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Sustainable Development Strategy 2003–06

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Sustainable Development Strategy 2003–06

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Minister's Message

At its core, sustainable development is about ensuring a better quality of life for everyone, today and for generations to come. Canadian industries are increasingly recognizing the importance of integrating the concept and practice of sustainable development into the way they do business. By doing so, they are experiencing both productivity and innovation growth, while at the same time improving their environmental and social performance.

Canada's Innovation Strategy reinforces the fact that sustainable development is an integral element of the Innovation Agenda. Sustainable development practices can be a value driver for industry, which can help build a more innovative Canadian knowledge economy.

Industry Canada's new Sustainable Development Strategy is focussed on a theme of "innovation and results" as a way to promote sustainable development that reflects the Department's mandate to create the foundation for a more productive, competitive, knowledge-based economy. Three sustainable development strategic outcomes define what the Department aims to achieve by implementing the strategy's initiatives:

- continuing to increase the commercialization and adoption of eco-efficient technologies;
- increasing the use by industry, institutions and communities of corporate responsibility and sustainability practices; and
- enhancing the capacity of Industry Canada's sustainable development management system.

As Minister of Industry, I will continue to encourage Canadian industry to undertake innovative sustainable development initiatives.

In tabling the third round of sustainable development strategies, Industry Canada and Canada Economic Development for Quebec Regions, along with other federal departments, build on and renew the Government of Canada's commitment to a more sustainable economic, environmental and social future. These federal institutions remain committed to working with others to advance the practice of sustainable development. The sustainable development strategies offer an important blueprint for advancing along the journey and thereby contributing to an enhanced quality of life for Canadians.

Lucienne Robillard
Minister of Industry and Minister responsible for the
Economic Development Agency of Canada for the Regions of Quebec

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Executive Summary

Sustainable Development Strategic Outcomes and Actions

Industry Canada's new Sustainable Development Strategy for 2003–06 builds on the Department's first two strategies but is different in both structure and content. The strategy is characterized by the theme of "innovation and results." Three sustainable development strategic outcomes establish what the Department aims to achieve when the strategy's initiatives are implemented by December 2006. It seeks to further promote innovative eco-efficiency tools, practices and technologies in support of sustainable development, expand the Department's contribution to the social dimension of sustainable development, and present a more results-based performance measurement framework.

Industry Canada's strategy for 2003–06 is guided by the following vision:

> *In support of a growing, competitive and innovative economy, Canada is a leader in the development, commercialization and adoption of innovative sustainable development tools, practices and technologies throughout the economy.*
>
> *This vision reflects the Department's mandate to help Canadians be more productive and competitive in the knowledge-based economy and thus improve their standard of living and quality of life. It also is in line with the view that sustainable development, along with productivity, employment and income growth, is an integral part of growing a dynamic economy.*

Innovation Towards Sustainable Development

- Increase commercialization and adoption of eco-efficient tools and technologies
  - Capacity building in research and development, and skills
  - Promoting technology innovation
  - Applying the tools in the marketplace

Corporate and Community Sustainability

- Increase use by industry, institutions and communities of corporate responsibility and sustainability practices
  - Promoting corporate responsibility and sustainability
  - Advancing local and global sustainability

Sustainable Development Capacity Building Within Industry Canada

- Enhance capacity of Industry Canada's sustainable development management system
  - Improving sustainable development planning, performance measurement and evaluation

The three sustainable development strategic outcomes presented in the new strategy are long-term in nature. However, they represent what the Department expects Canadian industry to achieve over the life of the new strategy. While the first and second sustainable development outcomes are oriented toward the Department's key external stakeholders, the third focusses on internal sustainable development decision making and operations. The Innovation Towards Sustainable Development outcome seeks to build on the current level of industry uptake of eco-efficiency tools and practices, and expand the development and commercialization of innovative environmental technologies. The Corporate and Community Sustainability outcome is concerned with

increasing the use of sustainable development practices and tools. The third sustainable development outcome seeks to further build on departmental progress made in terms of Industry Canada's sustainable development management system.

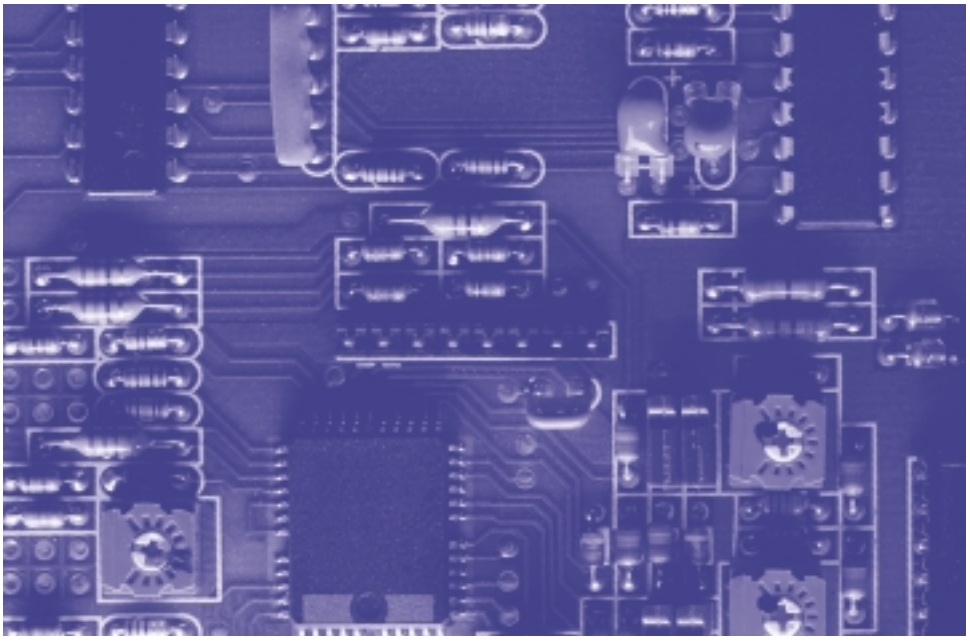
Industry Canada's sustainable development management system is based on the following cycle: (1) planning; (2) implementation; (3) performance measurement and evaluation; and (4) reporting. This system ensures that the strategy's action plan items are implemented effectively, and that the strategy achieves the strategic outcomes sought by December 2006.

1. Introduction

Sustainable development is about meeting the needs of the present without compromising the ability of future generations to meet their own needs. Industry Canada's journey on the path toward sustainable development continues with the introduction of its Sustainable Development Strategy for 2003–06. The Department is building on its past accomplishments and addressing emerging challenges and opportunities to ensure a more sustainable economic, environmental and social future for Canadians.

Industry Canada's first Sustainable Development Strategy, for 1997–2000 (SDS I), was characterized by a "learning and discovery" theme. It represented an initial attempt to operationalize the concept of sustainable development through the economic lens of the Department by establishing broadly based deliverables and initial management involvement. The Department's second Sustainable Development Strategy, for 2000–03 (SDS II), was anchored by a "leadership and partnership" theme. It was formulated on the basis of lessons learned from SDS I, specifically in terms of focussed action items, more senior management involvement and strengthened performance measurement.

Industry Canada's third Sustainable Development Strategy, for 2003–06 (SDS III), has a vision of Canada as a leader in the development, commercialization and adoption of sustainable development tools, practices and technologies throughout the economy. It is characterized by the theme of "innovation and results." The strategy helps respond to the innovation challenges in *Achieving Excellence: Canada's Innovation Strategy* and the performance measurement challenges established by the Commissioner of the Environment and Sustainable



Development (CESD). It reflects the Department's mandate to help Canadians be more productive and competitive in the knowledge-based economy, and thereby improve their standard of living and quality of life. It also is in line with the view that sustainable development, along with productivity, employment and income growth, is an integral part of growing a dynamic economy. The new strategy builds on the first two strategies by introducing new approaches and an expanded suite of initiatives to further sustainable development within Canadian industry.

SDS III commits the Department to playing a strategic enabler role and promoting innovative sustainable development solutions through the following strategic outcomes:

- innovation towards sustainable development;
- corporate and community sustainability; and
- sustainable development capacity building within Industry Canada.

SDS III seeks to reinforce Industry Canada's efforts to promote eco-efficiency tools and practices and enable the diffusion of environmental technologies by Canadian industry. Second, it includes an expanded suite of initiatives that advance corporate and community sustainability. Third, it calls for further strengthening of Industry Canada's sustainable development capacity in terms of its sustainable development management system. Each of these three strategic outcomes includes a smaller and more focussed set of deliverables, and a more outcome-oriented performance measurement framework.

This new strategy was developed on the basis of issue scans; a mid-term evaluation of Industry Canada's second strategy; and consultations with departmental staff, other federal departments, the private sector, environmental groups and other stakeholders. SDS III also takes account of the 2002 Speech from the Throne, the 2003 Federal Budget and Canada's participation at the 2002 World Summit on Sustainable Development (WSSD). Overall, the new strategy represents the Department's path forward for the next three years in terms of advancing sustainable development in Canadian industry and improving the Department's sustainable development management system.

2. Accomplishments, Challenges and Opportunities

2.1 Recent Progress

Moving Towards an Innovative and Sustainable Economy

Canada has entered the 21st century in a position of economic strength, as Canadians enjoy unprecedented levels of opportunity and prosperity. Canadians are at the forefront of the global knowledge-based economy, using their unique talents, skills and ideas to compete in international markets. Now more than ever, the ability of Canadians to innovate is critical to the country's future economic prospects and quality of life.

Canada continues to be ranked high in terms of quality of life by the United Nations Human Development Index, which places Canada eighth in terms of life expectancy, educational attainment and adjusted real income.[1] The Environmental Sustainability Index, a collaborative study that gauges the progress of world economies in achieving environmental sustainability, assessed Canada to be in the top group of the 122 countries that were reviewed. Canada ranked fourth after Finland, Norway and Sweden, and ahead of all its G7 counterparts.[2]

Nevertheless, Canada faces challenges in terms of creating a more innovative society. The country continues to experience a significant productivity gap vis-à-vis the United States and other advanced industrial economies because of lagging innovation performance. Specifically, Canadian industry is slower in successfully developing, applying and marketing innovative products, processes and services than a number of other nations. Innovation is a key

Photo courtesy of Aventis Pasteur Limited

1. United Nations Development Programme, *Human Development Report 2003*, New York and Oxford: Oxford University Press, 2003.
2. World Economic Forum, *2002 Environmental Sustainability Index*, Annual Meeting 2002, Davos, Switzerland.

driver of productivity growth and competitiveness, and therefore must be addressed if Canadians are to seize significant opportunities that lead to employment growth, a higher standard of living and an improved quality of life. The Organisation for Economic Co-operation and Development (OECD) stresses that while Canada's economic performance will gradually strengthen out of the recent mild slowdown into more robust growth in 2004, it still faces the longer-term challenge of increasing productivity growth vis-à-vis the U.S. by accelerating innovation, competition and skills.[3]

To be sure, productivity growth, improvements in innovation performance, and strategic investments in Canada's knowledge infrastructure, human capital and regulatory frameworks will be critical in securing a sustainable economic future for Canadians. In fact, the Conference Board of Canada's seventh annual socio-economic report contends that Canada's ability to provide first-class health care, education and social services depends on its ability to raise income per capita and to ensure access to the U.S. market.[4]

Industry Progress on Sustainable Development

Canadian business has made considerable gains in recent years to meet the challenges of sustainable development. There is a growing recognition within many sectors of the economy that sustainable development-related tools, practices and technologies can be value drivers for business as well as a means for managing and mitigating risk. Capital markets are increasingly examining the environmental and social initiatives and performance of companies in order to better understand how these contribute to their productivity, innovation and competitiveness. Sustainable development is becoming more mainstream and integrated into corporate business strategies and investment decision making.

"Canadian companies are making investments in and adopting practices, systems and technologies that address environmental issues particular to their industry."

***— Environmental Practice and Performance of Canadian Business and Industry*, Conference Board of Canada, 2003**

Canada's National Report to the 2002 WSSD, *Sustainable Development: A Canadian Perspective*, outlined a number of diverse and innovative approaches undertaken by Canadian industry to address sustainable development during the 1990s. Specifically, initiatives on corporate environmental and social aspects of sustainable development have emerged through:

- minimizing risk and liability for firms by implementing eco-efficiency practices, processes and technology changes (e.g. fuel cells, biotechnology), and tools such as environmental management systems (EMS), design for environment, supply chain management, and corporate accountability and reporting practices; and
- creating value for investors and other stakeholders by developing innovative eco-efficiency products and services with practical environmental, social and financial benefits; encouraging socially responsible investing; and improving access to financial capital in equity markets, debt financing and credit.[5]

3. Organisation for Economic Co-operation and Development, *OECD Economic Surveys*, Vol. 2003/14, Canada/Paris, September 2003, p. 10.
4. Conference Board of Canada, *Performance and Potential 2002–2003*, Ottawa, 2002.
5. Government of Canada, *Sustainable Development: A Canadian Perspective*, Ottawa: Environment Canada, 2002, pp. 14–15.

The following represent some of industry's recent accomplishments:

- Canadian firms invested almost $2.2 billion in capital projects for environmental protection in 2000, an increase of 26 percent from 1998. A growing proportion of this investment, or $944 million, was directed at pollution prevention — up almost 46 percent from 1998. The transportation equipment industry is a major contributor to the shift towards pollution prevention, increasing its investments from $30 million in 1998 to $188 million in 2000.[6]
- The National Pollutant Release Inventory shows an overall downward trend in pollutant releases from the chemical and chemical products industries, with a decrease from 60 000 to 50 000 tonnes released from 1999 to 2000.[7]
- Canada's Climate Change Voluntary Challenge and Registry for voluntary greenhouse gas (GHG) baselines, targets and reductions for entities and/or facilities indicates that the number of Cumulative Action Plans developed increased from 757 in 2000 to 834 in 2002, and that the number of Related First Progress Reports increased from 344 in 2000 to 394 in 2002.[8]
- As illustrated in Table 1 below, the growth rate of Canadian companies certified under International Organization for Standardization (ISO) 14001 was particularly significant, increasing from 112 in 1998 to 800 by December 2001.[9]
- In terms of major eco-efficiency indicators, industrial energy intensity (i.e. energy use per unit of activity) improved, with a 14.8-percent decrease in aggregate energy-intensity growth between 1999 and 2001.[10]
- The number of companies in Canada that publish detailed sustainability or integrated annual reports nearly doubled, increasing from 57 companies in 2001 to 100 companies in 12 sectors in 2002.[11]

Industry Canada's Sustainable Development Accomplishments

Industry Canada has implemented two sustainable development strategies to date. Both have led to significant progress in terms of integrating sustainable development activities within the Department's five strategic objectives: innovation, connectedness, marketplace, investment and trade. In order to more fully reflect sustainable development as a cross-cutting issue within the Department's formal planning and evaluation frameworks, in 2001 senior management added sustainable development to the top of the departmental priorities chart under

Table 1: ISO 14001 Registration Growth: Year-End Totals, 1995–2001[12]

Country	1995	1996	1997	1998	1999	2000	2001
United States	1	19	108	296	557	889	1561
Canada	0	2	26	112	304	499	800
Mexico	0	0	12	35	55	93	248

6. Statistics Canada, *Environmental Protection Expenditures in the Business Sector*, 2000, Ottawa: Statistics Canada, 2003.
7. Environment Canada, *Informing Canadians on Pollution 2002: Highlights of the 2002 National Pollutant Release Inventory*, Ottawa: Environment Canada, 2002.
8. Voluntary Challenge and Registry Inc. Web site (**http://www.vcr-mvr.ca/index_e.cfm**).
9. International Organization for Standardization, *ISO 14001 Registered Company Directory North America Market Report*, Vol. 3, No. 4, November 2002.
10. Natural Resources Canada, Glossary, Office of Energy Efficiency Web site (**http://oee.nrcan.gc.ca**), 2003.
11. Stratos Inc., *Building Confidence: Corporate Sustainability Reporting in Canada*, Ottawa, 2003.
12. International Organization for Standardization, ibid.

"Growing a Dynamic Economy" (alongside productivity growth, employment growth and income growth). SDS III makes significant progress in terms of leveraging ongoing departmental programs and initiatives that contribute to the social dimension of sustainable development and thereby extend the reach of sustainable development to initiatives that fall under departmental strategic objectives beyond innovation.

Industry Canada's sustainable development results and lessons learned related to its second Sustainable Development Strategy are described in the mid-term evaluation (see Appendix II.c). Table 2, on the following page, provides highlights of the Department's accomplishments related to deliverables in the second strategy, which was tabled in the House of Commons in 2001.

The Department also recorded a number of accomplishments beyond the scope of those commitments originally identified in the second strategy. For example, Industry Canada:

- received a Level I ranking in the 2001 Annual Report of the CESD for having a well-functioning sustainable development management system;
- developed lean manufacturing/high-performance manufacturing, nanotechnology, and resource recovery initiatives to promote the minimization or elimination of production and processing waste through eco-efficient practices and innovative environmental technology; and
- supported eco-efficiency and eco-tourism projects through Aboriginal Business Canada (ABC).

In the mid-term evaluation of SDS II (see Appendix II.c), Industry Canada initiatives were identified as consistent with both departmental and government-wide sustainable development objectives. The evaluation also provided helpful guidance in terms of building the structure and content for this new strategy.

Table 2: Highlights of Recent Industry Canada Accomplishments Under SDS II, 2000–03

Enhance the capacity of Canadians, industries and firms to develop and use eco-efficient practices, tools, technologies and products that contribute to increased productivity and environmental performance.	• Launched new eco-efficiency Web site and delivered two on-line eco-efficiency assessment tools — Three Steps to Eco-Efficiency for manufacturers, and an introduction to eco-efficiency. • Developed a partnership arrangement and initial Web content for Building Sustainable Enterprises, the regional eco-efficiency workshops for businesses, in partnership with the National Round Table on the Environment and the Economy (NRTEE), Natural Resources Canada (NRCan), Environment Canada, and regional agency and industry partners. • Supported new Networks of Centres of Excellence (NCEs), including the Automobile of the 21st Century, to improve power trains, reduce emissions and improve the safety of the vehicles of the future, particularly for children and elderly persons.
Facilitate the development and diffusion of environmental and enabling technologies that produce long-term economic and environmental benefits.	• Invested about $75 million in six sustainable development-related Technology Partnerships Canada (TPC) projects, including fuel cells and other clean vehicle technologies. It is expected that these projects will leverage about $175 million from other sources. • Funded 14 university research infrastructure projects, valued at $34.5 million, through the Canada Foundation for Innovation (CFI), in the fields of hydrology, environmental engineering, oceanography, evolution and ecology, soil science, and plant and tree biology. • Approved 22 genomic projects and platforms with $135 million of Genome Canada support.
Improve the integration of sustainable development objectives into decision making, including the development and delivery of departmental policies, plans and operations.	• Approved the implementation of a permanent departmental program for conducting Strategic Environmental Assessments (SEAs). • Conducted a waste audit of Industry Canada-occupied facilities in the National Capital Region. • Produced and distributed a promotional brochure, *Eco-Efficiency: Good Business Sense*, to highlight the economic benefits of eco-efficiency practices.

Detailed progress report information can be found on Industry Canada's Web site at:
http://strategis.gc.ca/sd

2.2 Global and Canadian Contexts

Global Context

The world community continues to face a variety of challenges related to each dimension of sustainable development. Environmental issues such as climate change, biodiversity, poverty, human health, the "digital divide," technology transfer, and air, water and marine pollution continue to pose threats to human health and our natural ecosystems. On the economic front, the continuing globalization of markets has increasingly made knowledge and innovation the key drivers of economic performance and competitiveness. In the social dimension, changing demographics in Western countries in the form of ageing populations and declining birth rates are presenting major challenges to ensuring a highly skilled labour force. In addition, addressing urban infrastructure needs is becoming increasingly important for local economic growth and development.

The emergence of corporate social responsibility (CSR) as an important business concept and set of practices for defining the relationship between a firm and its key stakeholders, including consumers and shareholders, is presenting challenges for the private sector. Global public opinion surveys (e.g. by Environics International) are revealing that consumers in many countries are setting higher expectations and becoming more active to encourage companies to assume greater social responsibility. Firms cannot ignore corporate responsibility and sustainability issues such as human resource management practices, community development, human rights and corporate governance, and consumer protection.

The 2002 WSSD, held in Johannesburg, South Africa, provided a forum for nations to come together to achieve a global consensus and partnerships for action on solutions to sustainable development problems. Globalization has added a new dimension to these problems. The rapid integration of markets, mobility of capital and significant increases in investment flows have produced unevenly distributed costs and benefits, with developing countries often at a disadvantage. The ability of national governments to address these challenges on their own is constrained by global forces and, consequently, there was a recognition by business delegates at the WSSD that action on the part of global business is needed more than ever. The WSSD Plan of Implementation is the vehicle for mobilizing private sector, government and non-governmental organization (NGO) action on these issues. Industry Canada's anticipated contributions, through action items in this strategy, to Canada's response to the WSSD Plan are outlined in Appendix V.

"Sustainable development is an integral element of the Innovation Agenda."

***— Achieving Excellence: Canada's Innovation Strategy*, 2002**

Similarly, Canada's ratification of the Kyoto Protocol in December 2002 presents a particular set of challenges and opportunities for Canadian industry in the future. While the Government of Canada's climate change commitments outlined in the *Climate Change Plan for Canada* present a number of environmental and economic opportunities, such as renewable energy and energy conservation, Industry Canada will have to work with industry to identify ways to achieve climate change objectives while still encouraging economic growth.

Canadian Context

While the global economic outlook is uncertain for many of Canada's major competitors, Canada generally has strong economic fundamentals and economic growth projections compared to its major competitors into the

"Developments in such areas as waste recycling, nanotechnology, IT, biotechnology and alternative energy can contribute markedly to sustainability."

— World Business Council on Sustainable Development

foreseeable future. A review of the key economic indicators reveals low inflation, low interest rates, robust job growth, high levels of consumer and business confidence, and continuing fiscal stability. However, Canada's long-standing productivity gap vis-à-vis its major trading partner and competitor, the U.S., continues to be a key policy challenge in terms of boosting innovation performance. In 2002 the Government of Canada released *Achieving Excellence: Canada's Innovation Strategy*, which presents a diagnostic of the innovation challenges Canada faces in today's knowledge-based economy and calls for a national partnership to develop a blueprint for addressing them, stating, "Innovation refers to both the creative process of applying knowledge and the outcome of that process."[13] Canada's standard of living and the quality of life of Canadians more generally are largely dependent on innovation and how we promote it systematically across the economy. Important linkages between sustainable development and innovation were recognized at the National Summit on Innovation and Learning in November 2002, where a specific session was devoted to environment and clean energy (eco-efficiency was also discussed). Delegates discussed the importance of finding innovative solutions to environmental problems and seizing the related economic benefits, all of which will require investments in such areas as research and development (R&D), skills upgrading and immigration, and a supportive tax and regulatory environment.

In the 2002 Speech from the Throne, the Government of Canada committed to moving forward with a Smart Regulation strategy to accelerate reforms that will promote health and sustainability, contribute to innovation and economic growth, and reduce the administrative burden on business. It promised to allocate $4 million over two years to create an External Advisory Committee on Smart Regulation, which will recommend areas where government needs to redesign its regulatory approach to create and maintain a Canadian competitive advantage.

Budget 2003 supports the Government of Canada's climate change strategy, as well as efforts to provide Canadians with cleaner air and water and more-liveable cities. It commits to providing $2 billion over five years to help implement the Government of Canada's *Climate Change Plan for Canada*, including measures to promote energy efficiency, renewable energy, sustainable transportation and new alternative fuels. To be sure, ongoing technological innovation will be critical if Canada is to successfully meet its Kyoto Protocol target and position itself as a world leader in innovative climate change solutions, while at the same time maintaining its industrial competitiveness across sectors. For Canada, addressing climate change provides the double dividend of addressing environmental concerns and providing economic opportunities. While the Kyoto Protocol provides a short-term target, climate change will remain a long-term issue, and Industry Canada's efforts will focus on the longer term. It will also be important for all Canadians, governments, industries and consumers to contribute in reaching Canada's climate change goals.

13. Industry Canada, *Achieving Excellence: Canada's Innovation Strategy*, Ottawa, 2001, p. 4.

SDS III: Key Issues

A number of important lessons have been learned from the development and implementation of Industry Canada's first and second sustainable development strategies. These have been taken from internal experiences, foundation studies (i.e. internal and external scans and mid-term evaluation), and audits and reports by the CESD.

In response to the requirements in *A Guide to Green Government* (1995), Industry Canada conducted both internal and external issues scans (see Appendix II) to help identify the key sustainable development issues to be considered in the preparation of the third strategy.

The internal issues scan identified seven broad areas for consideration in the new strategy, including four in the near term and three in the long term.

Near term (within the framework of the third SDS):

- integrating sustainable development into decision-making processes;
- broadening government measures of sustainable development;
- supporting innovation towards sustainable development; and
- fostering improved productivity through environmental efficiency.

Long term (beyond the time framework of the third SDS):

- ensuring resources development is sustainable;
- meeting our international challenges; and
- improving quality of life and well-being.[14]

The external issues scan examined six specific industry sectors — forestry; oil and gas; information and communications technologies (ICT); plastics; cement and concrete products; and steel products — and identified the following sustainable development-related gaps and challenges:

- the need for a sustainability vision and coordinated strategy across industry sectors;
- the importance of market development and "pull" to maximize sustainable development practices/technologies;
- investing more in R&D in support of sustainable development;
- increasing training and development to attract and retain highly qualified personnel; and
- communicating sustainability achievements and opportunities.[15]

More detailed information on the results of the internal and external issues scans can be found in Appendix II.

The mid-term evaluation of the second strategy (SDS II) identified 10 recommendations based on lessons learned from its development and implementation:

- Making progress: Various action items should be consolidated into no more than 10 key outcome areas associated with the objectives of the strategy.
- Evaluation framework: The evaluation framework study, consistent with Treasury Board Secretariat (TBS) guidelines, should be undertaken concurrently with the planning process for the new strategy.
- Decision making: Decision making should be retained as a strategic objective.
- Scope and flexibility: The plan should be reviewed on an annual basis and

14. KPMG Consulting, *Internal Issues Scan for Industry Canada's Sustainable Development Strategy, 2003–2006* (SDS III), prepared for Audit and Evaluation Branch, Industry Canada, Ottawa: KPMG Consulting, 2003.

15. Schulich School of Business, *SDS III External Issues Scan and Supplemental Scan: Identification of High Leverage Opportunities*, prepared for Industry Canada, Toronto: Haub Program in Business and Sustainability, Schulich School of Business, York University, 2003.

adjustments made to actions and deliverables as required to meet key outcomes and objectives.
- Monitoring and reporting: Responsibility centres should consider compiling performance information — based on the TBS Results-Based Management and Accountability Framework (RMAF) — on an ongoing basis as part of the sustainable development monitoring and reporting system.
- Resources: The strategic planning process for SDS III should explore the potential of allocating funds for projects under an SDS III appropriation framework.
- Internal partnerships: The Department should consider how to engender intra-departmental cooperation towards achieving the desired sustainable development outcomes.
- Delivery instruments: It is important for the Department to assess and select the most effective tools at its disposal that best achieve intended results in a timely fashion.
- Results: The Department should prepare to present a comprehensive evaluation of the cumulative results of its sustainable development strategies (CESD requirement for a cumulative review in 2007).
- Parallel strategies: A more robust role should be engendered for sustainable development within the Department. It would be useful to reference the new strategy within parallel strategies of the Department.[16]

"To make sustainable development real, the strategies need to convey a vision of sustainable development, a small number of key priorities, and specific objectives for the next 10 years."

— Johanne Gélinas, Commissioner of the Environment and Sustainable Development, *Report of the CESD*, October 2002

Industry Canada also convened its first-ever Sustainable Development Focus Day, which was held in Ottawa in February 2003. About 60 officials from across the Department and the Industry Portfolio discussed options for SDS III strategic priorities, outcomes and possible partnership opportunities. Climate change, research, development and demonstration of technologies, and sustainable consumption were cited as the key issues that should receive primary consideration in the new strategy. More detailed information on the Focus Day can be found in Appendix III.

The development of the third strategy is also guided by the expectations of the CESD, as outlined in *Sustainable Development Strategies: Preparing for the Third Round*, which focusses almost exclusively on improving the strategies to make them more effective strategic planning documents with strong results-based performance measurement frameworks.[17]

Next Generation of Sustainable Development

Given the current focus on climate change, innovation and smart regulation, Industry Canada has a unique opportunity to further engage the business sector to undertake innovative sustainable development initiatives. Areas for encouraging industry leadership include:

- *Beyond-compliance measures:* More effort needs to be made to advance the "business case" to industry in terms of considering the environment as a value driver/creator, as opposed to a cost to be mitigated (e.g. voluntary codes of conduct).

16. KPMG Consulting, *Mid-Term Evaluation Study of Industry Canada's Sustainable Development Strategy, 2000–2003*, prepared for Audit and Evaluation Branch, Industry Canada, Ottawa: KPMG Consulting, 2003.
17. Commissioner of the Environment and Sustainable Development, *Sustainable Development Strategies: Making a Difference*, Ottawa, March 2003.

- *Adoption of corporate sustainability strategies:* Building on the economic, environmental and social dimensions of a firm's operations with corporate strategic decision making is beginning to take hold in a few leading companies, but more promotion is required.
- *Implementation of market-based instruments:* Consistent with Canada's climate change implementation plan, companies will increasingly be urged to consider participating in emissions trading regimes.

Table 3, on page 60–63, presents the relationships between the identified sustainable development issues and the potential opportunities for departmental action as they resulted from the issues scans. These opportunities are defined in Chapter 3 in terms of sustainable development strategic outcomes, targets and specific action items to be delivered by the Department over the next three years, ending in December 2006.

3. Strategy 2003–06

Industry Canada has made significant achievements in its first two sustainable development strategies in terms of making the business case for sustainable development to Canadian industry and enabling firms to develop and implement innovative sustainable development tools, practices and technologies. Industry Canada's SDS for 2003–06 is characterized by the theme of "innovation and results," which seeks to further reinforce these efforts. The design of the new strategy (see Figure 1, page 16) is structured around the following vision, principles, sustainable development strategic outcomes, and activities.

Vision

In support of a growing, competitive and innovative economy, Canada is a leader in the development, commercialization and adoption of sustainable development tools, practices and technologies throughout the economy.

Principles

Industry Canada is committed to apply the following principles to achieve its sustainable development vision, as well as the sustainable development strategic outcomes and activities outlined in this strategy:

- *Leadership to Enable Uptake of Innovative Sustainable Development Practices:* Industry Canada will provide leadership through promoting the development and uptake of innovative sustainable development practices in Canadian industry.
- *Partnerships for Sustainable Development:* Industry Canada will consult stakeholders and identify partnership opportunities for advancing sustainable development in Canadian industry.
- *Balanced Use of Policy Tool Box:* Industry Canada will support the balanced use of policy instruments to meet its sustainable development objectives (i.e. voluntary initiatives, negotiated agreements, standards, economic instruments, command-and-control regulations).
- *Managing for Sustainable Development Outcomes:* Industry Canada will manage the implementation of the strategy by setting and reporting publicly on strategic objectives and associated outcomes, which include detailed action plans to achieve them.

Sustainable Development Strategic Outcomes

Industry Canada's new Sustainable Development Strategy is structured around three sustainable development strategic outcomes: innovation towards sustainable development; corporate and community sustainability; and sustainable development capacity building within Industry Canada. Sustainable development strategic outcomes represent the long-term and enduring

benefits to stakeholders that can be derived from the Department's sustainable development vision and efforts.

- *Innovation Towards Sustainable Development:* Increased commercialization and adoption of eco-efficient technologies.
- *Corporate and Community Sustainability:* Increased use by industry, institutions and communities of corporate responsibility and sustainability practices.
- *Sustainable Development Capacity Building Within Industry Canada:* Increased capacity of Industry Canada's sustainable development management system.

The three sustainable development outcomes represent what the Department expects Canadian industry will progress toward over the life of the new strategy. While the first and second sustainable development outcomes are oriented toward the Department's key external stakeholders, the third focusses on internal sustainable development decision-making systems operations. The relationships among the three sustainable development strategic outcomes are more fully articulated in Table 3 on pages 60–63.

Linkages to Industry Canada's Corporate Strategic Objectives

The sustainable development outcome areas are also linked to the Department's broader corporate strategic objectives outlined in the *2003–04 Report on Plans and Priorities*. These are summarized in the departmental profile provided in Appendix I.

Industry Canada's five strategic objectives provide the framework by which the Department works, in an integrated manner, to achieve its goals:

- *Innovation:* improving Canada's innovation performance;
- *Connectedness:* making Canada the most connected country in the world;
- *Marketplace:* building a fair, efficient and competitive marketplace;
- *Investment:* improving Canada's position as a preferred location for domestic and foreign investment; and
- *Trade:* working with Canadians to increase Canada's share of global trade.

Innovation is an important driver for each of sustainable development's economic, environmental and social dimensions. The Innovation Towards Sustainable Development Strategic outcome reinforces the Department's **Innovation** strategic objective, which promotes productivity growth through increased commercialization and adoption of eco-efficient tools and technologies in support of sustainable development. It is also in keeping with *Canada's Innovation Strategy*, which stresses the fact that sustainable development is an integral element of the Innovation Agenda and that there are mutually reinforcing links between innovation, productivity growth and better environmental performance. The Corporate and Community Sustainability strategic outcome is also complementary to the Department's Innovation Agenda in terms of promoting corporate responsibility and sustainability at local community and global levels. Priority areas include labour rights, health and safety, community development, corporate governance, human resource management practices, and consumer protection, as well as encouraging Canadian industry to develop more innovative technologies and services to address the most significant sustainable development challenges abroad.

The Innovation Towards Sustainable Development and the Corporate and Community Sustainability strategic outcomes also support the Department's **Connectedness** strategic objective. Encouraging local and global sustainability through the use of eco-efficient business strategies (e.g. reuse and recycling) and information and telecommunications technologies, such as e-business and

e-health, can dramatically reduce overall material and energy consumption, build community capacity, and support the Department's sustainable development agenda.

The Department's **Marketplace** strategic objective promotes a fair, efficient and competitive marketplace in which stability and efficiency are keys to business and consumer confidence, and which is complementary to building an innovation-based society with strong community capacity. A robust marketplace also enables Industry Canada to explore the possible use of sustainable development policy instruments such as market-based tools (i.e. economic instruments), which both harness the power of the market and advance the Department's sustainable development agenda.

In terms of the **Investment** and **Trade** strategic objectives, as an export-driven country, Canada must continue to promote an innovation culture in order to attract and seek out new international investment and export market opportunities. The Innovation Towards Sustainable Development and the Corporate and Community Sustainability strategic outcomes in the new strategy are consistent with encouraging inbound investment, which promotes R&D, skills and economic growth in Canada as well as a leadership role abroad for responsible Canadian businesses.

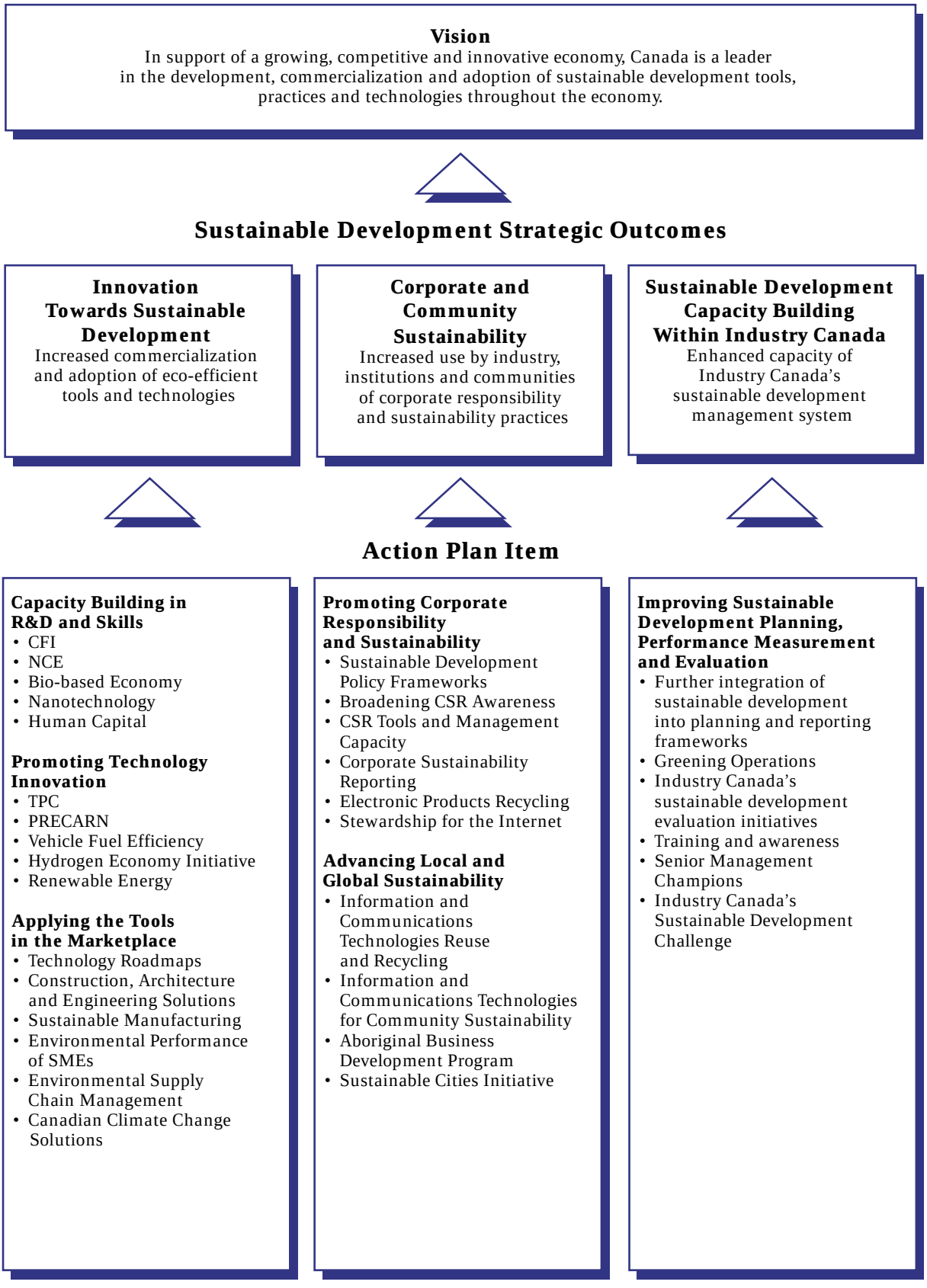
Finally, the efficient and effective implementation of the strategy requires that the Department's corporate management services function is supportive of sustainable development systems and human capacity building through areas such as human resources management, audit and evaluation, informatics, facilities management, communications, and the comptroller.

Action Plan

Targets and actions have been developed for each of the three sustainable development strategic outcomes, which cover a range of new initiatives and ongoing departmental activities.

The action plan for each of the three strategic outcomes is described in sub-sections 3.1, 3.2 and 3.3.

Figure 1: Industry Canada's Sustainable Development Strategy: 2003–06



3.1 Innovation Towards Sustainable Development

Sustainable Development Strategic Outcome: Increase commercialization and adoption of eco-efficient tools and technologies.

Target: Work in partnership with industry and others to demonstrate the contribution of eco-efficiency to enhancing productivity and environmental performance through capacity building in R&D and skills; promote technology innovation; and apply the tools in the marketplace. By December 2006, this will be achieved by:

Capacity building in R&D and skills (five deliverables):

- Supporting the CFI to build Canada's knowledge and research infrastructure
- Participating in the approval process for sustainable development-related research through the NCEs in research fields related to automobiles, water, forest management and aquaculture
- Increasing awareness and promoting the development of Canada's Green Advantage for developing bio-processes and bio-based industrial technologies, products and processes to reduce greenhouse gas emissions
- Building awareness of potential applications of nanotechnology by building research partnerships and eco-industrial clusters within government and industry to commercialize research
- Supporting the development of human capital/skills to address skilled worker shortages

Promoting technology innovation (five deliverables):

- Investing in innovative technologies through TPC
- Supporting Phase 3 of the Pre-Competitive Applied Research Network's (PRECARN) R&D program to develop intelligent solutions to meet industry needs
- Promoting a 25-percent increase in fuel efficiency of new light vehicles, as per the federal commitment, by 2010
- Supporting the development, commercialization and early adoption of hydrogen-based fuel-cell technology in the automotive sector
- Working in partnership with other federal departments and industry associations to strengthen the position of renewable energies in the Canadian and international marketplace

Applying the tools in the marketplace (six deliverables):

- Encouraging the development of technology roadmaps for forecasting future market needs and planning best approaches for marketing climate change technologies
- Promoting innovative construction and architecture/engineering solutions to achieve greenhouse gas emissions reductions
- Building awareness and promoting the commercialization and adoption of innovative manufacturing practices by industry that lead to more sustainable product and process designs
- Supporting the adoption of environmental stewardship approaches and tools for small businesses
- Advancing the adoption of environmental supply chain management tools for small businesses
- Promoting Canadian climate change technologies and services abroad

Investing in Eco-efficient Innovation

Innovation is critical to each of sustainable development's economic, environmental and social dimensions. Industry Canada's first two sustainable development strategies reflected the view that innovation, productivity, jobs and income growth enable us to sustain our productive potential, address social, economic and environmental issues, and support

Promoting Productivity Through Eco-efficiency

Since 2000, Industry Canada has worked in partnership with a number of stakeholders to encourage the uptake of eco-efficiency tools, practices and technologies in Canadian industry by:

- **launching a new eco-efficiency Web site (http://strategis.gc.ca/e2) and delivering two on-line eco-efficiency assessment tools — Three Steps to Eco-efficiency for manufacturers, and an introduction to eco-efficiency; and**
- **developing a partnership arrangement and Web content for Building Sustainable Enterprises — regional eco-efficiency workshops for businesses in partnership with the National Round Table on the Environment and the Economy (NRTEE), NRCan, Environment Canada and industry partners.**

For more information, visit: http://strategis.gc.ca/e2

programs that enhance our quality of life. In its second strategy, Industry Canada recognized the importance of eco-efficiency as an effective way for industry to produce more value-added products or services while using fewer material and energy inputs and creating less pollution. Eco-efficiency is a powerful corporate strategic management tool that combines environmental and economic performance. At its core, eco-efficiency aims to dematerialize by producing more (goods and services and value-added) with less (resources, waste and pollution), thereby becoming a source of competitive advantage. Eco-efficient practices, as defined by the World Business Council for Sustainable Development (WBCSD), include reducing materials, energy and toxic dispersion, and increasing material recyclability, use of renewable resources, product durability, and the service intensity of goods and services.

The Department has developed an effective business case to encourage industry to implement practical environmental management systems such as ISO 14001. It has also worked with industry and other stakeholders to identify opportunities to encourage the use of eco-efficient practices, tools, technologies and products through information products and outreach (Building Sustainable Enterprises workshops and the Three Steps to Eco-efficiency Self-Assessment Tool for SMEs (**http://strategis.gc.ca/e2**). The key lesson learned is that eco-efficiency has become a more credible and promising vehicle for proactively advancing sustainable development.

Industry Canada has learned that companies are realizing efficiency gains leading to bottom-line benefits, managing risk effectively, and expanding their businesses through the development and implementation of tools such as environmental management systems, life-cycle assessment, design for environment, closed-loop production systems and zero-waste factories, process re-engineering, lean manufacturing, environmental performance agreements (EPAs), eco-industrial networking, environmental performance indicators, and selling waste products to companies for feedstock. Companies that have implemented eco-efficiency corporate strategies have realized practical benefits such as customer loyalty, brand strength, first-mover advantage, motivated employees and, potentially, more profits.

It is no coincidence, therefore, that the most innovative and forward-looking firms tend to be those that encourage innovation through eco-efficiency strategies. They are able to anticipate trends in international agreements, consumer preferences, regulations and the "pulling" of new sustainable technologies, and to be "first movers" in terms of securing competitive advantage. At the same time, investing in the development and diffusion of new enabling technologies such as

"We will minimize our environmental impact through innovative design and practices to improve our processes and products."

— John Mayberry, President and CEO, Dofasco Inc., *Policy on Environment*

nanotechnology and biotechnology will also help to provide innovative solutions to environmental challenges faced by Canada's traditional industries.

While many large companies in Canada have embraced one or several eco-efficient practices, there are challenges related to achieving a critical mass of firms to expand and deepen their use. There is a lack of knowledge of eco-efficient practices and resources to implement such related tools as life-cycle assessment and design for the environment, particularly by SMEs, which are the lifeblood of the Canadian economy.

Industry Canada will aim to broaden and deepen the uptake by Canadian industry of eco-efficient innovation tools, practices, technologies and products that contribute to increased productivity and environmental performance. This will be achieved by focussing on improving the knowledge infrastructure to increase capacity in R&D, through applying the tools in the marketplace, and by promoting technology innovation.

3.1.1 Capacity Building in Research and Development and Skills

Canada still faces considerable challenges in terms of building its knowledge infrastructure and national system of innovation. We continue to lag behind other major OECD countries in terms of both public and private investments in our knowledge infrastructure, which is key to improving R&D performance.

Although the Government of Canada's role in building national R&D infrastructure is strong, it tends to concentrate on areas of public interest and supporting regulatory policy, and not on commercialization in the market. Renewal of research capacity and further skills development, as well as stronger networks and strategic alliances among all stakeholders, will enable the Government of Canada to strengthen the national R&D foundations.

Canada's private sector continues to lag behind other OECD countries in terms of R&D performed, most of which is highly concentrated among a small number of firms and sectors. In a global, knowledge-based economy, investment in R&D is increasingly a critical success factor for firms, and one that can drive the development of innovative new products and services.

Photo courtesy of INEX Pharmaceutical Corporation

Industry Canada plans to support R&D capacity building in academic institutions and industry by building on the work of the Industry Portfolio [National Research Council, Natural Sciences and Engineering Research Council (NSERC)] in order to improve Canada's knowledge performance.

Canada Foundation for Innovation
A critical element of the innovation system is the knowledge infrastructure, the research base of the innovation system from which innovative ideas emerge and are further validated. The CFI was established in 1997 to award funds to help Canadian universities, colleges, research hospitals and other not-for-profit institutions maintain and upgrade their research infrastructure, thereby allowing them to conduct world-class research and develop cutting-edge technologies. Its mandate, objectives and overall program direction are determined in a funding agreement between the CFI and Industry Canada.

Federal investments in the CFI require additional funding from provincial governments, universities and/or the private and voluntary sectors. The CFI supports research infrastructure in the areas of health, environment, science and engineering. For example, support was provided to: the University of Regina to reduce CO_2 emissions from fossil fuels; the University of Toronto to reduce traffic congestion and pollution; École Polytechnique de Montréal for nanorobot research to help produce lighter and more resistant materials; and the University of New Brunswick for the development of an alternative, sustainable treatment system for municipal and industrial wastewater.

Industry Canada provides policy advice to the management and operation of the CFI through ministerial responsibility for accountability to Parliament and *ex officio* engagement of the Deputy Minister on the CFI's board of directors. The Department will continue to support the CFI and cooperate with the granting councils to help meet the infrastructure needs identified by the Canada Research Chairs.

The CFI provides funding for projects that contribute to sustainable development, encompass a wide range of research disciplines and are associated with several areas of application (e.g. agriculture, forestry, protection of the atmosphere and climate, recycling, renewable energy resources and social change, social processes, and social conflicts).

Action Plan Item
Industry Canada will support the CFI to build Canada's knowledge and research infrastructure in areas related to science, health and the environment.

Responsibility: Innovation Policy Branch

Networks of Centres of Excellence
The NCE initiative is supported and overseen by three Canadian federal granting agencies — the Canadian Institutes of Health Research (CIHR), NSERC and the Social Sciences and Humanities Research Council of Canada (SSHRC) — and Industry Canada. The NCE initiative seeks to mobilize Canada's best research talent in the university, private and public sectors, and has become a cornerstone of Canada's innovation system. The networks themselves provide Canada with a highly productive mechanism for developing and commercializing technologies over a much shorter time frame than if the research were conducted independently by industrial partners.

There are currently five NCEs that contribute to sustainable development, generating direct economic, social and environmental benefits to Canada:

Automobile of the 21st Century: Initiated in 2000, this network will continue to extend Canada's capability to contribute to the development and use of increasingly efficient, safe and environmentally friendly automobiles in response to new design criteria that are reshaping the industry (e.g. emissions reductions).

Further, this network should improve Canadians' health, accelerate the rate at which Canada achieves emissions-reduction targets (as required under the Kyoto Protocol) and increase the participation of Canadian industry in opportunities generated by changes in the automotive sector.

Canadian Water Network: Initiated in 2000, this network will continue to strengthen Canada's international leadership role in addressing environmental challenges to manage and preserve access to clean water. This network should also broaden Canadian expertise in the effective management of water resources and should preserve or improve our environment through the development of innovative technologies. Furthermore, it should increase the health and socio-economic benefits derived from clean water resources.

Sustainable Forest Management Network: Created in 1995, this network will continue to provide research support for the development of a total management protocol for Canada's boreal forest. This includes creating environmental technologies and management strategies to sustain all values inherent in the boreal forests and maintain them in all their physical, biological, ecological and economic dimensions for future generations.

AquaNet: Network in Aquaculture: Created in 1999, researchers in this network will continue to help the aquaculture industry maintain its competitive advantage by providing biological insights and technological innovations that can enhance the volume and quality of aquaculture production. Current research projects are focussed on increasing productivity, sustaining the quality of the marine environment, and helping participants deal with the social and economic aspects of their enterprises.

ArcticNet: Created in 2003, this network will contribute the knowledge needed to formulate impact assessments, national policies and adaptation strategies to help Canada face the environmental and socio-economic consequences of climate change in the Arctic.

Action Plan Item

Industry Canada will participate in the management process for supporting five NCEs in the following research fields (and any new ones established in the future):

1) Automobile of the 21st Century
2) Canadian Water Network
3) Sustainable Forest Management Network
4) AquaNet: Network in Aquaculture
5) ArcticNet

Responsibility: Innovation Policy Branch

Bio-based Economy

Based on the availability of cheap and abundant petroleum, the last century has seen remarkable advances in the development of fuels, chemicals and materials. Before that, most of our energy and all of the organic chemicals were derived from biomass — organic materials from forests, plants/crops and animals. Four driving forces are making it possible to once again resort to biomass as a source of fuel and industrial feedstock: environmental and societal concerns over greenhouse gases; increasing cost of petroleum and petrochemicals; continued decrease in cost of commodity products; and increasing energy and materials efficiency of bio-processes, which employ enzymes or micro-organisms to synthesize, modify or degrade organic material.

Bio-based products form part of the cycle of renewable carbon in the environment. They are derived from carbon that has recently been taken from the atmosphere by plants.

Therefore, their use does not result in an increased load of GHGs in the atmosphere.

Industry Canada and its federal partners are taking concrete actions to promote the further development of enabling technologies, new products and processes that reduce GHGs, by capitalizing on Canada's "green advantage": biomass from forests, plants/crops, marine sources and municipal/industrial residues. On this foundation, Canada can build an economy based more on eco-efficient bio-products (bio-based industrial products) that will result in new energy sources, energy efficiencies, cleaner technologies, resource conservation and innovative consumer products.

Action Plan Item

Industry Canada will work to increase the awareness of a Green Chemistry Network within government and industry research organizations in order to build a network to facilitate research collaboration and encourage commercialization opportunities; will work with its federal partners to launch an action plan to implement the Innovation Roadmap on Sustainable Fuels and Chemicals from Biomass, which focusses on increasing the awareness of industry, research communities, governments and the public of bio-based industrial products; and will build the community linkages to move this agenda forward over the first and second Kyoto Protocol commitment periods.

Responsibility:
Life Sciences Branch
Manufacturing Industries Branch

Nanotechnology

Nanotechnology is an enabling technology allowing the manipulation of materials at the atomic level. Nanotechnology creates new structures, atom by atom, with fundamentally new molecular organization and properties. The field of nanotechnology can be loosely divided into four very general classifications: micro- and nano-instruments, nano-electronics, bio-nano-systems, and nano-engineered materials. Nanotechnology will become a truly convergent technology with the integration of ICTs into bio-systems and nano-devices.

Nanotechnology embraces Industry Canada's innovation and sustainable development priorities because it supports the building of knowledge and the commercialization of technologies that foster the industrial sustainability of Canada's traditional resource industries. It could also support the government's climate change agenda, through developing new technologies or materials that reduce energy consumption and industrial pollution while increasing production efficiencies.

A number of countries (the U.S., Germany, Japan, Korea, France and the United Kingdom) have recognized the potential to develop and adapt nanotechnology to manufacturing as well as to other areas in which they are already leaders, such as ICT, life sciences, instrumentation, materials and diagnostics. Experts in these countries are of the view that, by incorporating nanotechnology into their operations, they will ensure their lead positions in their fields of manufacture. Canada must accelerate nanotechnology research and commercialization to improve its standing and eco-efficiency in all manufacturing sectors. These efforts would entail meeting with industry and government research organizations to increase the awareness of nanotechnology and its potential applications within various traditional resource sectors, and of the role/support of consumers in adapting to products that

contain nanotechnology materials or devices or that have been made by nanotechnology processes/systems, with a view to building public trust.

For instance, nanotechnology is emerging in products and processes such as sun screen/protection, scratch-resistant coating, stain-proof cloths, ceramic auto brakes, etc.

Action Plan Item

Industry Canada will work to increase the awareness of nanotechnology by building and linking the communities within government, industry and the public that will commercialize research into valuable consumer products and services.

Responsibility: Manufacturing Industries Branch

Human Capital

Canada's Innovation Strategy contends that Canada needs to develop, attract and retain the highly qualified people required to fuel Canada's innovation performance. The key determinant of competitive advantage among countries will increasingly be human capital. Canada faces the challenge of ensuring that it has the most talented and skilled labour force in the world, that it receives the skilled immigrants it needs, and that it helps its immigrants achieve their full potential in the Canadian labour market and society.

Canada's Innovation Strategy sets specific targets and priorities related to producing new graduates and modernizing the Canadian immigration system. These priorities support innovation and growth in a number of sectors of the Canadian economy, including eco-efficient and environmental technologies, which offer considerable growth potential. Innovation and the skills to support it are critical to improving the productivity, competitiveness and sustainability performance of Canadian industry.

Skills shortages are already evident in the environmental sector (with an estimated 5000 vacancies), and Canada will have to look to increased levels of skilled worker immigration as a means to address the shortages in this and other sectors important to sustainability. Skilled immigrants are often underemployed while living in Canada because potential employers frequently do not recognize foreign credentials. Efforts are needed to develop a system that recognizes the industry-specific competencies of foreign workers in environmental and other sectors.

Environmental research is also the most commonly cited priority in the university strategic plans submitted to the Canada Research Chairs program. Efforts to support an increased number of students enrolled in post-graduate programs in Canadian universities will have a positive impact on the numbers studying environmental and other programs important to sustainability (biotechnology, nanotechnology, ICT, renewable energy and related social sciences).

Action Plan Item

Industry Canada will seek to improve Canada's human capital in support of sustainability through supporting the following and related initiatives:

- improving financial incentives to master's and doctoral fellowships and scholarships awarded through the federal granting councils;
- creating a scholarship program to facilitate a coordinated international student recruitment strategy led by Canadian universities;
- increasing the number of highly skilled worker immigrants (e.g. innovative pilot program for the environmental sector); and
- redesigning the temporary foreign worker program.

Responsibility:
Strategic Policy Branch
All sectors

3.1.2 Promoting Technology Innovation

Technological and institutional innovation can drive eco-efficiency and, thus, sustainable development. In terms of technology development, research, development, demonstration and diffusion of eco-efficient technologies can enhance productivity and innovation. On the institutional front, new business-strategy paradigms have become critical for lowering our reliance on materials, energy, labour and waste. These benefits are being achieved through management process change, marketing and communications, stakeholder relations, and corporate transparency and equity.

Promoting technology innovation will be important for Canada in order for it to meet its climate change commitments outlined in the Government of Canada's *Climate Change Plan for Canada*, and also to enhance the productivity and innovation of Canadian industry. There is an opportunity for Industry Canada to contribute to federal climate change efforts through a suite of initiatives that focus on the development and demonstration of environmental and enabling technologies, including renewable energy, hydrogen-powered fuel-cell technology, and bio-based process and technology applications. Investing in the development and dissemination of such transformative technologies will also help Canada's traditional industries in terms of applying innovative solutions to climate change challenges and bolstering their competitiveness.

Technology Partnerships Canada

TPC is a Special Operating Agency of Industry Canada, with a mandate to provide strategic contributions in the areas of R&D, and demonstration projects that will produce social, economic and environmental benefits for Canadians.

The TPC agency delivers two separate and distinct programs: the TPC R&D program and the new h2 Early Adopters (h2EA) program. The TPC R&D program supports individual companies in pre-competitive projects that

Photo courtesy of Ballard Power Systems

develop new technologies. The h2EA program supports demonstration projects, enabling groups of two or more to test and showcase their existing technologies in working, integrated models, which will contribute to the development of a hydrogen economy.

The TPC R&D program contributes to innovative R&D projects that leverage private-sector investment, helping to maintain and grow the technology base and technological capabilities of Canadian industry. It also encourages the development of SMEs in all regions across the country. The program supports both large-scale technology R&D projects and smaller projects aimed at small to medium-sized companies (less than 500 employees) through the Industrial Research Assistance Program (IRAP-TPC) initiative. In addition, TPC's Supplier Development Initiative (SDI) provides support to SMEs in the aerospace and defence industry.

TPC's environmental strategy encourages companies to develop technologies and pursue breakthroughs in pollution prevention, abatement and remediation, and sustainable energy alternatives. TPC's R&D contributions to promising Canadian environmental technologies range from improved conservation of energy, water and non-renewable resources to the development of clean production technologies (including clean car technologies), the reduction of waste and harmful emissions, and cleanup and restoration technologies that address environmental degradation.

The h2EA program is designed to enable government and industry to work in partnership, as members of a team, to demonstrate new hydrogen technology concepts, such as "hydrogen highways" and "hydrogen villages." The h2EA program will support projects involving a group of two or more private and/or public-sector partners to demonstrate, on an integrated basis in real-world settings, the use of a wide range of hydrogen and hydrogen-compatible technologies in specific locations across Canada.

This program will ensure Canada builds on its position as a world leader in the evolution towards a hydrogen economy. It will contribute to a sustainable solution to climate change and pollution, particularly in our cities; new growth and investment opportunities for Canadian industry; the creation of high-quality jobs; and an overall improvement in quality of life for all Canadians.

Action Plan Item

Industry Canada, through TPC, will continue to work in partnership with industry to foster the development of innovative R&D of technologies and demonstration projects that contribute to the three pillars of sustainable development (social, economic and environmental).

Responsibility:
Technology Partnerships Canada

Technology Partnerships Canada: h2 Early Adopters Program

The transition to a hydrogen economy presents new opportunities and tremendous benefits for Canada. A sustainable solution to climate change and pollution, particularly in our cities; new growth and investment opportunities for Canadian industry; the creation of high-quality jobs; and an overall improvement in quality of life for all Canadians are just some of these benefits.

Canada's long-term objective to maintain its position as a world leader in the evolution of a hydrogen economy is in its very early stage of being realized. On October 9, 2003, the Government of Canada announced a $215-million investment that will capitalize on the use of hydrogen and fuel cells, and lead to cleaner air and a more sustainable economy in Canada.

As one of the initial steps towards this objective, TPC, a Special Operating Agency of Industry Canada, has received $60 million to implement and deliver the h2EA program, which is designed to demonstrate new hydrogen-technology concepts that will lead to a hydrogen economy for Canada.

The h2EA program will lead efforts to demonstrate new concepts, such as "hydrogen highways" and "hydrogen villages." More specifically, the strategic objectives of the h2EA program will be:

- increased public, consumer and investor awareness and acceptance of hydrogen capability;
- integration of hydrogen and hydrogen-compatible technologies;
- development of hydrogen infrastructures;
- development of skills and supply chain in the hydrogen industry;
- development of codes and standards for the hydrogen industry; and
- increased performance, reliability, durability and economic viability of hydrogen and hydrogen-compatible technologies.

For more information, visit: **http://tpc.ic.gc.ca**

Technology Partnerships Canada: Success Stories

Getting the Lead . . . er, Nickel Out

For the people of Newfoundland and Labrador, nickel presents the possibility of skilled jobs, spinoff benefits and opportunities. In June 2002, Toronto-based Inco Limited, the world's second-largest nickel producer, signed a $2.9-billion agreement with the Government of Newfoundland and Labrador to develop the Voisey's Bay nickel deposit through its wholly owned subsidiary, Voisey's Bay Nickel Company (VBNC).

Key to getting the Voisey's Bay mine, and the complementary Argentia processing operation, up and running is the development of an environmentally friendly nickel processing technology that will make the project cost-effective. The solution? Inco is betting on hydrometallurgy (hydromet) technology.

Hydromet uses a chemical process combining water, oxygen and other substances to dissolve metal from its ore or concentrates, to produce a high-purity finished metal. Although hydromet is currently used in the extraction and refining of a number of metals, the technology has yet to be successfully applied in an economically viable process to extract nickel from nickel concentrates.

Usually, nickel ore is processed using two steps: smelting or pyrometallurgy, followed by refining to produce finished metal. Unfortunately, pyrometallurgy has two major negatives: it uses large amounts of energy to create the high temperature needed to separate nickel from most of the low-value metals and sulphur; and it creates sulphur dioxide, which, in large-enough quantities, can

Technology Partnerships Canada: Success Stories (continued)

create acid rain. Hydromet uses a more economical, closed system that extracts and refines the ore in one facility. The expected results? A more cost-effective process that eliminates the production of sulphur dioxide and reduces energy consumption.

But Inco isn't quite there yet. There's the not-so-little matter of first developing and testing the applied hydromet technology on nickel processing.

TPC believes in Inco's ability to apply hydromet technology to nickel processing. TPC also believes in the significant benefits that the estimated 30-year Voisey's Bay project can bring to the people of Newfoundland and Labrador. That's why TPC is investing $60 million in the minipilot and demonstration plant projects aimed at ensuring that the various steps in the process work as they should. The benefits of the demonstration plant will be seen fairly quickly: it is expected to create 340 person years of employment during construction, and another 200 operating jobs once the plant begins operation in 2006.

Getting a Charge out of Environmentally Friendly Batteries

In a world filled with a wealth of mobile electronic devices, battery life is an integral ingredient of true, worry-free mobility. The trick is to be the company that develops the best — and most environmentally friendly — long-life batteries on the market. Mississauga, Ontario-based Electrovaya Inc., an innovative developer and manufacturer of portable power technology for portable computers, mobile telephones and other wireless devices, is aiming to do just that.

"Best," by Electrovaya's definition, means high-performance, rechargeable lithium ion polymer batteries. But other companies are already developing these environmentally benign batteries. What's so great about Electrovaya's technology? The company's patented Lithium Ion SuperPolymer® technology is the highest-energy-density battery available today, with discharge rates never attained before. What this means is that Electrovaya's small-format batteries for portable wireless communications devices are expected to have longer run times than any other rechargeable lithium ion or lithium ion polymer batteries currently in commercial production — and at half the size and weight.

But good things come in large packages as well. Electrovaya is also developing its Lithium Ion SuperPolymer® technology for large-format batteries in order to increase the efficiency of electric vehicles and other smaller vehicles, such as forklifts and golf carts. Besides reducing the use of environmentally toxic batteries, the payoff of this revolutionary technology for Canadians will be fewer emissions and cleaner air. Better electronic and transport mobility, better air. What could be better than that?

In April 2003, TPC strategically invested $9.9 million as part of a $33-million project being undertaken by Electrovaya Inc. to support the development of the company's Lithium Ion SuperPolymer® technology.

Technology Partnerships Canada: Success Stories (continued)

Digging the Environment

Most gardeners know sphagnum peat moss as something they use to improve their lawns and gardens. But these unique water-retaining plants, found abundantly in bogs across Canada, also act as natural filters and are being used in innovative new technologies that will help to protect our health and environment.

Premier Tech Environment, a unit of Rivière-du-Loup, Quebec-based sphagnum peat moss producer Premier Tech, has developed an environmentally friendly peat-based wastewater bio-filtration system, called the Ecoflo® Biofilter, that effectively treats and disperses septic tank effluent. Given the growing number of remote areas and properties not serviced by a municipal sewer system, these on-site systems will help to protect the drinking water supplies of residents, communities and small businesses.

Advancing its Ecoflo® biofiltration technology is only one of Premier Tech's four environmental R&D initiatives launched in 2002 with the help of a $9.9-million strategic investment from TPC. As part of its R&D MOBILISATEUR II program, Premier Tech is also focussing on advancing its environmental technologies in three other areas: horticultural biotechnology, materials handling and packaging systems, and mobile and fixed waste-screening systems.

For more information on TPC, visit: **http://tpc.ic.gc.ca**

Pre-Competitive Applied Research Network

PRECARN is a national, industry-led, not-for-profit R&D organization that brings together university, industry and government researchers to develop intelligent systems solutions matched to industrial and societal needs. The prototype products and processes developed in PRECARN projects are typically commercialized and therefore contribute to economic prosperity. These same products and processes often reduce the environmental impact of business processes. Finally, PRECARN projects train students and researchers, thus contributing to the development of a pool of highly qualified personnel. PRECARN's specific objectives include the following:

- Stimulate R&D investment by firms that do little R&D now.
- Facilitate market readiness by SMEs to accelerate the emergence of new firms and industries.
- Ensure there are enough highly qualified people to help reach goals.
- Fill in the gaps in the innovation system, overcoming compartmentalization, building relationships and strengthening the knowledge infrastructure.

Industry Canada has been a long-standing supporter of PRECARN, as it helps to advance the Department's Innovation Agenda with direct contributions in the following areas:

- accelerating the commercialization and adoption of innovative processes and products by Canadian organizations;
- expanding the knowledge base, especially in fields with good opportunities; and
- increasing the development and application of eco-efficient practices and technologies in Canada.

PRECARN

Since PRECARN's inception in 1990, it has created and managed a leveraged research program of over $200 million. In addition, PRECARN has managed the Institute of Robotics and Intelligent Systems (IRIS), one of the federal, university-based NCEs, investing about $75 million over 15 years. PRECARN and IRIS have just passed the halfway mark of their Phase 3 programs, which have involved the participation of more than 80 industrial firms; 17 universities; 9 federal, 4 provincial and 2 municipal agencies; and 3 independent research organizations in the 47 projects thus far completed or under administration. It is anticipated that by 2006 PRECARN will have been directly involved in the training of more than 1500 graduate students, the creation of more than 400 new technologies, the start-up of some 40 new companies, and the creation of 200 new products and services that have contributed to significant productivity gains in all sectors of the Canadian economy.

http://precarn.ca

PRECARN's R&D program will continue to support research using applications of advanced information technologies in such areas as manufacturing, mining, environmental cleanup and other activities. PRECARN is a significant player in assisting Canada in reaching its R&D goals.

PRECARN supports the triple bottom line (economic, social and environmental performance) required to attain sustainable development. It is clear that ongoing technological innovation will be of critical importance to developing technological solutions to our environmental challenges. PRECARN works with a number of different industry sectors to develop new technologies. As a result, there is a trend to cross-fertilization of technical knowledge, with solutions developed for one industry being transferred to another. This means that technology solutions being developed for space are now being used in mining, or that energy solutions developed for the gas industry are finding applications in other sectors. Consistent R&D at PRECARN will leverage Canada's ability to develop new environmental technologies.

Action Plan Item

PRECARN will continue to fund intelligent technology that supports environmental objectives in many sectors, including: mining, forestry, agri-food, energy, the environment, manufacturing, aerospace and medical technologies.

Responsibility:
Information and Communications Technologies Branch

Vehicle Fuel Efficiency

The *Climate Change Plan for Canada* has targeted the automotive industry for improving the fuel efficiency of new vehicles by 25 percent on a voluntary basis by 2010. To initiate the process of negotiating with various stakeholders, a federal steering committee representing NRCan, Transport Canada, Environment Canada and Industry Canada has been set up. The steering committee is currently developing a negotiating strategy. In the future, the negotiating process will require federal officials to meet with private industry and other stakeholders.

During the negotiating process, it will be important to gauge the impact of the targeted

measure on the viability and competitiveness of the Canadian automotive industry. It will also be important to encourage the R&D for needed technology to be conducted in Canada.

Action Plan Item

Industry Canada will work to obtain agreement with the automotive industry to increase fuel efficiency by 25 percent in new light vehicles to achieve reductions in GHG emissions.

Responsibility:
Aerospace and Automotive Branch

Hydrogen Economy Initiative

In recent years, the development and adoption of fuel-cell technology has been gaining ground as a viable alternative to the internal combustion engine (ICE). It promises substantial environmental benefits over ICE technology and is an important component of the Government of Canada's *Climate Change Plan for Canada*. Canada has already developed world leadership in the early development and commercialization of fuel-cell technology in the automotive market, and is well positioned to take advantage of the potential fuel-cell market.

Industry Canada recognizes that the transition to the hydrogen economy presents a unique opportunity for Canada, including the promise of significant long-term reductions in emissions of GHGs and other pollutants, and that there is a need to address key technology and marketplace hurdles. The Department will be undertaking a number of initiatives to lay the foundation for the hydrogen economy in Canada and enable the Government of Canada to demonstrate leadership in this effort. For example, TPC is implementing and delivering the h2EA program designed to demonstrate new hydrogen-technology concepts that will advance the hydrogen economy in Canada.

Action Plan Item

Industry Canada will continue to:

- Support the development, commercialization and dissemination of fuel-cell technology in the automotive sector by encouraging eligible automotive parts manufacturing and other firms to submit projects to government programs such as TPC, the Sustainable Development Technology Fund and the Sustainable Cities Initiative; and encourage the Government of Canada to purchase fuel-cell vehicles for its own use when they become available.
- Encourage firms to develop partnerships with the Automobile of the 21st Century (NCE for fuel-cell technology and infrastructure).
- Undertake initiatives to foster the transition of the Canadian hydrogen and fuel-cell sector from R&D to commercialization, through: 1) policy development — examining marketplace framework policies to accelerate commercialization and early adoption of hydrogen technologies, examining hydrogen and fuel-cell sector innovation systems, and benchmarking with OECD countries; and 2) sectoral development — encouraging development, demonstration and early introduction into the marketplace in Canada of hydrogen technologies, coordinating supply chain development, and increasing promotion and awareness of the benefits of hydrogen technologies.

Responsibility:
Aerospace and Automotive Branch
Energy and Marine Branch

The Hydrogen Economy and Opportunities for Canadian Industry

The transition to the hydrogen economy offers a unique opportunity for Canada. Using hydrogen produced from energy sources such as natural gas and hydroelectricity in applications such as automobiles and stationary power generators, fuel cells and other hydrogen technologies can significantly reduce emissions of GHGs and other pollutants. These technologies include important "transition" technologies such as hybrid vehicles. Canadian makers of fuel cells and other hydrogen technologies are established world leaders and well positioned to capture a significant share of the global market for hydrogen-based products and applications, projected to be $45.8 billion by 2011 (PricewaterhouseCoopers, June 2002). They will help Canadian developers of hydrogen-related products and services remain competitive and gain market share internationally, keeping Canada in the forefront of the evolution towards the hydrogen economy.

The transition to the hydrogen economy also offers significant growth and investment opportunities for other sectors, such as Canada's energy and automotive sectors, and for communities and regions across Canada, to develop clusters of expertise and capabilities, attract talent and investment, and offer rewarding careers for young Canadians. As a developer and supplier of sustainable solutions to climate change and pollution in cities, most notably those in developing countries, Canada is also well positioned to provide international leadership in these areas. For these reasons, Canada clearly must stay at the forefront of the transition to the hydrogen economy in order to maximize its benefits for Canadians.

On the marketplace side, the most urgent need is to begin testing hydrogen technologies and infrastructure in real-world settings to assess reliability and durability and support efforts to further reduce costs. As new technologies advance through the development and demonstration phases, investments in market demonstration efforts will accelerate market uptake and installation of the necessary supporting infrastructure, leading to more widespread use of hydrogen for transportation and stationary power applications. Marketplace framework policies and institutions must adjust as well to the needs of the hydrogen economy. There is also a growing need to augment Canada's skills and knowledge base and increase the availability of capital.

Finally, the smooth transition to the hydrogen economy requires increased consumer and investor awareness and understanding of these new technologies and their uses. These hurdles are well documented in the recently completed Canadian Fuel Cell Commercialization Roadmap, funded through the Government of Canada Action Plan 2000 on Climate Change and supported by the work of the Federal Fuel Cell Coordinating Committee and by extensive analysis and consultations with industry and academia undertaken over the past year by the Government of Canada. Additional input and guidance on these issues exists in recent studies by the Pembina Institute and PricewaterhouseCoopers, and in submissions by the fuel-cell sector to *Canada's Innovation Strategy* and the 2003 federal budget.

For more information, visit:
http://strategis.gc.ca/epic/internet/inmse-epe.nsf/vwGeneratedInterE/ep00058e.html

Renewable Energy

The continued development and growth of renewable energy industries is important for Canada's energy sector. Renewable energies can contribute to Canada's climate change solutions and eco-efficiency, and can encourage innovation in Canadian companies. Industry Canada recognizes the environmental and economic opportunities that are offered by "cleaner" sources of energy such as solar, wind, small-scale hydro and bio-energy. Although awareness and understanding of the potential of renewable energy is growing in the general public and business community, it is necessary to effectively communicate this message. The message must be shared not only

domestically, but ways to promote the strength of Canadian renewable energy companies internationally must also be developed.

It is essential to continue to identify and better understand the challenges that renewable energies face in the marketplace and how these can be addressed. Although there are unique sector-based challenges to the various renewable energies, common concerns can be identified and prioritized for maximum impact. Industry Canada will continue to work in partnership with other federal departments to promote the market for renewable power in Canada. Collaborations with industry associations will also be fostered to help focus efforts on areas that association members have identified as significant.

Action Plan Item

Industry Canada will continue to work in partnership with other federal departments and with industry associations to strengthen the position of renewable energies in the Canadian and international marketplace.

Responsibility: Energy and Marine Branch

3.1.3 Applying the Tools in the Marketplace

Applying the tools in the marketplace involves actively encouraging the transfer, adoption and implementation of eco-efficient production tools, practices, processes and technologies at the firm level in order to achieve measurable improvements in productivity and environmental performance. Significant gains in resource productivity and environmental performance could be realized if the concept were transferred to the many SMEs. A critical mass of these firms has not yet implemented these tools and strategies, largely due to information and resource constraints and a conservative risk orientation in terms of the commercialization and diffusion of new technologies.

Industry Canada plans to support these commercialization and adoption efforts by promoting the broadening and deepening of uptake of sustainable development management practices such as eco-efficiency, environmental management systems and EPAs in support of improving firm productivity, innovation and overall sustainable development performance. On the demand side, creating "market pull" for innovative processes and technologies through the supply chain, stimulating customer awareness and demand, and the use of economic instruments may also be explored in order to transfer these into the market.

Technology Roadmaps

Technology Roadmaps (TRMs) are industry-led, government-facilitated planning exercises among participants from industry, universities

and colleges, and governments, focussed on technologies needed by a specific sector. The steps in roadmapping are, first, to assess the technology needs for the sector; to identify the promising technologies that could meet the defined needs; and then to plan the best route for the applied research, development and demonstration needed to make the technologies available. TRMs are designed so that companies in a given sector pool their efforts and work together with their clients, academia and government to look from 2 to 10 years into the future to determine market requirements. TRM participants need to be cognizant of emerging international markets for Canadian-based climate change technologies, with a balanced emphasis on developed and developing countries. Environmental co-benefits and dis-benefits are also integral elements of the roadmapping analysis.

Action Plan Item

Industry Canada will develop TRMs in the following fields: biopharmaceuticals, CO_2 capture and storage, clean coal, and bio-fuels from biomass, while existing TRMs will continue to be supported.

Responsibility: Manufacturing Industries Branch

Construction, Architecture and Engineering Solutions

The construction, architecture and engineering industries will play a critical role in terms of addressing most issues concerning the environment. On climate change, roughly one third of Canada's total energy consumption is used for the operation of buildings (heating and cooling systems, lighting, elevators). In terms of waste management, the construction and demolition industry is the largest single industrial source of waste going to landfill, accounting for between one quarter and one third of the total waste stream. With respect to hazardous materials, the construction process often involves the handling and disposal of hazardous and dangerous materials, such as asbestos, polychlorinated biphenyls (PCBs), lead paint, urea formaldehyde and contaminated soil. In terms of water quality, the sewer and water systems of many Canadian municipalities are in poor condition, are costly to operate and lack capacity. The construction industry can play an important role in addressing these problems. Finally, the quality of a building's indoor environment — its air, lighting and acoustics — is largely determined by the design of the building and its mechanical systems. Well-designed retrofit projects can often address indoor environment problems.

Action Plan Item

Industry Canada will use construction, architecture and engineering industries to address climate change issues through: follow-up activity to its Technology Roadmap for Intelligent Buildings Technologies, which revealed that building automation offers numerous opportunities to reduce greenhouse gas emissions; convening a PRECARN workshop on the challenge of intelligent building systems integration; undertaking a building recommissioning initiative — in essence, a building tune-up that could reduce building energy costs by 10 to 20 percent; promoting the construction sector's innovation strategy as a more strategic approach to innovation that would address many sustainable development issues challenging the sector; and policy advocacy on water and wastewater issues, particularly with regard to mechanisms to provide sustainable funding for water infrastructure.

Responsibility: Service Industries Branch

Sustainable Manufacturing

The effective use of demanufacturing/recycling, lean manufacturing practices and advanced technology enables manufacturers to produce the next generation of goods faster, cheaper and cleaner than ever before. Investments in composite materials, computer numerically controlled machine tools, optics, robotics, microelectronics, lasers and the Internet are all making manufacturing plants more productive. Manufacturers need highly skilled, technology-savvy employees, and offer good wages for their services. Economic prosperity demands the increased use of advanced technologies — materials and processes — to accelerate eco-efficiency and productivity growth.

Sustainable manufacturing is key to the future of Canada's economic well-being. The development of new materials, and improved properties of existing materials, can open up new possibilities for process and product design and for avoiding waste. Improvements in manufacturing process technologies can shift the balance between the amounts of useful products generated and how much is waste. Providing information to manufacturers to help make choices consistent with sustainability can stimulate progress and enhance our competitive position.

The information to be collected during this initiative will focus on a variety of materials, manufacturing processes and lean manufacturing practices. Although much of the information already exists, individual firms, and particularly SMEs, find it prohibitively expensive and time-consuming to collect and implement. Poor choices can lead to uncompetitive products and limited sustainable growth opportunities at a time when global competitive pressures are mounting. Industry Canada, its federal and provincial partners, academics, and private industry can provide an information source for manufacturers and their designers, focussing on advanced materials, more efficient manufacturing process technologies and lean manufacturing practices. The initiative will concentrate on resource use, efficiency and waste minimization/elimination. Federal departments, national laboratories, universities, consortiums and private companies will partner to supply material research relevant to process efficiency, from both developed as well as emerging manufacturing processes. The project will encourage efficiency and stimulate competitiveness in the areas of product design and waste minimization. The datbase will enable users to select the best-practice operating parameters, thereby eliminating inefficiency caused by lack of good information.

Action Plan Item

Industry Canada will increase awareness by industry of sustainable manufacturing practices through the development of a comprehensive database of information on lean/advanced manufacturing processes and practices.

Responsibility: Manufacturing Industries Branch

Environmental Performance of Small and Medium-Sized Enterprises

Starting with the chemicals sector and Responsible Care, most of Canada's large industrial sectors have moved toward self-regulation of their environmental impacts. An industry association specific to a sector has often led efforts to have member companies adopt environmental management systems and become more environmentally responsible. These organizations have recognized that good environmental management is consistent with good business practices. Their initiative in each instance has led to ongoing, systematic improvements in environmental performance. Industry Canada, for its part, has supported the trend in various ways.

At the same time, Environment Canada has created a legislative and regulatory backdrop that encourages industry self-regulation. Efforts to date have been quite successful in causing large national and multinational companies to link management systems to pollution prevention planning and the pursuit of environmental goals.

However, difficulties have been encountered in all sectors in getting SMEs involved. More effort is required, as these enterprises account for about 60 percent of the pollution and waste generated by business. It has been shown that regulatory action, combined with complementary voluntary measures, can be effective in improving the environmental performance of SMEs. Thus, Industry Canada, while cooperating with others, has a clear role to play. We need to determine what programs and tools work with SMEs, identify gaps and barriers to implementation, and assess the need for additional incentives. The different types of approaches need to be assessed for who and what they apply to and the type of results that can be expected from them, as well as for their capacity to become self-sustainable.

Ultimately, the objective is to engage SMEs in stewardship, which involves the ethic of caring for the land, air and water and sustaining the natural processes upon which life depends. It is grounded in a sense of personal responsibility and commitment, and it impacts both goals and behaviour. While stewardship means fulfilling all legal duties, it also means moving beyond legal compliance and becoming concerned with the ends of legislation. Today these include preventing pollution, reducing waste, protecting fish and fish habitat, recovering species at risk, mitigating the adverse environmental effects of new industrial developments, and reducing GHG emissions. To encourage industry to become more engaged in environmental stewardship, existing tools — including EMS, pollution prevention planning, eco-efficiency projects, EPAs, memorandums of understanding (MOUs) and voluntary frameworks to engage industry in stewardship (e.g. Accelerated Reduction/Elimination of Toxics and the Voluntary Challenge Registry) — will be supported by this action item. The results of the initiative will be widely disseminated through publications, conferences and workshops.

Action Plan Item

Industry Canada will work to increase the adoption by industry of good environmental management practices, particularly by encouraging SMEs to adopt various sustainable development practices, such as environmental management systems and eco-efficiency projects. As well, assessments will be made of the role of economic incentives and other tools in engaging industry in environmental stewardship.

Responsibility: Environmental Affairs Branch

Environmental Supply Chain Management

There are about 32 000 SMEs (defined as businesses with between 5 and 500 employees) in the manufacturing sector across Canada. Generally, they tend not to be heavy users of energy — as only 2 to 4 percent of their total production costs are energy expenditures. Collectively, though, they make up an important component of a national strategy to address climate change. The nature of SMEs makes it difficult to raise their awareness and sensitivity to environmental issues and to provide them with the education and tools needed to act. However, given that SMEs often form part of a supply chain for larger companies, Environmental Supply Chain Management was recommended by the Climate Change Industry Issues Table as one way to reach and engage SMEs in GHG

emissions reduction activity. Action Plan 2000 has set aside $1 million over five years for a supply chain management pilot project.

The Environmental Supply Chain Management Pilot Project will help to educate and build capacity in terms of the quality, permanence, speed and breadth of Canada's response to the climate change challenge and opportunities. It involves cross-industry teamwork and partnership; is an outreach mechanism to the Canadian SME sector; and will help in reducing GHG emissions Canada-wide.

This pilot project will encourage broader participation by SMEs in various initiatives to track, better manage and, in the longer term, achieve meaningful reductions in GHG emissions, through such means as changes to business/production processes and the use of new technologies. The pilot project will test a variety of methods for influencing suppliers to track and reduce their GHG emissions and is expected to generate a number of different implementation models that can then be applied in future initiatives.

Action Plan Item

Industry Canada will continue to implement the Environmental Supply Chain Management Pilot Project, with the objective of exploring and developing the potential for supply chain management to be used as a means to heighten awareness of climate change implications and to encourage GHG emission-reduction activities.

Responsibility: Environmental Affairs Branch

Canadian Climate Change Solutions

As part of the Government of Canada's efforts to reduce CO_2 emissions internationally, Industry Canada will coordinate outgoing and incoming workshops and missions. These are intended to facilitate the expansion of market opportunities for climate change technologies and services for Canadian companies, and to encourage and build effective partnerships with other nations to help reduce GHG emissions through Clean Development Mechanism and Joint Implementation (CDM/JI) projects. Industry Canada is best equipped to coordinate these missions, in conjunction with activities under Trade Team Canada environment missions, workshops and resources.

Action Plan Item

Industry Canada will implement international workshops and missions to promote Canadian climate change technologies and services, link Canadian companies with international opportunities, and promote the participation of Canadian companies in CDM/JI projects.

Responsibility: Environmental Affairs Branch

3.2 Corporate and Community Sustainability

Sustainable Development Strategic Outcome: Increase use by industry, institutions and communities of corporate responsibility and sustainability practices.

Target: Work in partnership with industry, other government departments and others to promote corporate responsibility and sustainability practices in business and encourage sustainable development for communities. By December 2006, this will be achieved by:

Promoting corporate responsibility and sustainability (six deliverables):

- Advancing innovative sustainable development policy frameworks within the

Government of Canada to include effective corporate sustainability perspectives
- Broadening CSR information and awareness within Canadian industry
- Developing CSR tool and management capacity to improve the substantive basis for Canadian industry to act on CSR.
- Increasing the quantity, quality and credibility of sustainability reporting by Canadian industry
- Facilitating the establishment of a national e-waste recycling network in Canada to implement take-back programs for consumer electronics
- Demonstrating stewardship for the Internet through participation in, and support of, the Media Awareness Network and Cybertip

Advancing Local and Global Sustainability (four deliverables):
- Implementing the Computers for Schools (CFS) program, which facilitates the reuse of thousands of surplus computers and other information technology (IT) products each year
- Continuing to address the broadband connectivity needs of unserved Canadian communities by ensuring Canadians have equitable access to the Internet, and continuing to demonstrate the enabling effects of ICT applications
- Promoting the Aboriginal Business Development Program for small business
- Implementing and expanding the Sustainable Cities Initiative (SCI) to improve the sustainability of cities in developing countries

It bears emphasizing that effectively addressing today's social as well as environmental challenges depends upon economic wealth creation. At the macro level of the nation, progress on the social and environmental dimensions of sustainable development is dependent upon the country's economic productivity, competitiveness and growth. Progress on sustainable development is also dependent upon how constructively individual businesses and communities recognize and serve the social, environmental and economic demands of the public. Innovation can play an important role in helping businesses and communities to incorporate a fuller sustainability perspective that recognizes economic, social and environmental linkages. This improved perspective can yield more sustainable development benefits for both industry and society.

In recent years, there has been increased focus within public and private sectors to moving beyond an environmental protection focus to sustainable development, and toward becoming more inclusive of the social dimension. Business and communities have needed to become more responsive on social issues such as child labour, worker rights, corporate governance and union confrontation. As a result, concepts such as corporate responsibility, CSR, corporate sustainability and corporate citizenship have become important vehicles of corporate business strategy and daily business activity as the "intangible assets" (i.e. brand value and reputation, customer loyalty, risk profile) of firms started to become increasingly linked to the bottom line. Further, citizens began to understand that their communities needed to become more sustainable if their businesses and labour forces were to be competitive in increasingly demanding markets.

This transition from a supply-driven to a more demand-driven economic environment has also forced companies to satisfy heightened consumer demands by creating customized responses to consumer needs, and manufacturing products with new and enhanced functionality. Evidence is growing that effective responses to social and environmental considerations are becoming not only an important driver of innovation within firms but also largely determining firms' business fundamentals, such as share-price appreciation. Moreover, sustainability is currently moving

into mainstream asset management, buoyed by the recognition that integrating social and environmental concerns into business strategies can result in competitive advantages.

Industry Canada's Innovation Agenda recognizes that improvements in economic productivity, competitiveness, growth and sustainable development can be achieved through the increased commercialization and adoption of eco-efficient technologies, as is explained in the preceding section. However, the Department's innovation perspective also allows for organizational innovation and its key elements to be used as a way to advance Canada's economic, social and environmental objectives. Increasing the use by industry, institutions and communities of innovative corporate responsibility and sustainability perspectives, tools and practices that more fully incorporate the broader spectrum of economic, social and environmental considerations offers potential benefits for advancing sustainable development.

The e-economy presents significant opportunities for enhancing the sustainability of Canadian communities and promoting sustainable development on a global basis. ICTs have become a defining characteristic of the knowledge economy and important contributors to improving sustainability performance. ICT reuse and recycling initiatives, as well as applications such as e-business and e-health, are helping to reduce overall material and energy consumption in Canada and further advance Industry Canada's contributions to the social dimension of sustainable development.

Industry Canada, during the next three years, will use ongoing programs and undertake new initiatives to promote corporate responsibility and sustainability practices within business, and to enhance sustainability within communities. Progress on both of these fronts is viewed as important for broadening and deepening sustainable development approaches within the Canadian context.

Corporate Social Responsibility Challenges and Opportunities for Industry

Canadian businesses are being challenged to improve their corporate performance not only in the areas of environmental protection and economics but also on such social-oriented fronts as community development, human resource management practices, human rights and international development, corporate governance, health and safety, and consumer protection.

Progressive companies have stepped up to the plate to improve decisions and practices related to employees, customers, shareholders, communities, and other stakeholders such as governments and suppliers, in an effort to capture potential benefits (e.g. improved profitability and competitiveness, reduced risks and liabilities, enhanced employee loyalty, and growth opportunities).

Industry has been responding to the challenges in a variety of ways at the individual company and collective levels. For example, the Domini Social Equity Fund and Ethical Funds Inc., as well as indexes such as the Jantzi Social Index and EthicScan Canada, have been established using sustainable development and CSR criteria. Organizations such as the Conference Board of Canada, Corporate Knights, Canadian Business for Social Responsibility, FiveWinds International, and the Schulich School of Business and Rotman School of Management have, through partnerships with industry, been playing important roles in expanding the CSR knowledge capacity on lessons learned, management tools and best practices. Industry sectors such as the chemical, mining, petroleum and electricity industries have responded through their industry associations with the development of voluntary programs to address social and environmental challenges. Individual companies such as Mountain Equipment Co-op, Telus, Alcan, TransAlta, VanCity Savings Credit Union, Dow Chemical, Suncor, Royal Bank, Husky Injection Moulding Systems and Dofasco, among many others, have been recognized for their corporate social initiatives.

Progress on each of the CSR elements differs. For example, SDS III has describes some of the industry progress with respect to environmental protection. In corporate governance, progress is being sought to improve the practices that deal with the relationships between shareholders, executives and managers, boards of directors, and auditors. The links between these stakeholders of a company and other key stakeholders such as customers, employees, suppliers and communities are also important elements of corporate governance and CSR. Progress on corporate governance is being pursued collectively or on an individual company basis. For example, the Canadian Council of Chief Executives recently produced a set of guidelines for improving corporate governance practices, including guidelines pertaining to the balance of power, independence and leadership, accountability, and transparency. Another example is the Canadian Coalition for Good Governance (composed of a number of institutional investors, including the Ontario Teachers' Pension Plan, Jarislowsky Fraser, Manulife Financial and Altamira), which was created in the summer of 2002 to help protect minority shareholders in corporate decision making.

Opportunities exist within each of the CSR elements for Canadian industry to improve their corporate performance. There are opportunities for developing productive partnerships to advance CSR, for promoting and improving CSR awareness in industry, for facilitating knowledge base capacity expansions, for enabling CSR applications, and for recognizing best practices — not only in environmental protection but in areas such as corporate governance, community development and human resource management practices.

For more information, visit: **http://strategis.gc.ca/csr**

3.2.1 Promoting Corporate Responsibility and Sustainability

Individual Canadian businesses and companies pursue the triple bottom line of sustainable development under a variety of terms and related approaches. These include corporate sustainability, corporate responsibility, corporate accountability, CSR, corporate citizenship and corporate stewardship. Corporate responsibility, CSR and corporate sustainability are perhaps three of the more generally recognized ways that industries practice sustainable development to supply goods and services that work to solve economic, environmental and social demands. They are generally understood as approaches that permit companies to engage and interact with stakeholders to address not only environmental challenges but also other complex areas, such as human resource management, labour protection, human rights, health and safety, consumer protection, and supplier relations.

"I believe that understanding and integrating sustainability into our business culture and practices will significantly enhance our capacity to maximize value in the near and long term."

— Travis Engen, President and CEO, Alcan Inc., *Corporate Sustainability Report*, 2002

Corporations are becoming more motivated to involve stakeholders in their decision making and to address societal challenges because today's stakeholders (including employees, customers, investors and communities) are increasingly aware of the importance and impact of corporate decisions on society and the environment. The stakeholders can reward and punish corporations. Industry can be influenced to change their behaviour because of the business case for corporate responsibility and sustainability, which potentially promises: 1) more effective risk management; 2) stronger financial performance; 3) improved accountability to and assessments from the investment community; 4) enhanced employee commitment, motivation and morale; 5) stronger relations with communities; and 6) improved reputation and branding. Industry has been responding to domestic and international pressures to do more on corporate responsibility and sustainability at the individual company and collective sector levels. For example, investment funds, investment indexes, voluntary programs and individual company initiatives to address sustainable development challenges have been developed. Evidence of recent industry achievements is presented in the insert as well as in the first chapter of the strategy. Nonetheless, considerable social and environmental challenges and opportunities remain for industry to improve credibility and trust with shareholders and other stakeholders.

During the last few years, Industry Canada has been addressing corporate responsibility and sustainability challenges in its responsibilities pertaining to international business, corporate governance, sustainable development, productivity growth and competitiveness. For example, Industry Canada has contributed to the CSR-oriented OECD Guidelines for Multinational Enterprises that the Minister

of Industry endorsed in June 2000. It also amended the *Canada Business Corporations Act* to enhance the capability of shareholders to communicate among themselves and to influence decision making. Nonetheless, there are opportunities for Industry Canada to do more to encourage corporate sustainability in industry in domains beyond environmental protection, to more systematically include social considerations as well.

In promoting corporate responsibility and sustainability, Industry Canada recognizes the value of consultation, cooperation and partnerships. It is important to work together with key stakeholders, including other government departments, industry and NGOs. As an example, Industry Canada has recently signed a Memorandum of Understanding with Environment Canada, the Department of Foreign Affairs and International Trade (DFAIT) and NRCan to work collaboratively on a set of projects that will improve the accessibility of corporate sustainability information, increase the business value of sustainability, and develop information on sustainability tools and practices.

Industry Canada will aim to strengthen the capacity of Canadian businesses to develop and use CSR practices, tools and knowledge to achieve positive social, environmental and economic performance results. This progress will be pursued by focussing on: 1) advancing innovative policy frameworks within the Government of Canada to include effective corporate sustainability reporting; 2) broadening and deepening CSR information and awareness of Canadian industry; 3) developing management knowledge base capacity with respect to CSR tools, voluntary standards, related databases and best practices; and 4) augmenting CSR reporting by industry.

Sustainable Development Policy Frameworks

Our policy frameworks and their use of different policy tools — including regulations, economic instruments, information, and the voluntary and non-regulatory approaches — are continuously under pressure to change and improve. Further, our policy frameworks are also being challenged to more effectively integrate environmental and sustainable development perspectives. For example, the trend towards globalization of industry and trade and our increased knowledge of environmental effects add to the complexity of policy frameworks and regulatory controls. Flexibility in the development of policy frameworks is critical in order to allow industry to meet multiple environmental objectives in a cost-effective manner that will promote productivity growth and competitiveness.

Industry Canada advocates using the most effective and optimal mix of policy instruments to achieve the maximum social benefit at the least cost in advancing sustainable development commitments, creating an attractive investment climate, and increasing industry productivity and competitiveness. In 2003, the Speech from the Throne emphasized the point that a knowledge economy needs new approaches to how we regulate in order to enhance the climate for investment and the trust in the markets. The Department strives to find innovative ways to improve the effectiveness of policy instruments, including regulations, economic instruments, information and voluntary approaches. Industry Canada also seeks to ensure that trade, competitiveness and marketplace factors, including both business and consumer perspectives, are taken into account in the formulation of environmental and sustainable development policies.

Many research questions challenge the Department's effective advocacy for optimal policy mix use and the effective integration of important considerations, such as trade,

competitiveness and marketplace factors, into changing policy frameworks. For example, research is needed to:

- clarify the extent to which stringent environmental and sustainable development regulations drive industrial activity to countries with lower standards;
- compare policy mix configurations between countries (e.g. Canada vs. the U.K.) to determine their effectiveness in improving environmental protection performance; and
- develop policy advice on consumer issues in such areas as the environment and sustainable development, and on how these affect the marketplace.

Industry Canada has the capacity to support research on such fronts, and commits to focussing policy research initiatives on these needs. The Micro-Economic Policy Analysis Branch and the Office of Consumer Affairs (OCA) play particularly important roles with respect to the above policy research needs. In addition, these two branches, the Environmental Affairs Branch and the Strategic Policy Branch play key roles in ensuring that trade and competitiveness matters, private-sector innovation, and consumer perspectives are all integrated into environmental and sustainable development policies.

Industry Canada's Contributions Program for Non-Profit Organizations

The contributions program for non-profit consumer and voluntary organizations administered by the OCA has been an important source of support for Canadian consumer groups for a number of years. The goal of the program is to strengthen the consumer's role in the marketplace through the promotion of timely and sound research and analysis and the financial self-sufficiency of consumer and voluntary organizations. More specifically, the program provides consumer and voluntary organizations with the means to produce high-quality and timely research on consumer issues affecting the marketplace, and to develop policy advice on these issues that is both credible and useful to decision makers. Priority areas for the contributions program include the environment and sustainable development.

An annual budget of $1 690 000 is available for the program, of which up to $100 000 can be awarded in Development Project Contributions, and the rest in Research Project Contributions. The number and nature of projects, consumer organizations and contribution amounts vary annually, based on a competitive submissions process.

Broadening Corporate Social Responsibility Awareness

Industry Canada recognizes that CSR can contribute positively towards building a more productive, competitive, knowledge-based economy. It also recognizes that while some progressive Canadian companies have been considering CSR, sustainable development with its social dimension, or similar concepts in their decision making and core operations, the challenges for broadening the application of helpful CSR practices remain. In spite of the efforts of many dedicated organizations within industry, government, academia and other sectors, both domestically and internationally, the need to improve CSR awareness continues to exist.

Industry Canada will work to promote CSR within industry in an effort to make it more mainstream within the decision making of organizations, by not only supporting

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Industry Canada will work with national and international governments and agencies to develop and implement policy frameworks that enhance the investment climate and give Canadian firms the policy environment and tools to implement eco-efficient practices. Emphasis will be placed on integrating sustainable development considerations into environmental and sustainable development agreements, policies, regulations, and voluntary programs. Innovative approaches will be identified, and their adoption encouraged, through the monitoring of policy framework developments both nationally and internationally. Best approaches will be promoted through regular consultations with industry and government departments and agencies. The Department will also investigate policy issues relating to smarter environmental regulation and more optimal policy use by:

- examining evidence on whether Canadian businesses are moving to countries with less stringent environmental standards, and on whether foreign multinationals are targeting industries with high costs of pollution abatement;
- exploring the efficacy of economic incentives and environmental regulations for achieving environmental objectives; and
- consistent with past project funding under Industry Canada's contributions program, making available financial support to non-profit consumer and voluntary organizations for research and analysis on consumer issues affecting the marketplace, including the environment and sustainable development.

Responsibility:
Environmental Affairs Branch
Micro-Economic Policy Analysis Branch
Office of Consumer Affairs

consideration of environmental protection in operations but also by emphasizing consideration for other important societal domains, such as human resource management practices, human rights and international development, community development, health and safety, consumer protection, and supplier relations.

Action Plan Item

During the next three years, Industry Canada will broaden CSR information and awareness by:

- supporting and promoting CSR or corporate sustainability within conferences, workshops and seminars; and
- improving and expanding the departmental CSR Web site and building more linkages with other organizations that promote CSR.

Responsibility:
Strategic Policy Branch

Corporate Social Responsibility Tools and Management Capacity

In order to strengthen corporate performance on CSR and the triple bottom line of the economic, environmental and social objectives of sustainable development, it is important to ensure that the knowledge base is adequate for meeting the different needs and circumstances of Canadian businesses. Industry Canada understands the importance of this in the context of its responsibilities pertaining to sustainable development, corporate governance, productivity growth, competitiveness, international business and other spheres.

During the last few years, Industry Canada has supported work to build and deepen knowledge capacity for CSR. For

example, the Department supported surveys of consumers in different countries to obtain comparative views on how citizens perceive CSR. The Department has supported work on sustainability indicators, benchmarking tools, best-practice information, the links between CSR and innovation, and the feasibility of voluntary international standards on CSR. Industry Canada has also been working inter-departmentally to build more convergence on understanding and to improve the federal capacity to coordinate initiatives on CSR. Industry Canada understands the importance of this work, and during the next three years commits to building upon what has been accomplished and bringing value-added in terms of improved knowledge for industry and citizens.

Currently there exists a large number of tools and processes designed to assist firms in assessing their current CSR practices and in reporting on them, but only limited guidance exists for business with respect to managing CSR issues. Such guidance would be useful at both the domestic (Canadian) level and internationally. At the domestic level, a guide to CSR management for Canadian business would assist firms in implementing CSR programs. This would build on similar guides that have already been developed (*Voluntary Codes: A Guide for their Development* and *Use, and Consumer Complaints Management: A Guide for Canadian Business*). At the international level, such guidance, in the form of ISO social responsibility management systems standards, would provide an international gauge for businesses wishing to implement CSR in a way that was acceptable to firms around the world. It would build on existing environmental management systems standards that have been developed by the ISO. The OCA is already participating in preliminary work concerning voluntary standards, and anticipates that the preliminary work could lead to the development of actual standards. It is hoped that a guide on CSR management for Canadian firms could play a useful role as a base document for ISO standards.

Action Plan Item

By 2006, Industry Canada will deepen and improve the substantive basis for Canadian industry to act on CSR by:

- Supporting the development of at least one CSR tool that can be employed for management planning and/or evaluation purposes.
- Partnering with other stakeholders and supporting work to build convergence of CSR standards at international and domestic levels. More specifically, Industry Canada will promote and participate in the development of voluntary standards within the ISO and will work to develop a voluntary guide for Canadian industry on how to introduce and use a CSR-oriented management system that addresses consumer protection and other corporate challenges ("guide to CSR management for Canadian business").
- Supporting a minimum of three studies to improve understanding of CSR applications in Canadian industry.

Responsibility:
Strategic Policy Branch
Office of Consumer Affairs

Corporate Sustainability Reporting

There is a growing appreciation among firms in Canada and internationally of the role that corporate information disclosure and transparency can play as an instrument to enable better corporate economic, environmental and social performance. Information disclosure strategies, such as corporate sustainability

Corporate Sustainability Reporting in Canadian Industry

Corporate sustainability reporting is an important element in the process of successfully implementing eco-efficiency and other sustainable development practices and tools. Corporate sustainability reports describe the triple bottom line of a company's economic, social and environmental performance. Industry Canada, in partnership with other federal departments, delivered two workshops on sustainability reporting to the private sector, which helped to increase the capacity of firms to prepare reports. These initiatives have contributed to an increase in the number of firms producing sustainability reports, from 57 in 2001 to 100 companies in 12 sectors in 2003. A new sustainability reporting toolkit for industry is available on-line at: http://www.sustainabilityreporting.ca

reporting, provide shareholders, consumers, employees, financial analysts, NGOs and governments with information to make informed decisions in the marketplace. As a result, a growing number of companies in Canada and internationally are incorporating environmental and social information, in addition to the traditional economic performance information, into their public reports to stakeholders.

The business value in corporate sustainability reporting is that it can help a company measure and analyze its own economic, environmental and social management and performance. Specifically, reporting can help a company to: 1) enhance its business value by differentiating itself from competitors and gaining a competitive advantage in labour, capital and customer markets; 2) improve internal alignment and capacities through developing a coherent vision, strengthened management systems, and improved communication and motivation among employees; and 3) strengthen external relationships and accountability to stakeholders by publicly sharing information on economic, environmental and social performance.

In 2001, Environment Canada, Industry Canada and NRCan partnered with the private sector and Stratos Inc. to sponsor *Stepping Forward: Corporate Sustainability Reporting in Canada*. This first in-depth assessment of "triple bottom line reporting" in Canada revealed that 57 companies were preparing voluntary sustainability reports. Follow-up to the original study has been supplemented by the following efforts to encourage more and better-quality voluntary corporate sustainability reporting in Canada: surveying firms from 9 sectors to determine their level of knowledge and interest in reporting; distributing promotional and awareness materials through sector associations to their member firms; sponsoring workshops to build reporting knowledge and capacity within industries and the financial community; developing an on-line sustainability reporting toolkit for first-time reporters (particularly SMEs); and sponsoring the second study by Stratos Inc. on the state of corporate sustainability reporting in Canada. This study, *Building Confidence: Corporate Sustainability Reporting in Canada*, found the number of companies in Canada that published sustainability reports had increased to 100, in 12 sectors, in 2003. The partner departments plan to do further work with the private sector on how to stimulate demand for more reporting by various stakeholder groups, including the financial community, consumers and local communities.

Industry Canada will work in partnership during the next three years to augment corporate sustainability reporting by industry and to obtain an improved understanding of sustainability performance by industry across Canada.

Action Plan Item

During the next three years, Industry Canada will work to increase the quantity and quality of corporate sustainability reporting by Canadian industry by conducting research and performance studies, developing tools and frameworks, and providing a Canadian clearing house for sustainability reporting information.

Responsibility: Strategic Policy Branch

Electronic Products Recycling

Industry Canada's Recycling Computers and Telecommunications Equipment initiative provides a means for the safe disposal of obsolete computer equipment, a problem facing all countries. The goal is to support an industry-led solution guided by Electronic Product Stewardship (EPS) Canada and its industry members in the development of a national take-back program for electronic equipment. To date, a national steering committee consisting of federal, provincial and municipal stakeholders has been established to support the development of this initiative. In addition, a broadly based committee, consisting of more than 15 industry representatives, has been created to develop and implement the roadmap created through EPS Canada.

Action Plan Item

Industry Canada will continue to facilitate the establishment of a national e-waste recycling network in Canada, led by industry — through EPS Canada — to implement take-back programs for televisions and other consumer electronics and computers.

Responsibility: Information and Communications Technologies Branch

Stewardship for the Internet

Industry Canada fosters stewardship for the Internet through its support and promotion of safe, wise and responsible Internet use. Key stewardship activities include the Department's continued partnership with Phase 2 of the Media Awareness Network's, Young Canadians in a Wired World program. The focus is to gain an understanding of the range of opinions held about several key issues related to the use of the Internet by young people, and to explore parents' perceptions and attitudes regarding their children's use of new media and on-line activities.

Industry Canada continues to provide educational information by working with Child Find Manitoba on the Cybertip project. This project provides access to information for both children and parents on how to prevent the on-line sexual exploitation of children, and provides educational resources. These useful resources are also promoted within schools. The Cybertip Web site (**http://cybertip.ca**) promotes user empowerment and builds awareness about responsible use of ICTs and, specifically, the Internet. It also provides families and educators with tips on how to keep children's on-line experiences fun and educational.

Action Plan Item

Pending program review and renewal, Industry Canada will continue to demonstrate stewardship for the Internet through its participation in and support for the Media Awareness Network and Cybertip.

Responsibility: Information Highway Applications Branch

3.2.2 Advancing Local and Global Sustainability

It is important to advance sustainable development at both the local and global levels. Progress can be promoted through innovative practices and measures by industry, institutions and communities.

© Photo courtesy of Canada's SchoolNet

Canada faces challenges in communities of all sizes, both in terms of ensuring high quality of life and in addressing environmental challenges. Canada is a highly urbanized country, with about 80 percent of Canadians living and working in urban areas, which provide the social, economic and physical infrastructure for businesses, social services and education. Canadian cities and communities face urban sprawl, air pollution, health issues, inadequate physical infrastructure in rural and remote areas, and the need for their populations to develop new-economy skills. While there has been growth in the service economy, the growth patterns have encouraged an increased demand for transportation services. Many rural and remote communities in Canada must also deal with needs relating to job creation, access to capital and improving education. Cities and communities around the globe face similar challenges to those in Canada.

Connectedness is one of Industry Canada's five strategic objectives, which seeks to make Canada the most connected country in the world. To date, the Department has undertaken specific initiatives primarily related to the economic and environmental dimensions of sustainable development. These include encouraging ICT use and making Canada the choice for electronic commerce, in order to move it to the forefront of the new knowledge economy. The Department also has a number of ongoing initiatives that further promote the social dimension of sustainable development by providing access to the Internet for all Canadians; providing equal access to disadvantaged areas; improving the IT-literacy skills and knowledge of young Canadians in their communities; and promoting economic development in rural and remote communities. Canada's Aboriginal communities are particularly in need of community capacity building efforts in order to provide young people with the economic opportunities that would allow them to have a viable future in their own communities. Supporting entrepreneurship in terms of small business start-ups and growth financing will help ensure that communities remain vibrant and prosperous in the future.

In terms of international efforts, Canada is active in promoting the sustainability of the developing world by encouraging Canadian industry to develop more innovative technologies and services to address the most significant sustainable development challenges abroad. It is important that Canada works to bridge the gap between the needs of developing countries and Canadian industry, as the private sector can play a critical role in reducing poverty, enhancing quality of life and promoting the principles of good governance.

Industry Canada has a number of programs and initiatives that will contribute to furthering sustainable development at both the community and global levels over the next three years.

Information and Communications Technologies Reuse and Recycling

Research commissioned by Environment Canada in 2000 found that ICT waste, some of it hazardous and toxic, could reach 67 000 tonnes per year by 2005. This means that more than 3000 tonnes of lead, 4.5 tonnes of cadmium and 1.1 tonnes of mercury could be added each year to Canadian landfills.

Industry Canada's Computer for Schools program aims to improve access to IT for Canada's youth and others underserved by the Internet and e-learning. It does this by refurbishing surplus computers and IT equipment, and distributing it to schools, libraries and non-profit learning organizations. To date, CFS has distributed more than 450 000 computers to schools and libraries across Canada.

CFS contributes to sustainable development in Canada by facilitating the reuse of hundreds of thousands of surplus computers and other IT equipment each year. In addition, the program works toward closing the digital divide in Canada, helps students develop knowledge economy skills and contributes to reducing e-waste by giving new life to surplus computer equipment. Moreover, CFS operates more than 60 repair centres across the country, where high school students, recent post-secondary computer graduates and volunteers gain valuable employability and IT skills.

Computers are donated to CFS by governments and businesses. In 2003–04, CFS refurbished and place about 60 000 computers from these sources in schools, libraries and non-profit learning organizations. Pending program review and renewal, CFS will continue to reach the annual target of 60 000 computers refurbished and donated to learning settings in Canada.

CFS Recycling Success Story

CFS Yukon had more than 40 pallets worth of e-waste quickly filling up its small yard. These units had either been stripped of any useful parts, or were too old to be refurbished and distributed back to schools or non-profit organizations.

With no recycling or disposal options for the environmentally sensitive North, a solution had to be found to the mounting e-waste problem. A recycling pilot was established in 2003 and CPUs were then shipped to a recycling facility that recaptured 100 percent of the material.

CFS Yukon was able to recycle its e-waste in a safe and environmentally responsible manner. The recycling pilot project was a success for both CFS and the environmentally sensitive Yukon.

Action Plan Item

Pending program review and renewal, Industry Canada will continue to implement the CFS program and work towards the program's long-term environmental sustainability by working with governments, industry and other stakeholders to: increase program knowledge on costs and implementation of environmentally sound recycling practices; and research Canadian recycling and disposal capabilities and infrastructure.

Responsibility: Information Highway Applications Branch

Information and Communications Technologies for Community Sustainability

ICTs and connectivity have clearly demonstrated their potential to improve the way we perform in virtually all sectors of the economy, and to enhance many aspects of Canadians' lives. ICTs are not an end in themselves, but rather one of many tools a community has at its disposal to improve economic and social performance. Through the Connecting Canadians Agenda, Industry Canada, in

collaboration with its partners and stakeholders, has facilitated the effective integration, application and use of ICTs by communities to stimulate innovation, enhance productivity and foster essential knowledge-based economy skills for Canadians.

The Community Access Program has provided nationwide affordable public access to the Internet, equalized access between advantaged and disadvantaged areas and groups, contributed to the development of community-based business capacity, encouraged and promoted effective and efficient use of ICTs, and stimulated the conversion of public services to electronic delivery. The 12 Smart Communities Demonstration Projects have supported sustainable community-wide planning and engagement, improved levels of telecommunications infrastructure in communities, and supported the delivery of more than 92 on-line services in areas such as business and health care.

Broadband is becoming increasingly recognized as the platform for economic and social development. Without broadband, sophisticated enabling applications in the areas of e-health, e-justice, e-commerce and e-learning would be impossible. Industry Canada's Broadband for Rural and Northern Development pilot program is helping unserved communities to develop and implement business plans for broadband deployment. Priority under this program is being given to First Nations, northern, rural and remote communities across Canada. The program is supporting the Government of Canada's commitment to making high-speed Internet (broadband) access available to all Canadian communities, including those communities where the deployment of broadband networks would not occur by market forces alone. Through the Broadband Pilot Program and complementary investments by Infrastructure Canada, regional development agencies, provinces and territories, and the private sector, significant progress is being made towards bridging the digital divide.

Action Plan Item

Industry Canada, with its partners, such as the Communications Research Centre, will continue to address the broadband connectivity needs of unserved Canadian communities. The Department will work to ensure communities across Canada have broadband access, and will demonstrate and promote the enabling effects of ICT applications, such as e-learning and e-health. This initiative supports the Government of Canada's commitment to making high-speed Internet access available to all Canadian communities.

Responsibility:
Information Highway Applications Branch
Communications Research Centre

Aboriginal Business Development Program

Aboriginal Business Canada's primary objective is to contribute to the creation and expansion of viable businesses in Canada owned and controlled by Aboriginal peoples. Through the Aboriginal Business Development Program, ABC provides financing, business support and information, and facilitates the development, competitiveness and success of Aboriginal businesses in Canadian and world markets.

The program is accessible to all Aboriginal peoples in Canada: Indian (on and off reserve, Status and Non-Status), Métis and Inuit. Through seven regional offices and a network of third-party delivery organizations, our service network extends throughout all regions of Canada. This network includes Aboriginal business and financial institutions, such as Aboriginal Capital Corporations, as both delivery partners and clients.

Among the approximately 1000 business projects approved during 2002–03, several stand out as particularly noteworthy in a sustainable development context:

- The Nk'Mip (pronounced Inkameep) Desert and Heritage Centre is the first phase of a cultural and eco-tourism attraction that will provide interpretation of the Nk'Mip Desert, the northern extremity of the Great Basin Desert, near Osoyoos, in British Columbia. The centre is the beginning of a program to protect some 2700 acres of ecologically endangered and archeologically significant land, helping to conserve this unique area and restore habitats for its species.
- The Montagnais community of Essipit opened its new accommodation complex, the Natakam, which signifies "on the riverbank." ABC's investment will enable the community of Essipit to expand its tourism sector based on eco-tourism and traditional cultural experiences, in turn contributing to local economic growth.

Industry Canada, through ABC, supports business development in many areas, and Government of Canada support for Aboriginal business development has been an important and long-standing tool for addressing the social and economic issues facing Aboriginal people. Supporting Aboriginal business development is directly supportive of Industry Canada's mission to foster a growing, competitive, knowledge-based Canadian economy.

Through its Grants and Contributions programming, ABC supports individual SMEs in developing new technologies and processes and improving their bottom line through innovation. It is by supporting and encouraging Aboriginal entrepreneurs to explore and adopt innovative ideas and practices that ABC promotes innovation and supports the goals and objectives of *Canada's Innovation Strategy*. And it is through innovation that Aboriginal entrepreneurs and businesses will improve economic, environmental and social development factors in their communities.

Action Plan Item

Industry Canada, through ABC, will continue to provide investment funding, advice and information to Aboriginal entrepreneurs starting and improving businesses that contribute to sustainable development.

Responsibility: Aboriginal Business Canada

Sustainable Cities Initiative

The SCI is a Canadian partnership initiative aimed at enhancing the sustainability of economic development in cities and helping city dwellers improve their quality of life without compromising their future. During the 2002 WSSD in Johannesburg, South Africa, the Prime Minister of Canada announced the expansion of the SCI into 17 cities around the world. Over the next two years, the SCI will work to establish a presence in Africa, Asia, South America and Eastern Europe. With more than 50 percent of the world's population currently living in cities, and developing countries expected to account for 93 percent of urban growth over the next 25 years, undertakings like the SCI are of significant importance.

Ensuring sustainable urban growth in the developing world is crucial to enhancing the quality of life of city residents. An innovative partnership between the Government of Canada, NGOs and the private sector to pursue sustainable economic development, the SCI's main areas of focus are all priority areas for sustainable urban development: clean water, waste management, clean energy, transportation, housing, capacity building, urban planning, telecommunications, urban infrastructure projects and port development. By partnering with cities in developing and

Sustainable Cities Initiative

Since 1999, the five SCI pilots — Salvador, Brazil; Qingdao, China; Katowice, Poland; San José, Costa Rica; and Córdoba, Argentina — have led to the identification of $3 billion worth of potential projects that could be implemented over seven years. Of these, $2 billion are already being actively pursued by Canadian firms and organizations — a significant return on the government's investment of about $1.5 million to date. Areas of cooperation include full-scale sustainable waste management systems, storm water/sewer master plans/expansions, tourism initiatives, telecommunications, energy management and urban transportation.

http://strategis.gc.ca/SSG/vi00007e.html

emerging economies, the SCI helps cities meet their quality-of-life and sustainable development objectives. Multi-sectoral and multi-stakeholder city teams (consisting of Canadian private-sector, government and NGO members) combine forces and resources with local authorities to develop and implement city sustainable development plans.

Led by Industry Canada, the SCI has been a success from the outset, and has proven to be an innovative partnership formula, bringing together more than 1200 representatives from the private sector, NGOs and governments (federal, provincial and municipal) from Canada, with similar participation from SCI partner cities. The Canadian and local partners work together to prepare a roadmap for each city, defining a vision for the future and targeted initiatives in service of urban sustainability. By showcasing Canada's expertise in sustainable development, technologies and services, the SCI demonstrates the important role the private sector can play in reducing poverty, enhancing quality of life and promoting the principles of good governance.

The SCI is a demonstrated success in nine partner cities — Salvador (Brazil), Qingdao (China), Katowice (Poland), San José (Costa Rica), Córdoba (Argentina), Durban (South Africa), Valparaíso/Viña del Mar (Chile), Algiers (Algeria) and Dakar (Senegal) — with two new cities selected in October 2003: Dar es Salaam (Tanzania) and Matamoros/Reynosa (Mexico).

SCI partner cities are identified based on a consultation process with Industry Canada, DFAIT, the Canadian International Development Agency, other government agencies, the private sector, NGOs and the candidate cities. The SCI was established in 1999 by the Government of Canada as a pilot project, following recommendations from the NRTEE, an independent advisory body that provides advice and recommendations for promoting sustainable development.

Urban population growth in developing countries is straining the capacity of existing resources and stressing local environmental, economic and social conditions. "Getting cities right" has been defined by the NRTEE as one of the globe's pre-eminent development and economic goals of this decade. The SCI brands Canada as a source of technology and expertise, promotes market development and trade opportunities, enhances the quality of life in emerging economies and facilitates business partnerships.

Action Plan Item

The SCI will work with 11 cities in developing countries and undertake exploratory and consultation processes to identify and launch SCI initiatives in up to 6 additional cities. The projects will include activities to promote sustainable urban development; facilitate partnerships among firms, NGOs, governments and academia; and demonstrate Canada's leadership in technology, expertise and products in support of urban sustainable development. The focus of activity will be on the following sectors: energy, housing, urban planning, transportation, water, ICT, tourism, governance, infrastructure, environment and waste, etc.

Responsibility:
Service Industries Branch

3.3 Capacity Building Within the Department

Sustainable Development Strategic Outcome: Enhance capacity of Industry Canada's sustainable development management system.

Target: Enhance the capacity of Industry Canada's management systems by focussing on the planning, performance measurement and evaluation functions, and improving the integration of sustainable development into decision-making processes. By December 2006, this will be achieved by:

Improving sustainable development planning, performance measurement and evaluation (six deliverables):

- Integrating sustainable development into the Department's strategic planning and reporting frameworks
- Renewing the Greening Operations plan
- Updating the sustainable development evaluation initiative
- Improving sustainable development training and awareness
- Promoting sustainable development through Senior Management Champions
- Supporting Industry Canada's Sustainable Development Challenge

Sustainable development capacity building at Industry Canada involves integrating sustainable development into decision-making processes and considering sustainable development in the different facets of the Department's policy development, planning and program delivery. Industry Canada plans to focus its efforts in the new strategy in terms of renewing and further strengthening its sustainable development management system.

3.3.1 Improving Sustainable Development Planning, Performance Measurement and Evaluation

Industry Canada's sustainable development management framework for planning, performance measurement, reporting and evaluation is becoming well established within departmental processes and systems.

The Department plans to further improve on these efforts through a range of improved strategic management activities.

Industry Canada has integrated sustainable development objectives into different aspects of the Department's decision making and the delivery of policies, plans, programs and operations. The Department plans to further strengthen the integration of sustainable development considerations into its Departmental decision making through staff training, awareness and increased senior-management involvement.

Further Integration of Sustainable Development into Planning and Reporting Frameworks

Industry Canada has a regular cycle for corporate planning and reporting on performance, including the Report on Plans and Priorities (RPP), the Departmental Performance Report (DPR) and the Industry Canada corporate priorities plan (*Making a Difference*). During the past two strategies, Industry Canada has successfully integrated more sustainable development text and commitments under the five strategic priorities. During SDS II, it added sustainable development to the top of its priorities chart under the "Growing a Dynamic Economy" section, alongside productivity growth, employment growth and income growth. Over the next three years, Industry Canada will continue to broaden and deepen the application of sustainable development throughout the Department's strategic objectives.

Industry Canada's SDS II presented "Productivity Through Eco-efficiency" as a major strategic objective and program of work. While the Department has consistently reported on its achievements under this theme over the past three years, the recent introduction by TBS of RMAF (and Industry Canada's use of it through the implementation of the Modern Comptrollership Initiative) may call for a detailed performance evaluation. As the Department begins to pilot key results commitments (KRCs) under each of the corporate strategic objectives (innovation, connectedness, marketplace, trade and investment), the Eco-efficiency and Environmental Technologies KRC may receive a cumulative performance review.

Reporting is a critical element in the life cycle of Industry Canada's sustainable development management system. The Department has consistently sought to improve its internal monitoring and reporting system, during the implementation of both its first and second strategies, to ensure easy user (responsibility centre) access, and to provide timely strategic information to management to ensure continuous improvement. Over the next three years, the Department plans to renew its internal reporting system to better reflect the increasingly results-based nature of reporting and to make more comprehensive performance information publicly available, as recommended by the CESD 2002 Annual Report. The Department also plans to regularize its information collection and reporting on sustainable development performance to align with the release of the annual DPR.

Action Plan Item

Industry Canada will continue its efforts to integrate sustainable development under the Department's five corporate strategic objectives by way of its corporate planning documents (RPP and DPR); will examine the possibility of piloting the RMAF for the Eco-efficiency KRC; and will renew its internal monitoring and reporting system to become more results-based and publicly accessible (through Industry Canada's sustainable development Web site).

Responsibility: Strategic Policy Branch

Greening Operations

Industry Canada remains committed to applying sustainable development toward reducing resource consumption in its operations. The Department has developed and implemented two comprehensive Greening Operations plans over the past five years. While the Department is not a material-intensive organization, the operation of its buildings and vehicle fleet accounts for most of its environment-related impacts.

The Department employs close to 6000 people at any one time; operates about 451 fleet vehicles, including heavy trucks and specialized vehicles; operates 97 buildings on 945 hectares of land; and occupies almost 200 000 square metres of office space and other types of accommodation in every province and territory of Canada. The most significant environmental aspects of the Department's operations are those associated with the operation of offices and vehicles.

In terms of performance, using the last report in January 2002 as a baseline, each full-time equivalent achieved a 52 percent waste reduction. Eight Enviro-Notes were prepared and sent, reaching an audience of approximately 6000.

Over the next three years, the Department will focus on making continuous improvements to its Greening Operations programs.

Action Plan Item

Industry Canada will update Industry Canada's Environmental Management System business plan, increase awareness among Industry Canada employees of environmental issues, encourage green procurement and waste-reduction programs, improve facilities and vehicle fleet management practices, and undertake a pilot project to dispose of departmental computers in an environmentally friendly manner.

Responsibility:
Financial Systems, Facilities and Security Branch
Strategic Policy Branch

Industry Canada's Sustainable Development Evaluation Initiatives

The evaluation work for Industry Canada's sustainable development management system is important for planning, tracking progress, determining whether the Department is achieving its goals and informing management of areas for improvement. This action item consists of a number of activities to be conducted between fiscal year (FY) 2003–04 and FY 2005–06:

- Conduct the SDS III mid-term evaluation study in FY 2005–06. This study will provide management with feedback on the progress of SDS III, impacts of SDS II, lessons learned and future direction for SDS IV.
- Conduct the SDS IV internal scan in FY 2005–06. This study will provide management with information on elements to be considered in the development of the new strategy.
- Develop the SDS IV evaluation framework in FY 2005–06. The framework will provide a practical approach for evaluating sustainable development initiatives under SDS IV. This will help management gain a

better understanding of the type of information obtained from the SDS IV evaluation study to be conducted in the future.
- Refine the SDS III evaluation framework in FY 2003–04 to provide a practical approach for two evaluation studies: the SDS III mid-term evaluation to be conducted in FY 2005–06 and the SDS cumulative evaluation, to be conducted in FY 2006–07. The cumulative evaluation will cover SDS I, II and III, and will look at the cumulative impact of SDSs and the progress towards longer-term outcomes, including the adoption of eco-efficiency and environmental technologies.

Action Plan Item

By 2006, Industry Canada will conduct the SDS III mid-term evaluation study (FY 2005–06); conduct the SDS IV internal scan (FY 2005–06); develop the SDS IV evaluation framework (FY 2005–06); and refine the SDS III evaluation framework (FY 2003–04) to provide a practical approach for two studies: the SDS III mid-term evaluation (FY 2005–06) and the SDS cumulative evaluation (FY 2006–07).

Responsibility: Audit and Evaluation Branch

Training and Awareness

Sustainable development training is important for inculcating a sustainable development culture in the Department in which management and staff understand the concept and its application in Canadian industry. Industry Canada currently offers a sustainable development course in its corporate training program and a sustainable development module taught in other courses, where possible. Industry Canada also invites external speakers to discuss various sustainable development issues that are topical (e.g. eco-efficiency, CSR, sustainability reporting) and enhance practical understanding of sustainable development's application in business.

Over the next three years, the Department will continue to offer sustainable development training for employees through courses, expert speakers and special presentations on topics of relevance to the Department's sustainable development agenda.

Industry Canada continually seeks out new opportunities to raise the profile of sustainable development within the Department. During the past three years, this has been done through various means, including articles in *Argus* (the departmental on-line newsletter), Environment Week exhibits, sustainable development publications and sustainable development information on Industry Canada's sustainable development, eco-efficiency or CSR Web sites.

Over the next three years, the Department will continue to advance sustainable development awareness and provide its employees with useful information on a range of sustainable development issues and announcements.

Action Plan Item

Industry Canada will offer a renewed course, focussing on the implementation of sustainable development in industry, at least twice per year; integrate sustainable development training into other corporate training courses; offer at least three expert speakers per year; and continue to conduct a sustainable development awareness program to highlight the Department's sustainable development accomplishments through Industry Canada's Web site and through internal presentations and publications.

Responsibility:
Strategic Policy Branch
Human Resources Branch

Senior Management Champions

Industry Canada's management system for sustainable development relies on senior management commitment in terms of the effective implementation and management of the Sustainable Development Strategy.

The Director General, Strategic Policy Branch, is the manager responsible on a daily basis for the overall development and implementation of, and reporting on, the strategy. In addition, there are three main Industry Canada committees: the Director General's Policy Committee, the Senior Policy Committee (SPC) and the Deputy Minister's Departmental Briefing Committee (DMDB). These committees play an active role in terms of providing review, comment and strategic advice on a variety of aspects of the strategy.

The Department's Strategic Environmental Assessment process is also an important part of the policy decision-making cycle. Industry Canada has an effective and efficient SEA process in place, in accordance with the 1999 Cabinet Directive on SEAs; this requires examination of the environmental implications of proposals being submitted to an individual minister or to Cabinet for approval.

Over the next three years, senior management will further strengthen its role in terms of promoting sustainable development within the departmental policy process and management systems and to external stakeholders.

Action Plan Item

Industry Canada will redesignate sustainable development Senior Management Champions for the new strategy in overall implementation and monitoring (Senior ADM, Policy Sector), industry outreach (ADM, Industry Sector, with ADM, Spectrum, Information Technologies and Telecommunications Sector), and greening operations (ADM, Comptrollership and Administration); and work to further integrate sustainable development into Industry Canada policy development by requesting senior managers bring proposals to SPC for discussion of potential sustainable development implications. (The SPC Secretariat will report on significant environmental considerations to the Deputy Minister and senior management at the DMDB.)

Responsibility:
All sectors
Strategic Policy Branch

Industry Canada's Sustainable Development Challenge

Many effective sustainable development projects begin at the grassroots level. Industry Canada's Sustainable Development Challenge is intended to empower Industry Canada employees to initiate grassroots sustainable

development projects at work and in their own communities. Projects will be employee-driven, with the most promising selected for implementation by a panel formed from all Industry Canada sectors. The Sustainable Development Challenge will recognize and reward employee initiative, and serve to demonstrate CSR at Industry Canada in a meaningful and measurable way.

The first project to be undertaken is the university of cycling ("U" Cycling) pilot program. Its aim is to address employee health concerns, increasing transportation costs and worsening urban air quality. This will be done by promoting the use of bicycles for commuting to and from Industry Canada's headquarters in Ottawa. The intended outcomes from the project are better employee health, cost savings, improved air quality and reduced GHG emissions.

The 2001 Work–Life Balance Study revealed some important findings at Industry Canada. A relatively high proportion of the employees at Industry Canada appear to be having difficulties coping with the stresses associated with work and non-work demands. The benefits of exercise in counteracting stress are well known. Regular exercise improves general health, lowers stress levels and increases the body's ability to cope with stressful situations.

The operating cost of automobiles is high, and rising. In terms of direct costs for employees, the Canadian Automobile Association (CAA) estimates the average annual cost of driving a car is $9525 (annual driving cost based on Cavalier Z24 model driven 18 000 km).[18] In comparison, the cost of operating a bicycle is negligible.

Automobiles are a major source of GHGs and are an inefficient mode of transportation. Emissions from automobiles also contribute to the development of smog in urban areas, particularly during the summer months. Bicycles are zero-emission vehicles and are the most energy-efficient form of transportation known.

Volunteer participants in "U" Cycling will undergo a health assessment before and after the cycling season. An economic study will determine the financial implications of switching to bicycle commuting. Lastly, the total amount of GHGs and other emissions avoided will be calculated using a standard model.

The program will be developed during the winter of 2003–04 and implemented in spring 2004. At the end of the cycling season (fall 2004), the program will be evaluated against the three pillars of sustainable development: social, economic and environmental. Based on the evaluation, it will be determined whether or not to continue the program in 2005.

Action Plan Item

Industry Canada will work to increase the number of bicycle commuters at the Department's Ottawa headquarters by providing incentives for switching from cars to bikes. Employees will be offered education and training in essential aspects of bicycle commuting, including cycling safety, bicycle repair, maintenance and fit, cycling and the law, and route planning.

Responsibility:
Strategic Policy Branch

18. Source: *CAA Driving Costs*, 2003 edition.

4. Industry Canada's Sustainable Development Management System

Industry Canada's third Sustainable Development Strategy, for 2003–06, is based on a sustainable development management system with the following life cycle: 1) planning; 2) implementation; 3) performance measurement and evaluation; and 4) reporting.

Planning

The SDS is a three-year Department-wide plan for sustainable development developed using the foundation studies (internal and external issues scans and mid-term evaluation of the second strategy) recommended by *A Guide to Green Government* (1995), and an internal process involving officers and senior management from every sector of the Department.

The strategy's strategic objectives and results to be achieved are also integrated and highlighted in Industry Canada's RPP, both under the Innovation strategic objective (as a KRC) and in more detailed form in the government-wide themes section.

Implementation

Chapter 3 presents the 32 action plan items in this strategy, to be delivered by 17 responsibility centres from across all sectors of the Department. This represents a reduction in action items from 58 in the last strategy, allowing for more focus; but there is also a slight broadening of responsibility centres involved, from 16 in the last strategy. This indicates a further expansion in the reach of sustainable development as a cross-cutting issue for the Department.

Table 3, on pages 60–63, identifies the action plan items developed for this strategy and offers a sense of how their implementation might contribute to the sustainable development issues identified by the internal and external issues scans.

As with the previous strategy, the Department will need flexibility in terms of responding to changes in branch resources and commitments during the three-year implementation period. If modifications to the nature or extent of specific activities associated with a particular action item must be made, these will be explained in the sustainable development implementation reports that will be made publicly available on Industry Canada's sustainable development Web site for each of the six reporting periods, ending in December 2006.

Performance Measurement and Evaluation

Industry Canada's performance measurement framework for this strategy has been improved to be more results-based. In the expectations document released by the CESD in conjunction with the third round of sustainable development strategies, considerable emphasis was placed on setting a smaller number of goals and objectives and then

clearly linking measurable targets and actions.

Performance measurement is one of Industry Canada's four priorities under the Modern Comptrollership Initiative, which is consistent with TBS's new RMAF. Action items for this strategy have been developed using these guidelines and the suggested performance measurement tools (i.e. results chain) in order to more effectively measure short- and long-term outcomes. Table 4, on pages 64–69, presents the overarching performance measurement framework for this strategy. The detailed action plans that underpin each of the action items are based on the RMAF model and will be made publicly available on Industry Canada's sustainable development Web site.

In terms of evaluation, the Department will develop and implement a rigorous evaluation framework in conjunction with the new strategy, which will be improved based on the lessons learned from the internal and external issues scans and the mid-term evaluation of SDS II. In FY 2006–07, the Department will also undertake an evaluation study to examine the cumulative long-term outcomes achieved by Industry Canada's three sustainable development strategies since 1997.

In 2003, two of Industry Canada's strategic objectives (Eco-efficiency and Environmental Technologies) in its second SDS were selected for audit by the CESD. The audit focussed on the strategies and the results that were achieved in relation to these objectives, including the extent to which targets were met, but also whether the Department measured the outcomes that were achieved as a result of meeting these targets. Overall, the Department received a favourable assessment in terms of its efforts to enhance the capacity of Canadian industry to develop eco-efficiency practices and tools and facilitate the development and diffusion of environmental technologies.

Reporting

An important part of Industry Canada's accountability system for the implementation of the strategy's commitments is the Department's robust monitoring and reporting system, which was improved for the second strategy. This information enables the development of comprehensive performance reports for the Deputy Minister on the implementation of the strategy, and allows senior management to make adjustments as required.

The Department also reports on its sustainable development performance in the DPR, which presents sustainable development accomplishments against planned performance expectations set out in the RPP. As is done in the RPP, these are reported in both the body of the DPR and in the government-wide themes section. In the 2002–03 DPR the Department signalled its intent to provide more comprehensive performance information to the public through its sustainable development Web site, as recommended by the CESD and TBS. The Department has already started to deliver on this commitment in the second strategy, and will further improve the quality and comprehensiveness of performance reporting to the public through its sustainable development Web site.

"Industry Canada is making a serious effort in the area of sustainable development. . . . The Department is meeting its commitments to eco-efficiency and environmental technologies, producing a variety of information products and services. However, it needs to measure results and report on the impact its work is having on making Canadian industry more sustainable."

— Report of the Commissioner of the Environment and Sustainable Development, **October 2003**

Table 3: Sustainable Development Issues That Action Items Are Anticipated to Impact

Strategic Outcomes and Action Plan Items	*Industry Canada Corporate Strategic Objective*	**Sustainable Development Issues Identified by Internal and External Issues Scans**								
		Sustainability Vision	*Market Development ("Market Pull")*	*Investment in R&D Infrastructure*	*Human Resources Training and Development*	*Communication of Sustainable Development Achievements*	*Technology Commercial-ization and Adoption*	*Sustainable Production and Consumption*	*Climate Change*	*Results Measurement*
Innovation Towards Sustainable Development										
		Capacity Building in R&D and Skills								
CFI	Innovation		✓	✔	✔	✓	✔	✓	✔	
NCE	Innovation			✔	✔		✔		✓	
Bio-based Economy	Innovation	✓	✔	✓			✓	✔		
Nano-technology	Innovation	✓	✔	✔			✓			
Human Capital		✓			✔	✔				
		Promoting Technology Innovation								
TPC	Innovation		✔	✔		✓	✔	✔	✔	
PRECARN	Innovation			✔		✓	✔			
Vehicle Fuel Efficiency	Innovation			✓			✓		✓	
Hydrogen Economy Initiative	Innovation	✔	✔	✓			✓		✓	
Renewable Energy	Innovation	✔	✔	✔			✔	✔		

NOTE: Bold checkmarks (✔) indicate action items anticipated to have the strongest impact; smaller checkmarks (✓) indicate expected impacts that are of a positive but lesser nature.

Table 3: Sustainable Development Issues That Action Items Are Anticipated to Impact (continued)

Strategic Outcomes and Action Plan Items	*Industry Canada Corporate Strategic Objective*	**Sustainable Development Issues Identified by Internal and External Issues Scans**								
		Sustainability Vision	*Market Development ("Market Pull")*	*Investment in R&D Infrastructure*	*Human Resources Training and Development*	*Communication of Sustainable Development Achievements*	*Technology Commercial-ization and Adoption*	*Sustainable Production and Consumption*	*Climate Change*	*Results Measurement*
		Applying the Tools in the Marketplace								
Technology Roadmaps	Innovation	✔	✓	✓			✓		✓	
Construction, Architecture and Engineering Solutions	Innovation		✓	✓			✓		✓	
Sustainable Manufacturing	Innovation	✓	✔		✔			✔	✔	
Environmental Performance of SMEs	Innovation		✔		✓			✔	✔	
Environmental Supply Chain Management	Innovation		✓					✔	✔	
Canadian Climate Change Solutions	Innovation		✔	✔	✓		✔		✔	
Corporate and Community Sustainability										
		Promoting Corporate Responsibility and Sustainability								
Sustainable Development Policy Frameworks	Innovation	✓	✔				✔		✔	

NOTE: Bold checkmarks (✔) indicate action items anticipated to have the strongest impact; smaller checkmarks (✓) indicate expected impacts that are of a positive but lesser nature.

Table 3: Sustainable Development Issues That Action Items Are Anticipated to Impact (continued)

Strategic Outcomes and Action Plan Items	*Industry Canada Corporate Strategic Objective*	**Sustainable Development Issues Identified by Internal and External Issues Scans**								
		Sustainability Vision	*Market Development ("Market Pull")*	*Investment in R&D Infrastructure*	*Human Resources Training and Development*	*Communication of Sustainable Development Achievements*	*Technology Commercial-ization and Adoption*	*Sustainable Production and Consumption*	*Climate Change*	*Results Measurement*
Broadening CSR Awareness	Innovation		✔		✔			✔		
CSR Tools and Management Capacity	Innovation				✔			✓		
Corporate Sustainability Reporting	Innovation				✔			✓		
Electronic Products Recycling	Connectedness	✓	✔					✓		
Stewardship for the Internet	Connectedness				✓					
		Advancing Local and Global Sustainability								
ICT Reuse and Recycling	Connectedness			✔		✓	✓			
ICTs for Community Sustainability	Connectedness		✓	✔		✓	✓			
Aboriginal Business Development Program	Innovation			✔		✔				
SCI	Trade	✔		✔		✔	✔			

NOTE: Bold checkmarks (✔) indicate action items anticipated to have the strongest impact; smaller checkmarks (✓) indicate expected impacts that are of a positive but lesser nature.

Table 3: Sustainable Development Issues That Action Items Are Anticipated to Impact (continued)

Strategic Outcomes and Action Plan Items	*Industry Canada Corporate Strategic Objective*	**Sustainable Development Issues Identified by Internal and External Issues Scans**								
		Sustainability Vision	*Market Development ("Market Pull")*	*Investment in R&D Infrastructure*	*Human Resources Training and Development*	*Communication of Sustainable Development Achievements*	*Technology Commercial-ization and Adoption*	*Sustainable Production and Consumption*	*Climate Change*	*Results Measurement*
Sustainable Development Capacity Building Within Industry Canada										
		Improving Sustainable Development Planning, Performance Measurement & Evaluation								
Further Integration of Sustainable Development Into Planning & Reporting Frameworks	Corporate Management					✔				✔
Greening Operations	Corporate Management								✓	
Industry Canada's Sustainable Development Evaluation Initiatives	Corporate Management					✔				✔
Training and Awareness	Corporate Management				✔	✔				
Senior Management Champions	Corporate Management				✔	✔				
Industry Canada's Sustainable Development Challenge	Corporate Management				✔	✔			✓	

NOTE: Bold checkmarks (✔) indicate action items anticipated to have the strongest impact; smaller checkmarks (✓) indicate expected impacts that are of a positive but lesser nature.

Table 4: Performance Measurement Framework: Sustainable Development Strategic Outcomes, Targets, Action Plan Items and Performance Indicators

Sustainable Development Strategic Outcome: Increase commercialization and adoption of eco-efficient tools and technologies.

Target: Work in partnership with industry and others to demonstrate the contribution of eco-efficiency to enhancing productivity and environmental performance through capacity building in R&D and skills; promote technology innovation; and apply the tools in the marketplace. By December 2006, successfully complete 16 identified action plan items.

Sustainable Development Strategic Outcome Areas	Action Plan Items	Performance Indicators
Capacity Building in R&D and Skills	• Supporting the CFI to build Canada's knowledge and research infrastructure	• Level of influence in providing policy advice and support to CFI project funding decisions
	• Participating in the approval process for sustainable development-related research through the NCEs in research fields related to automobiles, water, forest management and aquaculture	• Perceived influence of support to NCE project applicant assessment and selection process
	• Increasing awareness and promoting the development of Canada's Green Advantage for developing bio-processes and bio-based industrial technologies, products and processes to reduce GHG emissions	• Level of awareness created through information dissemination and outreach efforts
	• Building awareness of potential applications of nanotechnology by building research partnerships and eco-industrial clusters within government and industry to commercialize research	• Level of awareness created through information dissemination and outreach efforts
	• Supporting the development of human capital/skills to address skilled worker shortages	• Level of support for the development, attraction and retention of highly qualified people

Table 4: Performance Measurement Framework: Sustainable Development Strategic Outcomes, Targets, Action Plan Items and Performance Indicators (continued)

Sustainable Development Strategic Outcome Areas	Action Plan Items	Performance Indicators
Promoting Technology Innovation	• Investing in innovative technologies through TPC	• Number of sustainable development projects funded by TPC
	• Supporting Phase 3 of PRECARN's R&D program to develop intelligent solutions to meet industry needs	• Number of sustainable development projects funded per annum
	• Promoting a 25-percent increase in fuel efficiency of new light vehicles, as per federal commitment, by 2010	• Percent of new light vehicles with improved fuel efficiency
	• Supporting the development, commercialization and early adoption of hydrogen-based fuel-cell technology in the automotive sector	• Increased hydrogen and fuel cell commercialization and early adoption
	• Working in partnership with other federal departments and industry associations to strengthen the position of renewable energies in the Canadian and international marketplace	• Strengthened market positioning of renewable energies in Canadian and international markets
Applying the Tools in the Marketplace	• Encouraging the development of TRMs for forecasting future market needs and planning best approaches for marketing climate change technologies	• Number of technologies identified, and number of industry commitments to technology development and commercialization-related actions arising from a TRM
	• Promoting innovative construction and architecture/ engineering solutions to achieve GHG emissions reductions	• Extent of GHG emissions reductions in buildings
	• Building awareness and promoting the commercialization and adoption of innovative manufacturing practices by industry that lead to more sustainable product and process designs	• Number of companies that have implemented innovative manufacturing practices

Table 4: Performance Measurement Framework: Sustainable Development Strategic Outcomes, Targets, Action Plan Items and Performance Indicators (continued)

Sustainable Development Strategic Outcome Areas	Action Plan Items	Performance Indicators
Applying the Tools in the Marketplace	• Supporting the adoption of environmental stewardship approaches and tools for small businesses	• Number of companies that have implemented environmental stewardship practices
	• Advancing the adoption of environmental supply chain management tools for small businesses	• Number of companies that have implemented environmental supply chain management tools
	• Promoting Canadian climate change technologies and services abroad	• Number of Canadian companies awarded contracts in overseas markets for environmental technologies and services
Sustainable Development Strategic Outcome: Increase use by industry, institutions and communities of corporate responsibility and sustainability practices.		
Target: Work in partnership with industry, other government departments and others to promote corporate responsibility and sustainable development practices in businesses and encourage sustainable development for communities. By December 2006, successfully complete 10 identified action plan items.		
Sustainable Development Strategic Outcome Areas	**Action Plan Items**	**Performance Indicators**
Promoting Corporate Responsibility and Sustainability	• Advancing innovative sustainable development policy frameworks within the Government of Canada to include effective corporate sustainability perspectives	• Effective and efficient regulatory regime for environmental protection
	• Broadening CSR information and awareness within Canadian industry	• Enhanced knowledge and awareness by Canadian industry of CSR
	• Developing CSR tool and management capacity to improve the substantive bases for Canadian industry to act on CSR	• Number of Canadian companies implementing CSR management tools and/or practices

Table 4: Performance Measurement Framework: Sustainable Development Strategic Outcomes, Targets, Action Plan Items and Performance Indicators (continued)

Sustainable Development Strategic Outcome Areas	Action Plan Items	Performance Indicators
Promoting Corporate Responsibility and Sustainability	• Increasing the quantity, quality and credibility of sustainability reporting by Canadian industry	• Number of new reporters per annum
	• Facilitating the establishment of a national e-waste recycling network in Canada to implement take-back programs for consumer electronics	• Implementation of stewardship programs across Canada for electronic products
	• Demonstrating stewardship for the Internet through participation in, and support of, the Media Awareness Network and Cybertip	• Level of participation and support for the Media Awareness Network initiative and Cybertip
Advancing Local and Global Sustainability	• Implementing the CFS program, which facilitates the reuse of thousands of surplus computers and other IT products each year	• Number of computers distributed to schools and libraries, and metric tonnes diverted from landfills to CFS reuse activities
	• Continuing to address the broadband connectivity needs of unserved Canadian communities by ensuring Canadians have equitable access to the Internet, and continuing to demonstrate the enabling effects of ICT applications	• Number of communities served
	• Promoting the Aboriginal Business Development Program for small businesses	• Number of Aboriginal businesses receiving ABC contribution funding
	• Implementing and expanding the SCI to improve the sustainability of cities in developing countries	• Development of roadmaps with SCI partner cities, or sales of products/services

Table 4: Performance Measurement Framework: Sustainable Development Strategic Outcomes, Targets, Action Plan Items and Performance Indicators (continued)

Sustainable Development Strategic Outcome: Enhance the capacity of Industry Canada's sustainable development management system.

Target: Enhance the capacity of Industry Canada's management systems by focussing on the planning, performance measurement and evaluation functions, and improve the integration of sustainable development into decision-making processes. By December 2006, successfully complete six identified action plan items.

Sustainable Development Strategic Outcome Areas	Action Plan Items	Performance Indicators
Improving sustainable development planning, performance measurement and evaluation	• Integrating sustainable development into the Department's strategic planning and reporting frameworks	• Extent of further integration of sustainable development language and commitments in corporate planning documents
	• Renewing the Greening Operations plan	• Data on procurement, automotive fleet operations, non-hazardous materials and solid waste
	• Updating sustainable development evaluation initiatives	• Completion of mid-term evaluation of SDS III • Completion of SDS IV internal scan • Refinement of the SDS III evaluation framework to provide a practical approach for the SDS III mid-term evaluation and the cumulative evaluation • Development of the SDS IV evaluation framework
	• Improving sustainable development training and awareness	• Number of participants in courses, lectures and workshops
	• Promoting sustainable development through Senior Management Champions	• Level of senior management support
	• Supporting Industry Canada's Sustainable Development Challenge	• Number of participants registered in Sustainable Development Challenge • Calculated emissions reductions • Fitness levels of employees

Appendix I: Departmental Profile

Overview

Industry Canada was created in 1993. Its mandate is to help make Canadians more productive and competitive in the knowledge-based economy, thus improving the standard of living and quality of life in Canada. Industry Canada's policies, programs and services help grow a dynamic and innovative economy that provides more and better-paying jobs for Canadians; supports stronger business growth through continued improvements in productivity and innovation performance; gives consumers, businesses and investors confidence that the marketplace is fair, efficient and competitive; and ensures a more sustainable economic, environmental and social future for Canadians.

The Department's five strategic objectives are:

- Innovation
- Connectedness
- Marketplace
- Investment
- Trade

Industry Canada has identified these five areas of focus for achieving sustainable economic growth and building a world-leading, innovative economy. The Department's five strategic objectives are mutually reinforcing. Strengthening Canada's innovation system helps ensure that discoveries and breakthroughs can happen here in Canada and that the social and economic benefits of these innovations contribute to Canadians' quality of life and standard of living. An innovative economy attracts investment, and investment brings skills, ideas and financial resources to Canada. Sound marketplace frameworks help establish a business environment that supports investment and entrepreneurial activity. Connectedness promotes skills development, facilitates e-commerce and supports high-speed networks. Trade creates new markets and brings new ideas and technologies into Canada.

Contributing to the Quality of Life of Canadians

The Department's mission is to foster a growing, competitive, knowledge-based Canadian economy and promote sustainable development. Industry Canada works with Canadians in all sectors of the economy and in all parts of the country to improve conditions for investment, enhance Canada's innovation performance, increase Canada's share of global trade, connect Canadians, and build a fair, efficient and competitive marketplace. Our economic prosperity is also dependent on a healthy environment. Industry Canada acknowledges this important relationship by focussing on improving productivity through eco-efficiency, developing and diffusing environmental technologies, and integrating

sustainable development into departmental decision making.

Partnerships Mean Success

Industry Canada works in partnership with a variety of stakeholders in delivering its programs and services, and consults with these stakeholders in developing effective micro-economic policies. Industry sectors, universities and colleges, NGOs, members of the Industry Portfolio, other government departments, and provincial and territorial governments are important partners in helping Industry Canada fulfill its mandate and achieve its successes. Industry Canada will continue these cooperative partnerships to sustain Canada's economic growth and to identify new challenges and opportunities.

INNOVATION: Improving Canada's innovation performance

Since the launch of *Canada's Innovation Strategy* in February 2002, Industry Canada has seen much support emerge for the proposals contained in *Achieving Excellence*, its contribution to the strategy. The Speech from the Throne confirmed the Government of Canada's intention to move forward on a number of proposals, such as support for the indirect costs of university research and for graduate students, the elimination of immigration barriers for highly qualified personnel, and the need for a new approach to regulation. Industry Canada is working to implement many of the proposals, while involving all the key players of Canada's innovation system: the private sector, universities and colleges, and communities.

CONNECTEDNESS: Making Canada the most connected country in the world

Industry Canada is the lead department in the Government of Canada's Connecting Canadians initiative and has made significant strides toward its goal of making Canada the most connected country in the world. Although Canada took early steps to meet the challenge of providing universal basic connectivity, many challenges remain. We must ensure that Canadian citizens and businesses are able to leverage the power of networks to create the applications, technologies and businesses of tomorrow. In 2003–04, Industry Canada will continue to implement activities, programs and policies related to the three pillars of a networked nation: infrastructure, use and content. Success in achieving this goal is dependent upon a multitude of partnerships. In 2003, the Government of Canada committed to undertaking a review of its Connecting Canadians initiatives to determine how best to collaborate with industry, the provinces and territories, communities, and others for the continued delivery and relevance of these initiatives for Canadians.

MARKETPLACE: Building a fair, efficient and competitive marketplace

As indicated in *Canada's Innovation Strategy*, moving away from prescriptive regulatory regimes toward performance-based regulation is key to keeping pace with innovation-driven businesses.

Canada's copyright rules will be revised to ensure that Canada has a progressive regime that supports increased investment in knowledge and cultural works. Industry Canada and Canadian Heritage will jointly draft and table amendments to the *Copyright Act*. Taking into account the fall 2003 recommendations by the House of Commons Standing Committee on Canadian Heritage, these amendments will further balance the protection of rights of copyright holders, while promoting access by Canadians to cultural and other works.

Industry Canada will also, as indicated in the February 2003 Budget, improve its laws and strengthen enforcement mechanisms to ensure that governance standards for federally incorporated companies and financial institutions

remain of the highest order. Federal corporate governance legislation will be reviewed and necessary compliance mechanisms will be established to foster transparency and accountability, and to improve confidence and investment in Canada.

The marketplace service organizations will continue to ensure that the marketplace remains competitive and dynamic, by improving services to clients in areas such as the provision of patent application status on-line, and the provision of consumer information and radio frequency spectrum, to name a few. Efforts to modernize tools used to detect, prevent and deter fraudulent, unfair and deceptive behaviour in the marketplace will also continue.

INVESTMENT: Improving Canada's position as a preferred location for domestic and foreign investment

To increase our share of North American foreign direct investment (FDI), more aggressive efforts are required to promote the Canadian advantage in a North American context to investors in markets that generate high levels of FDI. Industry Canada works with federal investment partners, provincial/territorial departments and agencies, and the private sector to develop and implement specific initiatives related to investment policy, marketing, and attracting investment from priority markets into priority sectors.

TRADE: Working with Canadians to increase Canada's share of global trade

Industry Canada supports efforts to increase access to new markets and to secure and improve access to existing markets. It promotes the benefits of exporting and helps SMEs enhance their ability to compete at the global level. It also helps established Canadian companies pursue foreign markets, and promotes Canada as a supplier of high-quality goods and services.

An estimated one out of every four jobs in Canada is linked to success in the export market. Trade, however, does not stand alone. There are linkages between investment, innovation and trade that are important to capitalize upon in building a strong foundation in the international business development continuum and in enhancing Canadian productivity. In addition to generating revenues, trade improves efficiency and productivity, as firms develop or adopt new technologies and embrace new managerial methods, resulting in new, high-quality jobs.

The U.S. continues to dominate as Canada's largest export destination, with some 82 percent of our exports going to U.S. customers. Statistics Canada estimates the daily two-way trade in goods and services between Canada and the U.S. at $1.85 billion. Resolving border issues related to the movement of goods and people, and increasing the Canadian presence in the U.S., are priority issues in order to ensure that Canada's commercial interests in this market are reinforced. In the Speech from the Throne, the Government of Canada recognized that the Canada–U.S. Smart Border Declaration provides a mechanism to address these issues, and committed to expanding fair and secure trade. Industry Canada will build on this work to ensure that Canadian companies can maximize new and existing trade opportunities.

At the same time, Canadian exporters are looking to other international markets where new opportunities have been created. Mexico is one of the fastest-growing export markets, albeit from a small base. It is now our fourth most important export market, after the European Union and Japan. The Department works closely with a wide range of federal departments, provincial and territorial governments, and the private sector in an effort to better coordinate international business development efforts.

Appendix II: Issues and Opportunities

This appendix provides executive summaries of the three foundation studies, prepared for the new Sustainable Development Strategy by external consultants on the Department's behalf:

- internal issues scan for the new strategy
- external issues scan for the new strategy
- mid-term evaluation study of the second strategy

The objectives of the two issues scan studies were to identify the key sustainable development issues for Industry Canada and note the opportunities for departmental action to respond to the issues.

The internal issues scan provides a list of the perceived sustainable development issues and their related opportunities for action. This information was used to build the strategic outcomes and related action plan items for SDS III.

The complete text of each foundation study is available at: **http://strategis.gc.ca/sd**

II.a: Internal Issues Scan — Executive Summary

Industry Canada commissioned KPMG Consulting to undertake an internal issues scan to identify key sustainable development issues from the perspective of departmental management and staff. Related opportunities and constraints that were expected to impact the implementation of the Department's next SDS were also identified.

The approach for this study consisted mainly of a document review and interviews with 49 professional and management officials from a cross-section of branches within Industry Canada. In addition, relevant results of interviews conducted for the mid-term evaluation study (37 interviews) were blended with the issues scan interviews.

Key Sustainable Development Issues

Seven broad sustainable development issue areas emerged from the consultation process that can be considered to be key from the standpoint of Industry Canada's mandate and its strategic directions. These issue areas are also consistent with the objectives identified in *A Guide to Green Government* and consecutive Speeches from the Throne (1999, 2001 and 2002). The results of this study reflect the perceptions of the officials that were interviewed.

The broad issue areas that were identified are:

Near term (one to three years, SDS III):

- Integrating sustainable development into the decision-making process
- Broadening government measures of sustainable development
- Supporting innovation towards sustainable development
- Fostering improved productivity through environmental efficiency

Long term (cumulative impacts of various SDSs over 10+ years):

- Ensuring resources development is sustainable
- Meeting our international challenges
- Improving quality of life and well-being

These seven broad issue areas encompass the sustainable development initiatives of SDS I and SDS II, and provide a framework for initiatives in SDS III.

The consultation process involved representative individuals from a cross-section of branches within the Department. Each branch within the Department may prioritize these issues differently. The Department will need to review and validate these issue areas, select related specific initiatives (action items), and prioritize their activities from an overall departmental standpoint.

Opportunities

A number of potential initiatives that could contribute to achieving government-wide sustainable development objectives, within a context consistent with Industry Canada's mandate, were identified based on the perceptions of the departmental officials interviewed. These perceived opportunities are listed on the following pages under each of the broad issue areas identified.

Near term (1–3 years, SDS III):

Integrating sustainable development into decision-making process

Opportunity areas

- Monitoring environmental reporting practices of companies in Canada
- Promoting sustainable development awareness among consumers
- Integrating environmental framework with economic framework for sustainable development
- Ratcheting up quality of SEAs
- Identifying economic impacts of Kyoto Protocol on Canadian industry
- Improving the role of the Department in advocacy
- Promoting good corporate governance practices
- Encouraging life-cycle stewardship
- Monitoring reporting requirements for CSR
- Developing new sector technology roadmaps
- Continuing to work on sustainable cities/communities
- Conducting an international benchmarking of sustainable development policies and legislation
- Continuing to evolve the Canadian Environmental Solutions Web site
- Promoting extended producer responsibility, to include the post-consumer stage
- Helping municipalities and SMEs adopt environmental management systems
- Promoting biodiversity stewardship/ conservation
- Helping SMEs with "triple bottom line" implementation
- Participating in the convergence framework (with NRCan and Environment Canada)
- Putting own house in order

Broadening government measures of sustainable development

Opportunity areas

- Studying impacts of sustainable development fiscal and tax incentives on performance of firms
- Developing a strategic oversight capability for SDS III
- Delineating linkages for convergence of sustainable development projects around SDS III themes
- Contributing to MOUs with NRCan to make economic case for reduced emissions
- Helping accelerate the regulatory review process
- Developing performance measures for the SCI
- Building socio-economic impacts analysis into roadmaps
- Improving microeconomic modelling for measuring impacts of sustainable development
- Implementing an internal departmental forum for sharing ideas from SDS III
- Applying RMAF guidelines for SDS III at an early planning stage
- Exploring the effectiveness of MOUs as a "soft" tool for influence
- Using sustainable development as a screening tool in the financial sector
- Benchmarking companies ranked in relation to sustainable development performance
- Analyzing impacts of voluntary sustainable development mechanisms on industry
- Developing credible impacts analysis for pre-competitive investments of TPC
- Working with Statistics Canada to develop data and measures on environmental technologies and eco-efficiency
- Measuring what constitutes success of sustainable development for Canadian trade
- Identifying success measures for outreach efforts by Industry Canada

- Studying the implications of Kyoto Protocol for consumers
- Identifying infrastructure requirements for hybrid and fuel-cell technologies
- Developing more effective environmental assessment indicators

Supporting innovation towards sustainable development

Opportunity areas

- Identifying the commercial benefits of innovative technologies that mitigate the effects of climate change
- Supporting SMEs in understanding and adopting sustainable development innovative technologies and practices
- Continuing arm's-length support for innovative sustainable development technologies development (CFI, TPC, Sustainable Development Technology Fund)
- Supporting the Green Chemistry Network
- Supporting water cleanup technologies
- Facilitating recycling initiatives for waste management (such as the ICT initiative for take-back of electronic equipment)
- Continuing to showcase leading-edge sustainable development technologies
- Providing incentives for the commercialization phase of technology development
- Developing a multi-sector resource-recovery strategy
- Continuing to develop sector technology roadmaps
- Supporting lean manufacturing technology development
- Networking through initiatives such as the Innovation Summit — with themes including green chemistry, air quality, recycling and bio-economy
- Supporting biotechnology initiatives that aim to develop less resource-intensive products and methods

Fostering improved productivity through environmental efficiency

Opportunity areas

- Aligning environmental concerns with the economic impacts of sustainable development — compiling and disseminating information on benefits and trade-offs
- Conducting an international benchmarking study on sustainable development practices and productivity — comparing foreign companies to Canadian companies, and companies at different stages of maturity
- Undertaking a reality check study about the impacts of sustainable development on productivity and eco-efficiency, at micro and macro levels
- Continuing to develop and disseminate eco-efficiency tools to demonstrate eco-efficiency performance and productivity by industry sector
- Preparing a training module for capacity building in industry

Long Term (Cumulative Impacts of Various SDSs over 10+ Years)

Long-term results ensue from undertaking relevant sustainable development initiatives that take advantage of near-term opportunities presented by various Industry Canada delivery instruments. Nonetheless, some opportunities were suggested for long-term objectives.

Ensuring resources development is sustainable

Opportunity areas

- "Lean" manufacturing voluntary approaches taken by industry sectors to achieve sustainable codes of practice
- Biotechnology solutions and applications
- Combining competitiveness with efficient use of resources

Meeting our international challenges
Opportunity areas
- Clean-production technologies
- Climate change technologies
- Standards and codes
- SME compliance
- Outreach to Canadian firms
- Relevant Web sites and databases
- Technology showcasing
- Workshops and seminars
- Multi-stakeholder working groups/ committees

Improving quality of life and well-being
Opportunity areas
- Promoting awareness among industry and the public
- Offering incentives for innovation in industry
- Disseminating relevant information to help make informed choices

Constraints

Constraints were identified during the consultation process with Industry Canada officials. A "constraint" is a limiting factor that is perceived to have a significant impact on the potential for the Department to advance sustainable development initiatives.

The key constraints discussed in this report fall into the following categories:
- Need for a clear government-wide vision
- Need for clarity of long-term departmental goals
- Limitation of delivery instruments
- Limited resources
- Challenge of intradepartmental partnerships
- Challenge of tracking results
- Other strategies and priorities of the Department
- Competing stakeholder interests
- Fragmentation — numerous action items to consolidate

Addressing these constraints is crucial for SDS III, in order to ensure the success of Industry Canada's future SDS and related initiatives.

Recommendations

"Continuous improvement" is one of the principles espoused by *A Guide to Green Government*. The following recommendations are presented for Industry Canada to continue to improve the quality and scope of its sustainable development initiatives.

Focus on the seven sustainable development issue areas identified in this report
These issue areas form a framework to identify relevant initiatives and opportunities for SDS III. They also encompass objectives of SDS I and SDS II.

Consider the opportunities identified
It is recommended that the Department consider the opportunities identified, and use them to develop sustainable development initiatives that are relevant and consistent with the Department's mandate and sustainable development priorities.

Merge the results of the internal issues scan with other studies and consultations
This internal issues scan summarizes key issues and opportunities identified through interviews with 49 professional and management officials from a cross-section of branches within Industry Canada. Views of stakeholders and clients of Industry Canada, particularly those gathered as part of the external issues scan study, and views of officials from other government departments, will need to be merged with the results of this study. In addition, the findings and lessons learned that are presented in the mid-term evaluation study of SDS II need to be considered in developing SDS III. These merged results can then be used as a basis for further consultation with stakeholders and other internal departmental officials.

Recognize the constraints identified
The Department should recognize the constraints identified in this report when developing SDS III. Considering these constraints during the planning process for SDS III could help prioritize the initiatives and serve as a "reality check" on what is achievable within the parameters defined by these constraints.

This report largely reflects a synthesis of the perceptions of the Industry Canada officials that were interviewed. Background research involving a review of several relevant documents also formed a part of the findings. The results of this study should be seen only as one step in a continuous improvement process aimed at contributing to the development of the next SDS of the Department.

II.b: External Issues Scan — Executive Summary

Industry Canada piloted a new approach for conducting its external issues scan for the new strategy that entailed developing in-depth reports for the following six sectors: forestry products; oil and gas; information and communications technologies; plastics; concrete and cement products; and steel products. These sectors were chosen based on the recommendations of industry sector development officers within the Department. A number of considerations went into their selection, including availability of data, perceived receptiveness of the associations, availability of Industry Canada officers, availability of consultants, timing and fiscal constraints.

Industry Canada retained the Schulich School of Business at York University to develop a framework and methodology for producing sector-level sustainable development reports that would then be rolled up into one external issues scan. A workshop was convened in early January 2003 to introduce sector-report consultants to the proposed framework and seek their input in the development of a small set of candidate core indicators that could be used as a basis for exploring the current reality and future potential within each sector at the same time. It was anticipated that the potential of each sector could be normalized against common measures to make it easier to identify the sustainable development opportunities with the greatest potential for gain and, thus, to recommend issues or sectors where Industry Canada might most effectively allocate its resources.

The issues scan had four goals: to explore sustainable development issues facing the sector; to identify sustainable development successes in the sector; to examine where the sector needs to do more work; and to determine the sector's vision for further action. These reports could then be used to identify areas where Industry Canada could work with the sector to achieve its sustainable development objectives. The sector reports also have great potential to provide linkages between sustainable development, *Canada's Innovation Strategy* and climate change activities.

Industry Canada has indicated that the reports are expected to help set priorities and identify activities and action for SDS III and by Industry Canada sector branches to raise awareness of opportunities within their sectors. The reports also have potential to raise awareness within industry of sustainable development issues affecting particular sectors.

Discussion and Identification of Leverage Points

The sector reports and supplemental external scan have identified numerous opportunities for Industry Canada to progress toward a more sustainable industrial base in Canada on a sector-by-sector level. The research also identified some common themes, which suggest areas for consideration as Industry Canada develops its SDS III.

Sustainability Vision

While the sectors reviewed in the research for Industry Canada's SDS III are at different stages on the path to sustainability, the sector reports and stakeholder scan reflect the need for a constant and unifying understanding of what constitutes sustainable progress for Canada's industrial base. The research suggests that such an understanding would facilitate a coordinated strategy within Industry Canada to pull sectors forward. It would assist the Department in helping to develop coordinated programming and messaging across federal departments (Environment Canada, NRCan, Health Canada, Finance Canada and others), and across provincial and international jurisdictional boundaries. Sectors such as the plastics sector, which has great potential for sustainable development progress but is in the early stages of development; plastics and ICT, which are just now launching environmental or sustainable development initiatives; electricity, which is a sector in transition and open to sustainable development opportunities; and forestry, which has a deep understanding of sustainability principles but faces challenges modernizing its infrastructure, are all examples of potential beneficiaries.

Market Development

Several sectors (forestry, concrete and cement products, steel products, electricity and plastics) spoke of the importance of market development and pull for maximizing sustainable development potential. Representatives of consumer organizations, which are now organizing to attain critical mass and maximize market pull, echoed the issue. The research suggested several entry points to influence, including business and individual consumers at home and abroad, as well as sector supply chains. Government procurement was identified as a vital leverage point. Education, market instruments and tax incentives were recommended as tools that have potential to create market pull.

Investment in Research and Development

Virtually every sector identified the need for investment in R&D to fuel progress in sustainable development. Some (forestry, plastics) identified significant shortfalls. In addition to direct investment by federal departments, policy, market instruments and tax incentives, several entry points for leveraging increased investment dollars in R&D were identified. These included the development of Centres of Excellence (concrete and cement products), partnering opportunities (plastics) and promotion of sectors as sustainable (forestry).

Human Resources Training and Development

Sectors as diverse as forestry, oil and gas, ICT, and plastics identified a critical need to attract and retain highly trained employees for their industries. Maximizing sustainable development progress in sectors such as plastics and tourism will require new training opportunities for a rural work force that may not be equipped with the appropriate skills. Industry acknowledges its role in ensuring its employees receive adequate on-the-job training, and expressed a willingness to invest in this area. There may be opportunities to assist through policy instruments or tax incentives. Raising the sustainable development profile of sectors such as forestry may be instrumental in attracting employees.

Communication of Sustainability Achievements and Opportunities

The need for effective communication of sustainability achievements and opportunities — within sectors, across sectors, and with the public domestically and abroad — was expressed in every aspect of the research. Communication has the potential to create synergies and partnerships, create pull for sustainable development progress from within industries — either by associations or by sector leaders — and create pull for sustainable development products from supply chain partners, retailers or individual consumers. It has the potential to draw out and market improvements already made and initiatives under way, or the qualities inherent in certain materials (e.g. sustainability of forests, long-term sustainable development benefits of cement and steel products, green electricity). There are different entry points for dissemination of information. For plastics, it may be through industry associations; for oil and gas, through industry leaders; for building materials, through outreach (and demonstration projects) to SME contracting facilities and builders, or in partnership with building materials outlets.

Public reporting, transparency and stakeholder engagement were cited as critical for sustainability by virtually every sector. But even sectors experienced in stakeholder engagement (forestry, oil and gas) noted the need for ongoing improvement as the complexity of stakeholder needs increases. Both sectors with well-developed stakeholder relations and those just beginning (including SMEs) would benefit from a communications protocol or program that simplifies and eases entry into stakeholder communications.

Sector Opportunities

In addition to the common themes, the sector reports drew out several sector-specific opportunities. It is recognized that each of the reports offers valuable perspectives on the sectors' current status and a variety of opportunities for Department officers to pursue. However, it is the conclusion of this research that opportunities of the same significance and potential did not emerge in all sectors, and only those sectors suggesting clear, comprehensive ways forward are included in the discussion below.

Of the four sectors discussed (forestry, oil and gas, ICT, and plastics), forestry stands out as having potential for significant progress and is ranked as having the clearest high-leverage opportunity in the near term.

Forestry

The forestry sector demonstrates a deep understanding of sustainability issues, and has been able to articulate a vision for sustainability achievements across all candidate core indicators and a selection of sector-specific indicators. This suggests that it is well positioned to make progress, given the right signals and support. Key to its progress is facilitation of renewal by way of investment in R&D and infrastructure. Sustainable development linkages to investment include reduction in environmental impact and attracting highly trained personnel. Market opportunities exist for sustainable forest products, and communication of sustainable development initiatives by the Canadian forest sector would increase market pull and have positive implications for trade.

Assessment: high leverage

Oil and Gas

Competitiveness vis-à-vis Kyoto Protocol commitments is a key concern for the oil and gas sector. The sector has also identified the importance of communication, transparency and stakeholder engagement, which are vital to its maintaining its licence to operate, reducing costs and ensuring access to land. Working with industry leaders to demonstrate

the economic benefits of sustainability provides potential to bring other players forward.

Assessment: moderate leverage

Information and Communications Technologies

While the Electronics Product Stewardship Canada initiative is focussed on end-of-life management, it offers a leverage point for promoting an investigation of sector impacts beyond waste disposal and for seeking opportunities for sustainable development improvement. The sector also ties to the Innovation Agenda, expands beyond Canada's traditional resource base and offers potential for additional leverage to sustainability across other sectors.

Assessment: moderate leverage

Plastics

While the plastics manufacturers are in the early stages of sustainability management, they indicate an understanding and willingness to make progress on sustainable development issues. The early stage of implementation of their Preserve, Prevent and Protect Sustainability Management Program precludes high-leverage opportunities. However, the program may provide valuable lessons on how to successfully implement sustainable development initiatives in other sectors dominated by SMEs. Some examples include the need for development and communication of the business case for SMEs (including social and economic costs of safety incidents), development of stakeholder communications and outreach (reporting templates, on-line reporting) to lower entry barriers, and development and tracking of sector-relevant benchmarks with the potential to stimulate investment.

Assessment: moderate leverage

II.c.: Mid-Term Evaluation — Executive Summary

The approach to this study consisted of a document review, a review of the departmental monitoring and reporting database, and interviews with 37 management and professional staff members of Industry Canada and 5 departmental clients and industry representatives. The report provides a review of the results achieved to date by the Department through the implementation of SDS II, what aspects have changed since SDS I, and the lessons learned from SDS II. This evaluation also identifies implementation questions that need to be addressed for the next phase of sustainable development initiatives by Industry Canada.

Evaluation Questions

The specific focus of the mid-term evaluation was on the following key research questions:

1) How relevant are the SDS II objectives and priorities to Industry Canada and to Industry Canada's stakeholders' needs?
2) Is SDS II consistent with the Department's mandate? How do the SDS II action items relate to Industry Canada's strategic objectives?
3) What is the relevance of Industry Canada's SDS II initiatives for the government-wide sustainable development objectives?
4) How successful has SDS II been in achieving its objectives (including productivity through eco-efficiency, environmental technologies, and decision-making objectives)?
5) Have the intended near-term sustainable development impacts of SDS II been achieved? What were the unintended impacts from SDS II, if any?
6) To what extent has SDS II achieved sustainable development results relating to the Department's strategic objectives (i.e. innovation, connectedness, marketplace, investment and trade)?
7) What are the lessons learned, based on factors that might have facilitated and/or impeded the implementation of SDS II, that could be useful to SDS III?

Findings: Update on Achievements of SDS I

Most officials interviewed from several branches of Industry Canada felt that they had achieved the SDS I targets set out for their various sustainable development-related projects. Generally, they also felt that the Department was heading in the right direction in terms of integrating sustainable development into operations and addressing sustainable development-related issues.

The final status of SDS I action items is as follows: 12 action items were completed according to plan, 15 were completed with add-ons and/or rolled into SDS II for follow-up, and 1 was discontinued.

Fostering a marketplace climate: Most interviewees thought that Industry Canada made good progress from 1998 to 2000 in addressing its marketplace climate objective (i.e. marketplace rules and services; reasoned advocacy to shape sustainable development policy; and consumer choice and the marketplace). Since 2000 the Department is generally seen as heading in the right direction, but may have lagged in the advocacy and consumer elements of this objective.

Enhancing the ability of Canadian firms to develop and use innovative technologies: This can be described as a forte of Industry Canada. Many sustainable development initiatives that are likely to have a more direct impact on innovative technologies (particularly at the early development stages) are in place. The ability of the Department to measure the commercial potential of innovative technologies supported by Industry Canada, however, has not progressed sufficiently. It is therefore nearly impossible to attribute long-term results to Industry Canada's activities contributing to innovative technologies, beyond anecdotal evidence.

Encouraging trade and investment: The update on this particular objective of SDS I is that Industry Canada has made progress in continuing to support the Government of Canada's efforts to encourage the export of Canadian knowledge, products, practices and technologies that further sustainable development objectives. However, the general view is that this progress is slow, notwithstanding some very successful initiatives, including the SCI, Canada's participation in the WSSD, and Trade Team Canada Environment activities.

Continuing to improve the capacity of Industry Canada: SDS I was seen to be relevant and consistent with the departmental mandate and goals. As such, SDS I was able to establish a strong foundation for SDS II to implement action items focussed on entrenching sustainable development within the Department. The capacity of Industry Canada to manage and deliver departmental policies, programs and operations that contribute to sustainable development, by all measures, seems to have been quite successful. However, where SDS I appears to have fallen short is in fostering a clear image of the long-term outcomes that the strategy is meant to achieve. This same challenge was carried over into SDS II.

Relevance of SDS II

All of Industry Canada's sustainable development initiatives appear relevant to the Department and to government-wide sustainable development goals, as described in *A Guide to Green Government* and in various Speeches from the Throne (1999, 2001 and 2002) and the Government of Canada's Budget statements (e.g. Budget 2003), and as expressed in the Leaders Forum on sustainable development in 2000 (e.g. "productivity through eco-efficiency," co-led with NRCan and Environment Canada).

To date, the Department continues to make the strongest link with sustainable development through its innovation and marketplace objectives. However, the Department's contribution to sustainable development has become relatively more diversified in scope across the Department and across Industry Canada's other strategic objectives, compared to SDS I.

The CESD's 2002 report to the House of Commons stated: "The government has yet to provide a clear picture of what a sustainable Canada would look like 20 years from now." In the absence of such a government-wide vision, it is difficult for departments such as Industry Canada to develop long-term sustainable development goals. Nonetheless, Industry Canada has identified its long-term, as well as near-term, intended results, which are relevant within a broad government framework, and linked these to specific SDS II action items. This notwithstanding, there is a lack of clarity about the path towards achieving the long-term goals. Most of the SDS II action items are actually short- or near-term in nature, with a three-year time span, since the Minister of Industry and the Department are required to update the strategy every three years. Yet long-term thinking for the next generation of Canadians is the essence of sustainable development.

Results of SDS II: Productivity Through Eco-efficiency

Nineteen action items fall under Industry Canada's Productivity Through Eco-efficiency objective. Two action items are related to capacity building in R&D and skills. Twelve action items fall under applying tools in the marketplace, while 5 action items relate to measuring success.

Industry Canada has undertaken a broad range of activities in order to address the Productivity Through Eco-Efficiency objective. Out of 19 action items in this area, the Department has fulfilled or exceeded requirements connected to 13 items, and is making progress towards completing 3. Another 3 action items are reported to be in a planning or early implementation phase and may need to be rolled into SDS III.

Key mid-term results related to the Eco-efficiency objective are listed below. Other results are discussed in the report.

- Three new relevant NCEs were announced, and have been making progress in designing and implementing sustainable development-related research programs.
- A multi-stakeholder steering committee at the Canadian Standards Association was mandated to expand the use of environmental standards and eco-efficiency tools to SMEs.
- Various on-line self-assessment tools for sustainable development performance were completed and are being used.
- An on-line registration tool and database were developed to enable companies to register and update their climate change technology-showcasing information.
- Two reports were completed on environmental information for consumers.
- A Biotechnology Web site was set up to promote awareness of applications of biotechnology for sustainable development.
- Several reports on CSR and on corporate sustainability reporting were completed and widely circulated.

Results of SDS II: Environmental Technologies

Nineteen action items fall under Industry Canada's Environmental Technologies objective. Six action items are related to promoting technology innovation, 7 action items fall under encouraging new approaches, and 6 action items relate to working together through partnerships.

Industry Canada has undertaken a broad range of activities in order to address the Environmental Technologies objective. Out of 19 action items, the Department has fulfilled or exceeded requirements connected to 8 items, and is making progress towards completing another 8. Another 3 action items

are reported to be in an early implementation phase and may need to be rolled into SDS III.

Key mid-term results related to the Environmental Technologies objective are listed below. Other results are discussed in the report.

- TPC has invested considerably in sustainable development-oriented projects.
- Industry Canada worked with NRCan and Environment Canada to get the Sustainable Development Technology Fund up and running.
- Industry Canada continues to support the CFI, which also funds sustainable development-related projects.
- Several TRMs have been completed that have led to collaborative actions by many industry stakeholders.
- Several reports on international business development competitiveness were completed and posted on the Internet.
- Canadian firms are benefiting from the development of international markets from Trade Team Canada Environment.
- The SCI successfully evolved from a pilot project to a $9-million program covering 17 cities.
- Three TRMs were launched for climate change.
- Two studies on fuel-cell technology were completed in support of this industry.
- A vision was advanced for a bio-products and bio-based economy in Canada.
- Partnerships with leading industry firms and science-based departments and agencies were established for developing an innovation strategy and action plan for bio-products and bio-processes.
- A Canadian Environmental Solutions Web site was launched.

Results of SDS II: Decision Making

Twenty action items fall under Industry Canada's Integrating Sustainable Development Into Decision Making objective. Ten action items are related to improving planning practices, 6 action items fall under enhancing implementation of sustainable development, and 3 action items relate to strengthening consideration of sustainable development in evaluation.

Industry Canada has undertaken a broad range of activities in order to address the integration of sustainable development into decision making. Out of 20 action items, the Department has fulfilled or exceeded requirements connected to 13 items, and is making progress towards completing 5. Another 2 action items are reported to be in a planning or early implementation phase, and may need to be rolled into SDS III.

Key mid-term results related to the decision-making objective are listed below. Other results are discussed in the report.

- The quality of discussion of sustainable development and environmental impact issues was elevated at the SPC of Industry Canada.
- Improved SEAs were implemented in numerous submissions and Memoranda to Cabinet.
- Project environmental assessments were improved at Industry Canada through training, improved networking with other departments and sharing best practices.
- Industry Canada has been proactive in advancing the integration of social, economic and environmental elements of sustainable development in several national and international forums.
- Sustainable development was successfully integrated into the RPP.
- Three ADM champions were appointed for outreach to industry, greening operations, and SDS implementation and monitoring.

- A robust Eco-efficiency Web site was launched.
- The Department continues to move forward on greening its operations.
- Several training and awareness initiatives on sustainable development were delivered to Industry Canada staff.
- Sustainable development considerations have been included in RMAFs and evaluation studies, and an SDS II evaluation framework was completed.

Lessons Learned and Recommendations

The following lessons learned from the SDS II experience can help the Department build on and improve the process for SDS III, so that government requirements can be met and sustainable development can continue to become an integral component of departmental culture. Recommendations associated with the lessons learned are also presented.

Making progress: Industry Canada has considerably progressed since SDS I in advancing its sustainable development agenda. SDS II had 58 sustainable development action items, compared to SDS I's 28. This in itself suggests an increase in sustainable development activity in the Department. However, it also means that there is a requirement to consolidate the various initiatives under way around key objectives of the strategy. While SDS II represents progress in establishing a strategic "top-down" view for sustainable development at Industry Canada, the process is still seen by some as a fragmented "bottom-up" collection of projects/action items. A balance between the "top-down" and "bottom-up" perspectives would be useful, not only in terms of how these fit together on paper (i.e. in the strategic document itself), but also in the implementation process and the reporting of results.

Recommendation: *Industry Canada should consolidate the various action items that emerge for SDS III into no more than 10 key outcome areas that are associated with the objectives of the strategy. Implementation and reporting on results should be structured around these key outcome areas. While SDS II had 9 key outcome areas, the implementation and reporting structure of the strategy was focussed on the 58 action items, and not around the 9 key outcome areas.*

Evaluation framework: While SDS II included a set of performance indicators associated with many of the sustainable development action items, the challenge of measuring results of sustainable development initiatives in relation to the overall long-term objectives of the strategy is still not sufficiently addressed. It should be noted that all other departments similarly face the same measurement challenges. The SDS I mid-term evaluation study recommended that the Department carry out an evaluation framework to inform the process for measuring results and to help develop evaluation indicators. This was not done until late in the implementation phase of SDS II.

Recommendation: *An SDS III evaluation framework study, consistent with TBS guidelines, should be undertaken concurrently with the planning process for developing the next strategy. This will contribute to addressing the issue of appropriate indicators for near-term and long-term analysis of results.*

Decision making: While Industry Canada has successfully integrated sustainable development into its decision-making process, a focus on integration continues to be necessary into and throughout the next three-year period. While the quality of discussion and expertise about sustainable development has increased in the Department since the first generation of sustainable development strategies, the challenges are ongoing and the need to remain vigilant is still present.

Recommendation: *Integration of sustainable development in the decision-making process remains an important priority for Industry Canada*

in order to maintain a high profile and a focus on this endeavour. SDS III should retain decision making as one of its strategic objectives.

Scope and flexibility of the strategy: SDS II, as a strategic process and implementation framework, did not capture all sustainable development-related work under way in the Department. Some sustainable development-related initiatives and opportunities emerged after the strategy was implemented (e.g. activities of the Manufacturing Industries Branch regarding "lean manufacturing").
Recommendation: *While flexibility was demonstrated in the implementation of SDS II in that it was possible to add new action items to the original 57 (e.g. the "take-back" initiative for recycling computers and telecommunications equipment was added as a new action item), the Department should review the plan on an annual basis and adjust actions and deliverables as required, to meet key outcomes and objectives of the strategy.*

Monitoring and reporting: Compared to SDS I, SDS II monitoring and reporting have solicited praise and hardly any complaints during the consultation process for this study. However, improvements are needed for capturing changes and additions to original plans and action items, and for tracking outcomes.
Recommendation: *For SDS III, individual sustainable development project leaders should consider compiling performance information consistent with the RMAF framework of TBS on an ongoing basis as part of the sustainable development monitoring and reporting system. In this respect, guidance from TBS and/or the office of the CESD would be welcome. Nonetheless, the Department needs to develop its own measurement system for SDS III.*

Resources: Industry Canada managers and staff consider the lack of funding as a significant constraint to sustainable development implementation, generally resulting in a cautious approach in committing to relevant projects, with some exceptions.
Recommendation: *The strategic planning process for SDS III should explore the potential of allocating funds for projects under an SDS III appropriation framework.*

Internal partnerships: The Department has become more effective in collaborating and partnering with other government departments, provinces, municipalities, private industry, non-profit organizations and associations for sustainable development-related activities in general. However, from the consultation process for this study, there are perceived opportunities to improve internal partnerships within the Department for sustainable development initiatives. The Industry Canada SDS group could encourage internal partnerships with/between branches within the Department. These internal partnerships could create synergies in expertise and knowledge, and bring about cooperation towards more effective delivery of sustainable development outcomes and objectives. Intradepartmental working groups could be used more effectively to capitalize on these synergies.
Recommendation: *During the planning process for SDS III, the Department should consider how to engender intradepartmental cooperation towards achieving the desired sustainable development outcomes.*

Delivery instruments: The Department has made good use of the diverse tools available to it to achieve SDS II results. However, in the next Sustainable Development Strategy, the challenge for Industry Canada will be to select the appropriate instruments that best achieve the intended outcomes of the strategy, in a suitable time frame that is consistent with a government-wide schedule for achieving results. This challenge can be mitigated

only to the extent that consensus emerges on a time frame for results, with an accompanying clarity of vision expressed at a government-wide level as well as within Industry Canada.
Recommendation: *Regardless of this challenge, it is important for the Department to assess and select the most effective tools at its disposal that best achieve intended results in a timely fashion.*

Results: SDS I, SDS II and SDS III activities are expected to yield societal results in the long term (e.g. 5–10 years hence and beyond). However, there is a need to start planning early for a full-scale evaluation (in 2006–07), to measure the cumulative impacts of SDS I, SDS II and SDS III.
Recommendation: *To address the requirement of the CESD for a cumulative review in 2007 of 10 years of sustainable development and SDS monitoring work, Industry Canada should prepare to present a comprehensive evaluation of the cumulative results of its SDS strategies.*

Parallel strategies: While SDS II has been incorporated in the Department's overall strategic framework (as expressed in Industry Canada's *Making a Difference*), the profile of sustainable development within the Department's innovation document, *Achieving Excellence: Canada's Innovation Strategy* is less evident. The Innovation Strategy, perhaps as a necessity, seems to exist as a separate framework for action but does not explicitly link up with SDS II.
Recommendation: *To engender a more robust role for sustainable development within the Department, it would be useful if the next strategy (SDS III) would be substantially more referenced within parallel strategies of the Department — such as* Achieving Excellence: Canada's Innovation Strategy.

Appendix III: Stakeholder Consultations

Industry Canada developed a multi-pronged approach for conducting stakeholder consultations for the new Sustainable Development Strategy, based on lessons learned from its first two strategies. Its consultation plan is composed of the following three elements:

- early consultation activities;
- review of the draft strategy by a committee of expert advisors; and
- a second review through stakeholder consultations.

Early Consultation Activities

Industry Canada conducted a number of early activities to begin to shape the new strategy. These included the external issues scan and Industry Canada's Sustainable Development Focus Day.

External Issues Scan

The external issues scan was conducted to obtain the views of external stakeholders on the key sustainable development issues, opportunities for action and constraints. The scan was completed in early 2003 and is summarized in Appendix II.b. The results of the scan, with the results of the other two foundation studies (the internal issues scan and the mid-term evaluation) were made available and were considered in the expert advisors' review, as well as in the second review by stakeholders. The complete document is available at: **http://strategis.gc.ca/sd**

Industry Canada's Sustainable Development Focus Day

Industry Canada convened its first-ever Sustainable Development Focus Day on Monday, February 24, 2003, in Ottawa.

The purpose of the Focus Day was to provide context and strategic direction for the Department's new Sustainable Development Strategy. The objectives of the day were to:

- engage the Department and Portfolio in the development of SDS III;
- provide background and updates on SDS II; and
- identify overarching themes and outcomes, and a strategy/plan to achieve them for SDS III, based on external trends (such as WSSD, the Kyoto Protocol and private-sector action), advice of the CESD, and the results of the external and internal scans.

About 60 Industry Canada representatives were in attendance. The day was facilitated by Professor David Wheeler, Schulich School of Business, York University. The following is a summary of the main questions considered and the recommendations offered during the day's proceedings.

Question 1: What might a vision/theme for SDS III be?

Participants identified their desire for Industry Canada to take a leading role in

Canada on sustainable development issues, through action and stakeholder engagement. This leadership role was emphasized through the idea of bridging internally to other Departments and with society. Accountability and measurability were also stressed.

In terms of vision, comments by participants focussed on a concept of "moving markets" through various interventions, including:
1) communications and education leading to behavioural change;
2) engaging stakeholders and communities; and
3) innovation.

Question 2: What is the best option for organizing SDS III themes — around sector-specific themes or around cross-cutting themes?
Participants reached consensus that cross-cutting themes will provide departmental cohesion on sustainable development issues. However, they emphasized that actions will come from the sector level. It will be useful to build flexibility into the strategy (e.g. opt-outs and ability to embellish or change the common themes as necessary on a sector-by-sector basis).

Question 3: What cross-cutting themes should be applied to SDS III?
Participants identified the following three cross-cutting themes as the most important for consideration in SDS III:
- research, development and demonstration (including such programs as "green, clean and lean," and *Canada's Innovation Strategy*);
- climate change; and
- sustainable consumption.

Review of Draft Strategy by Expert Advisory Panel

The Expert Advisory Panel is a group of experts invited by the Department to provide specific guidance and advice on the draft strategy. The 11 members are reflective of the Department's broad range of clients, including industry, industry associations, academia, other government departments, and environmental and consumer groups. The half-day consultation meeting was held in Ottawa on September 23, 2003.

Panel members were invited to:
- comment on the content of the draft strategy;
- provide comments and advice on the proposed three sustainable development strategic outcomes for the new SDS; and
- engage in a discussion of the draft strategy with Industry Canada representatives.

The meeting was organized into four sessions. The first considered the context and overall vision and goal of the draft strategy, and the subsequent three considered the strategic outcomes of innovation towards sustainable development, CSR and sustainable communities, and sustainable development capacity building within Industry Canada. For each session, an Industry Canada representative introduced the topic with a brief presentation. This was followed by comments from each of the panel members. Industry Canada representatives were given an opportunity to respond to the issues raised, and then the floor was opened for broader discussions.

Over the course of the meeting, a number of key recommendations emerged for improving the new strategy, including:
- Be more explicit about the economic growth and competitiveness aspects of sustainable development;
- Recognize that the Canadian economy remains largely resource-based, and that references to the "new economy" should be understood in that context;
- Put major emphasis on Industry Canada's role as a policy advocate and enabler on behalf of industry with other federal departments, particularly Environment Canada;

- Recognize and help to address the challenges faced by small and medium-sized enterprises related to accessing venture capital to develop and market new products;
- Build Industry Canada's approach and program offerings around the processes of the product life cycle for manufacturing;
- Examine ways to further integrate Industry Canada's Sustainable Development Strategy with its approach to energy, particularly in terms of promoting renewable energy sources that contribute to the goals of the current federal climate-change plan;
- Examine possible mechanisms for creating "market pull" for sustainable development technologies and processes, including supply chain management and consumer initiatives, in order to better understand how these are being applied in various industrial sectors;
- Clearly indicate Industry Canada's position on CSR, particularly with respect to its definition;
- Re-examine the "Encouraging Information and Communications Technologies to Build Sustainable Communities" sub-section, as it is a force-fit alongside the CSR sub-section; and
- Develop fewer and more focussed action items that are underpinned by a robust performance-measurement framework.

Second Review Through Stakeholder Consultations

Industry Canada also undertook a thorough consultation with a large number of its external stakeholders. For this strategy, Industry Canada contracted Stakeholder Research Associates Canada Inc. to obtain the views of stakeholders through one-on-one telephone interviews and written comments from individuals representing business, industry associations, NGOs, government and academia. Business respondents represented a cross-section of industry sectors and regions. A total of 81 stakeholders contributed their perspectives. Participants were sent a consultation paper based on the new strategy in advance, which was also posted on Industry Canada's sustainable development Web site for easy access.

The following is a summary of the five major recommendations made by the stakeholders:

Recommendation 1: Industry Canada should revisit its suggested action items, with a goal of making them more tangible and including, in particular, partnership opportunities and facility-based pilots and demonstration projects.

Recommendation 2: Industry Canada should identify metrics to measure its progress in the priority areas of its strategy, and introduce a reporting mechanism to stakeholders on progress over the three-year SDS period.

Recommendation 3: Industry Canada should identify specific steps that it can take to demonstrate its leadership internally by, for example, the adoption of green procurement policies and other federal environmental performance measures within the Department; and on behalf of its constituents by, for example, championing the need for a strong, competitive economy and "market-making" incentives and levers.

Recommendation 4: Industry Canada should immediately initiate a process among federal departments to collaborate on current SDS strategies. Such a process could include a review of draft strategies from each department, identification of areas of congruence, and a commitment to work over the term of the strategies in collaboration with common stakeholders to reach shared goals. Ideally, the results of this internal consultation process will be included in each department's final strategy.

Recommendation 5: Looking to the future, Industry Canada should consider championing a common federal-level sustainable development vision and strategy. Such an initiative might provide a forum for clarity at the federal level on a definition of sustainable development. At a departmental level, it may help Industry Canada strike a balance among the three pillars of sustainable development. Interdepartmental consultation on a sustainable development strategy may also facilitate the development of a common set of indicators to measure Canadian business progress toward sustainable development.

Atlantic Canada Stakeholder Consultations

In a collaborative effort, the first of its kind, Industry Canada partnered with the Atlantic Canada Opportunities Agency, Environment Canada, NRCan, and Public Works and Government Services Canada to conduct coordinated SDS III consultations in Atlantic Canada. A total of 109 stakeholders from industry, academia and NGOs took part in four consultation sessions organized in St. John's, Halifax, Moncton and Charlottetown between May 5 and May 8, 2003. The themes chosen for the consultations sessions were "Building Sustainable Communities" and "Promoting Innovative Economies."

Highlights of the Consultation Findings

A total of 11 priorities applicable to both the Innovative Economies and Sustainable Communities themes emerged from the consultations. They are as follows:

1) Providing a definition of "sustainable communities"
2) Education:
   - access to education
   - literacy rate
   - increased range of programs
   - skills pertaining to sustainable development
   - promotion of a broad range of career opportunities
3) Recruitment and retention of a skilled labour force
4) Infrastructure improvement:
   - improved seaways, and road and air systems
   - extension of technology (e.g. high-speed Internet) to rural communities
   - alternative energy sources
   - human resources infrastructure
5) Promoting R&D:
   - commercialization of research
   - application to emerging and existing sectors and communities
6) Community empowerment:
   - educating communities on sustainable development and its benefits
   - decisions for the community made by the community
   - demand-driven government involvement
7) Improving the perception of Atlantic Canada
8) Promoting opportunities for interaction among governments, and creation of partnerships
9) Providing incentives for "sustainable choices":
   - full-cost accounting
   - regionally weighted decision criteria
   - tax credits for sustainable choices
10) Enhancing long-term thinking in economic management:
   - management and stewardship of natural resources
   - support for entrepreneurial ventures
11) Making use of best practices

Northern Canada Stakeholder Consultations

In another first-time collaborative effort, on May 12, 2003, in Edmonton, Industry Canada partnered with NRCan to engage business, community and First Nations community representatives from Canada's northern communities to review and discuss each department's approach to building its new Sustainable Development Strategy.

Three main themes were explored that NRCan and Industry Canada share in their three-year sustainable development strategies: 1) innovation and eco-efficiency; 2) sustainable communities; and 3) CSR.

The workshop provided an opportunity for northerners to provide input around the following key questions:

1) Do the proposed approaches to sustainable development resonate with your sense of northern community needs and issues?
2) Do you agree with the proposed three themes for sustainable development as they relate to the northern communities?
3) Do they make sense? Are they relevant to the North? What do you like? What are your concerns?
4) Are there additional elements that should be considered?
5) What specific actions or priorities do you feel are critical to building a sustainable northern Canada?
6) What are your desired outcomes for sustainable development for your community or organization that align with the three main sustainability themes?
7) How can NRCan and Industry Canada ensure that their SDSs are relevant to northern communities through accountability relationships, performance measurement and other means of measuring "returns on investment" over the next three years?

Participants were asked to identify five key priority themes for NRCan and Industry Canada to consider in formulating the sustainable development strategies, along with a list of key challenges associated with these themes. The result was a series of five key themes and a list of challenges for innovation and eco-efficiency, sustainable communities, and (to a lesser extent) CSR that could guide NRCan and Industry Canada in shaping their respective sustainability strategies and business plans in ways that would take into account northern community issues.

Eco-efficiency and Innovation

- Identify and clarify the roles and responsibilities of federal departments in sustainable development (there is no regional economic development agency for the North).
- Address the lack of investment to promote innovation in the North.
- Respond to the lack of infrastructure for innovation (wireless, broadband, high-speed Internet access).
- Address deficiencies in research, knowledge and best-practice information.

Corporate Social Responsibility and Sustainable Communities

- Address the lack of basic skills and education programs in northern communities.
- Respond to deficiencies in basic communications infrastructure.
- Address the need for federal regulatory streamlining.
- Promote trust, diversity and autonomy in northern communities.

Appendix IV: Stakeholder Consultations Within the Department and Other Government of Canada Departments and Agencies

In the course of preparing the new Sustainable Development Strategy, there were a number of opportunities for Industry Canada staff to contribute inputs. Industry Canada's Sustainable Development Coordinating Committee (SDCC) again provided the primary intradepartmental vehicle through which to do so. The SDCC is an advisory and consultative committee that was established in 1999 to contribute to the development of the Department's second strategy. The SDCC is mainly composed of officials from each sector of the Department, many of whom are directly involved in building the structure and content of the strategy. A number of the SDCC members are also responsible for the implementation of the strategy's action items over the next three years. There have been a number of meetings of the SDCC held over the past year, which have contributed to the development of the new strategy.

In addition, the Department's Industry Sector established a sustainable development network of officers through the sector's Functional Advisor for sustainable development, to contribute deliverables to the strategy. This is in addition to the internal issues scan, the mid-term evaluation on the second strategy, and the opportunity for all staff to provide comments through Industry Canada's sustainable development Web site.

The Department also encouraged inputs from other government departments and interdepartmental committees and working groups, such as the Interdepartmental Network on Sustainable Development Strategies, CSR and Corporate Environmental Innovation.

Appendix V: Departmental Contributions to the World Summit on Sustainable Development Plan of Implementation

Based on the WSSD Plan of Implementation, the Canadian Earth Summit Secretariat of Environment Canada and the federal Intergovernmental Action Group classified priority issues for departments to consider in terms of implementation. These issues are outlined below, alongside Industry Canada's perceived contributions in this new strategy, which are expected to help make a difference.

WSSD Priority Issue	SDS III Action Item
Poverty Eradication (Provide clean drinking water and adequate sanitation to protect human health and the environment)	*SCI* (Improving the sustainability of cities in developing countries) *NCE* (Participating in the approval process for sustainable development-related research, e.g., Canadian Water Network)
Changing Unsustainable Patterns of Production and Consumption (Develop a 10-year framework of programs in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production)	*Sustainable Development Policy Frameworks* (Identifying and encouraging innovative policy frameworks within the Government of Canada) *Sustainable Manufacturing* (Promoting the adoption of innovative manufacturing processes by industry, leading to more sustainable product and process designs) *Environmental Stewardship in SMEs* (Supporting the adoption of environmental stewardship approaches and tools for small businesses) *Environmental Supply Chain Management* (Advancing the adoption of environmental supply chain management tools for small businesses)

(continued)

WSSD Priority Issue	SDS III Action Item
Changing Unsustainable Patterns of Production and Consumption (Develop a 10-year framework of programs in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production)	*Bio-based Economy* (Increasing awareness and promoting the development of bio-processes and bio-based industrial technologies, products and processes to reduce GHG emissions) *Hydrogen Economy* (Supporting the development, commercialization and early adoption of hydrogen-based fuel-cell technology in the automotive sector)
Protecting and Managing the Natural Resource Base for Economic and Social Development (Promote sustainable tourism development, including non-consumptive tourism, to increase the benefits from tourism resources for the population in host communities while maintaining the cultural and environmental integrity of the host communities and enhancing the protection of ecologically sensitive areas and natural heritages)	*Aboriginal Business Development Program* (Promoting ABC's business development programs for financing small businesses)
Sustainable Development in a Globalizing World (Actively promote CSR and accountability, based on the Rio Principles, including the full development and effective implementation of intergovernmental agreements and measures, international initiatives, and public-private partnerships and appropriate national regulations; and support continuous improvement in corporate practices in all countries)	*Sustainable Development Policy Frameworks* (Identifying and encouraging innovative policy frameworks within the Government of Canada) *Broadening CSR Awareness* (Broadening CSR information and awareness within Canadian industry) *CSR Tools and Management Capacity* (Developing CSR tools and management capacity to improve Canadian industry performance in CSR) *Corporate Sustainability Reporting* (Increasing the quantity, quality and credibility of sustainability reporting by Canadian industry) *Electronic Products Recycling* (Facilitating a national e-waste recycling network for consumer electronics) *ICT Reuse and Recycling* (Supporting a reuse program for collecting and repairing government and private-sector computers, and distributing them to schools) *ICTs for Community Sustainability* (Continuing to address the broadband connectivity needs of unserved Canadian communities by ensuring Canadians have equitable access to the Internet, and continuing to demonstrate the enabling effects of ICT applications)

(continued)

WSSD Priority Issue	SDS III Action Item
Sustainable Development for Africa (WSSD should reinvigorate the commitment of the international community to address these special challenges and give effect to a new vision based on concrete actions for the implementation of Agenda 21 in Africa)	*SCI* (Improving the sustainability of cities in developing countries)
Means of Implementation (Support publicly funded R&D entities to engage in strategic alliances for the purpose of enhancing R&D to achieve cleaner production and product technologies)	*SCI* (Improving the sustainability of cities in developing countries) *Canadian Climate Change Solutions* (Promoting Canadian climate change technologies and services abroad) *TPC* (Investing in innovative environmental and enabling technologies that contribute to sustainable development) *CFI* (Supporting the strengthening of Canada's knowledge and research infrastructure) *NCE* (Participating in the approval process for sustainable development-related research)

Appendix VI: Acronyms and Abbreviations

ABC	Aboriginal Business Canada
ADM	Assistant Deputy Minister
CAA	Canadian Automobile Association
CDM/JI	Clean Development Mechanism and Joint Implementation
CESD	Commissioner of the Environment and Sustainable Development
CFI	Canada Foundation for Innovation
CFS	Computers for Schools
CIHR	Canadian Institutes of Health Research
CPU	central processing unit
CSR	corporate social responsibility
DFAIT	Department of Foreign Affairs and International Trade
DMDB	Deputy Minister's Departmental Briefing Committee
DPR	Departmental Performance Report
EMS	environmental management system
EPA	environmental performance agreement
EPS	Electronic Product Stewardship
FDI	foreign direct investment
FY	fiscal year
GHG	greenhouse gas
h2EA	h2 Early Adopters program
ICE	internal combustion engine
ICT	information and communications technologies
IRAP	Industrial Research Assistance Program
IRIS	Institute of Robotics and Intelligent Systems
ISO	International Organization for Standardization

IT	information technology
KRC	key results commitment
MOU	Memorandum of Understanding
NCE	Networks of Centres of Excellence
NGO	non-governmental organization
NRCan	Natural Resources Canada
NRTEE	National Round Table on the Environment and the Economy
NSERC	Natural Sciences and Engineering Research Council of Canada
OCA	Office of Consumer Affairs
PRECARN	Pre-Competitive Applied Research Network
OECD	Organisation for Economic Co-operation and Development
PCB	polychlorinated biphenyl
R&D	research and development
RMAF	Results-Based Management and Accountability Framework
RPP	Report on Plans and Priorities
SCI	Sustainable Cities Initiative
SDCC	Sustainable Development Coordinating Committee
SDI	Supplier Development Initiative
SDS	Sustainable Development Strategy
SDS I	*Industry Canada — Sustainable Development Strategy 1997*
SDS II	*Industry Canada — Sustainable Development Strategy 2000–03*
SDS III	*Industry Canada — Sustainable Development Strategy 2003–06*
SEA	Strategic Environmental Assessment
SMEs	small and medium-sized enterprises
SPC	Senior Policy Committee
SSHRC	Social Sciences and Humanities Research Council of Canada
TBS	Treasury Board Secretariat
TPC	Technology Partnerships Canada
TRM	Technology Roadmap
VBNC	Voisey's Bay Nickel Company
WBCSD	World Business Council for Sustainable Development
WSSD	World Summit on Sustainable Development