional hydrocarbons. They are a solid form of natural gas that have been captured by ice found in shallow seas worldwide at all latitudes and in the Arctic associated with permafrost. They are a very concentrated form of energy yielding 164 times their solid volume in gas. In the winter of 2002-03 – in partnership with Canadian industry and partners from Japan, United States, Germany, India and some 100 scientists – an experimental production well and two observation wells will be drilled in the Mackenzie Delta to test the possibility of extracting this promising new source of fuel from beneath the permafrost of Canada's north.

The Targeted Geoscience Initiative (TGI) – for which \$15 million over three years was announced in Budget 2000 – will acquire new geoscience knowledge for areas of high mineral potential across Canada. Experience has demonstrated that, on average, an expenditure of \$1 million to acquire and disseminate geoscience knowledge of this sort generates \$5 million dollars in exploration activities.

Of the 31 projects commenced, 26 are continuing to acquire new field and laboratory information in 2002-03, the final year of the program. For example, regional geochemistry surveys will be conducted in prospective areas of New Brunswick, northeastern Alberta and

central British Columbia (\$610,000 in 2002-03). The results from such surveys are used by private sector exploration companies to target their exploration activities and have contributed to the discovery of new mineral deposits in several regions of Canada. In addition, comprehensive geological and geophysical studies of bedrock and surface deposits in isolated or less known regions of Newfoundland, Quebec, Manitoba, central and northern B.C., NWT, Yukon and in eastern and central Nunavut have strong potential for defining new terrains for important mineral commodities. NRCan will spend \$2.2 million on these studies in 2002-03. The TGI will also focus on understanding the origin, emplacement and detection of uranium, diamonds, nickel, gold, platinum, lead and zinc in projects from New Brunswick, Quebec, Ontario, Saskatchewan, Alberta and NWT (\$850,000 in 2002-03).



NRCan is a leader in developing, deploying and integrating S&T into policy and decision-making by governments, industry and other stakeholders.

It is vitally important that the new geoscience information be integrated with earlier data and made readily available to the mineral exploration industry and other clients. To this end, TGI will spend \$130,000 in 2002-03 to develop relevant databases and improve data access. To ensure the success of this initiative, NRCan will augment the 2002-03 TGI funds by \$2.9 million from its A-Base allotment. The Department will also undertake an evaluation of TGI. All TGI projects are carried out in close cooperation with the provinces and territories, with contributions from universities and industry. More information on the TGI can be found at [http://www.nrcan.gc.ca:80/gsc/tgi\\_e.html](http://www.nrcan.gc.ca:80/gsc/tgi_e.html).

***Facilitating the investment climate in minerals and metals*** –NRCan plays an active role in ensuring that the investment climate in Canada maximizes the sustainable economic, social and environmental benefits to Canadians from their mineral resources. In the coming year, NRCan will promote investment in Canada’s minerals and metals resources by providing information to potential investors in Canada and around the world. It will continue its work on taxation issues by leading a study of the federal-provincial/territorial-industry Intergovernmental Working Group on the mineral industry aimed at analysing the effectiveness of federal and provincial exploration tax credits. As well, it will work with Finance Canada and the mining industry to improve key provisions of Canada’s mining tax regimes.

In addition to working to ensure sound domestic policies towards minerals and metals investment, NRCan advocates investment approaches internationally that will promote responsible mineral development in other countries, ensuring environmentally sound investment that addresses the needs of host communities. To this end, NRCan will continue to participate actively in the international arena in advancing investment approaches that underpin long term prosperity and stability in the minerals and metals sector, thus providing a variety of benefits to Canadians. In the near term, NRCan will be active in advocating Canadian investment approaches on a number of international fronts, including the World Bank’s Extractive Industries Review and the Minerals, Metals and Sustainable Development project of the International Institute for Environment and Development. More information on NRCan’s activities to promote mineral investment in Canada can be found at <http://www.nrcan.gc.ca/mms/efab/invest/>.

***Expanding international business opportunities***

– Over the next three years, NRCan will continue to work in close cooperation with other government departments, regional development agencies, industry and other stakeholders to increase opportunities for Canada’s natural resource producers and suppliers to export their goods and services. NRCan will continue to be a member of Team Canada Inc (TCI), a trade promotion arrangement of 23 departments and agencies designed to provide Canadian business with fully integrated access to the export services of the Government of Canada.

Canada’s minerals and metals industries have been at the forefront of the globalization of the Canadian economy. The globalization of the minerals and metals industries is providing opportunities for ancillary, small- and medium-sized enterprises (SMEs) to pursue markets abroad. As a result, NRCan will expand its efforts to capitalize on these international business opportunities for these SMEs to secure economic benefits for all regions within Canada.



To this end, NRCan will actively participate at EXPOMIN 2002 in May 2002 in Santiago, Chile. This international conference and trade show is expected to attract 43,000 delegates from more than 35 countries. EXPOMIN 2002 represents an ideal opportunity to further the development of new markets for Canadian mining equipment and services. In partnership with the Canadian Association of Mining Equipment and Services for Export, the Department of Foreign Affairs and International Trade (DFAIT), and Export Development Canada (EDC), NRCan will

establish a Canadian pavilion, offer support to Canadian exhibitors and showcase Canadian culture at the conference. The Government of Canada’s Branding Canada Program will provide funding for some of NRCan’s activities.

In collaboration with other government departments, industry and other interested parties, NRCan will assess the need to seek a Trade Team Canada Sector (TTCS) status for the minerals, metals and ancillary industries. TTCSs are joint government-industry approaches to promoting Canadian goods and services abroad. The proposed new TTCS would promote Canada’s mining expertise around the world.

In collaboration with DFAIT, Industry Canada and EDC, NRCan will ensure a strong Canadian presence at the Investing in African Mining Indaba 2002 Conference in Cape Town, South Africa. Canada’s participation in the conference is expected to generate a number of opportunities for Canadian minerals, metals and ancillary companies to expand markets for their products and services. Consequently, NRCan will assist these companies in pursuing business opportunities resulting from this event.

NRCan will assist in the launch of NATURALLIA – a new biennial initiative. With the support of NRCan, the Federal Economic Development Initiative in Northern Ontario, Canada Economic Development, trade development agencies and various provincial governments, NATURALLIA is expected to match 100 Canadian minerals, metals and forestry companies with 100 foreign companies to facilitate business opportunities.



Exhibit of Team Canada at the MinE-com Conference held in April 2001 in Vancouver, British Columbia

Furthermore, NRCan will help Canadian geomatics and geoscience firms pursue business leads in international markets and bid on foreign contracts. NRCan's missions to prospective markets have resulted in improved relations and bilateral agreements with many nations, including Saudi Arabia and Mexico.

On the energy side, Canada's bilateral relationships with the United States and Mexico were complemented by the establishment of the North American Energy Working Group (NAEWG). This trilateral group aims to foster communication and cooperation among the governments and energy sectors of the three countries on energy-related matters and to enhance North American energy trade and interconnections consistent with the goal of sustainable development. Under the NAEWG, specific objectives for the coming year are to continue: the trilateral development of *North America The Energy Picture*, a report portraying current energy supply, demand, and infrastructure; exploring North American electricity regulatory issues of common interest, including undertaking domestic stakeholder consultations; moving towards more compatible energy efficiency standards, labelling, and test procedures in

North America; exploring areas for trilateral cooperation in energy S&T; and examining issues surrounding North American natural gas trade and interconnections.

### ***Positioning Canada's forest sector internationally***

– An important component of the Department's goal of pursuing sustainable resource development and economic benefits is to ensure that Canada is able to promote its concept of sustainable forest management world-wide and to maintain and/or enhance its competitive position in export forest markets. The pursuit of this goal is supported by the Department's world-class forest science and the development and implementation of policy initiatives; these are designed to inform the international forest community of Canada's sustainable forest management concept, and to expand and protect Canada's traditional markets against the ever present threat of non-tariff barriers to forest products trade.

*Sustainable forest management concept* – In collaboration with the Canadian Council of Forest Ministers (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 forestry 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.

NRCan and stakeholders will also be engaged in a number of major international initiatives designed to advance Canada's concept of sustainable forest management world-wide through partnerships, information exchange and dialogue. These are: participate in deliberations at the sixth Conference of the Parties (CoP6) of the U.N.'s Convention on Biological Diversity in April 2002; work with the twelve members of the Montreal Process countries to report on and refine an international criteria and indicators framework for temperate and boreal forests; lead the preparation of the final report of the G8 Forest Action Programme when Canada hosts the G8 summit in June 2002; pursue consensus in the U.N. Forum of Forests on ways to foster implementation of internationally-agreed actions to achieve sustainable forest management; and by its fifth session in 2005, define the mandate to develop a legally binding agreement for all types of forests.



In addition, Canada will be hosting the XIIth World Forestry Congress in Quebec City, in September 2003. This event is expected to attract some 5,000 forest leaders and experts from 188 countries and will enable Canada to exchange with others on the concept of sustainable forest management and to showcase its policies and practices to the world. Estimated costs are \$12 million of which \$4 million maximum will be contributed by the Government of Canada and Quebec. The remaining disbursements will come from sponsors (\$3.5 million), registrations (\$3.5 million) and exhibits (\$1 million).

*Protecting traditional and creating new market opportunities* – In partnership with DFAIT, NRCan will be engaged in the defence of the Canadian forest industry against the current U.S. softwood lumber trade actions. Specifically, NRCan will be assisting DFAIT in both the legal challenges to the trade action and the ongoing government-to-government dialogue aimed at seeking a durable solution as an alternative to litigation. Costs are estimated to be between \$100,000-\$150,000 in 2002-03.

To maintain access to foreign markets for Canadian wood products, NRCan will continue to work to eliminate trade barriers, many of which are expressed as plant health concerns. As well as maintaining market access in existing markets, NRCan will develop and expand key export markets for wood products. In 2002-03, the Department will be initiating a market development program focussing on the Chinese market. Funding will support projects which focus on measures to enhance industry presence in the China market, create wood training opportunities for Chinese architects and builders, increase promotional activities and provide technical support to address market access and regulatory issues in China.

***Promoting business growth through good community infrastructure*** –

NRCan is supporting sustainable communities projects (<http://sci.gc.ca>) that will help enhance the quality of life in rural communities and better equip them with the tools necessary to prosper in our economy. Over fifty partnership-based projects will be developed during 2002-03 including:

- Bowen Island (British Columbia)– a new community wrestling with finding a balance between human beings and ecological health. The project will build an operational digital library of geospatial information.

- Eel Ground First Nation (New Brunswick) – this project recognizes that protection and management within its traditional territory is an essential requirement for a healthy and productive community. This project supports the expansion of the First Nation Geographic Information System (GIS).

As part of its work on the Capstone study, which was commissioned to look at new land management issues, the Department and stakeholders will be reviewing the elements required for the establishment of an effective and efficient property rights infrastructure on Aboriginal lands highlighting the use and maintenance of the Canada Lands Survey System on First Nations lands; this will address issues surrounding these new land management regimes. More information on the Capstone study can be found at <http://www.lsd.nrcan.gc.ca>.

***Did you know?***

Communities across Canada are leading the way in seeking new technologies to improve air, water and soil quality, protect the climate and promote the use of renewable resources thanks to support from the Green Municipal Funds. The 7-year, \$50-million Green Municipal Enabling Fund provides grants to support feasibility studies. The \$200 million Green Municipal Investment Fund is a permanent revolving fund that provides grants and loans for the implementation of innovative environmental projects. More than 115 projects have been sponsored to date. By March 2003, the Enabling Fund will have committed \$20 million, and the Investment Fund \$85 million. That is 200 feasibility studies at \$100,000 each. More information can be found at

<http://www.fcm.ca/english/communications/nov262001.htm>

Furthermore, through the Polar Continental Shelf Project, the Department will spend an estimated \$2.5 million in 2002-03 – of which \$1 million will be recovered – on the coordination and provision of logistical support for scientific research in the North. More information about the Polar Continental Shelf Project can be found at <http://polar.nrcan.gc.ca>.

***Groundwater: vital but vulnerable*** – The availability of abundant and clean water is critical to the well-being and health of Canadians, to the sustainable development of Canada’s natural resources, and the preservation and sustainability of ecosystems. To this end, NRCan is increasingly tasked to contribute its significant scientific, policy, economic, and other expertise to address growing Canadian water concerns. A better understanding of this strategic resource is needed to make informed decisions for health safety and economic stability.



**River islands formed of ancient reefs, Attawapiskat River, Ontario**

NRCan is undertaking a number of collaborative initiatives with all levels of governments, universities and stakeholders to further its dialogue on a broad set of priority water issues in Canada. The Department will:

- contribute to the development of a Framework for Collaboration on Groundwater across Canada for which a Canadian Groundwater Advisory Council (C-GAC) will be established;
- contribute to water-related risk assessments for potentially toxic elements, in partnership with Environment Canada and Agriculture and Agri-Food Canada,
- integrate satellite imagery with geographic coverages to allow the Department not only to monitor and map flooded areas and assess damage, but to add a predictive component;

- assess the impact of forest harvesting methods and the ecotoxicology of forest pesticides on water quality and biodiversity of aquatic organisms as one of NRCan's actions for the protection of the Great Lakes Basin, entitled Great Lakes Basin 2020 Action Plan;
- work on developing, improving and applying process integration water management tools to optimize industrial processes, wastewater treatment systems and heating/cooling utility systems as a way to reduce their water usage, effluent generation and associated energy consumption; and
- work on joint research with the mining and energy industries and various agencies to improve effluent treatment techniques and solid waste management as a way of minimizing and preventing water pollution.

More information on groundwater can be found at <http://cgq-ggc.ca/cgsi/>.

***Did you know?***

The Oak Ridges Moraine, a large land form north of Lake Ontario, is one of the most heavily-used groundwater sources in Canada. The Oak Ridges Moraine Hydrogeology Program demonstrated that scientific research within the public sector could raise awareness of environmental issues, both within governments and the general public. The program also demonstrated the value of productive collaborative research working agreements between different levels of governments and other groups. More information can be found at: <http://sts.gsc.nrcan.gc.ca/orm/index.asp>

***Renewable energy for sustainable communities*** – NRCan will continue energy R&D that fosters the advancement of renewable energy technologies – solar, photovoltaic, wind, biomass and hybrid applications – and integrated systems in Canada's remote, off-grid communities. Efforts are focussed on improving reliability, cost

effectiveness, social and environmental advantages. For example, by 2005, the program is aiming for a 10 percent reduction in the cost of renewable energy technology systems, as well as a 10 percent reduction in fuel use in remote communities.

Wind energy is a promising source of electricity which can play an important role in reducing GHG and other air emissions from the generation of electricity. In good wind areas, the costs of generating electricity from the wind are decreasing every year, whereas most conventional generation costs continue to



Wind turbine at Kincardine, Ontario (photo courtesy of Paul Gipe)

increase. In remote areas, electricity that is generated by the wind can be significantly less expensive than that produced from diesel generators, and it has the added advantage of being pollution-free. As part of the Government's commitment to encourage investment in wind energy projects in Canada, the 2001 federal budget proposed a new production incentive for electricity produced from qualifying wind energy projects. The cost of this 15-year program is up to \$260 million. The incentive will help to provide a long-term stable revenue source and is intended to result in more investment in wind energy projects in all regions of Canada. More information on wind energy can be found at:

[http://www.canren.gc.ca/icmtmpl/en\\_tech\\_app.asp?ca=6](http://www.canren.gc.ca/icmtmpl/en_tech_app.asp?ca=6)

In collaboration with Environment Canada and the Canada Mortgage and Housing Corporation, NRCan will increase the level of energy R&D in sustainable community



planning and development. Initiatives will include the development of micro-turbines to use methane gas emitted from municipal landfill sites; testing and characterization of GHG emissions from municipal heating systems; and development of software modeling tools to improve solid waste management systems.

NRCan will invest \$720,000 over the next four years in conducting R&D with industry and utilities in the area of distributed energy systems (e.g., improve efficiency and cost-effectiveness of micro-turbine combined heat and power systems). Moreover, NRCan has signed a Memorandum of Understanding (MOU) with the U.S. Department of Energy on distributed energy.

#### ***Did you know?***

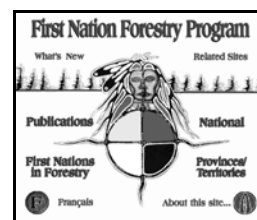
A one-stop Energy Solution Centre is now open for business in Whitehorse. NRCan and the Yukon Development Corporation are each investing \$525,000 over three years to provide Yukoners with easy access to technologies, programs and services for energy efficiency, renewable energy and green power.

NRCan's RETScreen® International will be expanded in 2002 to include models for other renewable energy (RE) and energy efficiency technologies. The RE awareness decision-support and capacity-building tool helps Canadians make sound decisions and investments regarding the use of renewable energy technologies and promotes the growth of the RE industry by facilitating access to markets where RE technologies are cost competitive. In 2002, a comprehensive training course for RETScreen® will be made available for on-line distance learning and an international network of trainers will be established to deliver this course around the globe via local workshops and university

courses. Approximately \$1 million (\$750,000 from NRCan) will be invested on these efforts. The RETScreen® software, downloadable free from the Internet, is used in more than 180 countries by almost 19,000 users (of which 6,000 are Canadians). More information can be found at <http://retscreen.gc.ca/>.

#### ***Canada's flagship programs in sustainable forest management***

—Based on supportive current program evaluations, the Department is proceeding with measures to renew and advance its flagship partnership programs that support the sustainable development of Canada's forest sector, namely Canada's Model Forest Program (MFP) and the First Nation Forestry Program (FNFP).



Since its inception in 1992, the MFP has proved itself as a highly innovative tool for sustainable forest management. The Model Forest Network – consisting of 11 full-fledged model forests and one ‘adjunct’ model forest – has made a substantive contribution to sustainable forest management practices through the development of broad-based partnership initiatives with industry, federal, provincial and municipal governments, the research community and local community groups.

The proposed next phase of the MFP (2002-2007) would focus on strengthening model forest network activities and exhibiting demonstrable influence on sustainable forest management both within and beyond the model forest boundaries through: the continued development of practical tools and processes based on the knowledge and experience gained

over the first ten years of the program; the dissemination of the results and knowledge gained through the program at local, regional and national levels; and the expansion of local partnerships beyond their current boundaries. As well, the Department will continue to emphasize the development and implementation of acceptable measuring and reporting mechanisms that demonstrate Canada's progress towards sustainable forest management and will continue to enhance local area capacities for engaging in sustainable forest management activities. Furthermore, NRCan will develop a results-based management and accountability framework for each model forest and will undertake a mid-term evaluation and an audit of the program during the planning period.

***Did you know?***

The partnerships established under Canada's MFP have led to the development of geographic information systems technologies for forest and resources scenario planning; leading-edge wildlife research; the establishment of local level indicators of sustainable forest management; alternative silviculture practices; innovative land tenure models; and sustainability codes of conduct for woodlot managers and contractors.

The five-year \$24.9 million First Nation Forestry Program was launched in April 1996 as a national partnership program jointly managed and administered by NRCan and Indian and Northern Affairs (INAC). It is a key capacity-building program which enables First Nations to manage their forest resources and positions them to participate in local and regional forest development opportunities.

Through extensive consultation with First Nations, several changes to the current

objectives are being proposed such as the enhancement of First Nation institutional capacity. This objective will foster the development of First Nation forestry institutions that will be able to provide better and more cost-effective services to communities, work with industry for better access to resources, participate in policy development processes, coordinate forestry training in regions, and secure more and targeted research. It will include enhancing opportunities to manage off-reserve forest lands owned by and controlled by First Nations. The change to this objective is in response to the significant increase in First Nation-controlled land obtained through land claims and self-government agreements.

***Did you know?***

Over the past five years, the FNFP has invested \$21 million in 966 projects, and levered \$49 million in support from First Nations, provinces and industry. It was selected as a successful example of interdepartmental cooperation in the May 2000 report of the Commissioner of the Environment and Sustainable Development and received a Government of Canada Award of Excellence in June 2000.

The desired outcome from the implementation of the program is improved economic conditions for First Nation communities leading to stronger communities, people and economies. During the planning period, an evaluation and an audit of the FNFP will be undertaken.

More information on the MFP and FNFP can be found at <http://mf.ncr.forestry.ca> and <http://www.fnfp.gc.ca>.

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

**Forecast Spending 2001-02: \$270.1M**  
**Planned Spending 2002-03: \$281.9M**  
**Planned Spending 2003-04: \$281.8M**  
**Planned Spending 2004-05: \$236.0M**

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"> <li>• GHG emissions compared to Kyoto protocol; and GHG emissions to GDP ratio compared to other countries.</li> <li>• Trends in use of renewable energy.</li> <li>• Trends in energy efficiency.</li> <li>• GHG emissions from federal operations.</li> <li>• Progress towards the identification of impacts and adaptation measures.</li> </ul>
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"> <li>• Environmental influence of NRCan’s science, technology and stewardship practices.</li> </ul>
Canada’s environment safeguarded from the risks associated with natural resource development and use.	<ul style="list-style-type: none"> <li>• Progress towards addressing hazards associated with resource development and use.</li> </ul>

**What we aim to achieve**

**Addressing the climate change challenge** – NRCan and Environment Canada are the lead federal departments with responsibility for addressing the challenge of climate change. NRCan works closely with Environment Canada and other federal departments and agencies to develop and implement a national strategy to reduce Canada’s GHG emissions. NRCan will continue its role as a major player in a broad range of activities directed at the climate change issue.

**Did you know?**  
 NRCan is committed to consultations with Canadians, stakeholders, the provinces and territories in leading up to a possible ratification decision on the Kyoto Protocol in 2002. An extensive consultation process will be undertaken to seek their views about climate change as well as ratification.

The Climate Change Action Fund (CCAF) was established in 1998 to support the development of a national strategy for climate change and to encourage early action. Under the CCAF, NRCan will continue to provide key modelling

and analysis support to the policy development process. NRCan will also be active in the public consultations and communications areas. NRCan will be using CCAF funds to continue research with respect to impacts and adaptation and to develop and demonstrate new technology.

Action Plan 2000 (AP2000) was announced in the October 2000 federal Economic Statement as a five-year, \$500-million initiative designed to get Canada one third of the way to meeting the Kyoto target. The plan targets key sectors that together account for 90 percent of Canada's GHG emissions. When fully implemented, the AP2000 measures will reduce emissions of GHGs by an estimated 65 megatonnes per year, during the commitment period of 2008-12.



Under AP2000, NRCan is the lead or co-lead of 37 separate initiatives, in such areas as fuel cells, carbon dioxide (CO<sub>2</sub>) capture and storage, afforestation, enhanced recycling, energy efficiency audits, energy efficiency awareness, accelerated standards and international technology transfer, among many others. During the planning period, the Department will undertake audits, follow-up audits and evaluations of several AP2000 programs.

Under AP2000, NRCan will lead the Canadian International Technology Initiative (\$9.75 million over five years). The objectives of this initiative are to develop climate change technology transfer projects overseas, facilitate

market opportunities for Canadian companies and build a base for future international technology marketing activities. The Department will also participate in the Climate Technology Initiative of the International Energy Agency, which will help select climate change projects and solicit funding commitments from member countries.

The Climate Change Technology and Innovation Program (AP2000 - \$20 million over five years) will accelerate the development of cost-effective technologies to mitigate GHG emissions. It will also build the intellectual foundation for long-term technological advances and encourage R&D alliances and partnerships. Examples of R&D project areas include fuel cells, sustainable community design, electricity generation from waste, processes for the transport of solids in liquid, and CO<sub>2</sub> capture. Five technology road maps to determine market needs will be developed for CO<sub>2</sub> capture and storage, clean coal, fuel cells, oil sands, and sustainable fuels.

Details on the Carbon Dioxide Capture and Storage (CO<sub>2</sub> C&S) Initiative were released on November 26, 2001. The Government is investing \$25 million (AP2000) over five years to advance the understanding of CO<sub>2</sub> C&S as a means of reducing Canada's GHG emissions and promoting its commercialization. This initiative is expected to result in a reduction of about seven megatonnes in GHG emissions by 2006.

*Climate change, impacts and adaptation –* Recognizing the need to address impacts and adaptation as part of the Kyoto Protocol, NRCan will undertake a range of geoscience-related research activities aimed at improving our knowledge of the relationship between climate, earth systems and human activity to assess the impacts of climate change and our capacity to adapt. In addition to improving our

understanding of past climate changes, NRCan scientists will work with stakeholders to examine climate impacts and responses related to permafrost degradation and infrastructure, flood and landslide hazards, drought, water resources and coastal erosion due to rising sea levels.

Through the Adaptation Liaison Office, the Department will work to improve coordination of national impacts and adaptation research with stakeholder requirements. An enhanced Impacts and Adaptation Research Program will fund research to better define our vulnerabilities to climate change. Coordination of research and information transfer is also being actively pursued through the Canadian Climate Impacts and Adaptation Research Network, which was established by NRCan. This initiative seeks to build a network of researchers and stakeholders that will help to identify the most significant impacts and adaptation options, in order to help anticipate and prepare for changes that are expected during the 21st century.

The Department will further the public's understanding of the role forests play in the world's carbon cycle and how forests adapt to climate change. It will do so through the development and refinement of a world-class tool that provides a measure of forest carbon stocks and changes over time in support of Canada's Kyoto commitment.

To this end, NRCan will implement a National Forest Carbon Accounting Framework over the 2002-03 planning period. Primary activities will include building partnerships, testing applications and methods in selected forest sites; defining linkages between CCFM and departmental activities, participating in a special report of the U.N. Intergovernmental

Panel of Climate Change and Joint Carbon Project, and developing a relevant web site.

Other forest-science research activities will include assessing the effects of fire on carbon cycling, GHGs and forest ecosystems; predicting climate change impacts on natural forest disturbances and biodiversity; developing regional and national models to estimate Kyoto forest carbon stocks and changes; developing systems and tools for the reduction of soil carbon loss resulting from the harvesting of forests; developing management options and strategies for climate change adaptation and mitigation scenarios; and designing a national afforestation program and a measurement and reporting system for forest sinks (\$9.2 million over the 2001-03 planning period). More information on climate change can be found at [www.climatechange.gc.ca](http://www.climatechange.gc.ca).

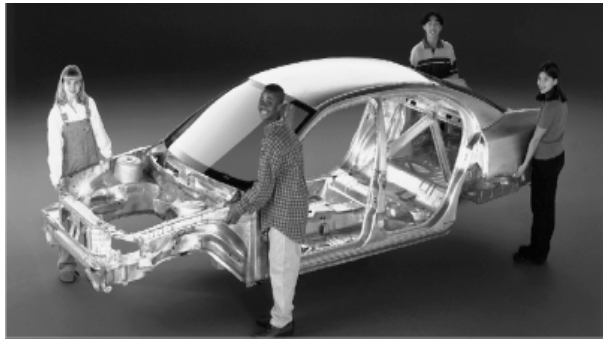
***Did you know?***

NRCan, a leader in the energy efficiency of its own operations, also plays a key role in government-wide efforts to reduce GHG emissions from federal operations. The Department co-manages the Federal House-in-Order Initiative, which is the federal government's plan for meeting its own GHG emission target of 31 percent below the 1990 level by 2010.

***Energy efficiency, a key tool for action on climate change*** – About 80 percent of Canada's total GHG emissions are in the form of CO<sub>2</sub>, mostly generated from the use of fossil fuels. Indeed, Canadians spent more than \$82.6 billion in 1999 on energy to heat and cool their homes and offices, to operate their appliances, vehicles, planes and trains, and to power industrial processes. Improving the efficiency of energy use in Canada is a key component of Canada's action plan on climate change. NRCan operates a number of information, R&D, and public outreach programs that target energy efficiency. An

important source of energy efficiency information for Canadians can be found at <http://oee.nrcan.gc.ca>.

*Better buildings* – The Commercial Building Incentive Program will continue to provide financial incentives to construct new commercial, institutional, and multi-unit residential buildings that are at least 25 percent more fuel efficient than similar buildings constructed to the *Model National Energy Code for Buildings*. The program target for 2002-03 is 80 buildings; to date, 155 buildings have received financial incentives.



Lightweight car body (Source: Alcan Aluminum Limited)

#### *Cleaner and more fuel-efficient transportation*

The transportation sector is responsible for about 26 percent of Canada's GHG emissions, and energy demand in this sector is expected to increase by about 13 percent over the 2000 level by 2010. To address this issue, NRCan will invest \$13.5 million to develop innovative technologies and lightweight materials for transportation applications; strengthen the knowledge base for the production of bio-energy; continue to develop advanced technologies for fuel cell, electric and hybrid vehicles; and cooperate with the U.S. Department of Energy on future fuel development.

For example, NRCan will continue to coordinate the Canadian Light Weight Plans and Priorities by Strategic Outcome

Materials Research Initiative (CLiMRI), a government/industry partnership aimed at reducing GHG emissions by reducing vehicle weight. For every one unit weight reduction of an automobile, a reduction of 20 unit weights of CO<sub>2</sub> emissions are obtained over the 11-year life of an average North American vehicle. A 10 percent weight reduction leads to a 6-8 percent increase in fuel efficiency. More information can be found at <http://climri.nrcan.gc.ca>.

FleetSmart will continue to improve the fuel efficiency and use of alternative fuels in private sector fleets by providing information, training, and technical demonstrations. To date, 728 fleets representing 156,520 commercial vehicles have registered with the program, and close to 99,000 drivers have been trained. By March 2003, the Smart Driver Training Program will train 79,000 new drivers and 1,370 new instructors in a potential market of about 1.5 million drivers and 2,084 instructors.

#### *Did you know?*

- Increasing ethanol production and use by approximately 750 million litres per year by 2010 would reduce net GHG emissions by approximately 800,000 tonnes per year.
- Fuel-cell vehicles produce 28 to 90 percent fewer GHG emissions than do conventional vehicles, depending on the type of fuel used to produce hydrogen, the main ingredient in fuel-cell energy.
- The Canadian Transportation Fuel Cell Alliance program (AP2000) will showcase Canadian fuel-cell and fuel-supply technology, accelerating commercial acceptance of fuel-cell vehicles.

*Energy-efficient industry* – Canada's industrial sector is responsible for approximately 40 percent of Canada's total energy use and 34 percent of its GHG emissions. Energy consumption has been rapidly increasing and forecasts suggest that the sector will increase its demand by about 11 percent by 2010. NRCan

will invest \$12 million/year in S&T to improve industrial energy efficiency (up to 20 percent in dryers) and reduce carbon intensity of industrial combustion processes (potential savings ranging from 15-40 percent, depending upon the industrial sub-sector and characteristics of the plants). Switching to low carbon fuels can reduce GHG emissions by 30-40 percent.

The Canadian Industry Program for Energy Conservation (CIPEC) has a network of more than 40 trade associations, representing more than 4000 companies from Canada's mining and manufacturing sectors. CIPEC reports on approximately 90 percent of total secondary industrial energy demand through its 23 task forces. The aggregate CIPEC target is one percent overall improvement in industrial energy use per year through to 2005.

*Electricity infrastructure* – In Canada, 602 terawatt hours (Statistics Canada/NRCan Energy Statistics Handbook, October 2001) of electricity was generated in 2000, of which approximately 28 percent was produced from fossil fuels. This accounted for 17 percent of Canada's GHG emissions. Demand is projected to grow by 12 percent from the 2000 value by 2010. NRCan will invest \$8.2 million/year in S&T to increase generation efficiencies, reduce the carbon intensity of fuels used in electricity generation, and lower GHG and other environmental emissions. This investment will reduce GHG emissions in centralized generation refits by 3 percent within five years, increase the efficiency of demonstrated, distributed generation systems to 60 percent, and increase renewable energy contribution to electricity generation by 30 percent within ten years.

*EnerGuide Programs* – The residential sector accounts for 17 percent of secondary energy use in Canada, with about seven million low-rise,

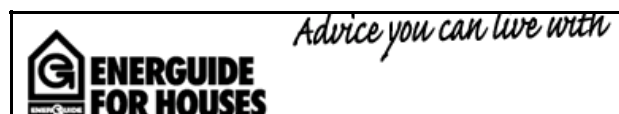
owner-occupied homes, many of which are potential candidates for economically viable retrofitting for energy efficiency.

The EnerGuide for Houses (EGH) Program is generating not only energy efficiencies, and hence limiting Canada's GHG emissions, but employment in a relatively new market niche as well. The program offers homeowners a professional assessment of the energy performance of their houses, an EGH label and rating, and a personalized report outlining recommended improvements and the potential rating if the recommendations are followed.

***Did you know?***

More than 10,660 houses in Canada were evaluated under the EnerGuide for Houses Program between July 1999 and June 2000. Homeowners in 52 percent of the cases undertook some of the recommended improvements while half of the remainder said they intended to renovate within a year. This would result in estimated savings of 10,234 tonnes of CO<sub>2</sub>/year, every year.

The program is now being expanded to permit full penetration within the target market of all low-rise housing across Canada, and to link homeowners to qualified, trained renovators.



The Accelerated Standards Action Program will build on infrastructure already developed in various EnerGuide programs to accelerate market penetration of existing high-efficiency appliances and equipment. Consumers who purchase "best-in-class" equipment press for improvements in minimum energy performance standards. The program target is 2.8 megatonnes per year of GHG emissions reductions in 2010.

More information on EnerGuide programs is available at <http://energuide.nrcan.gc.ca>.

### ***Ensuring the quality of the***

***environment*** – Pipeline failures impose significant clean-up costs on pipeline operators and have negative environmental impacts. The most frequent cause of failures is internal and external corrosion, estimated to be the source of 65 percent of all failures. As a result, NRCan is implementing the Intelligent Systems for Pipeline Infrastructure Reliability (ISPIR) project – a joint private and public initiative. ISPIR’s objective is to reduce pipeline failures due to corrosion through the development of new technologies for the early detection, diagnosis and repair of pipeline faults. Monitoring and inspection are key to ensuring the structural integrity of pipelines.



Corrosion measurement in the field

This project will develop “smart pipe,” involving degradation detection and remote communications systems. These systems will be integrated into a simple, flexible and cost-effective fibre optics backbone for on-line monitoring, acquiring and managing data, and making decisions. The technologies are applicable to both old and new oil and gas pipelines of varying diameter.

The systems will continuously monitor a pipeline to detect general and localized corrosion, leaks, pressure and temperature changes, microbial activity, axial movement, cracks, bends and buckling, and will identify the specific pipe sections where defects develop. Other sensing technologies will be integrated with the fibre optic systems to measure chemical and microbiological conditions on the external pipe surface. By providing real-time information where defects are developing, ISPIR is expected to reduce pipeline downtime, the overall costs of maintenance and pipeline replacement, and mitigate the risk of leaks and spills.

Collaboration is under way with Intelligent Sensing for Innovative Structures (ISIS) Canada, a Network of Centres of Excellence, on evaluating fibre optic sensors. A test site has been set up at NRCan’s Materials Technology Laboratory. This three-year project will be funded by Precarn Incorporated<sup>1</sup> in collaboration with pipeline operators, universities and government. Precarn Incorporated will fund the project to a maximum of \$998,000 or 40 percent of the project’s cost. The balance will be obtained from cash and in-kind contributions from the other partners, including \$300,000 from NRCan.

As part of the ISPIR project, NRCan will develop technologies to enhance the reliability of oil and gas pipelines, reduce the number of environmentally damaging pipeline failures, and monitor pipelines in unstable areas. The new technologies are expected to save millions of dollars, improve safety and preserve the

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<sup>1</sup>Precarn Incorporated is a national, member-owned industrial consortium supporting the development of intelligent systems technologies through its extensive network of corporations, research institutes and government partners.



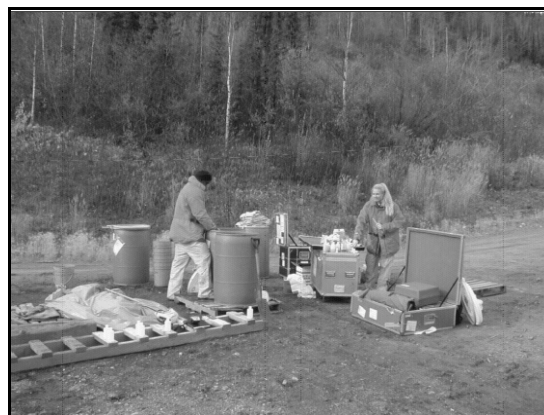
environment. More information can be found at: <http://www.nrcan.gc.ca/mms/canmet-mtb/mtl/ENG/infrastr.htm>.

***SMART waste management in the mining industry*** –Canada’s mining industry has historically been responsive to the health and safety needs of its workers, their families and the community at large to the extent possible as defined by known technology and contemporary understanding of risks. Unfortunately, public perception is heavily influenced by the historical legacy of incidents, casualties and unsightly surface features. Much of the current harsh public perception of the mining industry is based on applying current expectations and values to practices and outcomes of the past that were considered acceptable in their time.

Despite this perception, most of the mining industry was always quick to respond to health, safety and environmental issues as soon as problems were identified, and in a proactive manner, whenever affordable new supporting technologies became available. Today, leaders in the mining industry are working to exceed the legislated standards for environmental protection and many have a corporate policy for sustainable development.

In late 2001, NRCan initiated the Sustainable Mine Waste Management and Remediation Technologies (SMART) project. SMART is a three-year project to undertake research and develop innovative technologies and sound science to enhance the environmental sustainability of the mining industry; it will also improve the understanding of the behaviour and fate of minerals and metals, thereby contributing to their safe use. In cooperation with external partners and stakeholders, including universities, consultants and the

mining industry, SMART will utilize NRCan’s expertise in mine waste management, mine effluents, and metals and the environment. Over 20 sub-projects or tasks will be performed over the next three years at a cost to NRCan of about \$5 million. The technical tasks will examine remediation and rehabilitation technologies, low-impact processing technologies, the fate of minerals and metals, and ecotoxicology. Other tasks will focus on gathering, assessing and disseminating information, building the capacity of industry and government to understand and apply the new technologies, and transferring the new technologies to industry.



SMART researchers conducting tests at a Yukon mine

The SMART project will also expand public awareness of the overall improvement in the environmental performance of the mining industry and establish basic levels of acceptable practices for implementation across the industry. More information can be found at: <http://environlab.nrcan.gc.ca/>.

***Conserving and protecting Canada’s forests while promoting***

***competitiveness***– As a signatory to the United Nations Convention on Biological Diversity, Canada affirmed its commitment to manage and use its forest resources in a

sustainable manner, to conserve biodiversity, and to maintain the productivity and resilience of its forests. This commitment continues to remain at the forefront of all of the Department's forest-science research activities.

In 2002-03, NRCan will continue to increase Canada's knowledge of the effects of human and natural disturbances on forest ecosystem productivity while enhancing timber supply. This will be pursued through a variety of venues including: biotechnology research to improve tree health; the development and transfer of timber supply models to forest managers across Canada; and the implementation of management techniques for enhanced timber production in primary, second-growth, and plantation forests. The Department will also develop a Canadian Forest Ecosystem Classification system designed to enable the national exchange of ecological information about Canadian forest conditions on regional and national scales of inquiry.

To increase the protection of Canada's forests from the devastating threat of wildfire, NRCan will continue to provide the operational requirements, decision support tools, and systems required for improving Canada's fire management strategy. To better protect Canada's forests from diseases caused by various viruses or fungi, NRCan's S&T assessments will continue, as will its strategy for introducing new, and improving existing, biological alternatives to chemical pesticides.

For example, national data to support the commercialization of the biological herbicide *Chondrostereum purpureum* is expected in 2002, while data and silvicultural methodologies for the control of forest defoliators, shoot-destroying insects, bark beetles and forest pathogens will be delivered

in 2002-03. To protect Canada's forests from exotic insect pests, NRCan will develop and transfer pest management strategies and forest health monitoring technologies for use by forest managers across Canada.

To address the growing challenge of public and stakeholder demands for reliable state-of-the-art forest-science information,



Lab scientist doing forestry research

NRCan will review its role as a creator, manager and disseminator of world-class forest knowledge. Based on the Department's international reputation as a source of high quality forest-science information, the objective is to develop and implement an information management and communications framework designed to position the Department to meet the challenges of implementing sustainable development in Canada's forest sector.

In 2002-03, the Department will earmark an estimated \$30.5 million towards S&T initiatives that support forest conservation and protection, timber enhancement, and forest biotechnology research.

***Furthering Canada's interests in sustainable development*** – NRCan is playing a significant role in preparing for the World Summit on Sustainable Development (WSSD) that will take place on August 26-September 6, 2002 in Johannesburg, South Africa.

Canada's preparation encompasses five thematic groupings: innovation and partnership;

international governance; health and the environment; stewardship and conservation; and sustainable communities. NRCan co-leads with Environment Canada on the latter two themes.



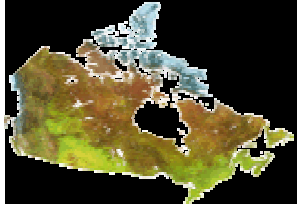
Through the stewardship and conservation theme, Canada will establish a global dialogue on mining, minerals and sustainable development; it will also further ongoing work of the United Nations Forum on Forests. NRCan will also lead Canada's representation on energy at the WSSD preparatory sessions.

Under the sustainable communities theme, the Department is taking advantage of its extensive

consultations to advance NRCan community interests identified in this process.

The Department is also taking a leadership role in developing the Canadian profile for the WSSD exhibit which will showcase practical solutions, partnerships and technologies for the implementation of Agenda 21.

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

**Forecast Spending 2001-02: \$45.7M**  
**Planned Spending 2002-03: \$40.1M**  
**Planned Spending 2003-04: \$35.0M**  
**Planned Spending 2004-05: \$35.0M**

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

**What we aim to achieve**

***Meeting Canadians’ security and safety needs*** – From the map location of a house fire to the millimetre movements of the Earth’s crust preceding an earthquake, accurate spatial information is more than a standard ingredient of a healthy economy – it is vital to the safety and security of Canadians. The Department’s Canadian Spatial Reference System is the fundamental infrastructure, serving as the national standard of reference for geographic positions. It enables the sharing of geospatial information, setting the scene for generating new knowledge through the integration of existing information.

Half of Canada’s population lives in areas of risk from earthquakes and landslides, while many others are affected by the risk of flooding

or forest fire. These threats, coupled with the new threat of terrorism, require Canadians to be able to address any type of emergency.

NRCan’s programs and initiatives will play an increasing role in addressing Canadian-wide security and safety issues. In the context of energy security, the September 11<sup>th</sup> terrorist attacks called into question the vulnerability of all major industrial infrastructure, including energy infrastructure, to malicious acts. Over the planning period, NRCan will focus on initiatives to strengthen the protection of energy infrastructure, working closely with regulatory authorities and Canada’s Office of Critical Infrastructure Protection and Emergency Preparedness. A priority will be to ensure that federal legislative and regulatory regimes

covering energy infrastructure adequately incorporate security considerations. As Canada's primary mapping agency, NRCan will also continue to provide maps, to the Office and other clients, in a timely manner. More information on emergency maps can be found at <http://www.Aero.nrcan.gc.ca/>.



The Canada-U.S. boundary marked by a "vista" along the Alaska Panhandle and the British Columbia border.

Furthermore, through the International Boundary Commission, the Department has the mandate to maintain a clearly demarcated boundary to effectively and comprehensively enforce immigration, customs and national security laws. The events of September 11<sup>th</sup> have led to an increase in security measures for the movement of persons and goods across the boundary. The *Patriot Act*, recently enacted by the United States, contains provisions for significantly increasing both personnel and technology along the Canada/United States border. An unobstructed line of sight will be essential to ensure the effective deployment of new surveillance systems.

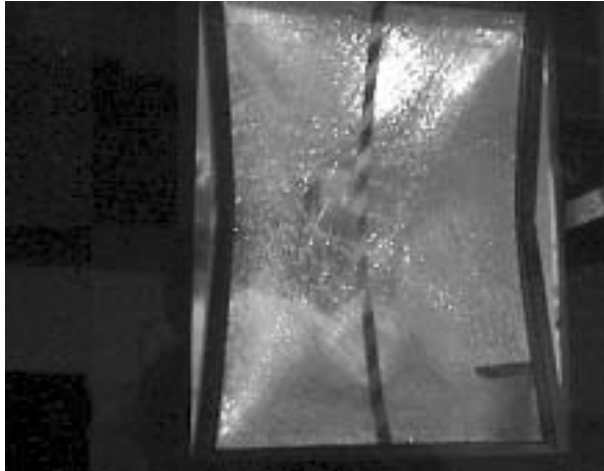
### ***Securing public safety through explosives regulations and research –***

With public safety a top priority, the Government introduced a new package of public safety measures as part of its

Anti-Terrorism Plan in November 2001. This legislation, known as the *Public Safety Act*, strengthens the Government's ability to ensure the safety of Canadians, prevent terrorist attacks, and respond swiftly if a significant threat arises. The *Public Safety Act* contains proposed amendments to the *Explosives Act* which will enable Canada to enhance the security of its domestic explosives industry and ensure the safety of Canadians.

The federal *Explosives Act*, administered by NRCan, regulates the importation, manufacture, storage and sale of commercial explosives, as well as aspects of their transportation. The Department's mandate is to ensure the health and safety of workers in the explosives industry and the general public.

The proposed amendments to the *Explosives Act* will strengthen NRCan's role in regulating the acquisition, transportation within Canada and export of explosives. The amendments will also align Canada's legislation with the requirements of the Organization of American States and, as a result, are expected to reduce the potential for terrorist activity. In addition, the amendments will define "illicit trafficking" to include the acquisition of explosives by terrorists or criminals and facilitate the exchange of information for the purposes of tracing, identifying and preventing the illicit manufacturing or trafficking of explosives. Increased penalties will also be sought for offences under the Act. As well, NRCan will examine methods to monitor low-volume sales of fertilizers, such as ammonium nitrate, which can be used to manufacture explosives. During the planning period, the Department will develop a results-based management and accountability framework and undertake an evaluation of the administration of the Act.



Studying the effectiveness of advanced composite materials in increasing the blast resistance of windows (explosion behind window).

When these new controls are implemented, Canada will become a global leader in the protection of its citizens from the use of explosives by terrorists. These new controls will position Canada to meet or exceed United Nations and G-8 requirements that are expected to be introduced in the near future.

Under the Canada/U.S. Counter-Terrorism R&D Program, NRCan will continue to address shelf-life issues relating to some specifically marked plastic explosives. The Department will also continue to investigate the resistance of structures to blasts from explosives. More information can be found at:  
<http://www.nrcan.gc.ca/mms/explosif>.

### ***Radioactive waste management*** –

Radioactive waste generated by the nuclear energy industry can be grouped into three categories: nuclear fuel waste, low-level radioactive waste, and uranium mine and mill tailings. NRCan works with industry, government officials and other Canadian stakeholders to develop policies to ensure that radioactive waste is managed in a safe,

environmentally sound, comprehensive, cost-effective and integrated manner. For the year 2002-03, much progress is expected on the following two programs.

*Clean-up of Port Hope area low-level radioactive waste* - This waste resulted from the historic operations of a Port Hope refinery that was used to recover radium and later uranium from radioactive ores. The waste is contaminated with uranium, radium and arsenic. It is located on a number of properties as well as in two large storage facilities licensed by the Canadian Nuclear Safety Commission. While the wastes do not represent an urgent health or environmental risk, their current management is inappropriate for the long term.

Pursuant to the March 2001 agreement between the Ontario municipalities of Port Hope, Hope Township, Clarington and the Government of Canada, the first phase of the project has begun; this includes engineering, environmental assessment and regulatory reviews and is expected to last five years. The second phase of the project, expected to last five to seven years, will involve the actual cleanup and development of the long-term waste management facilities. The final phase will involve long-term monitoring and maintenance of the facilities. The cost of all three phases of the project is estimated at \$260 million over a 10-year period.

*Federal oversight for the long-term management of nuclear fuel waste* - This issue is an important concern since the management of nuclear fuel waste is a major undertaking that could cost up to \$15 billion, over a span of 70 to 100 years.

On April 25, 2001, the Government of Canada took a major step forward in dealing with

nuclear fuel waste in Canada by introducing new legislation in the House of Commons. The *Nuclear Fuel Waste Act*, Bill C-27, is the culmination of many years of federal research, environmental assessments and discussions with stakeholders, including the nuclear industry, provinces and the public.

The Act calls for nuclear utilities to form a waste management organization that would report regularly to the Government. The organization would propose long-term waste management approaches for government approval. The Act would also require that utilities establish a trust fund to finance the implementation of the government-approved approach, ensuring that Canadian taxpayers are not exposed to this financial liability over the long term.

In November 2001, the House of Commons Standing Committee on Aboriginal Affairs,

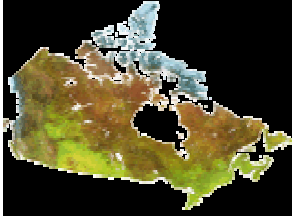


Aerial view of the municipalities of Port Hope, Hope Township and Clarington, Ontario

Northern Development and Natural Resources began a review of the Bill.

More information on waste management can be found at <http://nuclear.nrcan.gc.ca> and <http://www.llrwmo.org>.

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

**Forecast Spending 2001-02: \$58.4M**  
**Planned Spending 2002-03: \$53.3M**  
**Planned Spending 2003-04: \$46.5M**  
**Planned Spending 2004-05: \$46.5M**

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

**What we aim to achieve**

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*** – NRCan is embracing modern comptrollership as the vehicle for improving its management practices, attracting the people it needs to deliver on its mandate, and meeting the objectives of the Government as set out in *Results for Canadians: A Management Framework for the Government*.

NRCan's modern comptrollership action plan "Implementing Modern Comptrollership at NRCan" was approved in October 2001 and provides directions on advancing modern management to March 31, 2004. Examples of the work to be undertaken include strengthening departmental strategic planning and better integration of management improvement initiatives.



Additional work will be undertaken to strengthen the Department's financial and assets management frameworks including provision of better tools and techniques for managers and enhanced monitoring and performance reporting. The implementation of NRCan's employment equity action plan, moving towards a more diverse workforce, and the provision of easy to use human resources (HR) tools for managers and employees are also major areas of focus for the Department. The plan also calls for the development and implementation of a department-wide risk management framework and an ethics and values program.

Finally, the action plan details service improvement initiatives including ISO certifications and the use of service standards and client satisfaction surveys on a more consistent basis. Some of our key services

include the provision of S&T information and knowledge to help Canadians make informed decisions regarding natural resources. These include services under NRCan On-Line and GeoConnections (pages 8 and 9), renewable energy initiatives (page 19) and mapping (page 31).

NRCan will continue to routinely measure client awareness and satisfaction with the products and services offered by these programs. In future years NRCan will be measuring baseline client satisfaction, setting improvement targets, measuring trends and either updating existing or establishing new service standards.

***Did you know?***

ISO 9000 is a standard for quality management systems that has been developed and accepted internationally as a method of providing assurance of product/service quality. Several federal departments are implementing ISO quality management systems. NRCan is using ISO in sixteen of its organizational units (e.g., Centre for Topographic Information, Aeronautical and Technical Services).

***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.

The Department promotes an environment that is conducive to learning in recognition that the most important investment it can make is in its people. NRCan will launch a long-term strategy entitled *Partnership in Learning - A Shared Employee-Employer Investment* to foster an environment of continuous learning and promote employee development aligned with business strategies and priorities.

NRCan is actively developing the management potential of its workforce while ensuring its

diversity. For example, NRCan recently appointed four employees from the designated groups at the executive level following a targeted recruitment effort to improve representation at this level and better reflect the Canadian workforce. As part of its retention effort, the Department will implement a development program for its middle managers. In addition, the Department is making full use of the Management Trainee Program, the Career Assignment Program (CAP) and the Accelerated Executive Development Program. For example, NRCan recruited two aboriginal CAP candidates and committed to hire four visible minority CAP candidates this fiscal year.

***Did you know?***

NRCan's Retention, Rejuvenation and Recruitment (3R) Strategy and the Learning and Employee Development Strategy offer a vision for HR management. One of the key objectives is to help the Department become an employer of choice.

NRCan is integrating its HR planning capacity with business planning. A network of HR planners will support front line managers to conduct demographic analysis of the workforce, identify new skill requirements, and elaborate on recruitment and retention strategies.

The Department continues to improve its HR management regime consistent with the broader modernization initiative of the public service. For example, the Department will launch a new E-HR staffing tool entitled *Staffing Made Easy* to guide its managers through the staffing process.

***Actively managing our real property infrastructure*** – As part of a new dynamic real property management framework, NRCan is developing a demand model to systematically capture the Department's evolving special and general purpose accommodation requirements.

The key principles which will guide NRCan's strategic real property decisions over the mid- to long-term include:

- optimizing, rationalizing and consolidating the inventory;
- quantifying and confirming departmental long-term requirements;
- decommissioning older, inefficient assets;
- supporting and enhancing opportunities for science partnerships; and,
- redeveloping selected key assets.



NRCan owns 233 real property assets nationally with a total replacement value of more than \$1.0 billion and leases an additional 59 facilities.

NRCan is also committed to moving forward systematically to address its capital deficiencies through an approved plan committing \$49 million in funding for health and safety issues (of this amount, \$27 million remains to be spent over the planning period). As a result, over the next three years, NRCan will continue to implement health and safety upgrades to facilities in the National Capital Region as well as undertake life cycle planning for the Department's real property assets. The Department will also undertake an audit to provide assurance on the real property management framework and practices, risk management strategy and practices, and information used for decision-making and reporting.



Minister Dhaliwal (front right) visiting NRCan's Energy Technology Centre facilities in Bells Corners, Ottawa with (L-R) Dr. Peter Harrison, Frank Campbell and Kevin Fram.

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

– Rapid changes and advancements in IM and IT continue to have an impact on the Department. In response to increasing pressures to advance the e-government agenda with reliable information, high-performing systems and infrastructures, NRCan is making progress on many fronts including: information governance (legislative and policy framework, decision making, organizational and strategic leadership, and oversight); information management (development of sound IM policies and identifying potential risks, tools and capacities); and technology enhancements (strategies and practices to ensure confidentiality, integrity and availability).

***Improving safety, security and emergency management***

– NRCan will continue to work towards ensuring a safe and

secure environment for all employees and clients by: providing an integrated, proactive approach to safety, security and emergency management; protecting employees and occupants from exposure to unhealthy environmental or occupational hazards; and helping to prevent accidents or injuries within the workplace through such means as administering appropriate response plans in the event of a wide range of emergencies.

***Reviewing our S&T roles and approaches***

– S&T management continues to remain a high priority for NRCan to ensure that S&T resources are used efficiently and effectively in support of our mandate.

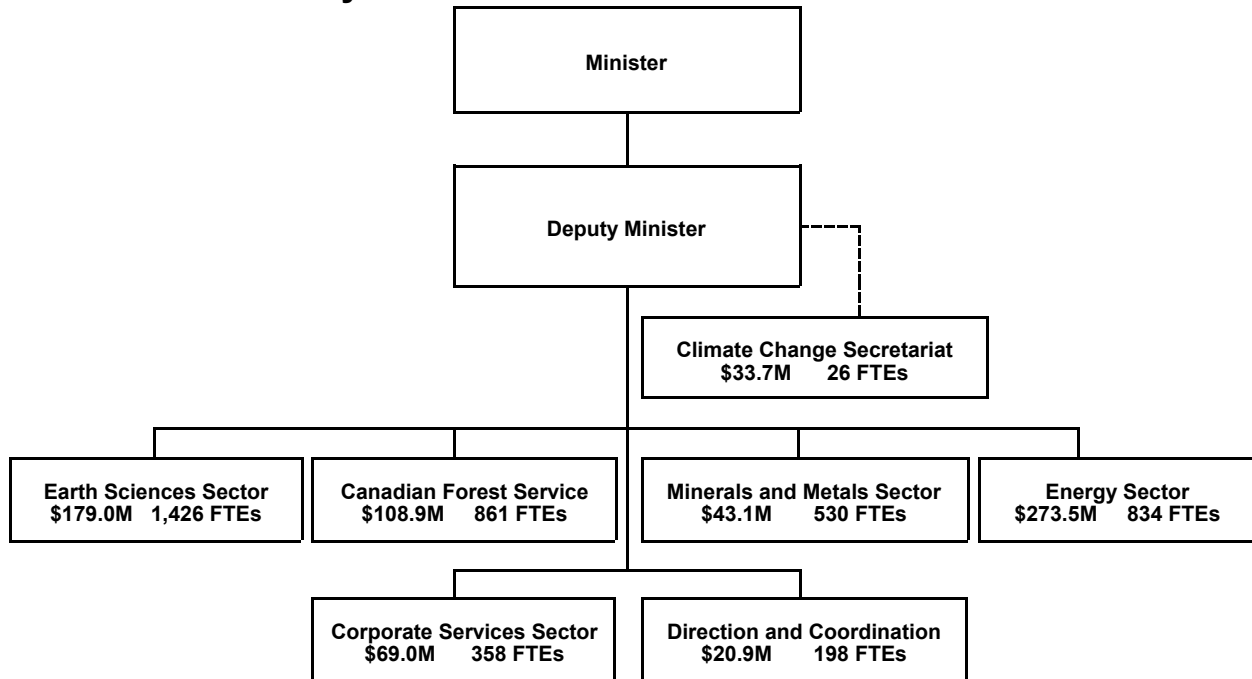
Like other federal science-based departments, NRCan has been profoundly affected by recent changes in the national system of innovation. A departmental priority in 2002-03 is the need to review and re-evaluate our S&T roles and approaches for delivering S&T in support of our mandate.

The Department will initiate the comprehensive S&T Futures Study with the objective of providing options concerning the future vision, organization and delivery of S&T at NRCan. This study will examine trends in federal S&T delivery, re-examine NRCan's S&T roles and responsibilities, outline options for innovative delivery of S&T at NRCan; and provide analysis on alternative delivery approaches and models or partnerships for S&T delivery.

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# Section IV - Organization

## A. Accountability



The **Earth Sciences Sector** promotes the sustainable development of Canada’s natural resources by providing comprehensive S&T related to geoscience and geomatics knowledge. This knowledge supports public sector activities in Canada, investment decisions, and operations by the Canadian private sector at home and overseas. It extends logistics support to Arctic science through the Polar Continental Shelf Project. Geomatics Canada, 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 archive 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 centres of expertise and supporting infrastructure in the areas of financial management, human resources management, information management, access to information and privacy, contracting and procurement, information technology and real property management. The sector also assists the Department in meeting its due diligence requirements in the areas of environmental affairs, health, safety and security.

**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 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 **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.

## B. Main Estimates Resources by Accountability and Strategic Outcome for 2002-03

(\$ millions)	Canadian Forest Services	Corporate Services & Direction and Coordination <sup>1</sup>	Earth Sciences	Energy	Minerals and Metals	Total Approved Reference Levels
Information Dissemination and Consensus Building	41.7	10.2	102.4	8.9	4.7	<b>167.9</b>
Economic and Social Benefits	43.4	11.8	40.6	90.2	22.1	<b>208.1</b>
Environmental Protection and Mitigation	22.7	43.5	18.5	176.9	17.6	<b>279.2</b>
Safety and Security of Canadians	2.4	3.9	20.7	5.1	8	<b>40.1</b>
Sound Departmental Management	0.1	53.4	0	0	0	<b>53.5</b>
<b>Sub-Total</b>	<b>110.3</b>	<b>122.8</b>	<b>182.2</b>	<b>281.1</b>	<b>52.4</b>	<b>748.8</b>
Less: Respendable Revenue	<b>1.9</b>	<b>0.1</b>	<b>2.9</b>	<b>8.2</b>	<b>9.5</b>	<b>22.6</b>
<b>Total Approved Reference Levels</b>	<b>108.4</b>	<b>122.7</b>	<b>179.3</b>	<b>272.9</b>	<b>42.9</b>	<b>726.2</b>

<sup>1</sup> Corporate Services & Direction and Coordination – The Environmental Protection and Mitigation strategic outcome includes \$33.7M for the Climate Change Action Fund. As well, the Sound Departmental Management strategic outcome includes \$4.8M of Program Integrity II funding.

## C. Financial Spending Plan

(millions of dollars)	Forecast Spending 2001-02	Planned Spending 2002-03	Planned Spending 2003-04	Planned Spending 2004-05
<b>Budgetary Main Estimates</b>				
Information Dissemination and Consensus Building	159.9	<b>167.9</b>	163.8	156.0
Economic and Social Benefits	213.6	<b>208.1</b>	202.8	191.7
Environmental Protection and Mitigation	205.7	<b>279.2</b>	282.2	229.6
Safety and Security of Canadians	39.9	<b>40.1</b>	35.0	35.0
Sound Departmental Management	43.9	<b>53.5</b>	46.6	46.6
<b>Less: Respendable Revenue</b>	24.2	<b>22.6</b>	22.7	22.8
<b>Budgetary Main Estimates</b>	<b>638.8</b>	<b>726.2</b>	<b>707.7</b>	<b>636.1</b>
<b>Non-Budgetary Main Estimates</b>	0	<b>0</b>	0	0
<b>Total Reference Levels</b>	<b>638.8</b>	<b>726.2</b>	<b>707.7</b>	<b>636.1</b>
<b>Adjustments to Planned Spending<sup>1</sup></b>	180.4	13.2	10.6	17.3
<b>Sub-total Planned Spending</b>	<b>819.2</b>	<b>739.4</b>	<b>718.3</b>	<b>653.4</b>
<b>Less: Non-respendable revenue</b>	12.2	<b>20.3</b>	27.3	32.3
<b>Plus: Cost of Services received without charge</b>	29.9	<b>30.6</b>	30.6	30.4
<b>Total Planned Spending</b>	<b>836.9</b>	<b>749.7</b>	<b>721.6</b>	<b>651.5</b>
<b>Full-Time Equivalents (FTEs)</b>	<b>3969</b>	<b>4233</b>	<b>4213</b>	<b>4143</b>

<sup>1</sup> Adjustments to Planned Spending reflect only a portion of the initiatives announced in Budget 2001. Only those initiatives where Budget 2001 figures were available at time of RPP production were included. Other items approved after the completion of the Main Estimates are also included in the Adjustments to Planned Spending. These include: \$1.6M for the *Canadian Explosives Act* in 2001-2002 and \$2.0M thereafter up to and including 2005-06 for a total of \$9.6M over 5 years; \$50M in 2001-02 for the Sustainable Development Technology Fund; reprofiling of \$15.5M for the Climate Change Action Fund in 2001-02 to 2002-03 of \$10.3M (\$9.1M included in Budgetary Main Estimates and \$1.2M in Adjustments to Planned Spending) and \$5.2M in 2003-04 (\$4.7M included in Budgetary Main Estimates and \$0.5M in Adjustments to Planned Spending); reprofiling of \$19.8M for Climate Change Action Plan in 2001-02 to future years: \$9.7M in 2002-03 (\$5.7M included in Budgetary Main Estimates and \$4.0M in Adjustments to Planned Spending); \$2.4M in 2003-04 (\$4.9M included in Budgetary Main Estimates and (\$2.5M) in Adjustments to Planned Spending); \$4.3M in 2004-05 (\$4.9M included in Budgetary Main Estimates and (\$0.6M) in Adjustments to Planned Spending) and \$3.4M in 2005-06 (\$0 included in the Budgetary Main Estimates and \$3.4M in Adjustments to Planned Spending).

# Annexes

## A1. Summary of Transfer Payments\*

Grants and contributions make up 21 percent of the total budgetary planned spending of the Department (2002-03 Main Estimates). The figures below summarize all grants and contributions planned spending.

(\$ millions)	Forecast Spending 2001-02	Planned Spending 2002-03	Planned Spending 2003-04	Planned Spending 2004-05
<b>GRANTS</b>				
Information Dissemination and Consensus Building	0.2	<b>0.3</b>	0.2	0.2
Economic and Social Benefits	0.2	<b>0.3</b>	0.3	0.3
Environmental Protection and Mitigation	0.0	<b>1.9</b>	0.3	0.3
Safety and Security of Canadians	0.0	<b>0.0</b>	0.0	0.0
Sound Departmental Management	0.1	<b>0.1</b>	0.1	0.1
<b>Total Grants</b>	<b>0.5</b>	<b>2.6</b>	<b>0.9</b>	<b>0.9</b>
<b>CONTRIBUTIONS</b>				
Information Dissemination and Consensus Building	12.8	<b>13.1</b>	13.6	10.2
Economic and Social Benefits	77.6	<b>78.4</b>	73.2	68.0
Environmental Protection and Mitigation	30.6	<b>54.7</b>	61.0	46.0
Safety and Security of Canadians	4.2	<b>5.1</b>	5.1	5.1
Sound Departmental Management	0.0	<b>0.1</b>	0.1	0.1
<b>Total Contributions</b>	<b>125.2</b>	<b>151.4</b>	<b>153.0</b>	<b>129.4</b>
<b>Sub-Total Grants and Contributions</b>	<b>125.8</b>	<b>154.0</b>	<b>153.9</b>	<b>130.3</b>
<b>Plus: Adjustments to Planned Spending</b>				
Grants	114.7	0	0	0
Contributions	11.9	2.0	5.6	13.9
<b>Total Planned Grants and Contributions</b>	<b>252.4</b>	<b>156.0</b>	<b>159.5</b>	<b>144.2</b>

\* Over the planning period, NRCan will develop results-based management and accountability frameworks and risk-based audit frameworks for departmental transfer payment programs in keeping with the Treasury Board *Transfer Payment Policy*. NRCan's annual plan for the conduct of internal audits and evaluations of transfer payment programs is near completion.



## A2. Details on Transfer Payment Programs, for which total contributions, by Strategic Outcome, exceed \$5 million in 2002-03

### 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
Some 350 Canadian communities depend on forests for their social, cultural, and economic well-being. Canada's Model Forest Program is an important contributor in this regard since it is widely recognized for developing effective partnerships, tools, processes and approaches to sustainable forest management (\$8.0 million in 2002-03)	<ul style="list-style-type: none"> <li>• See Section III, page 20.</li> </ul>
The sharing of information through the implementation of GeoConnections, a national partnership program to develop the geographic lane of the information highway (\$4 million in 2002-03).	<ul style="list-style-type: none"> <li>• See Section III, page 9.</li> </ul>

### 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
The exploration, development, production or transportation of oil and gas in the offshore area of Nova Scotia (\$13.1 million in 2002-03).	Statutory payments to: <ul style="list-style-type: none"> <li>• pay to Nova Scotia an amount equal to various offshore revenues, including consumption tax, insurance premium tax, royalties rentals, forfeitures, fees and provincial income tax through the Nova Scotia Offshore Revenue Account (\$13 million); and</li> <li>• 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 Nova Scotia Revenue Fiscal Equalization Offset payment (\$0.1 million).</li> </ul>
Increase investment in energy development and infrastructure, while creating jobs and protecting the environment (\$44.5 million in 2002-03).	<ul style="list-style-type: none"> <li>• Hibernia Interest Assistance (\$44.5 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).</li> </ul>

Planned Results	Milestones
<p>Improve economic and social conditions of First Nation communities across Canada; advance Canada's competitive position in forest markets; target the production of value-added wood products; and support tree planting programs across Canada (\$6.8 million in 2002-03).</p>	<ul style="list-style-type: none"> <li>• First Nation Forestry Program (page 21), International Forestry Partnerships Program (page 16), XIIth World Forestry Congress (page 17).</li> <li>• Monitoring the Canada-U.S. softwood lumber agreement (page 17).</li> <li>• Funding support for state-of-the-art forest S&amp;T research and technology transfer initiatives (\$1.67 million/year to the Forest Engineering Research Institute of Canada).</li> <li>• Value-added program with Forintek – this is a four-year \$4 million partnership designed to expand forest research targeted at producing value-added products. Combined with an expanded technology partnership with Forintek, British Columbia, and Quebec, this program is designed to expand technology transfer to small and medium producers of wood products.</li> <li>• National Community Tree Foundation for community level tree planting programs across Canada (\$1 million).</li> </ul>
<p>Provide funding assistance to Québec woodlot owners as part of the 1998 Canada-Quebec ice storm recovery initiative (\$5.2 million in 2002-03).</p>	<ul style="list-style-type: none"> <li>• The 1998 ice storm damaged approximately 17,000 square kilometres of Québec wooded lands, of which 6,000 square kilometres have been severely affected.</li> <li>• The governments of Canada and Québec had agreed to a one-time contribution of \$17 million each (allocated over four years) to assist private woodlot owners in Québec whose primary income is not derived from forestry or agricultural activities.</li> <li>• The funds are being used for silvicultural rehabilitation work, training of forest advisors, providing advice related to ice storm damage and carrying out an inventory of woodlots. The contribution is being administered through Québec's private development agencies in the regions of Bois-Francs, Chaudière, Estrie, Laurentides, Montérégie and Outaouais.</li> </ul>

### 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
<p>Improve energy efficiency and the adoption of alternative sources of energy which contributes to reducing greenhouse gas emissions (\$26.4 million in 2002-03).</p>	<ul style="list-style-type: none"> <li>• 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 behaviors (\$22.8 million).</li> <li>• Support for energy efficiency research and development in the industrial sector (\$3.6 million).</li> <li>• See Section III, page 24.</li> </ul>
<p>Climate Change Action Fund (\$15 million in 2002-03) and Action Plan 2000 – part of NRCan's contribution to the federal-provincial-territorial First Business Plan of the National Implementation Strategy on Climate Change (\$12 million in 2002-03) – to address Canada's Kyoto commitments to reduce greenhouse gas emissions to 6 percent below 1990 levels by the period 2008-12.</p>	<ul style="list-style-type: none"> <li>• See Section III, starting on page 22.</li> </ul>

### A3. Source of Respendable and Non-Respendable Revenues (Excludes the Geomatics Canada Revolving Fund)

#### Respendable Revenues<sup>1</sup>

(\$ millions)	Forecast Revenue 2001-02	Planned Revenue 2002-03	Planned Revenue 2003-04	Planned Revenue 2004-05
Information Dissemination and Consensus Building	2.6	2.8	2.8	2.8
Economic and Social Benefits	11.2	10.5	10.5	10.5
Environmental Protection and Mitigation	8.1	7.2	7.3	7.4
Safety and Security of Canadians	2.2	2.0	2.0	2.0
Sound Departmental Management	0.1	0.1	0.1	0.1
<b>Total Respendable Revenues</b>	<b>24.2</b>	<b>22.6</b>	<b>22.7</b>	<b>22.8</b>

#### Non-Respendable Revenues<sup>2</sup>

(\$ millions)	Forecast Revenue 2001-02	Planned Revenue 2002-03	Planned Revenue 2003-04	Planned Revenue 2004-05
Information Dissemination and Consensus Building	0.4	0.2	0.2	0.2
Economic and Social Benefits	11.5	19.9	26.9	31.9
Environmental Protection and Mitigation	0.0	0.0	0.0	0.0
Safety and Security of Canadians	0.3	0.2	0.2	0.2
Sound Departmental Management	0.0	0.0	0.0	0.0
<b>Total Non-respendable Revenues</b>	<b>12.2</b>	<b>20.3</b>	<b>27.3</b>	<b>32.3</b>

<b>Total Respendable and Non-respendable Revenues</b>	<b>36.4</b>	<b>42.9</b>	<b>50.0</b>	<b>55.1</b>
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<sup>1</sup> As per 2002-03 Annual Reference Level Update.  
<sup>2</sup> As per 2002-03 Annual Reference Level Update.

#### A4. Net Cost of Program for the Estimates Year 2002-03

(\$ millions)	Total NRCan
<b>Planned Spending (Budgetary, Non-Budgetary plus adjustments)</b>	
Information Dissemination and Consensus Building	165.2
Economic and Social Benefits	198.9
Environmental Protection and Mitigation	281.9
Safety and Security of Canadians	40.1
Sound Departmental Management	53.3
<b>Sub-Total Planned Spending</b>	<b>739.4</b>
<i>Plus: Services Received without Charge</i>	
Accommodation provided by Public Works and Government Services Canada (PWGSC)	11.0
Contributions covering employers' share of employees insurance premiums and expenditures paid by TBS	18.2
Workmen's compensation coverage provided by Human Resources Development Canada	0.4
Salary and associated expenditures of legal services provided by Justice Canada	1.0
<b>Total Services Received without Charge</b>	<b>30.6</b>
<i>Less: Non-responsible Revenue</i>	20.3
<b>Net Program Cost (Total Planned Spending)</b>	<b>749.7</b>

## A5. Geomatics Canada Revolving Fund Statement of Operations and Changes in Financial Position

(\$ millions)	Forecast Revenue 2001-02	Planned Revenue 2002-03	Planned Revenue 2003-04	Planned Revenue 2004-05
Revenues				
Products	2.1	<b>1.5</b>	1.4	1.4
Services	12.9	<b>13.4</b>	13.3	13.3
Consulting	3.0	<b>3.3</b>	3.0	3.0
<b>Total revenues</b>	18.0	<b>18.2</b>	17.7	17.7
Expenditures (includes Cost of Goods Sold)	17.5	<b>16.6</b>	16.2	16.2
<b>Operating Surplus (deficit)<sup>1</sup></b>	0.5	<b>1.6</b>	1.5	1.5
Changes in Working Capital	0.4	<b>0.4</b>	0.9	0.9
Capital Acquisition	(0.6)	<b>(0.3)</b>	(0.3)	(0.3)
Other items	0.3	<b>0.3</b>	0.3	0.3
<b>Cash requirements</b>	<b>0.6</b>	<b>2.0</b>	<b>2.4</b>	<b>2.4</b>

<sup>1</sup> Reflects accrual based accounting

## A6. Projected Use of Geomatics Canada Revolving Fund Authority

(\$ millions)	
Authority April 1, 1994*	5.0
Draw down:	
Anticipated Use at end of Fiscal year 2001-02	0.3
Estimated Use for 2002-03	(2.0)
<b>Anticipated Authority Balance at the end of fiscal year 2002-03</b>	<b>6.7</b>

\* At its meeting of December 6, 2001, the Treasury Board (TB) approved a number of measures and authorities following the Treasury Board Secretariat's assessment of the mandate and viability reviews of revolving funds. Specifically, the TB approved the authority to include a \$1 item in a new vote in the 2001-02 Supplementary Estimates to reduce from \$8 million to \$5 million the amount by which the aggregate of expenditures made for the purposes of the Geomatics Canada Revolving Fund may exceed the revenues.

## A7. Outstanding Loans

(\$ millions)	Balance April 1 <sup>st</sup> 2002	Receipts and Other Credits	Payments and Other Charges	Balance March 31 <sup>st</sup> 2003
<b>Atomic Energy of Canada Ltd.</b>				
Housing	0.0	-	-	0.0
Heavy Water Inventory	6.5	(1.0)	-	5.5
<b>Hibernia Development Project</b>	64.4	(9.2)	0.0	55.2
<b>Nordion International Inc.</b>	92.0	(4.0)	0.0	88.0

## B. Sustainable Development Strategy

NRCan's *Sustainable Development Strategy (SDS) - Now and for the Future* is based on ongoing stakeholder engagement and is grounded in the Department's policy and S&T expertise, and legislated mandate to "have regard to the sustainable development of Canada's natural resources and the integrated management thereof." The strategy presents a framework for advancing a vision for a sustainable future which includes a departmental commitment to develop and report on national SD indicators.

The goals of the strategy are aligned with NRCan's strategic outcomes. Furthermore, the strategy provides the foundation for the Department's priorities over the planning period – knowledge, innovation, stewardship and sustainable communities – establishing sustainable development as the overarching umbrella for planned results. As such, key commitments found in Section III of this report correspond to SDS strategic actions. *SDS - Now and for the Future* advances the social dimension of sustainable development through actions pertaining to sustainable communities, corporate social responsibility, and safety and security.

Over the next three years, NRCan will continue to engage stakeholders in the implementation of the SDS, develop and use performance indicators to measure and report on results, and prepare an annual progress report to be reviewed by senior management and published on the Department's web site. More information on NRCan's *SDS - Now and for the Future* can be obtained at the following web site: <http://www.nrcan.gc.ca/dmo/susdev/>



## C. 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

E-mail:questions@NRCan.gc.ca

### Statutory Annual Reports:

#### 1. The State of Canada's Forests

<http://www.nrcan.gc.ca/cfs/proj/ppiab/sof/>

#### 2. State of Energy Efficiency in Canada

<http://oee.nrcan.gc.ca/seec/exec.summ.htm>

### Headquarters and Sector Internet Sites:

Natural Resources Canada Home Page

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

Aboriginal Portal

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

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/>

Climate Change Secretariat

<http://climatechange.gc.ca/english/html/feature/feature.html>

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>

NRCan On-Line

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

S&T at NRcan

<http://www.nrcan.gc.ca/dmo/scitech>

Statutes and Regulations

[http://www.nrcan.gc.ca/dmo/spcb/regiss\\_e.html](http://www.nrcan.gc.ca/dmo/spcb/regiss_e.html)

Sustainable Development

<http://www.nrcan.gc.ca/dmo/susdev>

### 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](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:

Aeronautical and Technical Services

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

Canada Centre for Remote Sensing

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

Canadian Earth Observation Network

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

Canadian Geoscience Publications Directory

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

Annexes



## **Earth Sciences Sector (continued)**

Canadian National Earthquake Hazards Program	<a href="http://www.seismo.nrcan.gc.ca">http://www.seismo.nrcan.gc.ca</a>
Canadian National Geomagnetism Program	<a href="http://www.geolab.nrcan.gc.ca/geomag">http://www.geolab.nrcan.gc.ca/geomag</a>
Centre for Topographic Information	<a href="http://maps.nrcan.gc.ca">http://maps.nrcan.gc.ca</a>
Centre for Topographic Information-Sherbrooke	<a href="http://www.ccg.nrcan.gc.ca">http://www.ccg.nrcan.gc.ca</a>
Earth Sciences Information Centre	<a href="http://www.nrcan.gc.ca/ess/esic">http://www.nrcan.gc.ca/ess/esic</a>
GeoConnections	<a href="http://www.geoconnections.org">http://www.geoconnections.org</a>
Geodetic Survey	<a href="http://www.geod.nrcan.gc.ca">http://www.geod.nrcan.gc.ca</a>
Geological Survey of Canada	<a href="http://www.nrcan.gc.ca/gsc">http://www.nrcan.gc.ca/gsc</a>
Geomatics Canada	<a href="http://www.geocan.nrcan.gc.ca">http://www.geocan.nrcan.gc.ca</a>
Legal Surveys Division	<a href="http://www.geocan.nrcan.gc.ca/lsd">http://www.geocan.nrcan.gc.ca/lsd</a>
National Air Photo Library	<a href="http://airphotos.nrcan.gc.ca">http://airphotos.nrcan.gc.ca</a>
National Atlas of Canada	<a href="http://www-nais.ccrs.nrcan.gc.ca">http://www-nais.ccrs.nrcan.gc.ca</a>
National Geoscience Mapping Program (NATMAP)	<a href="http://ntserv.gis.nrcan.gc.ca/natmap">http://ntserv.gis.nrcan.gc.ca/natmap</a>
Polar Continental Shelf Project	<a href="http://polar.nrcan.gc.ca">http://polar.nrcan.gc.ca</a>
<i>ResSources</i> GSC	<a href="http://rgsc.nrcan.gc.ca">http://rgsc.nrcan.gc.ca</a>

## **Energy Sector Internet Sites:**

AutoSmart and EnerGuide for Vehicles	<a href="http://autosmart.NRCan.gc.ca/online_E.htm">http://autosmart.NRCan.gc.ca/online_E.htm</a>
CANMET Energy Diversification Research Laboratory	<a href="http://cedrl.mets.nrcan.gc.ca/">http://cedrl.mets.nrcan.gc.ca/</a>
CANMET Energy Technology Branch	<a href="http://www.nrcan.gc.ca/es/etb">http://www.nrcan.gc.ca/es/etb</a>
CANMET Energy Technology Centre	<a href="http://nrcan.gc.ca/es/etb/cetc/cetchome.htm">http://nrcan.gc.ca/es/etb/cetc/cetchome.htm</a>
CANMET Information Centre	<a href="http://www.nrcan.gc.ca/es/msd/cic/ecichome.htm">http://www.nrcan.gc.ca/es/msd/cic/ecichome.htm</a>
CANMET Western Research Centre	<a href="http://www.nrcan.gc.ca/es/etb/cwrc/wrcehome.html">http://www.nrcan.gc.ca/es/etb/cwrc/wrcehome.html</a>
EnerGuide for Houses	<a href="http://energuide.nrcan.gc.ca/houses/">http://energuide.nrcan.gc.ca/houses/</a>
Energy Policy Branch	<a href="http://www.nrcan.gc.ca/es/new/enquir2.htm">http://www.nrcan.gc.ca/es/new/enquir2.htm</a>
Energy Resources Branch	<a href="http://www.nrcan.gc.ca/es/erb/erb/index.html">http://www.nrcan.gc.ca/es/erb/erb/index.html</a>
Energy Technology Data Exchange	<a href="http://nrcan.gc.ca/es/msd/cic/cdnetde.htm">http://nrcan.gc.ca/es/msd/cic/cdnetde.htm</a>
Energy Technology Futures	<a href="http://www.nrcan.gc.ca/es/etf">http://www.nrcan.gc.ca/es/etf</a>
National Energy Use Database	<a href="http://oe.nrcan.gc.ca/neud/">http://oe.nrcan.gc.ca/neud/</a>
Nuclear energy, uranium and radioactive waste	<a href="http://nuclear.nrcan.gc.ca">http://nuclear.nrcan.gc.ca</a>
Office of Energy Efficiency	<a href="http://www.oe.nrcan.gc.ca">http://www.oe.nrcan.gc.ca</a>
Office of Energy Research and Development	<a href="http://www.nrcan.gc.ca/es/oerd/">http://www.nrcan.gc.ca/es/oerd/</a>
Renewable Energy Deployment Initiative	<a href="http://www.nrcan.gc.ca/es/erb/reed/redi_e.htm">http://www.nrcan.gc.ca/es/erb/reed/redi_e.htm</a>
RETScreen™	<a href="http://cedrl.mets.nrcan.gc.ca/e/index_e.html">http://cedrl.mets.nrcan.gc.ca/e/index_e.html</a>
Technology Early Action Measures (TEAM)	<a href="http://climatechange.gc.ca/english/actions/action_fund/techno.shtml">http://climatechange.gc.ca/english/actions/action_fund/techno.shtml</a>

## **Minerals and Metals Sector Internet Sites:**

Applied Mineralogy	<a href="http://www.nrcan.gc.ca/mms/canmet-mtb/mineralogy">http://www.nrcan.gc.ca/mms/canmet-mtb/mineralogy</a>
Aquatic Effects Program	<a href="http://www.nrcan.gc.ca/mets/aete/">http://www.nrcan.gc.ca/mets/aete/</a>
Annual Conference of the Mines Ministries of the Americas (CAMMA)	<a href="http://www.camma.org">http://www.camma.org</a>
Biominet	<a href="http://www.nrcan.gc.ca/mets/biominet/">http://www.nrcan.gc.ca/mets/biominet/</a>
Business Climate for Mineral Investment	<a href="http://mmsdl.mms.nrcan.gc.ca/business">http://mmsdl.mms.nrcan.gc.ca/business</a>
Canadian Explosives Research Laboratory	<a href="http://www.nrcan.gc.ca/mms/explosif/cerldireng.htm">http://www.nrcan.gc.ca/mms/explosif/cerldireng.htm</a>

## **Minerals and Metals Sector (continued)**

Canadian Certified Reference Materials Project (CCRMP)	<a href="http://www.nrcan.gc.ca/mets/ccrmp">http://www.nrcan.gc.ca/mets/ccrmp</a>
Canadian Lightweight Materials Research Initiative (CLiMRI)	<a href="http://climri.nrcan.gc.ca">http://climri.nrcan.gc.ca</a>
Canadian Minerals Yearbook	<a href="http://www.nrcan.gc.ca/mms/cmym/index_e.html">http://www.nrcan.gc.ca/mms/cmym/index_e.html</a>
Canadian Mining Technology Network (CMT-Net)	<a href="http://cmt-net.nrcan.gc.ca">http://cmt-net.nrcan.gc.ca</a>
CANMET Environment Laboratory	<a href="http://envirolab.nrcan.gc.ca">http://envirolab.nrcan.gc.ca</a>
CANMET Experimental Mine (Val-d'Or)	<a href="http://www.nrcan.gc.ca/mms/canmet-mtb/valdor">http://www.nrcan.gc.ca/mms/canmet-mtb/valdor</a>
CANMET Materials Technology Laboratory	<a href="http://www.nrcan.gc.ca/mms/canmet-mtb/mtl">http://www.nrcan.gc.ca/mms/canmet-mtb/mtl</a>
CANMET Mineral Technology Branch	<a href="http://www.nrcan.gc.ca/mms/canmet-mtb">http://www.nrcan.gc.ca/mms/canmet-mtb</a>
CANMET Mining and Mineral Sciences Laboratories	<a href="http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl.htm">http://www.nrcan.gc.ca/mms/canmet-mtb/mmsl.htm</a>
Certifying Agency for Nondestructive Testing Economic and Financial Analysis Branch	<a href="http://ndt.nrcan.gc.ca">http://ndt.nrcan.gc.ca</a>
Explonet	<a href="http://www.nrcan.gc.ca/mms/efab/">http://www.nrcan.gc.ca/mms/efab/</a>
Explosives Regulatory Division	<a href="http://www.nrcan.gc.ca/explo.net">http://www.nrcan.gc.ca/explo.net</a>
Ground Control	<a href="http://www.nrcan.gc.ca/mms/explosif/">http://www.nrcan.gc.ca/mms/explosif/</a>
Inventory of Mining Industry Practices to Conserve Wildlife and Habitat in Canada	<a href="http://www.nrcan.gc.ca/mms/canmet-mtb/bells/encorpge.htm">http://www.nrcan.gc.ca/mms/canmet-mtb/bells/encorpge.htm</a>
MEND 2000	<a href="http://mmsdl.mms.nrcan.gc.ca/business/inventory/">http://mmsdl.mms.nrcan.gc.ca/business/inventory/</a>
Mines Ministers Conference	<a href="http://mmsd1.mms.nrcan.gc.ca/business/inventory/">http://mmsd1.mms.nrcan.gc.ca/business/inventory/</a>
Minerals and Metals – A World to Discover	<a href="http://mmsd1.mms.nrcan.gc.ca/business/inventory/">http://mmsd1.mms.nrcan.gc.ca/business/inventory/</a>
Minerals and Metals Fact Sheets and Information Bulletins	<a href="http://mmsd1.mms.nrcan.gc.ca/business/inventory/">http://mmsd1.mms.nrcan.gc.ca/business/inventory/</a>
Minerals and Mining Statistics Division	<a href="http://mmsd1.mms.nrcan.gc.ca/business/inventory/">http://mmsd1.mms.nrcan.gc.ca/business/inventory/</a>
Mineral Industry Info-Guide	<a href="http://mmsd1.mms.nrcan.gc.ca/business/inventory/">http://mmsd1.mms.nrcan.gc.ca/business/inventory/</a>
Mining and Mapping MMS Knowledge	<a href="http://mmsd1.mms.nrcan.gc.ca/business/inventory/">http://mmsd1.mms.nrcan.gc.ca/business/inventory/</a>
Mining Taxation World	<a href="http://mmsd1.mms.nrcan.gc.ca/business/inventory/">http://mmsd1.mms.nrcan.gc.ca/business/inventory/</a>
Recycling Technology Newsletter (R-Net)	<a href="http://mmsd1.mms.nrcan.gc.ca/business/inventory/">http://mmsd1.mms.nrcan.gc.ca/business/inventory/</a>

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