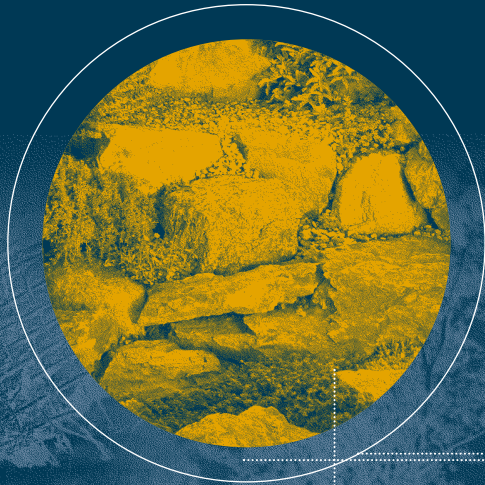




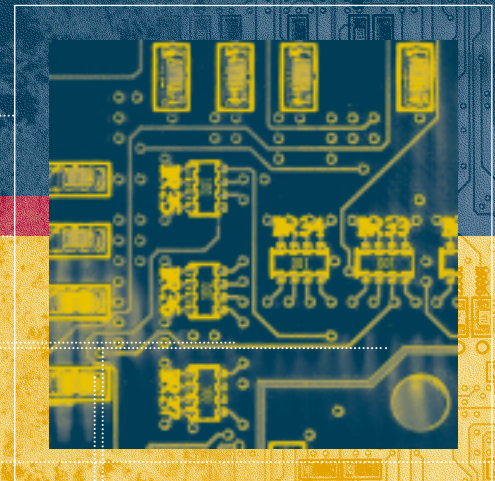
Industry  
Canada

Industrie  
Canada

# Sustainable Development Strategy



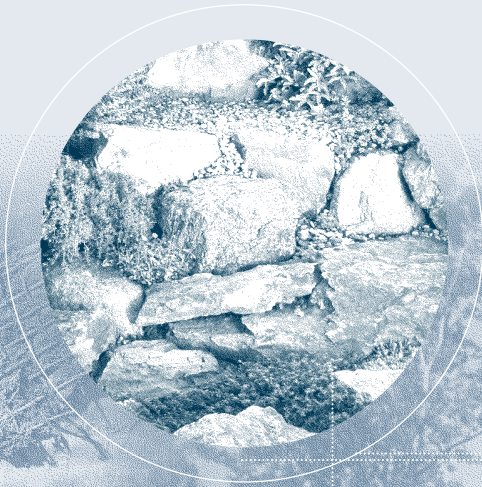
2000



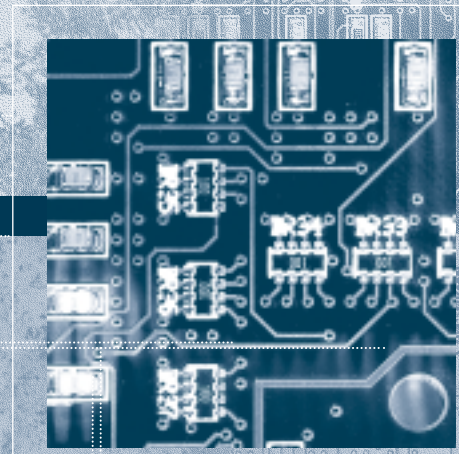
2003

Canada

# Industry Canada Sustainable Development Strategy



2000



2003

This publication is also available electronically on the World Wide Web at the following address:  
<http://strategis.gc.ca/sd>

This publication can be made available in alternative formats upon request.  
Contact the Information Distribution Centre at the numbers listed below.

For additional copies of this publication, please contact:

Information Distribution Centre  
Communications Branch  
Industry Canada  
Room 268D, West Tower  
235 Queen Street  
Ottawa ON K1A 0H5

Tel.: (613) 947-7466  
Fax: (613) 954-6436  
E-mail: [publications@ic.gc.ca](mailto:publications@ic.gc.ca)

**Permission to Reproduce.** Except as otherwise specifically noted, the information in this publication may be reproduced, in part or in whole and by any means, without charge or further permission from Industry Canada, provided that due diligence is exercised in ensuring the accuracy of the information reproduced; that Industry Canada is identified as the source institution; and that the reproduction is not represented as an official version of the information reproduced, nor as having been made in affiliation with, or with the endorsement of, Industry Canada.

For permission to reproduce the information in this publication for commercial redistribution, please e-mail: [copyright.droitdauteur@pwgsc.gc.ca](mailto:copyright.droitdauteur@pwgsc.gc.ca)

Cat. No. C2-332/2000  
ISBN 0-662-65463-3  
53300B

Inside pages: 100% recycled material  
Cover: printed on tree-free paper



# Minister's Message

In recent years, Canadians have embraced the challenges of rapid technological change, globalization and mounting environmental pressures. By doing so, we are enjoying unprecedented economic prosperity and are beginning to integrate sustainable development into the way we do business. Industry Canada's sustainable development strategy for 2000–2003 reflects these changes.

As part of Industry Canada's mandate to create the foundation for a more productive, competitive, knowledge-based economy, the new strategy is focussed on a theme of leadership and partnership as a way to promote sustainable development. Three sustainable development objectives set the strategy's direction:

- Productivity Through Eco-Efficiency — the use of eco-efficient practices, tools, technologies and products that contribute to increased productivity and environmental performance.
- Environmental Technologies — the development and diffusion of environmental and enabling technologies that produce long-term economic and environmental benefits.
- Decision Making — the integration of sustainable development objectives into decision making.

More than the first strategy, the new sustainable development strategy for 2000–2003 commits the Department to work in partnership with other government departments, industry, consumers and other key stakeholders to advance sustainable development while building a productive, knowledge-based economy. As Minister of Industry, I will continue to encourage Canadian industry to undertake innovative sustainable development initiatives.



In tabling the second round of sustainable development strategies, Industry Canada, the Atlantic Canada Opportunities Agency, Canada Economic Development for Quebec Regions, and Western Economic Diversification Canada, along with other federal departments, build on and renew the Government of Canada's commitment to a more sustainable economic, environmental and social future. The sustainable development strategies offer a solid basis for further work toward the enrichment of our lives and the legacy of an improved environment for our children.

A handwritten signature in black ink, appearing to read "Brian Tobin". The signature is fluid and cursive, with a long horizontal stroke at the end.

Brian Tobin  
Minister of Industry



# Contents

- Executive Summary** ..... 1
  
- 1. Introduction** ..... 3
  
- 2. Sustainable Development Accomplishments, Challenges and Opportunities** ..... 4
  - 2.1 Recent Progress ..... 4
  - 2.2 Sustainable Development Challenges and Opportunities ..... 8
  
- 3. Industry Canada’s Sustainable Development Strategy for 2000–2003** ..... 11
  - 3.1 Productivity Through Eco-Efficiency ..... 16
  - 3.2 Environmental Technologies ..... 28
  - 3.3 Integrating Sustainable Development into Decision Making ..... 39
  
- 4. Implementation and Measuring Our Progress** ..... 49
  
- Appendixes**

  - Appendix I: Departmental Profile ..... 57
  - Appendix II: Sustainable Development Issues and Opportunities ..... 60
    - Appendix II-1: Internal Issues Scan — Executive Summary ..... 62
    - Appendix II-2: External Issues Scan — Executive Summary ..... 65
    - Appendix II-3: Mid-Term Evaluation — Executive Summary ..... 67
  - Appendix III: Consultations ..... 74
    - Appendix III-1: Stakeholder Consultations ..... 74
    - Appendix III-2: Consultations within Industry Canada and  
with Other Departments ..... 77

  
- Acronyms** ..... 78



# Executive Summary

## Sustainable Development Objectives and Actions

Three sustainable development objectives set the strategy's direction.

### Productivity Through Eco-Efficiency

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.

- building capacity in research and development and skills
- applying the tools in the marketplace
- measuring success.

### Environmental Technologies

Facilitate the development and diffusion of environmental and enabling technologies that produce long-term economic and environmental benefits.

- promoting technology innovation
- working together through strategic partnerships
- encouraging new approaches.

### Integrating Sustainable Development into Decision Making

Improve the integration of sustainable development objectives into decision making, including the development and delivery of departmental policies, plans and operations.

- improving planning practices
- enhancing implementation and operationalization of sustainable development
- strengthening consideration of sustainable development in evaluation.

The new Industry Canada sustainable development strategy builds on the first strategy, but is different in structure and content. Whereas the theme of the first strategy was learning and discovery, the new strategy reflects a theme of leadership and partnership, and is more proactive and focussed. It also places more emphasis on strengthening management practices.

Industry Canada's strategy for 2000–2003 is guided by a commitment to promote sustainable development as part of its mandate to create the foundation for a more productive, competitive, knowledge-based economy.

This vision calls for the Department to play a leadership role and form partnerships to promote sustainable development through eco-efficiency, environmental technologies and decision making.

### Implementation

The strategy presents a number of specific action plan items and corresponding work commitments to implement the sustainable development objectives and priorities. The action plan items found under the first and second objectives related to eco-efficiency and environmental technologies are oriented to



the Department's external obligations to clients and stakeholders, while action in the third objective on the integration of sustainable development into decision making is largely oriented to the internal operations of the Department.

The effective implementation of the strategy will be reinforced by the third sustainable development objective and its corresponding action plan items. These action plan items

cover the full spectrum of the “plan, do, check and improve” phases of the Department's management system. For example, they are aimed at continuing to deepen and broaden the awareness of employees, strengthen the involvement of senior management, refine the monitoring and reporting system, and integrate sustainable development into the corporate planning and evaluation phases. All of these will help to ensure that the strategy is successfully implemented.



# 1. Introduction

Sustainable development, that is, development that meets the needs of the present without compromising the ability of future generations to meet their own needs, continues to present opportunities, potential benefits and challenges for our society. Industry Canada's first strategy served as a vehicle for learning and discovering how to effectively advance environmental, economic and social objectives — the triple bottom line of sustainable development. Lessons were learned and these have served as a solid basis for developing the architecture of our second strategy, which emphasizes a commitment to pragmatic leadership and effective partnerships.

Industry Canada's sustainable development strategy for 2000–2003 (SDS II) reflects the Department's overall responsibilities to create a more competitive, knowledge-based economy that provides growth in employment and income. It also reflects the view that productivity, jobs and income growth enable us to sustain our productive potential; address social, economic and environmental issues; and support programs that enhance our quality of life. Furthermore, SDS II subscribes to the view that there is a positive connection between the good economic performance and the good environmental performance of a country. While the new strategy continues to build on existing departmental activities, accomplishments and lessons learned by using incremental approaches, it aims to move the Department resolutely forward in advancing sustainable development.

SDS II is different from the first strategy on a number of fronts. The first strategy was built on an overall theme of learning and discovery.

SDS II is anchored in a theme of leadership and partnership. It is also more proactive and targeted on priority actions than the first strategy, to concentrate on those areas that we believe will make the greatest contribution to industry, consumers and Canadians. Our new strategy's vision commits Industry Canada to play a leadership role and form partnerships to promote sustainable development through the following:

- productivity through eco-efficiency;
- environmental technologies; and
- integrating sustainable development into decision making.

SDS II importantly places more emphasis on strengthening management practices and systems, including more involvement of senior management, to implement our sustainable development commitments. It also recognizes the increasing importance of the social dimension of sustainable development to industry in Canada.

This new strategy is based on issues scans; a mid-term evaluation of our first strategy; and consultations with departmental staff, other federal organizations, the business community, environmental groups and other stakeholders. SDS II also reflects the influence of other key encouraging forces such as *A Guide to Green Government*, the 1999 Speech from the Throne, the 2000 budget initiatives and a nationally coordinated consultation (Leaders' Forum) on sustainable development. It represents another step towards promoting and advancing sustainable development, and it recognizes that progress entails a resolution to continue moving up the learning curve.

## 2. Sustainable Development Accomplishments, Challenges and Opportunities

### 2.1 Recent Progress

#### Moving Towards a Sustainable Economy

In the last few years, Canada has been successfully addressing critical structural issues that once limited our competitiveness with the rest of the world. Canada now has a budgetary surplus, low inflation, decreases in debt relative to gross domestic product (GDP), more exports that are knowledge-based, and an economy that is one of the most open in the world. Canada continues to be ranked first in quality of life by the United Nations' Human Development Index. The index is a composite indicator of life expectancy, real GDP per capita and education.<sup>1</sup>

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 third after Finland and Norway, and ahead of all its G-7 partners.<sup>2</sup>

The Conference Board of Canada, in its fifth annual report on Canada's socio-economic performance and potential, emphasizes that while Canadians have high income per capita, long life spans, low poverty rates, and a safe

and clean environment in which to live, other countries are catching up and passing us. The Conference Board concludes that Canadians must focus on the things that will increase productivity, improve innovation and raise our performance in developing human capacity to help us to sustain the policies that underpin our quality of life and industrial competitiveness.<sup>3</sup>

#### Industry Action and Progress

As we enter the 21st century, Canadian companies and businesses generally continue to move up the sustainable development learning curve. At both the company and sector levels, industry has been responding to a wide range of sustainable development challenges such as climate change, pollutants and recycling. Consumers and other Canadian stakeholders have also been responding. The progress made by industry is due in part to consumer demands, as well as to the potential benefits that are promised by an effective commitment to sustainable development.

*Some notable accomplishments that have recently been demonstrated by industry include the following:*

- The National Pollution Release Inventory shows an overall downward trend in pollutant releases from the manufacturing sector in Canada. From 1994 to 1996, releases from the manufacturing sector decreased by 16 percent. The paper and chemical products industries led the sector with reductions of 36.5 percent and 26.5 percent, respectively, over the period.<sup>4</sup>

1. United Nations Development Program, *Human Development Report 1999*, New York and Oxford: Oxford University Press, 1999.

2. World Economic Forum (An Initiative of the Global Leaders for Tomorrow Environment Task Force). In collaboration with the Yale Center for Environmental Law and Policy, and the Centre for International Earth Science Information Network of Columbia University. *2001 Environmental Sustainability Index*. Annual Meeting 2001, Davos, Switzerland. Components of the index included the extent to which vital environmental systems are maintained; environmental stresses and risks are anthropogenically engendered; there is human vulnerability to environmental impacts; social and institutional capacity can respond to environmental challenges; and there is participation in global stewardship.

3. Conference Board of Canada, *Performance and Potential 2000–2001*, Ottawa, 2000.

4. Environment Canada, *National Pollution Release Inventory, Summary Report 1994, Summary Report 1996*, Ottawa: Minister of Public Works and Government Services, 1997.



- The Accelerated Reduction/Elimination of Toxics Program has seen annual emissions reduced by over 24 000 tonnes, a 64-percent decrease from base levels. Of the 303 facilities that are participating, 112 have already met or exceeded their 2000 targets in all substance categories for which they report.<sup>5</sup>
- The growth rate of Canadian companies certified under ISO 14000 was significant over the three-year period ending December 1999. The number of companies that became certified increased from 27 to 142, an increase of over 400 percent.<sup>6</sup>
- Total capital and operating expenditures on environmental protection by industries were \$4.7 billion in 1997. This was down marginally from \$4.9 billion in 1996.<sup>7</sup>
- Capital investment spending by the business sector in pollution prevention (e.g. integrated process changes) increased by slightly over 5 percent from 1996 to 1997. This was the first year since 1994 (when survey data started to be collected) that investment on pollution prevention exceeded capital investment on end-of-pipe processes for pollution abatement and control.<sup>8</sup>
- Individual industry associations have continued to progress in their use of voluntary environmental initiatives. Certain associations, such as the Canadian Chemical Producers Association with Responsible Care, the Vinyl Council of Canada and the Canadian Motor Vehicle Manufacturers' Association, have continued to produce

positive environmental results through the development and use of such initiatives as voluntary codes of practice, action plans and reporting on environmental performance. Other associations have also been advancing the use of voluntary approaches (e.g. the Canadian Electricity Association announced an Environmental Commitment and Responsibility Program in 1997).

- Canadian businesses derived \$11.5 billion in total revenues generated by environmental goods and services in 1997, up 4 percent from their level in 1996.<sup>9</sup>
- Exports of environmental goods and services totalled \$898 million in 1997, an increase from \$768 million in 1996.<sup>10</sup>

*Industry has also been adopting and/or expanding its role in corporate social responsibility to take a triple bottom-line perspective on sustainable development.*

- The Dow Jones Sustainability Group Index was introduced in 1999 to identify leading sustainability-driven companies that successfully address social as well as economic and environmental considerations. Of the more than 200 companies listed on the index in 68 industries and 22 countries, four Canadian companies ranked among the top 18 best performers.<sup>11</sup>
- The last three years have witnessed the increased introduction and success of ethical mutual funds in the Canadian marketplace.

### **Industry Canada's Contributions**

Industry Canada has been successfully implementing its first sustainable development strategy and advancing sustainable development with respect to its marketplace, innovation, trade and investment objectives, and the Department's underlying management function. The extent of the success is described in

5. Environment Leaders 3, *Voluntary Action on Toxic Substances: A Progress Report on the Accelerated Reduction/Elimination of Toxics Program, 1999*, Ottawa: Environment Canada.

6. International Organization for Standardization, *The ISO Survey of ISO 9000 and ISO 14000 Certificates, Eighth Cycle — 1998*, Geneva: ISO, 1999.

7. Statistics Canada, *Econnections: Linking the Environment and the Economy, Indicators and Detailed Statistics, 1997* CD-ROM, 16-200-XKE, Ottawa: Minister of Industry, 1997. Also, Statistics Canada, *Environmental Protection Expenditures in the Business Sector, 1996 and 1997* (revised), Ottawa: Statistics Canada, 2000.

8. Ibid.

9. Statistics Canada, *Environment Industry Business Sector, 1996 and 1997*, Ottawa: Statistics Canada, 1999.

10. Ibid.

11. Dow Jones Sustainability Group Indexes GmbH, *Dow Jones Sustainability Group Index: Performance and Attributes*, Zurich: DJSGI GmbH, 2000.

the Mid-Term Evaluation (see Appendix II-3). Table 1, on the following page, provides highlights of the Department's accomplishments related to the first sustainable development strategy (SDS I), which was tabled in Parliament in 1997. The table indicates that Industry Canada has been delivering the commitments that it made for each of its strategic objectives in SDS I.

The Department also contributed to initiatives beyond the scope of its first strategy. For example:

- The Networks of Centres of Excellence (NCE) program became permanent in 1997; by the end of 1998–1999, there were 14 NCEs across Canada. The NCEs, managed by Industry Canada and the granting councils, have generated technological breakthroughs across a wide range of research areas, including health and biotechnology, infrastructure, information technology and natural resources.

Industry Canada has contributed to the social as well as economic and environmental objectives of sustainable development and has thereby opened up new opportunities for improving the quality of life of Canadians and their communities.

- Under new Aboriginal business development initiatives, some \$5 million of credit line applications were approved and \$2 million are under review as of March 31, 2000.
- By end of 1999–2000, the Community Access Program had established 4753 public access sites, of which 4419 are located in rural areas and 334 in urban areas.
- Through the Computers for Schools program, 201 185 computers were recycled and provided to schools and libraries across Canada, as of March 31, 2000.
- Canada's SchoolNet Program, in partnership with provinces and the private sector, had connected 425 234 computers as of March 31, 2000.

- Industry Canada launched the Smart Communities program, which involves a competitive process to select pilot communities (one per province and in the North, as well as an Aboriginal community) with the interest and capacity to become “smart” by developing electronic information and services to support economic development and to enrich community life. The program includes the opportunity to improve environmental performance as well.
- The Canadian Tourism Commission participated in the seventh session of the United Nations Commission on Sustainable Development and presented Canada's accomplishments in eco-tourism.
- FedNor provided financial support for a new and innovative ecology centre in a community near Mattawa, and supported heritage and eco-tourism studies for the North Shore, Ontario.
- Atomic Energy of Canada Limited, in association with the Pre-Competitive Applied Research Network (PRECARN), an industry-led consortium performing industrially relevant research and development (R&D) in intelligent systems, developed robotic systems to increase the efficiency of power plants and perform environmental sensing and monitoring operations.

In the Mid-Term Evaluation of SDS I (see Appendix II-3), Industry Canada initiatives were identified as still being relevant for advancing department and government sustainable development objectives. Commitments made in SDS I have been successfully completed and incorporated into the Department's ongoing planning process. Moreover, Industry Canada regards the initiatives under the first strategy as an important platform on which to build the second strategy.



**Table 1: Highlights of Recent Industry Canada Accomplishments Under SDS I**

<p><b>To foster a marketplace climate that promotes sustainable development.</b></p>
<ul style="list-style-type: none"> <li>■ Developed a framework to assess legislation from a sustainable development perspective and applied the framework to evaluate the proposed amendments to the <i>Canada Business Corporations Act</i>.</li> <li>■ To address the climate change challenge, Industry Canada co-sponsored and provided secretariat support to the Industry Table on climate change and completed foundation papers for a number of industrial sectors. An inventory and overview of the Industry Portfolio's climate change-related policies and programs were completed.</li> <li>■ Published <i>Voluntary Codes: A Guide for Their Development and Use</i> to promote the use of voluntary initiatives. A Web site devoted to voluntary codes was launched, which included an on-line voluntary codes research forum. Research on using voluntary, non-regulatory initiatives for environmental governance was completed.</li> <li>■ Consumer awareness of sustainable development was addressed through funding projects that addressed environmental labelling and other marketplace tools for promoting sustainable consumption. A report on greener products in the marketplace was also completed. Sustainable consumption was promoted at the international level, where Industry Canada participated in shaping the United Nations Consumer Protection Guidelines.</li> </ul>
<p><b>To enhance the ability of Canadian firms to develop and use innovative technologies and tools that contribute to sustainable development.</b></p>
<ul style="list-style-type: none"> <li>■ Technology Partnerships Canada (TPC) during the 1999–2000 fiscal period invested \$98 million in eight projects, that will leverage, approximately, an additional \$296 million from other sources.</li> <li>■ Funded and sponsored projects to further develop a voluntary standards system that promotes sustainable development.</li> <li>■ A report on the use of eco-efficiency indicators in Canadian industry was completed, and a report was sponsored to assist firms to make informed decisions when considering adoption of the ISO 14000 standard.</li> <li>■ The Canadian Environmental Solutions database of environmental technologies and services was further developed, including a special focus on biotechnology and climate change. The Department also launched a Sustainable Development Web site, providing stakeholders with a window on Industry Canada's sustainable development activities and programs.</li> <li>■ Sustainable development considerations were integrated into Sector Competitiveness Framework and Technology Roadmap reports.</li> </ul>
<p><b>To encourage trade and investment flows that contribute to sustainable development in Canada and abroad.</b></p>
<ul style="list-style-type: none"> <li>■ Promotion of Canadian sustainable development technology and knowledge to new markets was assisted by the launch of the Environmental Industry Virtual Office and the Canadian Business Environmental Performance Office. The Department also contributed to the work plan of the Organisation for Economic Co-operation and Development (OECD) Joint Committee on Trade and the Environment.</li> <li>■ Canadian Environmental Industry Strategy and its 22 initiatives were delivered.</li> <li>■ The Department negotiated bilateral agreements in other countries to facilitate export opportunities for Canadian knowledge, products and technologies that further the objectives of sustainable development.</li> </ul>
<p><b>To improve the capacity of Industry Canada to manage and deliver departmental policies and programs that contribute to sustainable development.</b></p>
<ul style="list-style-type: none"> <li>■ A pilot project for improving the environmental assessment of the Department's policies and programs was completed and assessed. An improved set of strategic environmental assessment guidance documents was developed and integrated into the Department's policy development process.</li> <li>■ A training course on sustainable development was developed and delivered to policy and program officers. A total of six research papers were completed on sustainable development in a knowledge-based economy.</li> <li>■ Measures were taken to improve employee awareness, such as through the organization of activities for Environment Week 1999. Baseline measurements respecting energy efficiency, waste volumes and recycling were undertaken. A Chief Environmental Steward was appointed. A waste audit of the Department's main facilities was completed. Recycling programs were initiated across the Department, resulting in diversion rates of over 55 percent.</li> </ul>

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

## 2.2 Sustainable Development Challenges and Opportunities

The accomplishments within the Canadian economy, the private sector and Industry Canada, as outlined in the preceding section, serve as a foundation for SDS II. In particular, many of the commitments and actions under the first strategy are still considered to be relevant and will be continued in the second strategy. However, the new strategy is also based on other considerations in addition to these past accomplishments. These include changing global and domestic contexts; key sustainable development issues; lessons learned from the first strategy; and major opportunities available to Industry Canada.

### Changing Global and Domestic Contexts

Changing situations and challenges at both the global and domestic levels influenced the challenges, barriers and opportunities that Industry Canada considered in developing SDS II.

### Global Conditions

Global economic, environmental and social conditions are helping to frame the needs and opportunities for advancing sustainable development. The world economy is experiencing increased globalization, technological change, knowledge-base improvements, rising skills levels and increases in energy prices. While Canada was recently ranked in eleventh position (ahead of all its G-7 partners except the U.S. and Germany) on a world competitiveness index that was based on 290 different variables, global economic changes are, nonetheless, unrelenting and are putting increased pressure on Canada to increase our productivity performance.<sup>12</sup>

Global environmental problems such as climate change, high-level ozone depletion, loss of biodiversity, transboundary movement

of air pollution and degradation of the marine environment are also continuing to create challenges and opportunities for our country. A recent assessment of the earth's ecosystems indicates that they are being severely strained: half of the world's wetlands were lost in the last century; approximately 70 percent of the world's major marine fish stocks are being fished at or in excess of their biological limit; human activity is imperilling approximately 60 percent of coral reefs; 20 percent of drylands are in jeopardy of becoming deserts; groundwater and forests are being depleted; and more than 40 percent of agricultural land has been badly degraded.<sup>13</sup> Furthermore, from a social perspective, increasing populations, urban growth, demographic and cultural-value changes are challenging our society to find responsible solutions.

### Canadian Context

Canada's economy, environment and social characteristics are also presenting both ongoing and new sustainable development challenges. Canada's economy has achieved the strongest growth among G-7 countries. Notably, inflation remains in check, and we have a declining government debt burden, high consumer and business confidence levels, and a rapid pace of new job creation. However, the need for improving productivity and prosperity, and further new jobs remains. On the environmental front, while there is much that has improved domestically in areas such as energy use, material use, toxic dispersion and recycling, further progress is needed. Similarly, on the social front, while Canada has made progress to improve post-secondary education, reduce child poverty, reduce youth unemployment and underemployment, and improve health care, additional needs remain to be addressed.

12. International Institute for Management Development, *World Competitiveness Index 2000*, Switzerland.

13. World Resources Report, *People and Eco-systems: The Fraying Web of Life* [on-line]. A joint pilot analysis of global ecosystems between the World Bank, United Nations Development Program, United Nations Environmental Program and the World Resources Institute, 2000 (<http://www.igc.org/wri/wr2000/scorecard.html>).



## Key Issues for SDS II

Industry Canada conducted an Internal Issues Scan and an External Issues Scan (see Appendix II) to help identify the key sustainable development issues flowing from global and domestic situations, and as a means of focussing its new sustainable development strategy.

The scans recognized many of the Department's strengths and accomplishments, including the progress made in advancing sustainable development with respect to the marketplace, innovation, and trade and investment objectives. The scans also recognized the support provided by management for the strategy. Nonetheless, a number of key sustainable development issues emerged from the scans, including the following:

- the efficient use of Canada's renewable resources;
- the management of toxic substances;
- pollution prevention and clean-up technologies;
- greenhouse gas emissions and climate change technologies;
- the distribution of costs and benefits among Canadians;
- improving productivity;
- integrating sustainable development into decision making;
- putting Industry Canada's own house in order;
- partnerships for sustainable development;
- effective legislative and policy frameworks that support investment and competition; and
- improving planning information, tools and processes to enable industry to compete and grow.

There was consensus that senior management should be more visible in its commitment to the sustainable development agenda.

## Lessons Learned

Lessons were learned during the development and implementation of Industry Canada's first sustainable development strategy. They were garnered from various sources, including internal departmental experience and studies (e.g. the Internal and External Issues Scans, and the Mid-Term Evaluation described in Appendix II) and various reports of the Commissioner of the Environment and Sustainable Development.

The key general lessons learned and recommendations for improving Industry Canada's next strategy include the following:

- make progress on establishing clear and measurable targets;
- focus more on future directions than past accomplishments and provide a clearer description of specific policy, program, legislative, regulatory or operational changes that would be made to implement the strategy;
- improve the identification of sustainable development issues and link these effectively to the objectives of the strategy;
- increase senior management commitment and buy-in;
- focus on key strategic areas and the issues identified in the scans;
- increase the private sector focus of the strategy;
- capitalize on partnership opportunities;
- promote better awareness of sustainable development within the Department;
- undertake periodic reviews of sustainable development initiatives to ensure that they are still relevant;
- consider the opportunities for departmental action that were identified in both the Internal and External Issues Scans; and
- recognize the constraints.

The above list of lessons learned presents a call for more proactive and pragmatic leadership, effective partnerships and focussed actions.



### Opportunities for Industry Canada Action

A wide range of opportunities is potentially available to Industry Canada for responding to the sustainable development issues and the lessons learned. These potential opportunities are reflected in Appendix I, which provides a descriptive profile of the Department's activities and operations, and in Appendix II, which presents the Internal and External Issues Scans and the Mid-Term Evaluation of the first strategy.

The areas of opportunity for potential action to advance sustainable development include developing framework policies, influencing legislation that is being proposed or undergoing review, using loan repayment programs, expanding partnerships, technology innovation, and providing information products and services.

The logic chart in Appendix II provides a schematic presentation of the relationships between the identified sustainable development issues and the perceived key opportunities for departmental action as they emerged from the issues scans exercises.

The opportunities selected for focussed action in Industry Canada's new strategy (see Chapter 3) have been shaped by a range of factors. These include the Department's existing activities, the 1999 Speech from the Throne, the 2000 budget, *A Guide to Green Government*, the expectations of the Commissioner of the Environment and Sustainable Development, the Productivity and Innovation Report of the Standing Committee on Industry, and the foundation studies that were conducted as background information for this strategy (i.e. Internal Issues Scan, External Issues Scan and Mid-Term Evaluation).

Another important factor that contributed to shaping the form and substance of SDS II was the results of the Leaders' Forum on Sustainable Development, held in April 2000. This national consultation exercise, involving both government and non-government leaders, identified eight theme areas as opportunities for enhanced coordination. As a result, Industry Canada is committed to leading federal coordination on the theme of "productivity through eco-efficiency" and has focussed part of SDS II on this theme. One of the other eight themes also reflected in Industry Canada's strategy is "sustainable government operations." Our strategy, therefore, emphasizes the integration of sustainable development into decision making. Industry Canada will also support the other six themes where it is relevant to our mandate. They are:

- sustainable development in the international context;
- sustainable development in the North;
- sustainable development and healthy Canadians;
- social and cultural aspects of sustainable development;
- knowledge and information/sustainable development indicators and reporting; and
- sustainability at the community level.

The consultation process has been used to further check and hone the identified items planned for action, as presented in Chapter 3.

The linkages between the issues and the defined actions are summarized in a logic matrix in Chapter 4 (see also Logic Chart, page 61).

### 3. Industry Canada's Sustainable Development Strategy for 2000–2003

Industry Canada's first strategy, like that of many other federal departments, laid the foundation for operationalizing the concept of sustainable development. While these first steps of discovery and learning contributed to our knowledge base and practical experience, changing domestic and global circumstances have altered some of the issues, challenges and opportunities that need to be addressed.

Industry Canada's sustainable development strategy for 2000–2003 aims to lead, form effective partnerships and be more proactive in select strategic areas where significant results are possible. The architecture of our new strategy (see Figure 1 on the following page) comprises the following vision, principles, sustainable development objectives and targeted areas for action.

#### Vision

*Industry Canada will promote sustainable development as part of its mandate to create the foundation for a more productive, competitive, knowledge-based economy. Industry Canada will play a leadership role and form partnerships to promote sustainable development through eco-efficiency, environmental technologies and decision making.*

#### Principles

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

- **Leadership on Expanding Knowledge:** We will lead by expanding knowledge, using sound science and promoting innovation to advance sustainable development.

- **Working Together in Partnership:** We will consult stakeholders and build partnerships to understand needs, identify opportunities and develop effective objectives and actions.
- **Balanced Policy Mix:** Our department will support a balance of policy instruments to achieve the departmental sustainable development objectives (e.g. voluntary approaches, economic instruments, information and awareness tools, including consumer awareness, regulations).
- **Accountability:** We will develop clear action plans that are achievable, time-bound, measurable and results oriented. We will monitor the accomplishments of our initiatives and publicly report on our progress.

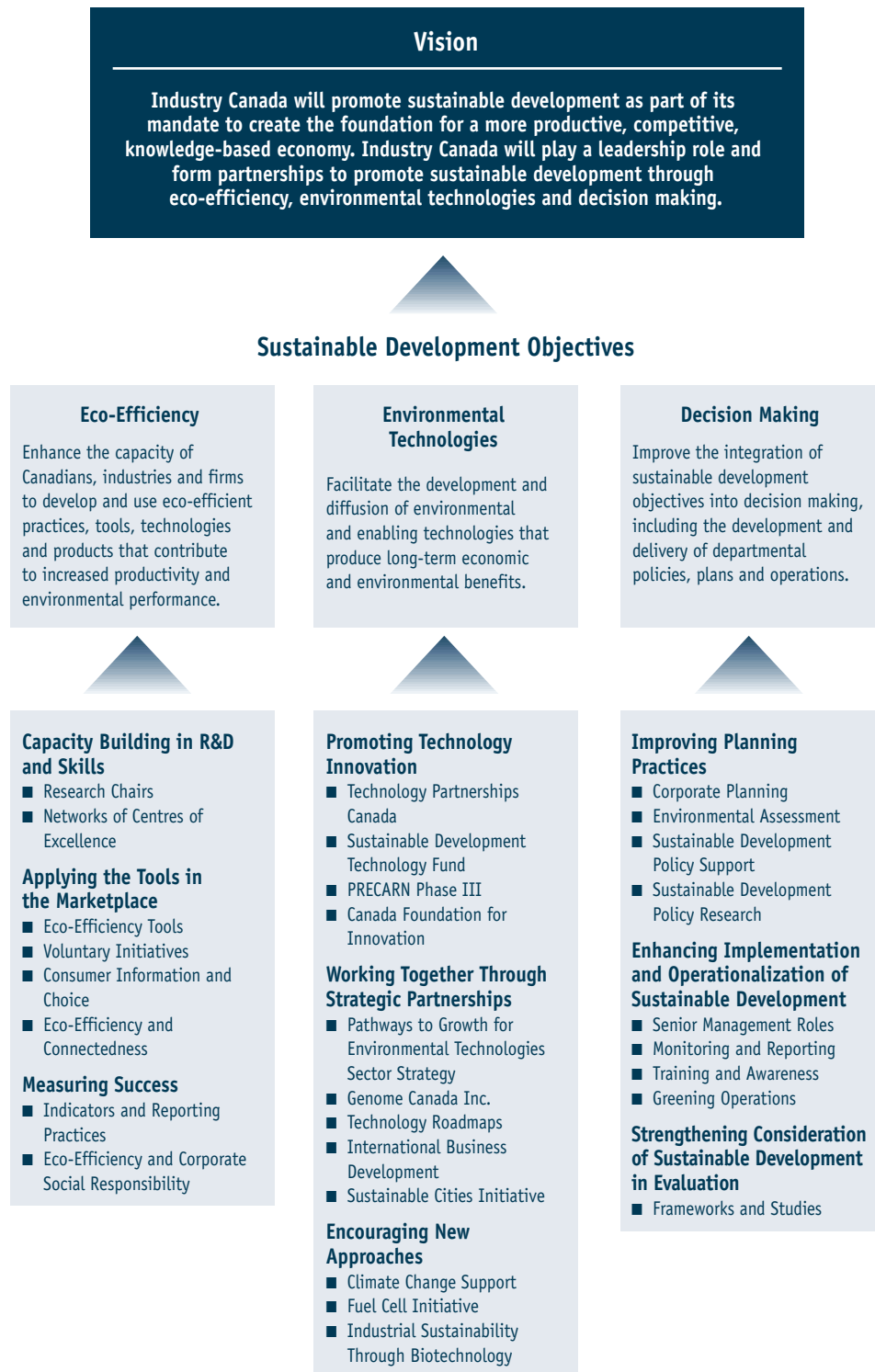
#### Sustainable Development Objectives

Industry Canada's new sustainable development strategy consists of three objectives that focus on eco-efficiency, environmental technologies and decision making. The objectives are those that we believe to be appropriate to address the key sustainable development issues and lessons learned (as identified in Section 2.2), and to contribute to the overall vision of the strategy.

Industry Canada commits itself to the following three objectives to promote sustainable development:

- **Eco-Efficiency:** 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.

**Figure 1: Industry Canada's Sustainable Development Strategy, 2000–2003**



- **Environmental Technologies:** Facilitate the development and diffusion of environmental and enabling technologies that produce long-term economic and environmental benefits.
- **Decision Making:** Improve the integration of sustainable development objectives into decision making, including the development and delivery of departmental policies, plans and operations.

The three sustainable development objectives (although sometimes interlinked) are intended to each have a unique focus. They have differences and similarities. First, both the eco-efficiency and environmental technologies objectives are generally oriented at the Department's external operations, while the decision-making objective provides direction for the Department's internal operations. Second, the eco-efficiency objective focusses on enhancing the capacity of both industries and institutions to expand the use of eco-efficient practices, tools, technologies and products that have already been developed and tested, while the environmental technologies objective concentrates on the research, development and diffusion of environmental and enabling technologies. In a sense, the former objective focusses on expanding the application of practices and technologies in the shorter term, while the latter objective places more emphasis on developing newer technologies and diffusing them in the longer term. While not always the case, the eco-efficiency objective tends to be concerned with producing shorter term incremental results, while the latter is more concerned with producing longer term and larger scale breakthrough results. The third sustainable development objective emphasizes an improvement in the integration of sustainable development objectives into departmental decision making.

There are some linkages between the three sustainable development objectives. While the objectives and their associated actions may be independent on most occasions, they may also complement each other or supplement and reinforce one another. For example, as becomes evident in the description of the action plan items, some activities (although framed under different sustainable development objectives) may be responding to produce solutions to the same sustainable development issue. The nature of these anticipated linkages is indicated in Table 2 of Chapter 4, beginning on page 51.

### **Linkages to Industry Canada's Corporate Objectives**

The sustainable development objectives are also linked with the Department's broader corporate strategic objectives outlined in the *2000–2001 Report on Plans and Priorities* and summarized in the departmental profile provided in Appendix I.

Industry Canada has five corporate strategic objectives to assist Canada in improving productivity, employment and income:

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

Innovation is integral to productivity growth and a dynamic, competitive economy. Canada's innovation performance relies on our ability to

learn new skills, adapt to new conditions, create new ideas and discoveries, and seize new opportunities. The eco-efficiency and environmental technology objectives commit the Department to enhance the ability of Canadian firms, including small and medium-sized enterprises (SMEs), to develop and use innovative technologies and tools that promote sustainable development. The same objectives should also help to improve consumer choice with respect to eco-efficient products. Canada can improve its productivity, innovation performance and advancement of sustainable development through progress on eco-efficiency, environmental and enabling technologies, the expansion of related knowledge bases, and the adoption of the innovative practices, tools and products. In this context, Industry Canada has identified the promotion of both eco-efficiency and environmental technologies as initiatives that foster innovation and sustainable development.

The eco-efficiency and environmental technologies objectives of our new strategy are potentially linked in at least three ways to the corporate objective to make Canada the most connected nation in the world, particularly in the longer term. First, the eco-efficiency and environmental technologies objectives can contribute to building an Information Highway that is environmentally responsible (e.g. through improved technologies for using reduced amounts of materials and energy, as well as corresponding pollutants used in manufacturing products for information and communications technologies). Second, the two sustainable development objectives can be supported by connectedness accomplishments.

That is, an advanced information and communications infrastructure can contribute to sustainable development by providing opportunities to Canadian businesses and consumers to gain and share knowledge on ways and means to improve productivity and environmental performance through eco-efficiency and new environmental technologies.

Third, businesses and citizens connected by the Information Highway, particularly the Internet, can play a role in helping our economy to find ways of reducing materials, energy and toxic dispersion through benign substitutes (e.g. telecommuting, telehealth, telework). In line with its commitment to make Canada the most connected country in the world, Industry Canada can work to enhance the ability of Canadians to use the Internet and related technologies to promote sustainable development. Improvements in connectedness could translate into advancing sustainable development as well as help to make our economy more dynamic, productive and competitive.

A fair, efficient and competitive marketplace is important for investment, innovation, trade, job creation, consumer confidence and economic growth. It can stimulate the wealth and innovation that can be used to advance sustainable development. It can also encourage the innovation and long-term investment decisions that develop and use new technologies that support sustainable development. A marketplace climate that allows for the use of new management tools, voluntary instruments to address environmental and social challenges, and consumer information and choice can enhance the capacity of Canadian industry and consumers to develop and use innovative technologies, tools and products that promote sustainable development.

Industry Canada can build a fair, efficient and competitive marketplace while promoting sustainable development. Canada can improve its marketplace climate and advance sustainable development through the balanced use of policy tools, including voluntary and knowledge-based instruments to achieve productivity and eco-efficiency results.

International trade has become another important source of economic growth and job creation for Canada. Canada must continue to promote a dynamic economy, with increases in productivity, competitiveness, employment and income growth, and, through these improvements, take advantage of emerging trade opportunities in existing and new export markets. Excellence in environmental performance can reduce business costs and result in enhanced trade opportunities for Canadian industries, technology and expertise. Canadian products and pollution-prevention technology, particularly the new, innovative technologies, may find high-growth opportunities in world markets by attempting to deal with environmental issues similar or related to those facing Canadians. These kinds of opportunities can be used to advance sustainable development globally, as well as domestically. Industry Canada can promote sustainable development while working with Canadians to increase Canada's share of global trade.

Delivering the Department's sustainable development and corporate objectives depends on the support of the corporate and management services. This support includes the provision of corporate and advisory services in areas such as human resources and training, communications, informatics, facilities management, audit and evaluation, and comptrollership.

Sustainable development objectives can be advanced through this support function, and opportunities for action exist within the Department.

One of the underlying aims of SDS II is to focus on those strategic areas that would make the greatest difference. A key finding from the issues scans and evaluation studies is that certain Industry Canada corporate objectives lend themselves more than others to advancing sustainable development. Therefore, the sustainable development objectives of the new strategy are more strongly linked to the corporate objectives that are most open and supportive for focussing action. These include the innovation objective and the management support function. There are also some productive linkages to the marketplace climate and trade objectives.

### **Action Plan**

The action plans for each of the three sustainable development objectives are described in sections 3.1, 3.2 and 3.3. Targets, priority themes and actions have been developed for each of the three sustainable development objectives. Eight action areas are outlined to achieve the eco-efficiency objective, twelve for the environmental technology objective and nine for the decision-making objective. The action areas cover a wide range of activity from information products to management tools to research and demonstration support, and are grouped in accordance with priority themes. The actions are the ones deemed to have the most departmental support and to make the biggest difference to Industry Canada in advancing sustainable development.

### 3.1 Productivity Through Eco-Efficiency

**Objective:** 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.

**Target:** Work in partnerships 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, applying the tools in the marketplace, and measuring success initiatives. By 2003, this will be achieved through the following:

**Capacity Building in R&D and Skills (two deliverables)**

- supporting the establishment of Research Chairs
- supporting the establishment of NCEs.

**Applying the Tools in the Marketplace (four deliverables)**

- assisting SMEs to use eco-efficient practices, tools and technologies, and promoting the adoption of environmental standards
- developing and encouraging the use of voluntary non-regulatory initiatives
- assessing the extent to which environmental labelling assists consumers
- identifying opportunities for the Internet and associated information and communications technologies to contribute to eco-efficiency.

**Measuring Success (two deliverables)**

- furthering the development of eco-efficiency and sustainable development indicators, and examining the environmental reporting practices of Canadian industry
- encouraging industry's social responsibility through an assessment of best practices as well as improving guidelines and indicators.

#### **Eco-Efficiency and Innovation: Keys to Sustainable Productivity Growth**

Canada continues to experience a productivity gap vis-à-vis other advanced industrial economies due to our poor innovation performance. Specifically, Canadian industry is slow in successfully developing, applying and marketing innovative products, processes and services. Innovation is a key driver of productivity growth and competitiveness and, therefore, must be addressed if Canadians are to experience employment growth, a higher standard of living and an improved quality of life.

Industry Canada's mandate to help make Canadians more productive and competitive in the knowledge-based economy, and thus improve the quality of life in Canada, revolves around a number of elements. One of these is the Department's innovation agenda. Innovation is the key to productivity growth, and our innovation performance hinges on our ability to learn new skills, adapt to new conditions, create new ideas and discoveries, and seize new opportunities.



Eco-efficient practices, as defined by the World Business Council on 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. Eco-efficiency is an important business practice and management tool that provides business with the means to increase productivity and competitiveness while making measurable progress in environmental performance. Specifically, it challenges business to achieve more value from lower inputs of materials and energy while reducing emissions. It also involves designing products that are easily disassembled and recycled, and extending their durability, service life and functionality.

The link between innovation and competitiveness and eco-efficiency is becoming increasingly clear. Companies are realizing cost savings, managing risk effectively and expanding their business thanks to the development and implementation of tools such as environmental management systems (EMSs), life-cycle analysis, design for environment, eco-industrial networking and environmental performance indicators. The benefits of eco-efficiency are being realized by leading multinationals, particularly U.S. and European firms, from a variety of industrial sectors. Their eco-efficient improvement strategies typically involve innovations in technology, production processes, product design and business organization. Benefits include lower per-unit costs, improved product/service quality, enhanced brand image and customer loyalty, new market opportunities, lower environmental-related liability, and increased interest by investors and the financial community. They are a clear indication of eco-efficiency's contribution to improving the economic, environmental and social components of sustainable development's triple bottom line.

Eco-industrial networking is emerging as an important approach to improving eco-efficiency through partnerships. Eco-industrial networking involves developing new local and regional business relationships between the private sector, government and educational institutions to use new and existing energy, material, water, human and infrastructure resources to improve production efficiency, investment competitiveness, community and eco-system health. By examining the flow of resources between facilities, new untapped opportunities for eco-efficiency improvements can be identified and implemented.

Intergovernmental organizations are also making eco-efficiency a key part of their work to increase competitiveness and improve the environmental performance of industry. In partnership with the WBCSD and other industry groups, the European Commission has launched a multi-year action plan to promote eco-efficiency as a leading business and policy concept across Europe. Individual countries, for example Australia, are also working through organizations such as the OECD to examine experiences with government programs and initiatives by individual firms aimed at improving eco-efficiency. Furthermore, eco-efficiency was one of the key issues of focus of the President's Council on Sustainable Development in the United States. The world is moving ahead, and Canada must continue to be responsive or risk falling behind major competitors.

While many large companies in Canada have embraced one or several eco-efficient practices, there are challenges related to achieving further progress on their use. There is a lack of understanding of the opportunities presented by eco-efficient practices and related tools such as life-cycle assessment and design for the environment, particularly by SMEs. There are also indications that Canadian universities could be better prepared to lead in innovative research



and teaching on the latest environmental tools and management systems that contribute to eco-efficiency.

A more systematic approach to the adoption of eco-efficient practices and tools by Canadian industry could yield significant benefits in terms of improved competitiveness and reduced environmental risk. Eco-efficiency will play a part in ensuring Canadian industry maintains its competitiveness in global markets where access is increasingly being shaped by environmental issues. In such a globalized market, companies will increasingly be asked to demonstrate that they are operating to high environmental standards, such as ISO 14000, to have access to and operate in markets. International corporate customers are under pressure to report on their environmental performance, and they will put demands on their suppliers to meet those same high environmental standards, as well as to document that fact.

### **Industry Canada's Role**

In this second, new sustainable development strategy, Industry Canada has selected eco-efficiency as one of three areas where we believe we can achieve the most in advancing sustainable development. We believe this because it promises to contribute to Canada's innovation performance, productivity growth and environmental performance, and because the Government of Canada has identified innovation and eco-efficiency as priority areas in the 1999 Speech from the Throne. This commitment was reinforced in the 2000 budget, which included new funding for investing in research and innovation, and for promoting environmental technologies and practices.

Furthermore, eco-efficiency was one of eight themes discussed at the April 2000 Leaders' Forum on Sustainable Development, which aimed to promote greater cooperation among

federal departments concerning their sustainable development strategies. Industry Canada is leading the eco-efficiency agenda for the federal government and, as such, the Department will support the development of innovations that promote productivity through eco-efficiency in Canadian business. Moreover, the advisory committee established to review the preliminary draft of Industry Canada's strategy strongly supported Industry Canada's emphasis on eco-efficiency within the strategy.

Industry Canada has also worked under the leadership of Environment Canada and in coordination with other departments in the development of SDS II. Examples of horizontal issues promoted by Environment Canada include greening operations, EMSs and eco-efficiency. These issues and others appear in the sustainable development strategies of Natural Resources Canada, Agriculture and Agri-Food Canada, Transportation Canada, Western Economic Diversification Canada, etc. Therefore, in partnership with industry, federal departments, consumers, and other stakeholders, this strategy addresses eco-efficiency through capacity building in R&D and skills, applying the tools in the marketplace and measuring success.

In its first strategy, Industry Canada recognized the importance of eco-efficiency as an effective way for industry to produce more valuable products or services while using fewer material and energy inputs and creating less pollution. The Department began to develop an effective case to encourage business to implement EMSs such as ISO 14000. It also worked with industry and other stakeholders to identify opportunities to use eco-efficiency indicators, and supported the development of the voluntary standards system as an effective means to advance sustainable development, communicating it through information products and outreach. Industry Canada has targeted developing partnerships with industry



and other government departments to enhance awareness, identify opportunities for action, and encourage the use of eco-efficient practices, tools, technologies and products, to increase productivity and improve environmental performance. The key lesson learned is that eco-efficiency has become a more credible and promising vehicle for proactively advancing sustainable development in our economy.

The Department's sustainable development strategy was reinforced by funding decisions by TPC. TPC's Environmental Technologies component encourages eco-efficiency by financially supporting the development and application of sustainable alternatives such as better conservation of energy, water and non-renewable resources, and pollution abatement — technologies that reduce waste or harmful emissions.

Industry Canada will aim to enhance the capacity of Canadian firms to develop and use eco-efficient practices, tools, technologies and products that contribute to increased productivity and environmental performance. This will be achieved by focussing on modernizing management approaches, demonstrating and diffusing eco-efficient practices, improving the knowledge infrastructure and skills, and by increasing awareness and knowledge diffusion about eco-efficiency, within the framework of capacity building in R&D and skills, applying the tools in the marketplace and measuring success.

### **3.1.1 Capacity Building in R&D and Skills**

Strengthening R&D and skills in the area of eco-efficiency involves advanced applied research, education, technologies and practices. The demonstration and the diffusion of

innovative and tested technologies can play an important role in addressing resource efficiency and making Canadian industry more productive. The action areas below will support R&D and skills in institutions and industry to build up technical expertise and expand the application of eco-efficient practices, tools and technologies. These action areas may reinforce or complement some of the specific action areas outlined under the environmental technologies objective.

#### **Research Chairs**

One of the gaps in Canada's innovation system is the shortage of people with the skills and knowledge to make innovation and eco-efficiency happen. For example, we lack design engineers familiar with environmental design and the latest tools and practices. Design engineering is a key enabler of innovation in that it creates the concepts and designs, and develops the new and improved products, processes, tools and technologies that industry needs to improve productivity and eco-efficiency. Recently, the Natural Sciences and Engineering Research Council of Canada (NSERC) introduced a program to establish chairs in design engineering that will make an important contribution to addressing these issues. However, more needs to be done to increase the knowledge of eco-efficiency in environmental and business faculties, to ensure graduates are familiar with the latest environmental tools and eco-efficiency practices, and to strengthen the related research capacity of the universities. Efforts also need to be undertaken to strengthen research networks between universities, industry and research institutions through existing vehicles such as the emerging Canadian Design Engineering Network or new networks.

*“We aggressively seek out eco-efficiencies — ways of doing more with less — because it makes us more competitive when we reduce and eliminate waste and risk from our products and processes. And it saves us money. By developing products that are as safe as possible for people and the environment, we improve our market share.”*

— Samuel C. Johnson, Chairman of S.C. Johnson & Son, Inc.

### Action Plan Item

▲ *In consultation with the Canadian Council for Human Resources in the Environment Industry, NSERC and other stakeholders, Industry Canada will assess the needs of knowledge workers to enhance the capacity of Canadian industry to adopt eco-efficient tools and technologies. This analysis will be used to support decision making for key skills initiatives, including Research Chairs.*  
Responsibility: Environmental Affairs Branch

### Networks of Centres of Excellence

The Networks of Centres of Excellence (NCE) is a federal program administered jointly by NSERC, the Canadian Institutes of Health Research, and the Social Sciences and Humanities Research Council Canada in partnership with Industry Canada. The NCE program 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 in a much shorter time frame than if the research were conducted independently by industrial partners.

New NCEs have been targeted in three new research fields to help generate direct economic benefits and to expand Canada's expertise in the following areas:

- Research on the "Automobile of the 21st Century" will 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. emission level reductions). A network in this target area should improve Canadians' health, accelerate the rate at which Canada achieves

emission-reduction targets and increase the participation of Canadian industry in opportunities generated by changes in the automotive sector.

- Research in "Genomics Technologies and Society" will help Canada respond to biotechnology opportunities in the global, knowledge-based economy and will improve our understanding of the critical issues for society as related technologies are developed and introduced. A network in this target area should enable Canada to develop and exploit knowledge in genomics for social and economic benefits in areas such as agriculture, the environment, forestry and health.
- Research in "Meeting Environmental Challenges for Clean Water" will strengthen Canada's international leadership role in addressing environmental challenges to manage and preserve access to clean water. A network in this target area should broaden Canadian expertise in the effective management of water resources and should preserve or improve our environment through the development of innovative technologies. It should also increase the health and socio-economic benefits derived from clean water resources.

### Action Plan Item

▲ *Industry Canada will participate in the management process for approving and supporting three NCEs recommended from an arms-length peer review process in the following new research fields:*

- 1) *The Automobile of the 21st Century;*
- 2) *Genomics Technologies and Society;*
- 3) *Meeting Environmental Challenges for Clean Water.*

*The new networks will be funded only if they pass the research excellence test of the NCE program.* Responsibility: Innovation Policy Branch



### 3.1.2 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 to achieve measurable improvements in productivity and environmental performance. The action areas in this section outline Industry Canada's goals in order to empower business and consumers with the knowledge required to make eco-efficiency a part of daily life and common business practice. The modernization of business management approaches, including voluntary partnerships, are important because they encourage companies to go beyond compliance with the law, and they provide opportunities to find new and better ways of doing business in a profitable and sustainable manner.

Research undertaken by Industry Canada indicates that significant gains in cost savings, productivity and environmental performance could be realized if eco-efficiency were transferred to the many SMEs that have not yet recognized the concept. It further indicates that initiatives aimed at transferring knowledge and technology from one sector to another, as well as from large to small business, are possible areas for government/industry partnerships to ensure that Canadian industry maintains its competitiveness in global markets shaped by concern for the environment, health and social issues.

For more information on eco-efficient tools and practices, see <http://strategis.gc.ca/sd>

### Eco-Efficiency Tools

Environmental concerns are raised by domestic and international customers around the world, creating both benefits and costs. To remain competitive in the global market, many large firms are implementing EMSs and using life-cycle analysis and design for environment tools in their operations. Industry Canada supports the development of management tools to assist industry in identifying environmental and advanced manufacturing technologies and solutions to achieve eco-efficiency. However, to adopt eco-efficiency innovations, manufacturers need detailed knowledge of management tools

#### Action Plan Items

- ▲ *Industry Canada will work with stakeholders, the National Research Council and other organizations (e.g. the Ontario Centre for Environmental Technology Advancement) to assist SMEs to improve their competitiveness and environmental performance through the use of innovative eco-efficient practices, tools and technologies. Responsibility: Strategic Policy Branch and Environmental Affairs Branch*
- ▲ *In partnership with other government departments, Canadian industries, the Standards Council of Canada, the Federation of Canadian Municipalities, and other relevant agencies, Industry Canada will initiate activities aimed at increasing the credibility and adoption of environmental management standards. Industry Canada will work with the Strategic Steering Committee for the Environment of the Canadian Standards Association to identify priority actions for the expanded use of environmental standards and to examine the feasibility of implementing a pilot project in a selected Canadian municipality. Responsibility: Environmental Affairs Branch*

and practices that are best suited to their own manufacturing processes. Frequently, and especially in the case of SMEs, firms lack the resources necessary for developing, finding and implementing the right tools and partnerships.

In its first strategy, Industry Canada began demonstrating and communicating the business case to implement ISO 14000 as a way to acquire effective EMSs and, thereby, advance sustainable development. In SDS II, Industry Canada will go beyond these efforts and promote such management tools to a wider base of firms.

### **Voluntary Initiatives**

Voluntary non-regulatory initiatives (VNRI) are invaluable to Industry Canada's sustainable development strategy. VNRI benefits include encouraging industry to be innovative and creative in changing its processes/practices and preventing pollution; superior results at lower costs; and making possible the simultaneous pursuit of government priorities to improve environmental performance, and to increase economic and employment growth.

Industry Canada is developing an effective, flexible and balanced policy framework to promote sustainable development, eco-efficiency and environmental stewardship. The Department promotes the use of voluntary approaches for the following two purposes:

- to encourage effective, substantially equivalent voluntary programs instead of additional, new regulatory intervention to achieve the same performance results; and

- to encourage Canadian industry to adopt an environmental ethic that goes beyond the scope of regulatory jurisdiction by voluntarily adopting various corporate stewardship practices that will result in environmental, social and economic gains.

### **Action Plan Items**

- ▲ *By 2003, and in partnership with Environment Canada as well as other departments and stakeholders, Industry Canada will work to develop and implement the new voluntary program that will effectively replace the Accelerated Reduction/Elimination of Toxics (ARET) program. The replacement program will expand upon the base built by ARET to include additional sectors and reduce emissions of a broader range of substances.*
- ▲ *Industry Canada will also, in partnership with Natural Resources Canada, other government departments, industry and conservation groups, develop an initiative to promote biodiversity stewardship within Canada's resource industries. The initiative will contribute towards the implementation of the Canadian Biodiversity Strategy.*
- ▲ *Industry Canada will enhance the role of voluntary initiatives in environmental governance and will develop, in partnership with Environment Canada, two or more new voluntary environmental agreements with industry sectors and continue to actively participate in the implementation of existing agreements.*

Responsibility: Environmental Affairs Branch



### **Consumer Information and Choice**

Greener consumer products, which emerged in the Canadian marketplace in the late 1980s and early 1990s, were marketed to consumers as having fewer harmful effects on the natural environment than alternative products. Focused marketing accompanied the introduction of these products, and they were successful until consumers learned that some of the environmental claims made were questionable. While there is considerable consumer confusion surrounding green products, there remains a healthy consumer demand for these types of products. This consumer confusion raises questions about the nature of product-related information currently in the marketplace. Studies indicate that consumers generally gather their information on greener products through retail practices, such as green product labels and advertising.

To foster a fair, efficient and growing marketplace for consumer products that are more environmentally sustainable, there is a need for accurate and accessible consumer information on the environmental impacts of product choices. There is a trend towards labelling and certification of more and more products based on reliable national and international environmental standards. The challenge rests in the communication of the complex information with respect to product-specific environmental impacts to reduce consumer confusion in the marketplace. Awareness and understanding of the environmental labels used in the consumer marketplace can enable consumers to make informed purchasing decisions concerning greener products.

#### **Action Plan Item**

▲ *Before the end of 2001, Industry Canada will support the Consumers Association of Canada to assess and report on environmental labelling and the extent to which it is verifiable and accurate in the marketplace, and if it assists consumers in making more sustainable choices.* Responsibility: Office of Consumer Affairs

### **Eco-Efficiency and Connectedness**

As the keystone of the Connecting Canadians initiative, the Government of Canada has established the goal of making Canada the most connected nation in the world and the location of choice for electronic commerce. The connectedness commitment involves encouraging the use of information and communications technologies, thereby increasing productivity and reducing energy consumption and waste. The electronic commerce commitment encourages increased use of electronic transactions and, thus, the reduction of paper use.

Some of Industry Canada's programs, as part of the Connecting Canadians initiative, are making contributions to Canada's eco-efficiency and sustainable development goals. For example, Computers for Schools, a partnership of Industry Canada, The Telephone Pioneers and others, has taken recycling and applied it to computer hardware and software, thus preparing Canadian students for the knowledge-based economy while reducing waste.

### Action Plan Items

- ▲ *Industry Canada will work with industry, other government departments and other stakeholders before 2003 to identify opportunities to use the Internet and associated information and communications technologies to reduce the intensity of the use of materials and energy, and prepare a public report on this work. Responsibility: Strategic Policy and Planning Branch*
- ▲ *A new, dedicated eco-efficiency Web site will be developed on Strategis before 2003. The objective of this site will be to provide companies with the information they need to become more eco-efficient and will include benchmarking and diagnostic tools, eco-efficiency assistance programs and guides, sources for financing eco-efficiency investments, links to existing departmental databases for locating Canadian suppliers and manufacturers of eco-efficiency solutions, and an interactive feedback mechanism for soliciting client feedback. Responsibility: Strategic Policy Branch*

- ▲ *Industry Canada will develop an environmental policy information Web site to inform Canadians of upcoming and important sustainable development trends and initiatives under way in the global economy. Responsibility: Environmental Affairs Branch*
- ▲ *Industry Canada will encourage and support information products that promote and diffuse practices related to eco-efficiency such as Canadian Environmental Solutions, Business Environmental Performance Office and Environmental Industry Virtual Office. Industry Canada's award-winning products are designed to provide information to industry and the public on eco-efficient practices and technologies, specifically practices that can reduce the environmental impact of business operations. Responsibility: Environmental Affairs Branch*
- ▲ *Industry Canada will develop a group of on-line information services aiming to increase the knowledge of developments in environmental policy that are relevant to Canadian industry, government and the general public. Responsibility: Environmental Affairs Branch*

### Eco-Efficiency and Connectedness

Innovation and knowledge are the raw materials of the 21st century economy. Success depends on the development, acquisition and use of knowledge. Connecting businesses and citizens to the Information Highway, particularly the Internet, plays a central role in helping economies successfully adapt to these new realities.

In just a few years the Internet has become the internationally recognized symbol of the transition to the knowledge economy — the newest universal symbol marking major economic transformations sparked by advances in technology. In stark contrast to some transformations, the Internet appears to be environmentally benign. In fact, the primary impacts of the Internet seem to promise the following significant environmental gains:

- Information and communications technologies are relatively clean in manufacture and in use.
- Electronic transactions can use less energy than paper-based transactions; e-shopping can reduce the need for energy-intensive retail space and can save on travel by shoppers, thus conserving fossil fuels and cutting greenhouse gas emissions; and making government services available on-line produces similar environmental gains due to reduced travel.
- The shift to Internet delivery of electronic files of software and entertainment, rather than shrink-wrapped disks and CDs, represents a de-materialization and a reduction in energy and materials intensity.
- Telecommuting can save materials and energy not only by reducing travel but also by reducing the need for additional office building construction and use.

Also, the productivity gains that are driving the increased use of the Internet by business are often accompanied by environmental gains. Better on-line information in supply chains and distribution networks can reduce errors and inventories, and thus reduce waste of materials and energy. The decision to design a new product on computers rather than on drafting tables may be driven by the need to telescope lead times and cut the labour component of development costs, but it also saves the paper used in blueprints.

While there are indications of environmental gains, there may be environmental costs. For instance, when desktop computers were introduced in offices, it was commonly assumed that networked workstations would lead to a drastic decline in the need for printed documents and a decline in the use of paper. However, few people foresaw the development of cheap, high-quality printers and a steady increase in the demand for paper to serve these printers.

It is already clear that choices to be made in the use of the Internet will have environmental impacts. E-shopping, for instance, can save trips to shopping centres and reduce the use of transportation fuels. However, delivery choices can in some instances outweigh the gains. For example, if the quickest and most energy-intensive delivery options are chosen, it is possible more transportation fuels will be burned in an e-shopping transaction than in an equivalent over-the-counter transaction.

#### 3.1.3 Measuring Success

Performance measurement and benchmarking are critical to assessing Canada's competitive position internationally. As eco-efficiency is a subset of innovation, these activities are also critical to determining whether the implementation of eco-efficiency initiatives have, in fact, improved firm-level productivity performance.

More and more firms are moving towards sustainable development and the triple bottom line of economic, social and environmental factors. The reasons that explain this shift are numerous, including the recognition that it is the wave of the future and that, for many, doing business in a sustainable manner is a tradition of corporate social responsibility. As



*“Eco-efficiency is plainly and simply the ‘business end’ of sustainable development.”*

— Stephan Schmidheiny, chairman of several holding companies and founder of the Business Council for Sustainable Development

eco-efficiency is the business link to sustainable development, some of these firms have expanded the scope of their eco-efficient initiatives, tools and processes to include the social aspect of sustainable development.

#### **Indicators and Reporting Practices**

Performance assessments are crucial for ensuring the development and implementation of eco-efficiency initiatives. To date, Industry Canada has undertaken research to determine the extent to which the concept of eco-efficiency and related indicators are being used and supported by key industry sectors and consumers, and the perceived impact on productivity, competitiveness and environmental performance. The Department also recently partnered with Agriculture and Agri-Food Canada, Environment Canada, the Department

#### **Action Plan Items**

- ▲ *Over the next three years, the Department will collaborate with the National Roundtable on the Environment and the Economy, Statistics Canada, Environment Canada, and industry to further the development of eco-efficiency and sustainable development indicators.*
- ▲ *The Department will conduct a survey of the environmental and sustainable development reporting practices of Canadian industry. This survey would examine the largest industrial firms in Canada to survey the extent to which they are reporting their performance, and examine the eco-efficiency practices being reported upon. The survey may be used to recognize and improve awareness of companies with sound eco-efficiency and environmental stewardship practices.*

Responsibility: Strategic Policy Branch

of Finance Canada, Natural Resources Canada and Transport Canada on a study of eco-efficiency. The study examined the role leading national governments are playing in eco-efficiency, barriers to adoption, and detailed business case studies of leading international practitioners of eco-efficiency. These studies are helping to provide direction on future policy and program directions.

#### **Eco-Efficiency and Corporate Social Responsibility**

Recently, more companies have recognized the business benefits of corporate social responsibility policies, practices and initiatives. Potential benefits include improved financial performance, reputation, brand image, and quality in products and services; increased productivity; employee loyalty; and less regulation. Companies have been adopting or expanding corporate social responsibility efforts in response to the potential benefits, as well as to pressures from consumers, employees, suppliers, communities, shareholders and other stakeholders.

Industry Canada is committed to encouraging a socially responsible attitude on the part of business as a means to encourage eco-efficiency and sustainable development. The Department is aware that there is a wide divergence of views in the genuine debate about what the corporate responsibilities should be in this area. Over the last three years, Industry Canada has begun to explore ways and means to advance the integration of social considerations into corporate decision making. For example, the *Canada Business Corporations Act* was recently reviewed to examine its links to social considerations, and improved OECD guidelines for multinational enterprises were endorsed.

## Action Plan Items

- ▲ *Industry Canada will, before the end of 2003, conduct a study on best practices on corporate social responsibility commitments of leading edge Canadian and international corporations. Responsibility: Environmental Affairs Branch*
- ▲ *During the next three years, Industry Canada will continue to work in international fora such as the OECD to improve knowledge of, and guidelines on, corporate social responsibility practices. Responsibility: International Business Branch*
- ▲ *During the course of this strategy, Industry Canada will work with stakeholders to develop corporate social responsibility indicators and explore their relationship with eco-efficiency indicators. Responsibility: Strategic Policy Branch*

## Eco-Efficiency and Corporate Social Responsibility

For many corporations, the sustainable development agenda has focussed on harmonizing the traditional financial bottom line with the environmental bottom line, with eco-efficiency being the harmonizing vehicle. Some progressive businesses are going one step further and have begun to expand their eco-efficiency and sustainability agenda to integrate a third bottom line on social responsibility and related policies, practices and actions.

There is no universally acceptable definition of corporate social responsibility. There is a general understanding that it involves the ethics of a company and its treatment of employees, customers, communities and other stakeholders such as governments and shareholders. The World Business Council on Sustainable Development suggests that corporate social responsibility is “the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the work force and their families as well as the local community and the society at large.”

Corporate social responsibility can cover such issues as employee rights, conflict of interest, human rights, and so on. Earning the trust of stakeholders in relation to these issues is increasingly crucial for commercial success. Companies are recognizing that through corporate social responsibility they can avoid employee dissatisfaction, consumer boycotts, higher insurance premiums, etc. A proactive approach can offer business various benefits, including improved profits and competitiveness, community support, employee loyalty and growth opportunities.

Despite uncertainty on how to define and operationalize corporate social responsibility, industry is undertaking supportive action both domestically and internationally. Domestically, organizations such as the Conference Board of Canada, Michael Jantzi Research Associates Inc. and EthicsScan Canada have been working to improve information on best practices and performance in corporate social responsibility among Canadian companies. Also, Canadian Business for Social Responsibility and the Canadian Centre for Ethics and Corporate Policy have been created to promote corporate social responsibility. At the international level, the World Business Council of Sustainable Development began a three-year project in 1997 to study corporate social responsibility. In June 2000 the ministers of Labour, International Trade and Industry endorsed improved OECD guidelines for multinational enterprises, setting out voluntary principles and standards of responsible conduct, which will help promote and protect the environment and human rights, as well as uphold labour standards.

For more information, visit <http://strategis.gc.ca/sd>

## 3.2 Environmental Technologies

**Objective:** Facilitate the development and diffusion of environmental and enabling technologies that produce long-term economic and environmental benefits.

**Target:** Work in partnership with industry, other federal and provincial government departments and other key partners to facilitate the development and/or diffusion of environmental and enabling technologies that produce long-term economic and environmental benefits for Canada. By 2003, this will be achieved through the following:

**Promoting Technology Innovation (four deliverables)**

- investing in innovative environmental and enabling technologies through Technology Partnerships Canada
- supporting the establishment and operation of the Sustainable Development Technology Fund (SDTF)
- supporting the R&D of innovative intelligent systems solutions through PRECARN III
- working with the Canada Foundation for Innovation to support a research infrastructure.

**Working Together Through Strategic Partnerships (five deliverables)**

- developing and implementing the Pathways to Growth for Environmental Technologies Sector Strategy
- promoting and monitoring progress of Genome Canada Inc.
- supporting and undertaking Technology Roadmaps in key strategic areas
- expanding International Business Development through the identification and marketing of Canada's environmental technologies
- supporting international urban pilot projects through the Sustainable Cities Initiative.

**Encouraging New Approaches (three deliverables)**

- supporting the development and implementation of the National Implementation Strategy on Climate Change
- encouraging and supporting the continued development of the fuel cell industry
- promoting industrial sustainability through biotechnology.

Complementary to increasing productivity through eco-efficiency is the development and diffusion of environmental technologies. Firms practising eco-efficiency as a management tool often view investment in environmental technologies as critical to their long-term productivity, competitiveness and growth. As such, this serves as another area for Industry Canada to focus its sustainable development actions. It involves facilitating the development and diffusion of environmental and enabling technologies, and strengthening the capacity of supportive research networks.

Canada's ability to adopt innovative environmental practices and technologies will increasingly be part of its strength in the 21st century. Environmental technologies advance sustainable

development by reducing environmental risk, enhancing cost-effectiveness, improving process efficiency, and creating products and services that are environmentally beneficial. They include know-how, organizational and managerial procedures, as well as a diverse range of products and processes, ranging from pollution control, prevention and clean-up technologies, to technologies that increase resource efficiency or monitor and analyse environmental impacts.

Environmental technologies are intrinsically diverse, touching upon activities throughout the economy, and form an enabling field of activity for both market analysts and government policy makers. Traditionally, the environment industry has encompassed technologies



for water and wastewater treatment, the handling of solid and hazardous wastes, and air pollution control. Over the past decades, however, it has come to include the concept of sustainable development; the management and conservation of resources; and the re-engineering of industrial processes to improve their resource and energy efficiency, and to eliminate the production of pollutants. Given this shift in the industry, environmental technologies within the scope of this strategy include the technologies, processes, products and services that accomplish the following:

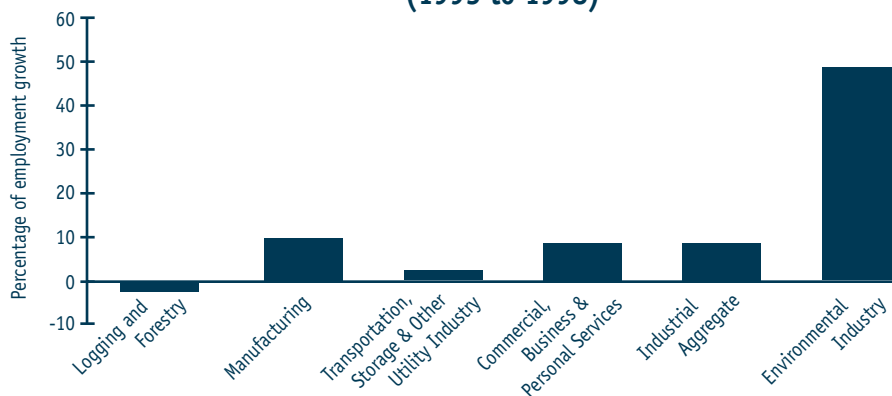
- Prevent pollution by minimizing or eliminating solid, liquid and gaseous wastes through process re-engineering. These green technologies are increasingly being chosen by industry to meet their twin objectives of improving productivity and reducing regulatory compliance costs.
- Control pollution, usually in response to environmental laws and regulations, and often through a single-medium approach with an end-of-pipe solution. In some cases, the control of pollution is the only cost-effective approach.
- Clean up and restore the environment that has been degraded by neglect, accident or unsound waste storage and disposal practices, especially concerning toxic and other hazardous materials.

- Monitor and assess the nature and pathways of pollutants and waste streams. Sophisticated measuring technologies, for example, are vital components of the feedback loops needed for cleaner and more efficient industrial processes.
- Reduce the depletion of the natural resource base and support sustainable resource management.

Environmental companies across Canada represent a vital component of our country's current and future economic growth. Between 1995 and 1998, employment growth in environmental industries was approximately 50 percent — five times higher than the industrial aggregate (see Figure 2). Public concern over the state of the environment coupled with the drive of Canadian industry to improve its competitiveness have led to the emergence of this important industry dedicated to satisfying global requirements for environmental technologies, process, products and services. Innovative environmental technologies provide numerous value-added benefits to both private and public clients, including the following:

- enhanced productivity and efficiency
- reduced corporate risks and potential liabilities
- increased market share through improved corporate image
- increased profits and shareholder value.

**Figure 2: Net Employment Growth by Sector (1995 to 1998)**



Source: Statistics Canada (1999), Canadian Council for Human Resources in the Environment Industry (1999).

### **Industry Canada's Role**

As identified in the 1999 Speech from the Throne, the government will focus its efforts in strengthening Canada's position in the global, knowledge-based economy. Environmental technologies form the basis for a high-growth opportunity sector within the knowledge-based economy and for innovation in traditional resource-based industries. The 2000 budget underscored the challenges we face in addressing complex environmental issues. Such issues, however, also present many opportunities for an innovative economy. The government will foster a culture of innovation and inspire a spirit of entrepreneurship to seize the opportunities of the global marketplace. Industry Canada will help achieve these goals through its mandate to promote the growth and development of a strong, dynamic economy and improve industry competitiveness.

In SDS I, Industry Canada recognized the significant role of technology development and diffusion. A number of actions were undertaken to encourage the development and diffusion of clean-production and enabling technologies that produce long-term economic and environmental benefits. For example, TPC approved and contracted more than 20 repayable investments in a variety of sectors, including transportation, forestry, aerospace and defence, and oil and gas. They involved projects that promised to reduce landfill gases, generate electrical power from biomass-derived fuels, reduce nitrogen oxide emissions through the development of a low-emission combustion system for an industrial gas turbine engine, and reduce carbon dioxide emissions by developing a high-volume refuelling system for fuel cell vehicles.

Our new strategy, shaped by public consultation, continues to build upon many of the actions implemented under the first strategy, in particular, those that present the most credibility, opportunities and prospects for advancing

sustainable development. SDS II will focus on the delivery of a number of action plan items within a framework of promoting technology innovation. It will also focus on working together through strategic partnerships and encouraging new approaches to advance the standards of eco-efficiency through sound science and a risk-based approach.

### **3.2.1 Promoting Technology Innovation**

Promoting innovation is critical to meeting environmental obligations such as the Kyoto Protocol and to enhancing productivity and the environmental health of Canadians. However, meeting these dual challenges will require that Canada act aggressively to close the innovation and productivity gaps that have become evident in recent years.

Initiatives to promote technology innovation include state-of-the-art research, development and demonstration of environmental and enabling technologies. All of these programs involve partnerships. Some are responding to the climate change challenge, and some will play a key role in helping companies aggressively pursue the technology that will shape Canada's future, including its journey to advance sustainable development (i.e. TPC and SDTF). The Canada Foundation for Innovation concentrates on research infrastructure while PRECARN focusses on research regarding intelligent systems solutions. All of the programs provide an important array of opportunities for pursuing research, development, demonstration and diffusion of environmental and enabling technologies.

#### ***Technology Partnerships Canada***

TPC is a technology investment fund established to contribute to the achievement of Canada's objectives of increasing economic growth, creating jobs and wealth, and supporting sustainable development. It advances and supports government initiatives by investing

strategically in industrial research and pre-competitive development of companies in Canada, including SMEs in all regions of the country. In fact, TPC provides repayable investments to SMEs both directly and in partnership with the National Research Council's Industrial Research Assistance Program (IRAP). IRAP and TPC have partnered to deliver the Precommercialization Assistance Program to make assistance more readily available to SMEs across Canada.

TPC supports industrial research and pre-competitive development in environmental technologies, enabling technologies (advanced manufacturing and processing technologies, advanced materials processes and applications, applications of biotechnology, and applications of selected information technologies), and aerospace and defence. Investments in environmental technologies involve projects in priority environmental areas such as the development of sustainable alternatives (better conservation of energy, water and nonrenewable resources); pollution prevention through the development of clean-process technologies, including clean-car technologies; pollution abatement (technologies that reduce waste or harmful emissions); and pollution remediation (clean-up technologies). During 1999–2000, TPC invested \$98 million in eight projects that will leverage approximately an additional \$296 million from other sources involving innovative technologies that should contribute to sustainable development. This program was a mainstay of Industry Canada's sustainable development efforts in the first strategy, and it remains so in the new strategy. It is a program that continues to credibly promise to effectively serve Industry Canada's commitment to promote and advance sustainable development, as well as to increase economic and job growth.

#### Action Plan Item

▲ *TPC will continue to invest in innovative environmental and enabling technologies that contribute to sustainable development and eco-efficiency.*

Responsibility: Technology Partnerships Canada

#### **Sustainable Development Technology Fund**

The SDTF is a new initiative designed to catalyse innovation in technologies for sustainable development. In the innovation system, there is a critical need for support to the development and demonstration of Canadian environmental technologies and, therefore, the fund is focussed on these two elements. The initial focus of the fund will be on technologies aimed at reducing greenhouse gas emissions and improving air quality. Technologies to be funded under the SDTF are expected in areas such as fuel cells, clean coal, wind turbines and advanced materials.

An arms-length, non-profit organization will be established to administer the new fund. This new organization will work in partnership with key stakeholders (business, universities, research institutes). The Minister of Natural Resources is accountable to Parliament for the SDTF; however, the ministers of Industry and the Environment will work with the Minister of Natural Resources to ensure a balanced approach that takes into account environmental and social considerations.

Industry Canada has been a key stakeholder in advancing innovation in environmental technologies and will continue to do so through support to the establishment and management of the SDTF.

### Action Plan Item

▲ *Industry Canada will work in partnership with Environment Canada and Natural Resources Canada to support the establishment of the SDTF and its ongoing operation. It will ensure focus on developing key areas of high opportunity.* Responsibility: Environmental Affairs Branch

### **PRECARN (Pre-Competitive Applied Research Network) — Phase III**

With the increased automation of industry, the demand for intelligent systems is increasing across global markets. PRECARN is a national, industry-led R&D consortium whose purpose is to develop intelligent systems solutions to real industry needs supported by world-class, leading-edge university-based research. With its federal, provincial and private sector partners, PRECARN acts as an important catalyst in Canada's national system of innovation. Technologies supported are robotics, machine sensing, human-machine interface and intelligent computation. These technologies have applications in many sectors, including mining, forestry, agri-food, energy, environment and manufacturing.

### Action Plan Item

▲ *Phase III of PRECARN's R&D program will continue to support research using applications of advanced information technology in such areas as advanced manufacturing, mining, environmental cleanup and other activities.* Responsibility: Information and Communications Technologies Branch

Industry Canada, through its focus on building the knowledge-based economy, has been a key supporter of PRECARN in Phases I and II of the initiative. Industry Canada will continue to support PRECARN through Phase III, given its ongoing success in the development of innovative intelligent systems solutions.

### **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 Canada Foundation for Innovation (CFI) was established in 1997 to award funds to help universities, research hospitals and not-for-profit institutions modernize their research infrastructure and equip themselves for state-of-the-art research. Federal investments in the Foundation 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 Toronto to establish an Atmospheric Observatory to help researchers improve their understanding of the processes that cause ozone depletion and atmospheric pollution.

Industry Canada provides policy advice in the management and operation of the CFI through ministerial responsibility for accountability to Parliament and through the *ex officio* engagement of the Deputy Minister on the CFI's Board of Directors. The Department will continue to support the CFI in this capacity and, in cooperation with CFI and the granting councils, will help in meeting infrastructure needs identified by the Canada Research Chairs.

### Action Plan Item

▲ *Industry Canada will support the CFI in its work related to research infrastructure in areas that are key to science and engineering, the health of Canadians, a clean environment, and the continued strengthening of Canada's innovation capacity. This includes supporting the research infrastructure needs of Canada Research Chairs. Responsibility: Innovation Policy Branch*

### 3.2.2 Working Together Through Strategic Partnerships

The strategic engagement and awareness raising among client sectors is essential to ensure that Canadian environmental technologies can effectively respond to the evolving needs of the target clients. The strategy will build on the interagency and intergovernmental networks established through the Canadian Environment Industry Strategy (CEIS), and extend to include key industry sectors.

In seizing the opportunities for profitable growth, it is essential to think in terms of partnerships among businesses, universities, professional associations and all levels of governments. By acting together in a coherent, comprehensive and strategic manner, we can create a world-class environmental technologies industry. As such, the following initiatives are focussed on partnerships that help to facilitate the diffusion and transfer of knowledge and technologies that promote sustainable development.

The development and application of environmental technologies present Canada with both opportunities and challenges. Developing a strong competitive environment industry is a priority for action by the federal government.

Initiatives will be undertaken to brand Canada as a source of leading-edge environmental technologies, whether through trade missions to key priority and emerging markets, or technology demonstration and showcasing at international fora. Initiatives will also be focussed on identifying market opportunities for the diffusion of Canadian environmental solutions, thereby enhancing the opportunities for Canadian sustainable development technologies abroad.

#### **Pathways to Growth for Environmental Technologies Sector Strategy**

Building on the results of the CEIS (1994–1998), under the Pathways to Growth for Environmental Technologies Sector Strategy, Industry Canada will design and support the implementation of an integrated set of programs and initiatives to assist the environmental technology industry in becoming world leaders in developing, adopting and transferring innovative environmental technologies. To reap the benefits of environmental technologies, Canada will need to successfully address various challenges in the following areas:

- **Innovation:** Encouraging the development and adoption of cleaner technologies.
- **Connectedness:** Leveraging e-business potential for the environment industry.
- **Skills:** Ensuring a strong human resource base to support this multi-disciplinary sector.
- **Marketplace:** Establishing a fair, efficient and competitive marketplace that takes into account sustainable development practices.
- **Investment:** Branding Canada as a prime investment location from which to provide integrated environmental solutions.
- **Trade:** Capturing strategic global environmental market opportunities.

The Pathways to Growth for Environmental Technologies Sector Strategy will be led by Industry Canada, in partnership with Environment Canada, and will be developed

*“By working together, we can stimulate the development of innovative technologies that will deliver healthy options and give Canadians smarter environmental choices.”*

— The Honourable David Anderson, Minister of the Environment, October 4, 2000



in consultation with other government departments (federal and provincial), industry, and stakeholders such as the Canadian Environmental Technology Advancement Centres and the Canadian Council for Human Resources in the Environment Industry. The resulting strategic framework will cast action priorities in response to sector challenges, such as providing open channels to government for SMEs.

#### Action Plan Item

▲ *Industry Canada will develop and release the Pathways to Growth for Environmental Technologies Sector Strategy, which seeks to align, enhance and undertake actions targeted to environment industry development.*  
Responsibility: Environmental Affairs Branch

#### Genome Canada Inc.

Genomic science is key to the advancement of biotechnology, including applications in support of sustainable development. Genomics is a discipline that aims to decipher the entire genetic content of an organism. Canadians will benefit from the creation of high-paying jobs and products and services, with health and environmental benefits. Resource-based industries are beginning to use these technologies to improve their productivity, product quality and environmental sustainability. Examples include new enzymes that reduce the chlorine-based bleaching agents used in pulp and paper production by 50 percent, and waste treatment technologies that clean contaminated soil and water.

Industry Canada has lead the establishment of Genome Canada Inc., an arms-length coordination body for research in genomics. The Department will continue to support the management and operation of Genome Canada Inc. Industry Canada acts as the lead contact for the federal community with Genome Canada.

#### Action Plan Item

▲ *Genome Canada Inc. is a new non-profit corporation created to coordinate genomics activities in Canada. Industry Canada will continue to promote and monitor Genome Canada's progress in the:*

- *development and establishment of a coordinated strategy to allow Canada to become a world leader in selected areas of genomics research, including health, agriculture, environment and forestry, among others, by bringing together industry, government laboratories, universities, research hospitals and other research centres;*
- *creation of five regional genomics centres to undertake large-scale R&D projects offering significant socio-economic benefits to Canada; and*
- *addressing of public concerns about genomics research by coordinating social science and humanities research into the ethical, environmental, legal and societal issues related to genomics.*

Responsibility: Life Sciences Branch

#### Technology Roadmaps

Technology Roadmaps (TRMs) are mechanisms to identify the new critical technologies, skills and competencies required to meet future market demands in five to ten years. As such, TRMs are tools to improve strategic understanding of technological opportunities in and across industry sectors, and between suppliers and users. Initiated and supported by Industry Canada, each TRM exercise is led by industry and involves collaborative action. Thirty-five non-industry partners, including universities, government departments, research institutes and associations, are involved in the TRM exercise, and more than 350 industry partners, representing 190 companies, are participating.

At present, six TRMs have been completed in the following areas: forestry operations, geomatics, wood-based panel products, aircraft design and manufacturing, metal casting, and electrical power. A number of others are under way (e.g. intelligent buildings, biopharmaceuticals, aluminum fabrication). It is anticipated that the demands for products and processes that are sensitive to sustainable development issues will increase and that TRMs may help identify new critical technologies to meet these demands. Industry Canada will continue to support the evolution of existing TRMs and will undertake new TRMs in key areas of focus.

#### Action Plan Item

- ▲ *New TRMs will be supported and undertaken in key areas, including biomass, bioenergy and bioproducts, and fuel sources for fuel cells, while existing TRMs will continue to be supported.*  
Responsibility: Manufacturing Industries Branch

#### International Business Development

The global market for environmental technologies is estimated to reach \$1 trillion by 2015. Currently, Canada represents 3 percent of the global environmental market; hence, if Canadian environmental technology providers are to reap the benefits of the strong global market, they will need to pursue international business opportunities.

Industry Canada will continue to identify and market Canada's environmental technologies in niche markets where Canada can attain a competitive advantage. This support is instrumental in the diffusion of sustainable technologies worldwide. The primary vehicle for coordination of Industry Canada's activities with those of other government departments, provinces and the private sector, will remain

through Trade Team Canada Environment (TTCE). TTCE initiatives include trade missions (incoming and outgoing), conferences and trade shows, market studies, and forecasting. TTCE also focusses on providing a window into federal and provincial government support for SMEs with a view to establishing long lasting trade partnerships.

#### Action Plan Items

- ▲ *Industry Canada will work with industry and other stakeholders to identify key environmental trends and develop an inventory of key competencies among Canadian firms that specifically respond to these trends.*
- ▲ *Industry Canada, in partnership with other federal and provincial departments and the environmental technology industry through TTCE, will develop and implement an international business development strategy to respond to industry priorities such as developing and maintaining government-to-government relations to open new international market opportunities, and supporting the Globe and Americana conferences.*

Responsibility: Environmental Affairs Branch

#### Sustainable Cities Initiative

Global demand to achieve sustainable development requires integrated technology solutions from across several sectors (e.g. environmental technologies, transportation, health, energy, telecommunications, smart cities). Canadian companies need to partner with complementary technology companies to form strategic alliances to deliver sustainable technology solutions.

The Sustainable Cities Initiative (SCI) is a multisectoral and multistakeholder trade initiative whose key objective is the development of integrated strategies and solutions, through cooperation and partnerships, to the range of urban problems generated by rapid urbanization. It directly targets municipal decision makers who, because of continuing devolution, are increasingly making key development and investment decisions. Led by Industry Canada, in partnership with the Department of Foreign Affairs and International Trade (DFAIT), three SCI pilot projects have been undertaken in Katowice (Poland), Salvador (Brazil) and Qingdao (China) since March 1999. These pilot projects have successfully demonstrated the concept, with more than \$1.5 billion in potential projects identified.

The SCI is built around the notion of multi-sectoral (i.e. energy, housing, services, telecommunications, transportation, environment and water) and multistakeholder (i.e. Canadian private sector, government and non-government organizations) “City Teams,” which combine forces to identify and implement projects in selected cities in key export markets. Cities are selected through consultations with other stakeholders, including DFAIT, the Canadian International Development Agency, the Canadian Commercial Corporation, the Export Development Corporation and other government departments, based on predetermined criteria (e.g. size, governance, Canadian presence, demand and financing). Within the time frame of this strategy, Industry Canada will continue to support these pilot projects and undertake two to three new initiatives in international cities.

#### Action Plan Item

▲ *The SCI will continue working with the first three cities (Katowice, Salvador and Qingdao) and do the groundwork to undertake pilot activities in two to three additional cities. It will also pursue the implementation of already identified projects with partners, initiate the development of a multi-year business plan, and explore opportunities for additional contributions by partners.*  
Responsibility: Service Industries Branch

### 3.2.3 Encouraging New Approaches

The complexity of environmental issues such as climate change requires innovative approaches to the application of environmental technologies. Controlling emissions alone will not achieve an environmentally sustainable economy. Industry Canada recognizes that we are shifting from a framework based on clean-up and control to one based on anticipation, avoidance, assessment and precaution.

Globally, there is increasing demand for enabling technologies with significant productivity gains through increased efficiencies. Technologies identified to be the most promising include fuel cells and biotechnology, both areas of Canadian strength.

Industry Canada will continue to undertake initiatives to encourage new approaches in strategic areas. These include innovative approaches to key government priorities (e.g. climate change) and advancing leading-edge technologies (e.g. fuel cells and biotechnology). Beyond these initiatives, Industry Canada will continue to review policy initiatives relevant to sustainable development, including voluntary non-regulatory initiatives such as the National Packaging Protocol or ARET.

### **Climate Change Support**

Climate change was identified as a government priority in the 1999 Speech from the Throne and the 2000 budget. Ratification of the Kyoto Protocol will require federal and provincial agreement on designing and administering a National Implementation Strategy (NIS) that takes into consideration the challenges and opportunities that climate change poses for Canadian industry.

In SDS I, Industry Canada committed to examine and analyse the climate change challenge and to bring a sustainable development perspective to identifying opportunities and actions to address this important atmospheric issue. In the new strategy, Industry Canada will, in partnership with other government departments and industry, develop appropriate mechanisms and activities to support the implementation of the NIS.

#### **Action Plan Item**

- ▲ *Industry Canada will work with other government departments and stakeholders to develop and implement specific measures targeting the industrial sector as described in Action Plan 2000, the federal government's contribution towards the First National Climate Change Business Plan. Industry Canada will continue to work with other government departments and stakeholders to analyse additional potential measures to help reduce industrial emissions of greenhouse gases for consideration in future climate change business plans. Responsibility: Environmental Affairs Branch*

### **Fuel Cell Initiative**

Fuel cell technology is on the verge of becoming a viable alternative to the internal combustion engine and other traditional power supply technologies. It provides an efficient, low-emission source of power and is recognized as one of the best technological solutions to mitigate climate change. Canada is a world leader in early fuel cell commercialization and is strategically positioned to capture a substantial share of the global market for micropower (i.e. small, clean, reliable and cheap generating technologies) projected to be more than US\$60 billion a year.<sup>14</sup> Vibrant industrial clusters specialized in micropower development have surfaced in British Columbia, Alberta, Ontario and Quebec.

#### **Action Plan Items**

- ▲ *Industry Canada will continue to support the development of the fuel cell industry and will encourage eligible firms to submit projects meeting the requirements of such government programs as the Sustainable Development Technology Fund, the Canada Climate Change Development Fund, Sustainable Cities Initiative and TPC/IRAP.*
- ▲ *Industry Canada will support the continued development of the fuel cell industry in Canada through such initiatives as networking and promotion, through public policy development, and by collecting and distributing intelligence information.*
- ▲ *Industry Canada will continue to encourage the Government of Canada to purchase technically viable fuel cell products to support its own power generation requirements, as well as providing public demonstrations of this Canadian technology.*

Responsibility: Aerospace and Automotive Branch

<sup>14</sup>. Electric Power Research Institute.

Fuel Cells Canada is a third-party delivery agency initiated by the private sector with support from Industry Canada. Fuel Cells Canada has been organized to support fuel cell commercialization through networking, training, promotion, regulatory improvements and the demonstration of viable fuel cell technologies. Present funding through the Canada–B.C. Western Economic Partnership Agreement provides limited funding for B.C. activities only.

### **Industrial Sustainability Through Biotechnology**

Biotechnology is poised to be a major engine of the new economy and is expanding our understanding of all living organisms. Research in this field is creating new medicines, new tools for health diagnosis, more nutritious crops with higher yields, and new technologies for cleaning up the environment. For example, recent advances in biotechnology have led to the development of biotechnologies supportive of cleaner production, particularly as compared to conventional technologies. Biotechnology products can offer significant benefits to Canadian consumers and businesses.

Industry Canada coordinates the Canadian Biotechnology Strategy on behalf of six other key departments, the National Research Council, and granting councils involved in biotechnology. The strategy establishes a new policy framework, an expert-based Canadian Biotechnology Advisory Committee (CBAC),

a new coordination machinery to focus and direct federal biotechnology efforts, and 10 priority themes for concerted action. The CBAC will be a key instrument for consulting Canadians on issues related to biotechnology and for advising ministers on future directions.

#### **Action Plan Items**

- ▲ *Development of an innovation strategy and action plan for application of bio-products and bioprocesses in support of sustainable development.*
- ▲ *Further develop and enhance the Canadian Biotechnology Solutions for the Environment CD-ROM and Web site to showcase cleaner biotechnology solutions.*
- ▲ *Advance our international leadership role through proactive participation in international venues such as the United Nations Environment Program and OECD.*
- ▲ *Develop and launch an Industrial Sustainability Through Biotechnology Web site with both domestic and international partners.*
- ▲ *In partnership with other key stakeholders, support and contribute to regional workshops to discuss opportunities for advancing the growth of biotechnologies that could advance sustainable development.*

Responsibility: Life Sciences Branch and Environmental Affairs Branch

### 3.3 Integrating Sustainable Development into Decision Making

**Objective:** Improve the integration of sustainable development objectives into decision making, including the development and delivery of departmental policies, plans and operations.

**Target:** Improve the integration of sustainable development considerations into Industry Canada's decision making in the planning, implementation and evaluation phases of the Department's management system. By 2003, this will be achieved by:

**Improving planning practices (four deliverables)**

- expanding sustainable development considerations in corporate planning
- enhancing environmental assessment
- supporting sustainable development outside the Department
- conducting sustainable development policy research.

**Enhancing implementation and operationalization of sustainable development (four deliverables)**

- increasing senior management involvement
- expanding monitoring and reporting of sustainable development actions
- improving sustainable development training and awareness
- enhancing greening operations.

**Strengthening consideration of sustainable development in evaluation (one deliverable)**

- advancing evaluation methods and processes.

Integrating sustainable development into decision making involves considering sustainable development in the different facets of an organization's policy development, planning and program delivery. Such considerations should occur at the following stages:

- policy formulation and planning of initiatives
- implementation and delivery of activities
- evaluation and improvement of actions.

Integrating sustainable development considerations into Industry Canada's decision making is encouraged by the *Auditor General Act*; the Commissioner of the Environment and Sustainable Development; the Cabinet Directive and Guidelines on the Environmental Assessment of Policy, Plan and Program Proposals; the 1999 Speech from the Throne; *A Guide to Green Government*; and our Internal and External Issues Scans and

Mid-Term Evaluation of the first strategy. Furthermore, a nationally coordinated consultation, the Leaders Forum on Sustainable Development, held in the spring of 2000, selected sustainable development operations, including the integration of sustainable development into decision making, as one of eight priority themes, and this was endorsed by the participants. Finally, integrating sustainable development into decision making is important to our department because of opportunities to capitalize on benefits such as the following:

- capture positive environmental and social effects and avoid, minimize or mitigate the negative effects of its economic activities;
- save time and costs associated with potential environmental and social risks and liabilities that could result from unanticipated negative effects;

*“I expect departments to accelerate the development of management systems to support strategy implementation — to turn their words into actions.”*  
— Brian Emmett,  
the then  
Commissioner of  
the Environment  
and Sustainable  
Development,  
December 1999

- improve the quality of the organization’s goods and services to more effectively serve the needs of stakeholders and clients; and
- produce an improved initiative that responds to new needs, challenges and opportunities as defined by both government policy and the marketplace.

A well-functioning organization uses its management system to make decisions that link the organization’s objectives, action plans and results. The typical management system involves the “plan, do, check and improve” phases of a decision-making cycle. As such, Industry Canada is taking steps to ensure that sustainable development considerations are integrated into decision making at the different phases of the management system, i.e. the planning phase (including the important policy development role), the implementation and operation stage, and the evaluation and corrective action phase. When environmental and sustainable development considerations are being effectively integrated into the management system, there is a structured process for achieving continual improvement to advance sustainable development objectives.

#### **Industry Canada’s Role**

Industry Canada’s decisions regarding policies, plans, programs and operations are based on a consideration of their economic, environmental and social implications. The Department has begun integrating sustainable development into its decision making through a range of activities. These actions formed an important part of our first strategy with encouraging results.

As described in Appendix II-3, Industry Canada integrated sustainable development objectives into different aspects of the Department’s decision making and the delivery of policies, plans, programs and operations by

improving and expanding our knowledge base, enhancing analytical tools, and including sustainable development considerations in corporate planning. Senior management was actively involved in all aspects of the decision making with respect to the policy development, planning, implementation and evaluation of sustainable development initiatives. We also improved the greening of our operations.

Over the next three years, the Department is committed to strengthening the integration of sustainable development considerations into our departmental decision making, including the development and delivery of departmental policies, plans, programs and operations. In many cases, initiatives will be continued from the previous strategy with an expanded set of commitments. Furthermore, many of the initiatives will benefit from the work being conducted in partnership with other federal departments to take advantage of lessons learned and to capitalize on synergies produced by a coordinated approach.

Nine action items will be conducted on three fronts. First, four action items (Corporate Planning, Environmental Assessment, Sustainable Development Policy Support, and Sustainable Development Policy Research) will strengthen the integration of sustainable development into the planning phase (including policy development) of the management system. Second, four action items (i.e. Senior Management Roles, Monitoring and Reporting, Training and Awareness, and Greening Operations) will support the more effective implementation and operationalization of sustainable development. Finally, further integration of sustainable development into the evaluation phase of the management system will advance the institutionalization of sustainable development into decision making.

### 3.3.1 Improving Planning Practices

The planning phase of the management system involves developing the policies, objectives and targets for identifying and managing the organization's responsibilities and obligations. The planning component of the management decision-making cycle also involves establishing procedures, designating responsibilities and allocating resources that are necessary for implementation. Industry Canada will undertake action plan items in four areas to improve the planning practices respecting our department's policies, plans, programs and operations. This includes expanding sustainable development considerations in our corporate planning, further developing our environmental assessment approaches, supporting sustainable development policy as a priority outside the Department, and conducting more sustainable development policy research.

#### **Corporate Planning**

Industry Canada has a well-established annual cycle for developing and implementing its corporate plan. The process includes the participation of all senior managers. The Department reports on its past, current and future activities in documents such as the *Report on Plans and Priorities*, the *Departmental Performance Report* and the *Corporate Business Plan*. Information on plans and progress in implementing its sustainable development strategy is covered in these documents. Further integration of sustainable development considerations into these corporate planning documents would provide more balanced planning by the Department in response to government priorities.

During the past three years, senior management and staff increasingly succeeded in introducing sustainable development into the documents and the corporate decision-making procedures that lead to their development. For example, the most recent *Report on Plans and Priorities* cited considerably more references to sustainable development activities than the previous report.

Over the next three years, Industry Canada will enhance awareness of sustainable development considerations and activities at all levels of management by broadening and deepening sustainable development opportunities across the Department's strategic objectives.

#### **Action Plan Item**

▲ *In order to further integrate sustainable development into corporate decision-making procedures and reporting documents, Industry Canada will identify for annual review by senior managers sustainable development opportunities across the Department's strategic objectives that the Department could pursue as part of its policy and program proposals.*

Responsibility: Strategic Policy Branch

#### **Environmental Assessment**

Conducting environmental assessments on policy, plan, program and project proposals is important for integrating sustainable development into decision making. Moreover, they can help identify positive environmental effects and minimize or mitigate negative ones. They can also save time and costs associated with potential environmental risks and liabilities that can result from unanticipated effects.

Environmental assessments are conducted at two levels within federal departments, including Industry Canada. First, Industry Canada conducts and reports on environmental assessments at the project level, as outlined in the *Canadian Environmental Assessment Act*. Industry Canada has a well-developed project environmental assessment process in place. The Department conducts assessments that are triggered by the financial assistance that it provides to projects through programs such as the Aboriginal Business Infrastructure Program and TPC. Project assessments are also triggered through Industry Canada's licensing responsibilities; when issuing approvals for



radiocommunications sites, towers and masts; or when licensing for international telecommunications lines. The results of all project assessments are reported annually by the Canadian Environmental Assessment Agency and information on this activity is available upon request.

The Department also conducts environmental assessments of policies in accordance with the recently approved Cabinet Directive. Strategic environmental assessments are recommended when a proposal is submitted to an individual minister or to Cabinet for approval and when implementation of the proposal may result in important environmental effects. Industry Canada has a solid record for conducting environmental policy assessments, and information on this is available upon request.

#### Action Plan Items

- ▲ *Improve Environmental Assessment on projects through increased training, improved networks with other departments to share best practices and more transparent reporting.* Responsibility: Program and Services Branch
- ▲ *Improve and formally adopt a set of guidelines and a template for conducting Strategic Environmental Assessments (SEAs) within the Department. The improvements will be based upon an internal evaluation, as well as a review of best practices with the Canadian Environmental Assessment Agency and other federal departments.* Responsibility: Strategic Policy Branch
- ▲ *Build up the capacity for effectively conducting improved SEAs within the Department. More specifically, provide an SEA Web site, SEA training, and annual reports on SEA applications.* Responsibility: Strategic Policy Branch

Over the next three years, the Department will strengthen its environmental assessment effectiveness by improving the knowledge base of its staff, learning from best practices of other departments, and improving existing documentation and reporting mechanisms.

#### Sustainable Development Policy Support

The objective of sustainable development policy support is to use the sustainable development perspective as a vehicle for improving the quality of decision making with regard to both the diagnosis of policy challenges and the prescription of new policy solutions.

Industry Canada makes an important contribution by bringing business and consumer perspectives to federal policy development activities. Industry Canada advocates the integration of economic, environmental and social elements into federal frameworks, policies and operations, as well as into corporate stewardship efforts of industry.

Industry Canada promotes sustainable development through the following objectives:

- the importance of innovation in the ongoing design and implementation of the regulatory framework for environmental issues is well understood by the relevant decision makers, and sufficient flexibility for finding innovative solutions is factored into the framework;
- socio-economic and technical considerations are factored into government decision making, and the marketplace framework of environmental laws and policies is kept consistent with the broader social and economic policy agenda, thus advancing the goals of sustainable development;
- the appropriate harmonization of trade and investment-related environmental legislation across international borders, so that Canadian firms are not at an economic disadvantage relative to international competitors; and

- international multilateral environmental agreements will not unjustifiably restrict access to foreign markets for Canadian exports.

During the last three years, Industry Canada sought to bring a sustainable development policy perspective on such matters as environmental treaties, laws, policies and program initiatives. This work frequently involved presenting views on the economic costs, risks and consequences to both industry and consumers of a given proposal.

The policy support role is critical for integrating sustainable development into federal decision making. The Department will continue to improve these proactive endeavours to develop effective sustainable development policy solutions to social, economic and environmental challenges.

#### Action Plan Items

- ▲ *Industry Canada will be proactive in advancing the integration of the social, economic and environmental elements of sustainable development at the national and international levels (e.g. Protocol on Persistent Organic Pollutants, Canadian Environmental Assessment Act). Responsibility: Environmental Affairs Branch*
- ▲ *In partnership with other stakeholders, Industry Canada will participate in work by the National Round Table on the Economy and the Environment to explore how a coordinated strategy to redirect government taxation and expenditure programs could support sustainable development. Responsibility: Strategic Policy Branch*

#### **Sustainable Development Policy Research**

Policy research on sustainable development is important because it contributes to our understanding of the challenges, opportunities and prospects that surround sustainable development issues. Such policy research can help to improve the diagnosis of sustainable development issues and identify innovative and more effective policy strategies for action. In this way, policy research on sustainable development can strengthen the planning phase of an organization's decision making.

The Department conducts policy analysis and research regarding sustainable development on a number of fronts. Research is conducted both internally and externally in collaboration with other organizations, including federal departments. During the last three years, Industry Canada conducted policy research in areas such as sustainable development indicators, the relationship between sustainable development and productivity, and eco-efficiency opportunities in industry. An example of interdepartmental collaborative research is the sustainable development research on best practices of eco-efficiency in industry, which was conducted under the auspices of the Policy Research Initiative (PRI). The results of such work are fundamental to deepening and broadening the integration of sustainable development into the Department's decision making, with respect to both sustainable development policy challenges and policy prescriptions.

During the next three years, Industry Canada will continue to broaden and deepen its knowledge through further environmental policy research work on emerging policy issues. For example, the Department currently has research under way on the impact on the Canadian economy, by sector and province,

*“The Government of Canada is committed to setting an environmental model of excellence in its own operations.”*

— Mel Cappe,  
Clerk of the Privy  
Council, April 2000

of implementing the Kyoto Protocol, and on the Protocol’s effect on social and economic aspects of productivity. Also, the Department is a contributor to the sustainable development research project of the PRI and the federal research initiative on climate change.

#### **Action Plan Item**

▲ *Over the next three years, Industry Canada will undertake research and analysis on emerging policy issues, including their relationship to economic, environmental and social challenges. Industry Canada will undertake this work in partnership with other organizations. Responsibility: Micro-Economic Policy Analysis Branch*

### **3.3.2 Enhancing Implementation and Operationalization of Sustainable Development**

The implementation and operations phase of the management system and departmental decision making is concerned with acting upon the commitments made in the initial planning phase. This involves developing procedures to deliver on the commitments. Industry Canada will undertake action plan items in four areas to enhance the implementation and operationalization of sustainable development in our department’s policies, programs and activities. These include strengthening the roles of our senior management, improving the monitoring and progress reporting system respecting the new strategy, expanding sustainable development training and awareness, and implementing a new greening operations plan for the Department.

### **Senior Management Roles**

Industry Canada employs a formal management system for making decisions, which builds in a department-wide, corporate view; develops focus and resolution; and improves the quality of proposals. The main committees involved are the Directors General Policy Committee (DGPC), Senior Policy Committee (SPC) and the Deputy Minister’s Departmental Briefing Committee (DMDB). Other decision-making committees, such as the Industry Canada Management Committee, Programs and Services Board, and the Departmental Audit and Evaluation Committee, complement and support these three policy committees.

The Director General of the Strategic Policy Branch, under the direction of DGPC, SPC and DMDB, has managed the development and implementation of Industry Canada’s first sustainable development strategy, as well as the development of the second one. This involves formally reviewing proposals, addressing strategic challenges, resolving outstanding issues and providing direction on further work. Senior management, through these committees, was actively involved in the development and implementation of the first strategy, and the development of the second strategy. For example, the committees played an active role in championing sustainable development, in reviewing and directing the development of the first strategy, and in monitoring progress and managing the implementation. Senior management also contributes at the interdepartmental level by participating in committees such as the Deputy Ministers’ Coordinating Committee on Sustainable Development.

Over the next three years, senior management will strengthen and deepen its role in advancing sustainable development.

### Action Plan Items

▲ *In order to strengthen the policy development process, senior managers bringing proposals to SPC for discussion will be asked to assess the potential sustainable development impacts and opportunities arising from their proposals. The SPC secretariat will report on significant environmental considerations to the Deputy Minister and senior management at DMDB. Responsibility: All sectors and Strategic Policy Branch*

▲ *Industry Canada will appoint the Assistant Deputy Minister (ADM) of the Industry and Science Policy Sector as the sustainable development champion to oversee the implementation and monitoring of the new strategy. The ADM of the Industry Sector (with support from the ADM of the Spectrum, Information Technologies and Telecommunications Sector) will be appointed as the champion of sustainable development outreach with industry. The ADM of the Operations Sector will become the champion of greening operations within the Department. A review of implementation progress and a report to the Deputy Minister every six months will be part of the responsibilities of the champions. Responsibility: Industry Sector, Industry and Science Policy Sector, and Operations Sector*

### Monitoring and Reporting

Systematic monitoring and periodic reporting to senior management ensure that departmental commitments are being effectively implemented by designated responsibility centres and, where this may not be taking place, the system allows for corrective action. The monitoring and reporting system also provides useful data for management reviews and evaluations, and thus encourages the integration of sustainable development considerations into corporate decision making.

Shortly after the tabling of the first strategy, the Department put in place a systematic monitoring system with reporting every six months through the SPC (i.e. an ADM-level management committee) to the Deputy Minister. This review process provided careful tracking of progress, the reallocation of resources and the successful completion of 28 action items ahead of schedule (see Appendix II-3). The system also identified departmental actions that exceeded the commitments of the first sustainable development strategy.

Given the importance of the monitoring and reporting system for management to effectively implement and evaluate the first strategy, Industry Canada will build upon its experience and expand the role of the system in a number of promising opportunities in its second strategy.

### Action Plan Item

▲ *Industry Canada will increase awareness, both within the Department and with the general public, of sustainable development accomplishments by highlighting implementation progress on the Sustainable Development Web site and through reports to both employees and stakeholders a minimum of once a year. Responsibility: Strategic Policy Branch*

### Training and Awareness

Industry Canada provides employees with a range of training opportunities that include formal courses within the Department, courses that are offered outside the Department, and specific workshops and lectures on an *ad hoc* and as-needed basis. During the last three years, the Department has successfully developed and pilot tested a sustainable development training course, and conducted a number of workshops

and lectures on a range of sustainable development issues such as climate change technologies, sustainable development indicators, eco-efficiency and environmental assessment. These training vehicles have helped employees to remain current in their fields, as well as improve their understanding of a range of sustainable development issues, challenges, opportunities and potential benefits.

Over the next three years, the Department will expand the knowledge base of its employees, increase the tools available and strengthen the capacity of staff to use them. Industry Canada will also greatly improve staff awareness of the Department's contributions on sustainable development issues.

#### Action Plan Items

- ▲ *Industry Canada will offer on a regular basis a training program on sustainable development concepts and practices; integrate sustainable development into other training courses; present two expert speakers annually to departmental staff on sustainable development subjects; and thereby raise the level of awareness of employees on sustainable development challenges.* Responsibility: Human Resources Branch, Micro-Economic Policy Analysis Branch, Environmental Affairs Branch and Strategic Policy Branch
- ▲ *The Department will conduct an ongoing employee information and awareness program (through the departmental intranet site), including basic information dissemination, publicizing success stories, an employee suggestion program, spot checks for lights and equipment in use during non-business hours, and the distribution of energy and water saving tips.* Responsibility: Facilities Management Directorate, and Trade and Operations Branch

#### Greening Operations

The 1999 Speech from the Throne made a commitment that “in its operations, the government will make itself a model of environmental excellence.” Industry Canada is committed to the application of sustainable development principles in its operations. Although the Department is not a materiel-intensive organization, its size and variety of activities represent a significant level of resource consumption and downstream impact on the overall environment. The Department employs close to 6000 people at any one time; operates approximately 478 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 in Canada. The most significant environmental aspects of the Department's operations are those associated with the operation of offices and vehicles.

Industry Canada has worked to ensure that the Department's operations are conducted in a manner consistent with good environmental stewardship principles and practices through implementing its first Greening Operations Plan (1998–2000). Key accomplishments have included developing a more comprehensive environmental management system and integrating it into the Department's business planning system through the appointment of a Chief Environmental Steward. Other accomplishments have included:

- the implementation of an enhanced recycling program in key departmental facilities;
- the development of a “green procurement” training module and catalogue of products;
- the review of hazardous waste management opportunities within the Department;
- the development of a greening operations intranet site;

- the development of a variety of training programs to enhance awareness of operational impact on the environment; and
- the development of baseline environmental information.

Each Full-Time Equivalent employee, from 1997–1998 to 1998–1999, decreased their use of electricity by 271 kWh; used the same amount of water; purchased 1128 more sheets of paper; used 44 fewer litres of vehicle fuel while driving 116 fewer kms; and sent 5 kg less waste to landfill while diverting 4 kg more of waste, for an overall increased diversion rate of 1 percent.

The intention of our second Greening Operations Plan (2000–2003) will be to introduce new approaches and enhance existing practices, with an emphasis on reduced consumption wherever possible; less utilization and production of hazardous materials, including greenhouse gases; better management practices where potentially harmful products are utilized; and less waste to landfill. A key element will be working with Public Works and Government Services Canada (PWGSC) to implement the proposed federal Strategy for Excellence. The strategy will build on ministerial commitments made in *A Guide to Green Government* and will employ a collaboratively developed toolbox of performance measures.

The primary partnership will be with PWGSC in their dual role as provider of a great deal of the accommodation and related services required by Industry Canada, and in their procurement role where green specifications can be developed, and will form part of basic procurement and contracting methodologies. Secondary partnerships will also be developed directly with key suppliers of products and services where green considerations will be incorporated directly into delivery relationships. Examples may include reduced packaging on

shipped products (e.g. blanket-wrapped furniture rather than boxed; re-usable packaging), recycling of used components and out-dated products; and the re-use of construction materials where possible. Where re-use is not possible, we will explore the disposal of waste materials through recycling or alternative after-life uses.

The focus of this second three-year action plan will be on coordinated action on a smaller number of priority areas where the Department

#### Action Plan Items

- ▲ *Conduct, before 2001, an assessment of the current status of Industry Canada's internal operations with respect to an Environmental Management System by employing the criteria for ISO 14000 that were recently used by six departments in response to a request from the Office of the Commissioner of the Environment and Sustainable Development.*
- ▲ *A strategic action plan for revising and upgrading the EMS over the next three years will be developed through a formal Greening Operations Committee.*
- ▲ *Baseline studies of key environmental issues (e.g. energy, water audits) will be undertaken every two years in the facilities for which the Department has custodial responsibility, while cooperative agreements with PWGSC-led initiatives will be arranged for the Department's leased facilities.*
- ▲ *The Department will track its performance on procurement, automotive fleet performance, non-hazardous solid waste and hazardous materials management, on the basis of standard indicators (e.g. kg/year of waste sent to disposal).*

Responsibility: Facilities Management Directorate, and Trade and Operations Branch

has the most influence and where progress is most cost effective. Actions have been selected to further the Department's objectives in six main areas:

- improvements to the environmental management framework
- resource conservation in buildings
- green procurement
- automotive fleet management
- waste reduction, reuse and recycling
- hazardous materials management.

In partnership with PWGSC and landlords providing office and other accommodation to Industry Canada, as well as within Industry Canada custodian facilities, vehicle fleet, and other real assets, the Department will implement a second generation Greening Operations Plan that will drive the Department towards reduced consumption of raw material inputs, reduced reliance on scarce resources, and a continual reduction of our post-consumption impact on the environment.

### 3.3.3 Strengthening Consideration of Sustainable Development in Evaluation

The evaluation phase of a management system involves developing methods and procedures for assessing an organization's performance with respect to its policies, programs, activities and operations. The objective is to assess the adequacy of initiatives and identify both lessons learned and corrective actions for improved performance. Industry Canada will undertake an important action plan item to strengthen the consideration of sustainable development within the evaluation phase of our department's management system. This will involve employing evaluation methods and procedures to capture sustainable development considerations.

#### **Frameworks and Studies**

Evaluation frameworks are employed to provide a basis for the assessment of the effectiveness of departmental policies, programs, activities or

operations. Sustainable development criteria that are built into an evaluation framework can be used to raise the profile of sustainable development issues, impacts and opportunities, as well as performance measures for results. Such criteria can prompt the consideration of potential sustainable development impacts and opportunities.

Over the past three years, Industry Canada has integrated sustainable development challenges and opportunities into a select number of evaluation frameworks. Examples include the following:

- Ontario Base Closure Adjustment Program
- CANARIE (Canadian Network for the Advancement of Research, Industry and Education) — Phase III
- Aboriginal Business Development Program
- Canada–Ontario Infrastructure Works Extension
- Sustainable Development Internal Issues Scan
- Mid-Term Evaluation Study of SDS I.

Over the next three years, the Department will increase the integration of sustainable development criteria in evaluation frameworks through the following action plan items.

#### **Action Plan Items**

- ▲ *Before 2003, continue to integrate sustainable development considerations into evaluation frameworks for a minimum of two new departmental initiatives.*
- ▲ *An evaluation framework for the new strategy will be developed by the end of 2002. This evaluation framework will provide a practical approach for evaluating sustainable development initiatives.*
- ▲ *Prior to the next strategy for 2003–2006, conduct a mid-term evaluation on the Department's second sustainable development strategy.*

Responsibility: Audit and Evaluation Branch



## 4. Implementation and Measuring Our Progress

An effective sustainable development strategy involves moving beyond the policy-making and planning phases to implementation, monitoring and periodic management reviews.

This chapter sets out a matrix, relating the sustainable development issues to the opportunities identified for action (and implementation) by Industry Canada, in response to the issues. Second, it outlines the intended results for each sustainable development objective and the related action plan items that will help deliver on the results over the three-year period of the strategy. Performance indicators that will be employed to determine if results and deliverables are successfully achieved are also presented. Third, it describes the approach that Industry Canada is taking to monitor and report on implementation progress. Finally, it outlines the anticipated features and elements of an evaluation framework that will be developed for our second strategy in preparation for the third one.

### Relationship Between Sustainable Development Issues and Actions

Table 2, on pages 51–53, relates the action plan items of the new strategy to the sustainable development issues that were identified in the Internal and External Issues Scans conducted by the Department. The table presents a preliminary but systematic qualitative assessment of the anticipated impacts of the action items on the sustainable development issues. The bold checkmarks indicate action items anticipated to have the strongest impact, and the smaller checkmarks indicate expected impacts that are of a positive but lesser nature. The table is based on the logic chart, which emanates from the Internal and External Issues Scans (see Appendix II).

### Responsibility and Expected Results for Action Plan Items

Sections 3.1, 3.2 and 3.3 identify the responsibility centres in Industry Canada that are accountable for implementing the action plan items and related work commitments.

Table 3, on pages 54–56, presents the target for each sustainable development objective and summarizes the intended results. The table also outlines the related plan items that will deliver on the results, and presents the performance indicators used to help measure performance or the extent to which the action plan commitment has been achieved. The performance indicators outlined are those on which the Department has a due diligence way of demonstrating causality and attribution. Broader outcome-oriented performance indicators, which at this stage are methodically difficult to relate to departmental initiatives with any degree of confidence or practicality, will be explored outside the context of this accountability framework. For example, there will be work to develop and use sustainable development indicators, as reflected in some of the action items, and this information will be publicly available (e.g. in policy research studies).

It should be noted that the time frames indicated for the action plan items correspond to the three-year mandate of SDS II, however, the related work-task commitments frequently do not specify deadlines. This approach is considered to be efficient and pragmatic from an implementation perspective. A key internal lesson learned from implementing the first strategy was that the Department needs flexibility to manage its workload. Because of the many unanticipated demands, constraints and opportunities, it was difficult to “force-fit” many action items into unnecessarily narrow deadlines. In order for Industry Canada to take advantage of certain opportunities and respond to constraints effectively, resources need to be flexible enough to be reallocated



to complete certain initiatives quicker than planned, while others may be completed later than planned.

Nevertheless, the Department has developed, and will have available upon request, a detailed implementation plan that identifies responsibility centres, resources and timelines for each of the action items. There will also be a progress report on the action items that will be presented to both management and the public biannually. This should provide accountability and transparency on the delivery of each of the action plan commitments.

### **Monitoring and Reporting**

Industry Canada has established a system for monitoring and reporting on the status of the sustainable development action items set out in SDS I. Responsible managers and lead officers are required to submit biannual status reports, which contribute to a coordinated summary report for senior management and the Deputy Minister. The status reports include plans for the completion of sustainable development activities (as well as initiatives beyond the commitments), resources and anticipated timelines within the three-year time frame of the strategy.

Industry Canada also includes a short progress report on the status of the Department's sustainable development strategy in its annual *Departmental Performance Report*, which is tabled annually in Parliament. This progress report and a more detailed reference document are also posted on the Sustainable Development Web site (<http://strategis.gc.ca/sd>). The ongoing monitoring system is based on clearly defined deliverables. Where available, indicators to measure the extent to which the deliverables and intended results have been achieved are used in the monitoring reports.

The results of the performance measurement are intended to contribute to the strategic process and improve the program for the future implementation of sustainable development initiatives. In SDS I, performance measures/indicators were generally at an early stage of development and use.

The monitoring and reporting system that will be used to review progress in implementing SDS II will be similar to the existing approach. Nonetheless, improvements will be sought on three fronts. First, an effort will be made to develop and use performance measurement indicators more rigorously. Second, more effort will be made to assess the resource needs and allocations of individual action items. Finally, an attempt will be made to develop a more interactive monitoring system that could improve the efficiency and effectiveness of reporting procedures. The system, which will most likely be an interactive Web-based tracking and reporting tool, should minimize reporting fatigue on the part of those implementing the action commitments, while expediting the reporting of progress to senior management, staff and stakeholders. The implementation of such a system would be an important step towards creating a more sophisticated data collection system that is more in line with the expectations of the Commissioner of the Environment and Sustainable Development, and would help to meet departmental reporting requirements.

### **Evaluation Framework — Sustainable Development Strategy II**

To provide a firm basis for monitoring performance, identifying data collection requirements (ongoing and for a subsequent evaluation of the new strategy) and reporting results, it will be necessary to complete an evaluation framework for SDS II. This evaluation framework will build upon the draft evaluation framework that was developed for the first strategy, and incorporate the application results and lessons learned from the recently completed Internal and External Issues Scans and the Mid-Term Evaluation.

The development of the evaluation framework will incorporate the structure of the new strategy, suggest performance monitoring and results measures, present pragmatic approaches and methodologies for data capture and reporting requirements, and provide options for an evaluation of the new strategy.

Table 2: Sustainable Development Issues that Action Items are Anticipated to Impact

Objectives and Action Plan Items	Sustainable Development (SD) Issues Identified by Issues Scans										
	Efficient Use of Canada's Renewable Resources	Management of Toxic Substances	Pollution Prevention & Clean-Up Technologies	Greenhouse Gas Emissions & Climate Change Technology	Distribution of Costs & Benefits Among Generations	Improving Productivity	Integrating SD into Decision Making	Putting Industry Canada's Own House in Order	Partnerships for SD	Effective Legislative & Policy Frameworks	Improved Planning
<b>PRODUCTIVITY THROUGH ECO-EFFICIENCY</b>											
<i>Capacity Building in R&amp;D and Skills</i>											
Research Chairs	✓	✓	✓	✓	✓	✓			✓		
Networks of Centres of Excellence	✓	✓	✓	✓	✓	✓			✓		
<i>Applying the Tools in the Marketplace</i>											
Eco-Efficiency Tools	✓	✓	✓	✓	✓	✓			✓		
Voluntary Initiatives	✓	✓	✓	✓	✓	✓			✓		
Consumer Information & Choice			✓		✓				✓		
Eco-Efficiency & Connectedness			✓		✓	✓			✓		
<i>Measuring Success</i>											
Indicators and Reporting Practices	✓	✓	✓	✓	✓	✓			✓		
Eco-Efficiency & Corporate Social Responsibility						✓	✓		✓	✓	✓

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



Table 2 (cont.)

Objectives and Action Plan Items	Sustainable Development (SD) Issues Identified by Issues Scans										
	Efficient Use of Canada's Renewable Resources	Management of Toxic Substances	Pollution Prevention & Clean-Up Technologies	Greenhouse Gas Emissions & Climate Change Technology	Distribution of Costs & Benefits Among Generations	Improving Productivity	Integrating SD into Decision Making	Putting Industry Canada's Own House in Order	Partnerships for SD	Effective Legislative & Policy Frameworks	Improved Planning
<b>ENVIRONMENTAL TECHNOLOGIES</b>											
<i>Promoting Technology Innovation</i>											
Technology Partnerships Canada	✓	✓	✓	✓	✓	✓			✓		
Sustainable Development Technology Fund	✓	✓	✓	✓	✓				✓		
PRECARN Phase III	✓	✓	✓	✓	✓	✓			✓		
Canada Foundation for Innovation	✓	✓	✓	✓	✓	✓			✓		
<i>Working Together Through Strategic Partnerships</i>											
Pathways to Growth for Environmental Technologies Sector Strategy	✓	✓	✓	✓	✓	✓			✓		
Genome Canada Inc.	✓	✓	✓	✓	✓	✓			✓		
Technology Roadmaps					✓	✓			✓		✓
International Business Development	✓	✓	✓	✓		✓			✓		
Sustainable Cities Initiative	✓	✓	✓	✓		✓			✓		
<i>Encouraging New Approaches</i>											
Climate Change Support	✓	✓	✓	✓	✓	✓			✓		
Fuel Cell Initiative	✓	✓	✓	✓	✓	✓			✓		
Industrial Sustainability Through Biotechnology	✓	✓	✓	✓					✓		

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

Table 2 (cont.)

Objectives and Action Plan Items	Sustainable Development (SD) Issues Identified by Issues Scans										
	Efficient Use of Canada's Renewable Resources	Management of Toxic Substances	Pollution Prevention & Clean-Up Technologies	Greenhouse Gas Emissions & Climate Change Technology	Distribution of Costs & Benefits Among Generations	Improving Productivity	Integrating SD into Decision Making	Putting Industry Canada's Own House in Order	Partnerships for SD	Effective Legislative & Policy Frameworks	Improved Planning
<b>INTEGRATING SUSTAINABLE DEVELOPMENT INTO DECISION MAKING</b>											
<i>Improving Planning Practices</i>											
Corporate Planning					✓		✓	✓		✓	✓
Environmental Assessment					✓		✓	✓	✓	✓	✓
Sustainable Development Policy Support	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sustainable Development Policy Research					✓		✓	✓	✓	✓	✓
<i>Enhancing Implementation and Operationalization of Sustainable Development</i>											
Senior Management Roles					✓		✓	✓		✓	✓
Monitoring & Reporting							✓	✓		✓	✓
Training & Awareness					✓		✓	✓	✓	✓	✓
Greening Operations							✓	✓	✓		✓
<i>Strengthening Consideration of Sustainable Development in Evaluation</i>											
Frameworks & Studies					✓		✓	✓			✓

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

**Table 3: Intended Results, Deliverables and Performance Indicators**

**Sustainable Development Objective:** 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.

**Target:** Work in partnerships 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, applying the tools in the marketplace, and measuring success initiatives. By 2003, successfully complete eight identified action plan deliverables.

Intended Results	Deliverables: Action Plan Items to Achieve Results	Performance Indicators
Capacity Building in R&D and Skills	<ul style="list-style-type: none"> <li>■ Supporting the establishment of Research Chairs</li> <li>■ Supporting the establishment of NCEs</li> </ul>	<ul style="list-style-type: none"> <li>■ Number of research areas assessed and supported</li> <li>■ Number of NCEs assessed and supported</li> </ul>
Applying the Tools in the Marketplace	<ul style="list-style-type: none"> <li>■ Assisting SMEs to use eco-efficient practices, tools and technologies, and promoting the adoption of environmental standards</li> <li>■ Developing and encouraging the use of voluntary non-regulatory initiatives</li> <li>■ Assessing the extent to which environmental labelling assists consumers</li> <li>■ Identifying opportunities for the Internet and associated information and communications technologies to contribute to eco-efficiency</li> </ul>	<ul style="list-style-type: none"> <li>■ Number of workshops, tools developed and pilot projects</li> <li>■ Number of voluntary agreements developed with industry sectors</li> <li>■ Number of progress reports</li> <li>■ Number of Internet assessments made or information products developed</li> </ul>
Measuring Success	<ul style="list-style-type: none"> <li>■ Furthering the development of eco-efficiency and sustainable development indicators and examining the environmental reporting practices of Canadian industry</li> <li>■ Encouraging industry's social responsibility through an assessment of best practices and improving guidelines and indicators</li> </ul>	<ul style="list-style-type: none"> <li>■ Number of indicators developed and extent of surveys conducted</li> <li>■ Number of reports on best practices or guidelines</li> </ul>



**Table 3 (cont.)**

**Sustainable Development Objective:** Facilitate the development and diffusion of environmental and enabling technologies that produce long-term economic and environmental benefits.

**Target:** Work in partnership with industry, other federal and provincial government departments and other key partners to facilitate the development and/or diffusion of environmental and enabling technologies that produce long-term economic and environmental benefits for Canada. By 2003, successfully complete 12 identified action plan deliverables.

Intended Results	Deliverables: Action Plan Items to Achieve Results	Performance Indicators
Promoting Technology Innovation	<ul style="list-style-type: none"> <li>■ Investing in innovative environmental and enabling technologies through TPC</li> <li>■ Supporting the establishment and operation of the SDTF</li> <li>■ Supporting the R&amp;D of innovative intelligent systems solutions through PRECARN III</li> <li>■ Working with the CFI to support a research infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>■ Number of sustainable development projects supported by TPC, dollar amount invested by TPC, and amount of innovation spending leveraged</li> <li>■ Number of sustainable development projects supported per annum by SDTF, PRECARN and CFI</li> </ul>
Working Together Through Strategic Partnerships	<ul style="list-style-type: none"> <li>■ Developing and implementing the Pathways to Growth for Environmental Technologies Sector Strategy</li> <li>■ Promoting and monitoring progress of Genome Canada Inc.</li> <li>■ Supporting and undertaking TRMs in key strategic areas</li> <li>■ Expanding International Business Development through the identification and marketing of Canada's environmental technologies</li> <li>■ Supporting international urban pilot projects through the Sustainable Cities Initiative</li> </ul>	<ul style="list-style-type: none"> <li>■ Level of participation of other government departments, provinces and industry in the development and implementation of the Pathways to Growth Strategy for Environmental Technologies</li> <li>■ Level of participation of Industry Canada in Genome Canada Inc. activities</li> <li>■ Number of technologies identified, and number of industry commitments to technology development and commercialization-related actions arising from a TRM</li> <li>■ Extent of improved market access to domestic and global market opportunities for Canadian environmental companies.</li> </ul>
Encouraging New Approaches	<ul style="list-style-type: none"> <li>■ Supporting the development and implementation of the National Implementation Strategy on Climate Change</li> <li>■ Encouraging and supporting the continued development of the fuel cell industry</li> <li>■ Promoting industrial sustainability through biotechnology</li> </ul>	<ul style="list-style-type: none"> <li>■ Participation of industry stakeholders in National Climate Change process, and completion of detailed analysis of options for addressing climate change and their economic implications</li> <li>■ Development and adoption of fuel cells in both industry and government</li> <li>■ Canadian Biotechnology Strategy partnering, funding levels supporting initiatives, consultations with public and annual reports</li> </ul>

**Table 3 (cont.)**

**Sustainable Development Objective:** Improve the integration of sustainable development objectives into departmental decision making, including the development and delivery of departmental policies, plans and operations.

**Target:** Improve the integration of sustainable development considerations into Industry Canada’s decision making in the planning, implementation and evaluation phases of the Department’s management system. By 2003, successfully complete nine identified action plan deliverables to improve decision making.

Intended Results	Deliverables: Action Plan Items to Achieve Results	Performance Indicators
Improving planning practices	<ul style="list-style-type: none"> <li>■ Expanding sustainable development considerations in corporate planning</li> <li>■ Enhancing environmental assessment approaches and use</li> <li>■ Supporting sustainable development outside the Department</li> <li>■ Conducting sustainable development policy research</li> </ul>	<ul style="list-style-type: none"> <li>■ Extent of guidelines and information made available to staff and management</li> <li>■ Number of project and strategic environmental assessments conducted</li> <li>■ Level of participation by Industry Canada in supporting sustainable development in outside fora and files</li> <li>■ Number of policy research studies conducted on sustainable development</li> </ul>
Enhancing implementation and operationalization of sustainable development	<ul style="list-style-type: none"> <li>■ Increasing senior management involvement</li> <li>■ Expanding monitoring and reporting of sustainable development actions</li> <li>■ Improving sustainable development training and awareness</li> <li>■ Enhancing greening operations</li> </ul>	<ul style="list-style-type: none"> <li>■ Level of assessment of sustainable development impacts and opportunities on proposals brought to senior management</li> <li>■ Level of senior management support</li> <li>■ Number of reports on progress to departmental staff and stakeholders per annum</li> <li>■ Number of participants in courses, workshops and lectures</li> <li>■ Performance data on procurement, automotive fleet operations, non-hazardous materials, solid waste</li> <li>■ Complete EMS gap analysis of Department’s management system and strategic action plan</li> </ul>
Strengthening consideration of sustainable development in evaluation	<ul style="list-style-type: none"> <li>■ Advancing evaluation methods and processes</li> </ul>	<ul style="list-style-type: none"> <li>■ Number of evaluation frameworks on departmental initiatives that integrate sustainable development</li> <li>■ Development of practical evaluation frameworks for evaluating sustainable development strategy</li> <li>■ Completion of a mid-term evaluation on SDS II</li> </ul>



# Appendix I: Departmental Profile

## Overview

Industry Canada was created in 1993. Its mandate is to help make Canadians more productive and competitive in the global, knowledge-based economy. The Department seeks to achieve its mission by supporting business growth and by giving consumers, businesses and investors confidence that the marketplace is fair and efficient. Industry Canada and 13 other federal departments and agencies constitute the Industry Portfolio. Together, these organizations are uniquely positioned to further the government's goal of building a knowledge-based economy and society in all regions of Canada.

The policies, programs and services of Industry Canada are provided directly to Canadian businesses and consumers across the country, and help create an economy that:

- provides more and better-paying jobs for Canadians;
- supports stronger business growth through sustained improvements in productivity; and
- gives consumers, business and investors confidence that the marketplace is fair, efficient and competitive.

Industry Canada works in partnership with industry, universities, non-governmental organizations, other members of the Industry Portfolio, other government departments, and provincial and territorial governments to develop and sustain a micro-economic policy environment that meets these objectives.

## Strategic Objectives and Related Activities

Industry Canada is focussed on a critical set of micro-economic fundamentals to meet the productivity challenge. The Department continues to intensify its efforts on five strategic, micro-economic objectives to build the competitive advantage Canada needs for long-term productivity growth.

### ***Improving Canada's innovation performance***

Innovation and knowledge are the new raw materials of the 21st century economy. Recognizing the important role that innovation plays in productivity growth, Industry Canada continues to be a major contributor to the government's innovation strategy. This evolving strategy focusses on supporting three key aspects of knowledge: its creation, dissemination and application. By helping businesses, organizations and individuals put new ideas to work, Industry Canada promotes productivity growth and a better standard of living for all Canadians.

### ***Making Canada the most connected nation in the world***

Making sure that Canadians can access opportunities offered by the new economy is an important factor in sustaining productivity growth. Industry Canada contributes to this effort by making sure that Canadians have affordable access to the Information Highway through the Connecting Canadians initiative. Its ongoing goal is to make Canada the most connected nation in the world. As part of this ambitious project, a related goal is to make



Canada a location of choice for the development of electronic commerce products and services, which will attract investment and stimulate innovation throughout the economy.

### ***Building a fair, efficient and competitive marketplace***

To contribute to productivity growth and overall economic well-being, Industry Canada is committed to ensuring that Canada's marketplace framework instruments, and associated services and products, are geared to making Canada a leader in the global, knowledge-based economy. A fair, efficient and competitive marketplace is essential to attracting investment, enhancing trade and encouraging innovation. It provides the stability and efficiency required to conduct business, while maintaining consumer confidence in the products, services and transactions of the marketplace. It also entails client-centred, leading-edge delivery of marketplace services and products. Marketplace frameworks that directly affect knowledge as a commodity in the knowledge-based economy include intellectual property policy, competition law and consumer protection frameworks, among others.

### ***Improving Canada's position as a preferred location for domestic and foreign investment***

Investment by business brings not only immediate jobs and growth, but also related economic benefits such as increased trade flows and access to the knowledge embedded in global technology and management expertise. One reason for Canada's poor productivity performance has been our low investment rate, especially compared with the United States. There is some very recent evidence that this is turning around, and that Canadian firms are beginning to make the investments necessary to remain competitive. Industry Canada

works to improve the domestic and international investment climate to reinforce these positive trends.

### ***Working with Canadians to increase Canada's share of global trade***

Exploiting our global trade opportunities is key to reaping the rewards of our productivity effort. Canada is the most open of the G-7 countries. Trade represents 78.7 percent of our GDP, compared with 25.0 percent in the United States. But we have major challenges still: our top five exporters account for 21 percent of Canadian exports; less than 10 percent of SMEs export; and about 80 percent of our exports go to a single market, the United States. Opportunities to address these challenges exist in the growing global market for knowledge-intensive products and services. Industry Canada will work to foster an orientation to these global markets and encourage more companies to make their products and services export-ready.

### **Operations and Activities**

Industry Canada consists of 5413 Full-Time Equivalent staff, although the Department employs closer to 6000 people at any one time. The Department's annual budget for 2000–2001 is approximately \$1168 million (including \$549 million in grants and contributions), with annual revenues approaching approximately \$320 million.

Most of the Department's staff work in office environments located in its headquarters in the National Capital Region and in fourteen regional offices, including four offices in the Atlantic Region, one office in the Quebec Region, two offices in the Ontario (and Northern Ontario) Region, six offices in the Prairies and Northwest Territories Regions, and one office in the Pacific Region. In addition, subsidiary service points are located in

more than 50 communities across the country. The Department also operates a major research establishment, the Communications Research Centre, at Shirley's Bay (near Ottawa), and smaller laboratories for measurement regulation and spectrum management.

The Department's activities are grouped into five main lines of business: micro-economic policy; marketplace rules and services; industry sector development; tourism; and corporate and management services. Micro-economic policy activities include research, analysis, and development of policy and legislative frameworks. Marketplace rules and services activities include the development and administration of standards and regulations in areas such as bankruptcy, corporate governance, legal measurements, intellectual property, consumer information, competition and sector approaches,

and specific sector support activities such as telecommunications R&D, and economic development initiatives. The tourism business line focusses on tourism marketing and promotion, while corporate and management services support Industry Canada's organizations through the provision of corporate and advisory services.

Note:

For further information on Industry Canada's mandate and operations, please refer to the Department's Estimates documents (<http://info.ic.gc.ca/cmb/welcomeic.nsf/icpages/corporatepublications>).

These documents are also available by mail from:  
Canadian Government Publishing (PWGSC)  
Ottawa ON K1A 0S9

## Appendix II: Sustainable Development Issues and Opportunities

This appendix provides the executive summaries for each of the following three studies that were prepared by consultants as foundation work for the development of the new strategy:

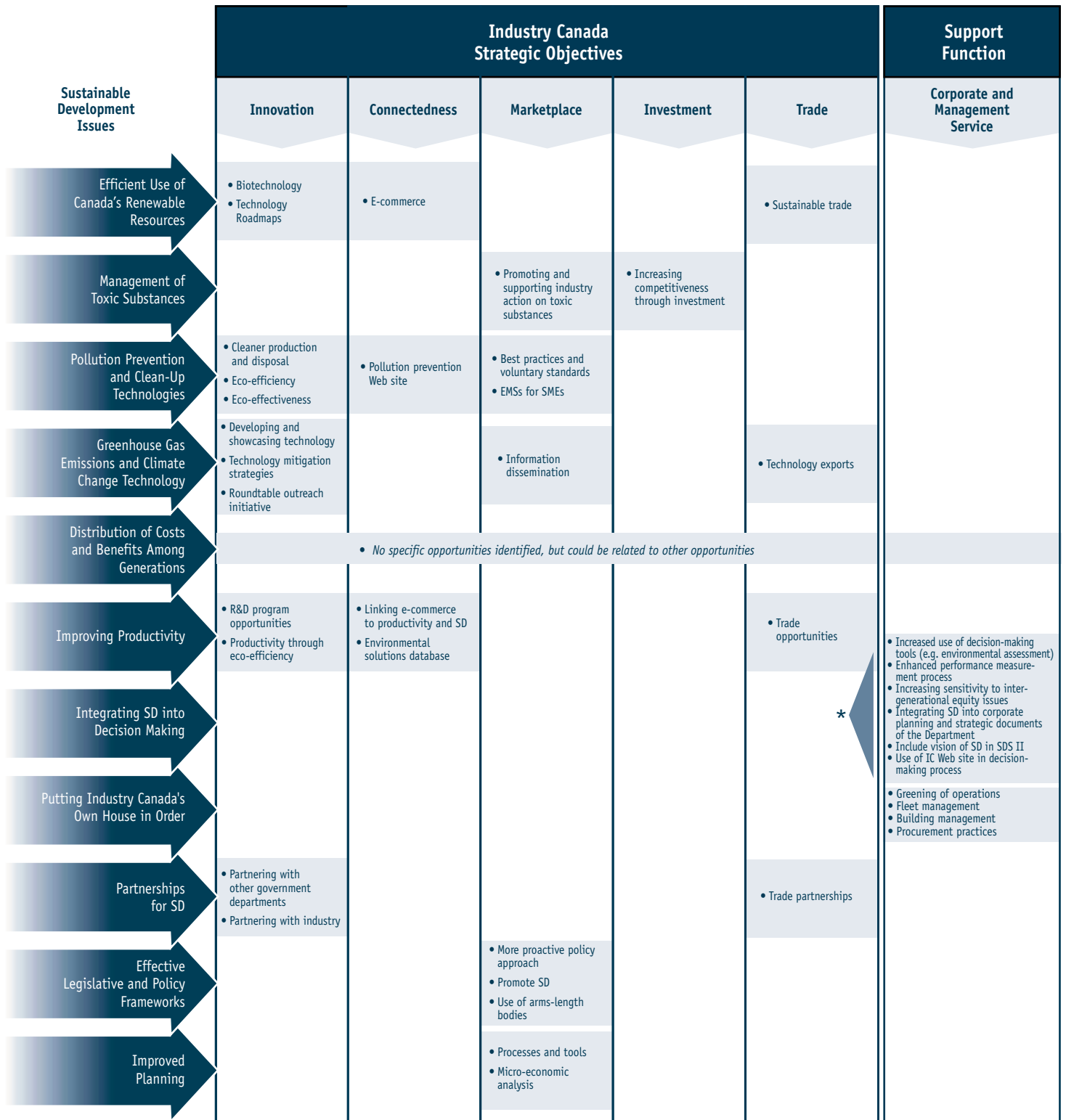
- internal issues scan for the new strategy
- external issues scan for the new strategy
- mid-term evaluation of the first strategy.

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

The summary table on the following page provides a list of the perceived sustainable development issues and their related opportunities for action. This information was used as one input to build the objectives and related action plan items of this strategy.

Complete versions of the three foundation studies are available at <http://strategis.gc.ca/sd>

## Logic Chart Linking Sustainable Development (SD) Issues to Industry Canada's Strategic Areas and Opportunities for Action



\* These items pertain to the Integrating SD into Decision Making issue.

## Appendix II-1: Internal Issues Scan — Executive Summary<sup>15</sup>

Industry Canada commissioned KPMG Consulting LP to undertake an internal issues scan, to identify key sustainable development issues from the standpoint of departmental employees. Related opportunities and constraints that impact on implementing a sustainable development strategy were also identified.

The approach taken in this study is a self-assessment based on interviews with 46 professional and management officials from a cross section of branches within Industry Canada. The identified issues, opportunities and constraints are to a large extent based upon the perceptions of the officials that were interviewed.

### Key Sustainable Development Issues

Nine sustainable development issues emerged from the consultation process that can be considered to be key issues, from the standpoint of Industry Canada's mandate and its strategic direction. These issues are also consistent with the objectives identified in *A Guide to Green Government* and the 1999 Speech from the Throne. The results of this study reflect the perceptions of the officials that were interviewed.

The issues that the Department could further focus upon in the next phase of the sustainable development strategy (SDS II) are:

- efficient use of Canada's renewable resources;
- management of toxic substances;
- pollution prevention and clean-up technologies;
- greenhouse gas emissions and climate change technology;
- distribution of costs and benefits among generations;
- improving productivity;

- integrating sustainable development into decision making;
- putting Industry Canada's own house in order; and
- partnerships for sustainable development.

These issues are linked to each of the five general objectives in *A Guide to Green Government*.

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 issues, and prioritize them from an overall departmental standpoint.

### Opportunities for Action

A number of perceived opportunities for specific initiatives by Industry Canada, to address the above listed issues, were also identified. An "opportunity" is a perceived potential area in which specific Industry Canada initiatives could be further pursued or launched to achieve departmental and/or government-wide sustainable development objectives.

The results of this issues scan suggest that some of the Department's strategic objectives are perceived as offering more opportunity to advance sustainable development than do others. The **innovation** and **marketplace** objectives are perceived to be the most significant in the medium term and the **connectedness** objective appears to have a significant potential in the longer term. The **stewardship and management** objective is considered to be necessary to support the initiatives of the strategic objectives.

15. KPMG Consulting LP, *Internal Issues Scan for Industry Canada's Sustainable Development Strategy (SDS II)*. Prepared for Audit and Evaluation Branch, Industry Canada, Ottawa, March 31, 2000.

While the issues identified in the scan are linked to each of the five general sustainable development objectives in *A Guide to Green Government*, the key opportunities appear to be most strongly aligned with two guide objectives: sustaining our natural resources — sustainable jobs, communities and industries; and improving our quality of life and well being.

Specific opportunities, given the Department's scope of activities, were perceived as follows:

- Efficient use of Canada's renewable resources  
**Opportunity Areas:** Biotechnology; TRMs; e-commerce; sustainable trade.
- Management of toxic substances  
**Opportunity Areas:** Promoting and supporting industry action on toxic substances; increasing competitiveness through investment.
- Pollution prevention and clean-up technologies  
**Opportunity Areas:** Cleaner production and disposal; eco-efficiency; eco-effectiveness; pollution prevention Web site; best practices and voluntary standards; environmental management systems for SMEs.
- Greenhouse gas emissions and climate change technology  
**Opportunity Areas:** Developing and showcasing technology; technology mitigation strategies; roundtable outreach initiative; information dissemination; technology exports.
- Distribution of costs and benefits among generations  
**Opportunity Areas:** No specific opportunities identified, but could be related to other opportunities.
- Improving productivity  
**Opportunity Areas:** R&D program opportunities; productivity through eco-efficiency; linking e-commerce to productivity and sustainable development; environmental solutions database; trade opportunities.

- Integrating sustainable development into decision making  
**Opportunity Areas:** Increased use of decision-making tools (e.g. environmental assessment); enhanced performance measurement process; increasing sensitivity to intergenerational equity issues; integrating sustainable development into corporate planning and strategic documents of the Department; include vision of SD in SDS II; use of Industry Canada Web site in decision-making process.
- Putting Industry Canada's own house in order  
**Opportunity Areas:** Greening of operations; fleet management; building management; procurement practices.
- Partnerships for sustainable development  
**Opportunity Areas:** Partnering with other government departments; partnering with industry; trade partnerships.

### 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:

- awareness and corporate culture
- leadership and commitment
- resources
- partnerships with industry and other government departments
- performance measurement
- planning process.

There is some consensus among those who were interviewed that a first step for addressing these constraints could require that senior management be more visible in its commitment to the sustainable development agenda. A strong commitment by senior management is perceived as necessary for strengthening the credibility of SDS II within the Department.

## Recommendations

The following recommendations are outlined for Industry Canada to continue to improve the quality and scope of the sustainable development strategy and to turn sustainable development into concrete actions.

- **Focus on the nine sustainable development issues identified in this report:**

These issues have been identified by the departmental representatives that were interviewed as key issues that should be addressed by Industry Canada. Focussing on these specific issues will provide a more strategic approach for SDS II, and will enable the Department to undertake sustainable development-related initiatives in a more strategically focussed and clear way.

- **Consider the opportunities identified:**

It is recommended that the Department focus on the key opportunities identified and use them to develop concrete sustainable development initiatives that are relevant and consistent with Industry Canada's mandate and sustainable development priorities, and with government-wide sustainable development objectives.

- **Merge results of this Internal Issues Scan with other studies:**

This Internal Issues Scan summarizes key issues and opportunities identified through interviews with 46 professional and management officials from a cross section of branches within

Industry Canada. Views of stakeholders and clients of Industry Canada's programs and policies, 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 I need to be considered in developing SDS II. These merged results can then be used as a basis for further consultation with stakeholders and other internal departmental officials.

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

This report was essentially based on a self-assessment by Industry Canada officials and reflects their perceptions of the relevance of sustainable development-related initiatives to the Department. The findings of this study should be seen as only a step in a continuous improvement process towards "getting it right," and for developing the next sustainable development strategy.

## Appendix II-2: External Issues Scan — Executive Summary<sup>16</sup>

The *Auditor General Act* requires each federal department to develop and table before Parliament sustainable development strategies every three years. The first strategies were tabled in December 1997. Revised strategies must be tabled by December 2000. This report presents the results of an external scan conducted to obtain the opinions of external stakeholders about the role the Department should play to promote sustainable development. The scan involved interviews with 24 people representing industry associations, individual companies, environmental and other non-governmental organizations and academia. Although the number of people interviewed is modest, the individuals who participated represent a wide cross section of views about sustainable development, the Canadian economy and the role of Industry Canada. The interviews addressed two main categories of questions:

- What are the key sustainable development issues relevant to you, your organization and your sector?
- Where should Industry Canada focus its efforts in promoting sustainable development under its Sustainable Development Strategy 2000?

### Respondents' Key Sustainable Development Issues

Most of the industry respondents are concerned about:

- ensuring that the federal and provincial governments put into place laws, policies and programs that establish a framework within which Canadian businesses can attract investment, compete with foreign businesses and fulfil their societal and environmental obligations;

- enabling their organizations (individual companies or members) to anticipate — and thus take advantage of — global economic, market, environmental and legislative developments; and
- establishing processes and adopting tools that enable them to experience continuous environmental improvement while also continuing to grow economically.

The environmental non-governmental organizations interviewed seek to promote environmental objectives and to ensure that economic development and economic policies account for environmental and social considerations systematically and appropriately.

### Messages About the Focus for Industry Canada's SDS 2000

Most respondents urged Industry Canada to articulate a clear vision of the benefits for Canadian businesses of embracing the triple bottom line objectives of sustainable development, and to support this vision with leadership and proactive programs.

The most common themes in the interviews can be summarized in the following five overall messages:

1. The Department should articulate a vision of sustainable development that illustrates the synergies between environmental, economic and social objectives. This integrated model of sustainable development should reflect the triple bottom line approach that many corporate leaders throughout the world are embracing. Industry Canada could articulate such a vision in the introduction to SDS 2000.

16. RFI Eco-strategies, *External Scan in Preparation for the Development of a Revised Sustainable Development Strategy for Industry Canada*. Prepared for Environmental Affairs Branch, Industry Canada, May 1, 2000.



2. Industry Canada should draw on its microeconomic analytical strength and on its knowledge of various sectors to help Canadian businesses:
  - identify emerging sustainable development related market trends (foreign policies and laws, design for the environment and supply chain management practices, consumer requirements, etc);
  - analyse the implications of these trends for their products; and
  - identify and develop appropriate strategic, management and operational responses on a national, sectoral and company-by-company basis. This would fit well with the Department's mandate on product, process, marketing and institutional innovation.
  
3. Industry Canada should reconceptualize its advocacy role. Instead of trying to counter-balance other departments' activities, its advocacy activities should reflect the integrated vision of sustainable development described above. More specifically, it should:
  - challenge the validity of environmental objectives less and emphasize making constructive contributions about how to achieve these objectives in harmony with core business concerns such as productivity and innovation;
  - reflect a broader range of corporate perspectives in its advocacy message;
  - link its advocacy role within government to a more proactive external information dissemination role within the business community; and
  
4. In order to reach out to small and medium sized enterprises more effectively, Industry Canada may need to reconsider the type of delivery mechanisms it has traditionally relied on. For example, in order to ensure the accessibility of any information it develops on best practices, it may need to use arms-length bodies such as IRAP, chambers of commerce, the CFIB, industry associations, large companies or universities as mentors. In addition, in order to support the development of new, green technologies, it should probably rely more on arms-length bodies such as the NRC than on an "in-house" selection of perceived "winners."
  
5. Industry Canada should make a greater effort to publicize its efforts to promote sustainable development. To bring these recommendations full circle, these efforts should range from the public articulation of a vision of a sustainable economy (as identified above) through its various policy and program initiatives, to greater efforts to green its physical operations.

## Appendix II-3: Mid-Term Evaluation — Executive Summary<sup>17</sup>

Industry Canada commissioned KPMG Consulting LP to undertake a mid-term evaluation study of the first sustainable development strategy of the Department (SDS I). Sustainable development has been integrated into both the *Department of Industry Act* and the *Auditor General Act*. Industry Canada's next strategy must be tabled in Parliament by the end of 2000.

This evaluation reviews the mid-term results achieved during the first two years of the three-year time frame for SDS I (December 1997 through December 2000). It does not include a full evaluation of program impacts for achieving government-wide sustainable development objectives because implementation of the sustainable development program is still under way within the Department.

The approach used for this study involved a series of interviews with departmental staff, clients and industry representatives. It also involved a review of relevant documents such as the Department's monitoring and reporting system. It is important to understand that the views expressed by individuals consulted represent, to a large extent, a "self-assessment" of SDS I by the Department and its stakeholders. As a result, the interpretation of the results of the consultation process should be seen within a framework of this self-assessment and of comparative checks.

The Mid-Term Evaluation is but one of the activities towards developing the Department's next sustainable development strategy (SDS II). This report provides a review of the results

achieved to date by the Department through the implementation of SDS I, what aspects have changed, and the lessons learned from SDS I. 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 centred on the following key evaluation questions:

- What is the relevance of the SDS I initiatives for Industry Canada? To what extent is SDS I consistent with the departmental mandate and goals?
- What is the relevance of Industry Canada's SDS I initiatives for the government-wide sustainable development objectives?
- What are the results achieved to date by SDS I? Did the Department do what it said it would do?
- What factors facilitated the implementation of SDS I?
- What mechanisms are in place for monitoring and reporting on SDS I activities, and how effective are these mechanisms?
- Does SDS I address how the Department will measure, analyse and report performance? What opportunities exist to improve the Department's capacity to measure performance?
- What are the lessons learned, based on factors that might have impeded the further progress of SDS I, that can be useful for SDS II?

17. KPMG Consulting LP, *Mid-term Evaluation Study of Industry Canada's Sustainable Development Strategy (SDS II)*. Prepared for Audit and Evaluation Branch, Industry Canada, Ottawa, March 31, 2000.

## Findings of the Mid-Term Evaluation

### *Relevance of SDS I Initiatives*

All of Industry Canada's 28 initiatives appear relevant to the Department and to the sustainable development objectives of the government. Based on our interviews, some of the Department's strategic objectives are perceived as offering more opportunity to advance sustainable development than others. The innovation and marketplace strategic objectives are perceived to be the most relevant in the medium term. The connectedness objective appears to have a significant potential in the longer term. The stewardship and management objective is considered to be necessary to support the initiatives of the strategic objectives.

### *Meeting the Objectives of SDS I*

As evidenced by the December 1999 report of the Commissioner of the Environment and Sustainable Development, *Moving up the Learning Curve*, it is expected that as departments become more familiar with the sustainable development agenda, their strategies will evolve and improve. Industry Canada has come a long way in moving up the learning curve over the past two years. Concrete steps that the Department has undertaken to advance its sustainable development agenda include:

- Development of the first sustainable development strategy in 1997, which included:
  - A departmental profile describing the Department's mandate and key activities, its strategic objectives and principal lines of business, and the legislative and policy context in which the Department operates.
  - A description of the issues scan process comprising an initial baseline study and an analysis of emerging sustainable development themes relevant to departmental activities.

- A description of the stakeholder consultations that were held to involve stakeholders throughout the stages of building the strategy. This consultation process with stakeholders was a key requirement of *A Guide to Green Government* and the process helped the Department to better understand the needs and views of stakeholders while communicating its commitment to sustainable development.
- Twenty-seven action items in SDS I to operationalize and promote progress on the nine priority areas identified for the four strategic objectives. The action plan also described partnerships for helping the Department achieve its objectives and goals.
- Addition of one further action item to the strategy in 1998.
- Significant progress has been made on all of the action items to date. The Department has completed all of the discrete action items it set out in SDS I, and good progress is being made on each of the remaining ongoing action items.
- Undertaking of other sustainable development related activities beyond the scope of SDS I. For example, the Department has invested time and support to the federal climate change priorities, and to programs such as CANARIE, SchoolNet, the Community Access Program, Computers for Schools and the Canadian Tourism Commission's activities.
- Creation of a draft evaluation framework that sets out the planned approach for periodic evaluation activities to assess the overall effectiveness of the sustainable development strategy implementation.
- Development of a detailed monitoring and reporting system whereby semi-annual progress reports are prepared on each of the defined action items, describing completed progress to date. These progress reports are presented to senior management and are integrated into the Department's *Departmental Performance Report*.

- Creation of a dedicated “sustainable development unit” to advance the sustainable development agenda and to promote awareness.
- Undertaking of an assessment of the first strategy, as evidenced by this mid-term analysis review. This Mid-Term Evaluation describes what has been achieved, what lessons have been learned and what potential areas could be improved for the second strategy.

### **Mid-Term Results of SDS I**

- Industry Canada has made good progress in addressing all three of its Marketplace Climate priority areas, i.e., marketplace rules and services; reasoned advocacy to shape sustainable development policy; and consumer choice and the marketplace. Many of the activities undertaken under this strategic objective have been completed or have moved beyond the scope of original action item commitments. A new action item was also added during the course of SDS I, which involved United Nations’ guidelines for consumer protection, i.e. to add a new sustainable consumption element in these United Nations guidelines.
- Under Industry Canada’s Innovation sustainable development objective, there were a total of 10 action items in two key priority areas, i.e. innovation tools and practices, and technology development and diffusion. Examples of these action items include further investments in innovative clean production and enabling technologies through the Technology Partnerships Canada program,<sup>18</sup> and working with industry, other government departments and other stakeholders to identify eco-efficiency indicators for improving the competitiveness and trade opportunities. Of these 10 action items, half are substantially completed and the remaining five are making progress towards completion.
- In the Trade and Investment area, Industry Canada has made progress in continuing to support the Canadian government’s efforts to encourage the export of Canadian knowledge, products, practices and technologies that further sustainable development objectives. For example, the Department has negotiated bilateral cooperative agreements as a means to deliver capacity-building and technology transfer activities. It has also participated in the international fora to address how environmental and economic issues can be integrated at the global level. Working in partnership with other government departments, Industry Canada has contributed to meetings of the World Trade Organization’s Committee on Trade and the Environment, and of the United Nations Commission on Sustainable Development.
- Seven action items fall under Industry Canada’s Stewardship and Management objective. Six of these action items relate to making better decisions based on continually improving awareness and understanding of the economic, environmental, and social implications of existing and proposed activities. The seventh action item relates to greening operations, with a goal of implementing the Greening Operations Plan to ensure that day-to-day physical operations at Industry Canada have minimal impacts on the environment. Two of the action items are substantially completed and progress is continuing on the other five.
- Generally, the Department has made progress in establishing sustainable development as an item of consideration within the decision-making processes of the Department.

18. Effective November 18, 1999, the Technology Partnerships Canada program operates under new terms and conditions, and references in this evaluation refer to TPC in a historic context. TPC does not request or consider information concerning the extent to which applicant or recipient enterprises do or may export.

- While Industry Canada is certainly moving forward on greening its own operations, the Department is finding it challenging to meet government requirements. More specifically, Industry Canada is establishing an appropriate Environmental Management System and is increasingly integrating environmental considerations into operational decisions. However, the Department is only beginning to measure the extent of its use of raw materials, energy, water and other resources. At this stage, it is not clear whether Industry Canada will achieve all of the targets outlined in its Greening Operations Plan.

#### ***Factors that Facilitated SDS I***

- **Issues scan, consultations and interdepartmental discussions:** Consultations with clients and stakeholders, and discussions with other departments, proved to be very valuable during the initial development stages of SDS I. This helped to clarify goals and share information on common concepts.
- **Industry Canada sustainable development “champions”:** There is a core group of very capable, forward-thinking employees at all levels throughout the Department who are very knowledgeable about sustainable development. Two senior managers have been designated as sustainable development champions. The “Lead Officers” tasked with progressing on the action items from SDS I are committed to the successful progression of their respective action items as are the managers of these responsibility centres.
- **Director General’s Sustainable Development Committee and Sustainable Development Network:** The DG’s Sustainable Development Committee was a very useful forum to promote senior management awareness and buy-in to the sustainable development process within the Department. It also

facilitated getting things accomplished (for example, it was instrumental in securing the funding for the sustainable development projects under way). A Sustainable Development Network also contributed to effectively distributing related information and seeking inputs.

- **Sustainable Development Unit:** This unit was instrumental in preparing SDS I and overseeing its implementation process (e.g. coordinate reporting on implementation and report to senior management). This unit was also responsible for the implementation of a number of action items such as the development of a sustainable development training course for the Department and the development of a Sustainable Development Web site. As a result of this activity there appears to be increased awareness of sustainable development both by industry and internally within Industry Canada.
- **Monitoring and Reporting:** The reporting mechanism in place for SDS I helped to consolidate the initiatives under way, and to create an operational and management framework for the implementation and accountability of SDS I within the Department.
- **Interdepartmental Cooperation:** Interdepartmental cooperation on a variety of fronts (e.g. Interdepartmental Network on Sustainable Development, Interdepartmental Committee on Strategic Environmental Assessment, the Deputy Ministers Coordinating Committee on Sustainable Development) have helped Industry Canada to implement SDS I.
- **Designated Responsibilities:** A clear designation of managers and officers responsible for each of the action items (as well as details on planned deliverables and schedules and a commitment of resources), has helped to effectively implement the commitments of the strategy.

### **Monitoring and Reporting**

- Industry Canada established an ongoing reporting system to monitor the progress of implementing the sustainable development strategy. Managers and officers responsible for the SDS I action items provide input to a descriptive profile on each of the 28 initiatives every six months. These results are reported to senior management committees and the Deputy Minister on each occasion, and are also included in departmental performance reports and are available on the Sustainable Development Web site.
- The ongoing monitoring system is based on a clear articulation of expected near-term results. Indicators to measure the extent to which results have been achieved are included in monitoring reports.
- Management accountability requirements for reporting on results of sustainable development initiatives are adequately met by the monitoring and reporting system in place. The reports define departmental accountability for each action item, including the names of lead officers and responsibility centre managers. Strategic objectives and the overall sustainable development goal are collectively the responsibility of the Department and its senior management.

### **Performance Measurement**

- At the corporate level, performance measurement is about organizational commitment to strategic objectives and continuous progress. Results of performance measurement are intended to feed into the strategic process and to improve the program for future implementation of sustainable development initiatives. At present, Industry Canada's performance measurement system relies heavily on meeting targets. The Department, however, has scoped out performance measurement

indicators in a draft *Sustainable Development Evaluation Framework*, but only a few of the indicators appear to have been integrated into the SDS I strategy and reporting mechanisms.

- In general, performance measures/indicators are still being developed for the sustainable development initiatives. A few initiatives have incorporated performance measures, but it seems that those measures in place (e.g. Web site hits, recycling audits) are not sufficient to assess the ultimate impact of the sustainable development initiative. Performance measures could be improved to more directly address the sustainable development targets and priorities set out by the Department over the long term.

### **Lessons Learned and Recommendations for SDS II**

Industry Canada has made considerable progress over the last two years to advance its sustainable development agenda through SDS I. The following recommendations and lessons learned from that experience can help the Department build on and improve the process for SDS II so that governmental requirements are more effectively met and sustainable development can become an integral component of departmental culture.

- **Increase commitment and buy-in from senior management:** For SDS II to be successfully implemented beyond SDS I commitments, the new sustainable development strategy needs to be perceived as a priority across the Department. For example, a senior-level "champion" responsible for sustainable development should be more clearly communicated to the Department. This is perceived by many departmental officials to be necessary to facilitate the SDS II process and to "sell" the sustainable development message to senior management.

- **Focus on key strategic areas:** SDS I is a strategy that addressed requirements of *A Guide to Green Government*. While the SDS I experience showed how important it is to consider sustainable development as part of a broader framework, it also reflected a compendium of diverse initiatives. SDS II could focus more on those strategic areas where Industry Canada can make the greatest contribution, and also on more integration into the decision-making framework of the Department.
- **Increased private sector focus of strategy:** Some industries are quite advanced in sustainable development implementation (e.g. chemicals industry). The Department could survey these industries and prepare “best practices” to share with other industry partners and internally within the Department. Industry Canada could also undertake a detailed assessment of industry or other stakeholder attitudes towards sustainable development. This would help to understand whether business and consumers would accept proposed sustainable development initiatives. It would determine what business is willing to adopt and how far they can be encouraged to implement sustainable development practices. The extent to which voluntary codes and standards could be accepted by industry to integrate sustainable development into their operations and practices should be included in such studies.
- **Capitalize on partnership opportunities:** There are perceived opportunities to improve existing partnerships for sustainable development initiatives. The Industry Canada Sustainable Development Unit could create more internal partnerships with branches/groups within the Department (e.g. with Environmental Affairs Branch, Office of Consumer Affairs). Likewise, other responsibility centres could form more effective partnerships with the Sustainable Development Unit. These internal partnerships could fill gaps in expertise and knowledge in various areas and create more effective delivery of sustainable development in all relevant branches of the Department. Inter-departmental working groups could be used more effectively to capitalize on other departments’ work and ideas.
- **Promote better awareness of sustainable development within the Department:** There are opportunities to help many individuals within the Department better recognize that their job responsibilities could have sustainable development implications. The SDS I strategy is a sound document, but it appears that a majority of staff do not know (or have forgotten) that it exists. There are many good sustainable development initiatives throughout the Department (e.g. sustainable development training course, related workshops and lectures), and several good papers on sustainable development have been written by Industry Canada staff. More internal awareness initiatives could be used to promote sustainable development during SDS II.
- **Continued relevance of sustainable development initiatives:** Existing sustainable development action items and proposed new initiatives should be reviewed periodically (i.e. as part of updating the new strategy every three years) to ascertain their relevance to advancing the Department’s sustainable development agenda. Factors that could be considered in this review include:
  - *The relative impacts of these initiatives on sustainable development.* How significant are these initiatives with respect to the overall framework of SDS I? There is a need for a more comprehensive evaluation to address this question and to determine the full impacts of Industry Canada’s sustainable development initiatives.

- *The contribution to the long term vision of the Department.* To ensure their continued and greater relevance, sustainable development initiatives should have a long-term orientation with an expected lasting impact. A clear sustainable development vision will help people focus on the strategy's ultimate goals.
- *The scope of the initiative in developing partnerships with external stakeholders and other federal government departments.* Industry Canada's sustainable development initiatives clearly identify the partnering relationships required for the implementation of each action item. The effectiveness of these partnerships needs to be assessed. There are opportunities to continue to encourage partnerships with other government departments and private sector organizations in the following areas of sustainable development concern: climate change; environmental assessments; responsible care initiatives; environmental practices of companies (including quality assurance and adoption of ISO 14000); and measuring impacts of sustainable development on productivity and economic growth.
- *The extent of performance measurement.* For SDS II, the Department should consider compiling performance information on an ongoing basis. In this respect, more guidance from the office of the Commissioner of the Environment and Sustainable Development, and from Treasury Board Secretariat, on sustainable development-related performance indicators, would be useful.
- *Adequate resources.* For each initiative, more effort could be made to explicitly describe the resources necessary to complete the commitment.
- *Issues Scan for SDS II.* The continuing relevance of Industry Canada's sustainable development initiatives needs to be assessed within the context of the new Issues Scan for SDS II.



# Appendix III: Consultations

## Appendix III-1: Stakeholder Consultations

In the development of its first sustainable development strategy, Industry Canada employed a stakeholder consultation approach that was based on three principles:

- involve stakeholders early;
- concentrate on efficient and effective consultations, rather than elaborate consultations; and
- adopt an interactive and iterative approach with stakeholders.

In 1999, the Commissioner of the Environment and Sustainable Development reviewed the sustainable development strategy consultations and found high levels of satisfaction among stakeholders. The Commissioner identified Industry Canada as one of the seven departments with the best consultation process.

Industry Canada's stakeholder consultation for SDS II builds upon the experience gained from the first strategy. The consultation plan for the second strategy comprises three phases:

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

### Early Consultation Activities

Industry Canada engaged in a number of early consultation activities to determine the general scope of the strategy prior to the development of a draft document. The Department held preliminary meetings with external stakeholders, conducted internal and external issues scans, conducted a mid-term evaluation, and participated in other important fora. These activities

were used as the basis from which to develop the broad sustainable development themes discussed in the strategy. Two key activities are discussed below.

### *External Issues Scan*

The External Issues Scan was conducted to obtain initial views from stakeholders outside the Department on key sustainable development issues, opportunities for action and constraints. The scan exercise was completed in December 1999 and is summarized in Appendix II-2. The results of the scan, with the results of the other two foundation pieces (the Internal Issues Scan and the Mid-Term Evaluation) were made available and were considered in the expert advisors' review, as well as the second review by stakeholders. The complete document is available at <http://strategis.gc.ca/sd>

### *Leaders' Forum on Sustainable Development*

The Leaders' Forum on Sustainable Development was held in Ottawa, April 4, 2000, as a coordinated launch of consultations by federal government departments. Industry Canada participated in the forum at the senior management level.

The purpose of the forum was to bring together a group of both government and non-government leaders to discuss the sustainable development challenges and opportunities facing Canada. In this respect, the government was seeking advice and feedback on a proposal to better coordinate its approach to advancing sustainable development across departments in eight theme areas (e.g. productivity through eco-efficiency, knowledge and information,

sustainable government operations), using the updated sustainable development strategies as the primary vehicle. The participants expressed a common desire to have the federal government:

- articulate a vision, goals and objectives for sustainable development;
- establish focus, integrate decision making and coordinate activities; and
- engage Canadians in decision-making processes.

### **Review of Draft Strategy by Expert Advisors Committee**

The Expert Advisors Committee is a group of experts invited by the Department to provide specific guidance and advice on the draft strategy. The seven members reflected the Department's broad range of clients, including industry, industry associations, academia, and environmental and consumers groups. The consultation session was held in Ottawa, June 13, 2000.

The advisory group concluded that Industry Canada is on the right track and is much further along than it was at this point three years ago. The general themes that emerged from the committee were as follows:

- The sustainable development strategy should be more explicitly aligned with the overall departmental strategic objectives.
- The Department should be more proactive, ambitious and broader in its vision for sustainable development and should move from incremental thinking to "breakthrough" thinking.
- To achieve this broader vision, leadership and engagement from the top is critical. In addition, a senior departmental champion should be specified in the sustainable development strategy.

### **Coordinated Consultation Event on Sustainable Development with the Canadian Environmental Industries Association**

On August 21, 2000, Industry Canada joined with 12 other federal departments in hosting a one-day coordinated consultation with members of the Canadian Environmental Industries Association (CEIA). The purpose of the event was to provide a forum for dialogue between federal departments and the environmental industry sector, regarding the federal government approach to sustainable development, departmental sustainable development strategies and the related interests of the environmental industry sector.

The event drew together representatives from 13 federal departments and close to 30 members of the CEIA. It provided for a valuable exchange of views and was a step forward for collective thinking on sustainable development. Participants discussed opportunities for future collaboration, and identified barriers and possible solutions to advancing sustainable development.

- The Department should endeavour to consider, measure and report on the sustainable development results it is achieving in Canadian society, not only the completion of discrete activities.
- Areas that require more work and could possibly form new objectives are market influences on sustainable development and the social dimension of sustainable development.
- The Department should communicate and collaborate more with other agencies within the Industry Portfolio and across government to help achieve its objectives.

Members of the committee received revised versions of the draft strategy in September 2000. A summary report on this stage of the consultations is available at <http://strategis.gc.ca/sd>

## Second Review Through Stakeholder Consultations

The objective of the consultation process was to seek the perspectives of clients, partners and stakeholders on departmental priorities and how to achieve them. The stakeholders included industry, industry associations, non-governmental organizations, environmental non-governmental organizations, Aboriginal groups, business groups, academics, provincial government officials, and conservation and wildlife groups. Industry Canada used a wide variety of tools to consult outside the Department. The Department organized regional consultation meetings to seek perspectives on the draft strategy. A revised strategy was sent to a list of 245 potential participants in early September, with an invitation to attend a regional stakeholder consultation session. In addition, those unable to attend in person were invited to respond by means of a feedback questionnaire posted with the draft strategy on *Strategis*, the departmental Web site. The first consultation was held in Montréal, September 26, 2000, and a second consultation was held in Toronto, September 28, 2000. In addition, the Department conducted a series of bilateral telephone interviews with key individuals it considers to have important perspectives on sustainable development.

In summary, the views of the stakeholders consulted for the second review are the following:

- There should be more integration with the Department's mandate and strategic objectives and more emphasis on implementation and the measurement of results.

- The Department needs to raise awareness of environmental and sustainable development challenges among industry and the public, as well as provide opportunities for partnerships with stakeholders.
- Some areas that could be further developed include the social dimension of sustainable development; the use of voluntary, economic and information instruments to advance sustainable development; the significance of competitiveness; and recognition of industry progress.
- Industry Canada should increase its efforts to promote, develop and advance eco-efficiency through voluntary measures, as well as through research, development, demonstration and education initiatives.
- Environmental technology innovation should have a higher profile delivery in program vehicles, and the knowledge base on the benefits of environmental technologies should be expanded.
- The Department should strengthen the role of senior management, the progress reporting capacity, as well as the awareness and expertise of staff to more effectively integrate sustainable development into decision making.

Participants also made numerous comments on the specific initiatives and commitments within the document. Industry Canada recorded and documented all the input it received and has drawn upon this information in the preparation of the final version of the sustainable development strategy. The summary report of the stakeholder consultations, as well as a description of the Department's response to the stakeholder comments, are available at <http://stategis.gc.ca/sd>

## Appendix III-2: Consultations within Industry Canada and with Other Departments

In the preparation of its strategy, Industry Canada provided a number of avenues for staff to comment and contribute inputs. The steering committee, which represented different parts of the Department and was established to guide the development of the strategy, played a key role in seeking and integrating staff comments. In addition, the sustainable development training course, the Internal Issues Scan, the Mid-Term Evaluation conducted on the first strategy, and a direct appeal to all staff on a draft of the strategy were used as

vehicles to obtain staff comments. Finally, the draft strategy was posted on the Sustainable Development Web site, where staff and external stakeholders could provide comments.

Industry Canada also sought inputs from other government departments through a number of means. These included the Interdepartmental Network for Sustainable Development Strategies, bilateral meetings, focussed multi-lateral meetings and workshops, and inter-departmental senior management committees.

## Acronyms

ADM	Assistant Deputy Minister
ARET	Accelerated Reduction/Elimination of Toxics
CANARIE	Canadian Network for the Advancement of Research, Industry and Education
CBAC	Canadian Biotechnology Advisory Committee
CEIA	Canadian Environmental Industries Association
CEIS	Canadian Environment Industry Strategy
CFI	Canada Foundation for Innovation
DFAIT	Department of Foreign Affairs and International Trade
DGPC	Directors General Policy Committee
DMDB	Deputy Minister's Departmental Briefing Committee
EMSs	environmental management systems
GDP	gross domestic product
IRAP	Industrial Research Assistance Program
ISO	International Organization for Standardization
NCE	Networks of Centres of Excellence
NIS	National Implementation Strategy
NSERC	Natural Sciences and Engineering Research Council of Canada
OECD	Organisation for Economic Co-operation and Development
PRECARN	Pre-Competitive Applied Research Network
PRI	Policy Research Initiative
PWGSC	Public Works and Government Services Canada
R&D	research and development
SCI	Sustainable Cities Initiative
SDS I	the first Industry Canada Sustainable Development Strategy
SDS II	the second Industry Canada Sustainable Development Strategy
SDTF	Sustainable Development Technology Fund
SEAs	Strategic Environmental Assessments
SMEs	small and medium-sized enterprises
SPC	Senior Policy Committee
TPC	Technology Partnerships Canada
TRMs	Technology Roadmaps
TTCE	Trade Team Canada Environment
VNRIs	voluntary non-regulatory initiatives
WBCSD	World Business Council on Sustainable Development

