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Council of  
Ministers  
of Education,  
Canada

**Report to UNECE and UNESCO on  
Indicators of Education for Sustainable Development  
Report for Canada  
2007–2010**

**October 2010**

**Prepared by the Council of Ministers of Education, Canada**

**in collaboration with**

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**Environment Canada**



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## Contents

Summary .....	4
Context of the Report .....	7
Responsibility for Education .....	10
The Policy, Regulatory, and Operational Frameworks .....	10
Pan-Canadian Cooperation .....	10
Frameworks for Education.....	13
A Federal Sustainable Development Strategy for Canada.....	16
Sustainable Development in Formal, Non-Formal, and Informal Learning.....	17
Addressing the Key Themes of Sustainable Development in Formal Education.....	17
Elementary and Secondary Education .....	18
Postsecondary Education.....	23
Strategies for Implementing Education for Sustainable Development.....	25
Whole-Institution Approach .....	30
Quality Assessment and Enhancement Systems .....	36
ESD in Non-Formal and Informal Learning .....	39
Provincial, Territorial, and Municipal Governments .....	39
Federal Government Examples.....	40
Nongovernmental Organizations and the Private Sector.....	44
ESD Implementation as a Multistakeholder Process.....	47
Governments and Civil Society .....	47
Regional Centres of Excellence for Education on Sustainable Development.....	48
Provincial and Territorial ESD Working Groups .....	50
The Canadian Commission for UNESCO .....	54
Equipping Educators with Competencies in Sustainable Development.....	56
Tools and Materials for ESD.....	61
ESD Research and Development.....	68
International Cooperation in ESD .....	74
Indigenous, Local, and Traditional Knowledge .....	76
Challenges and Obstacles .....	80
Improving the Implementation of ESD .....	82
Concluding Remarks.....	83

Appendix – Sources Used in the Preparation of the Report.....	84
Provincial and Territorial Departments and Ministries Responsible for Education.....	84
Departments and Agencies of the Government of Canada .....	85
Pan-Canadian Links .....	86
Nongovernmental, Non-Profit, Civil Society, and Private Sector Organizations.....	87
Postsecondary Institutions and Research Centres .....	92
Documents .....	95

NOTE: The report was submitted to UNECE in English only under a different format. Note that content is the same in both formats, this report and the questionnaire submitted to UNECE.

## Summary

**Context of the Report:** In 2004, the United Nations declared the years from 2005 to 2014 the Decade of Education for Sustainable Development (DESD), with the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as the lead agency for the decade. In 2005, a regional Strategy for Education for Sustainable Development was adopted by officials from education and environment ministries throughout the United Nations Economic Commission for Europe (UNECE). An important element of the UNECE strategy is the preparation of reports on its implementation in member countries. UNESCO and UNECE have agreed on a common format for the collection of information on the progress of education for sustainable development. The Council of Ministers of Education, Canada, the Canadian Commission for UNESCO, and Environment Canada are collaborating in the preparation of the reports about implementation of the strategy and the decade in Canada. The report provides examples of education for sustainable development in response to the questions raised in the UNECE questionnaire. It is important to state that this document is not intended to be comprehensive, but it is to convey the diversity, quality, and range of education for sustainable development across Canada, as well as demonstrate the variety of providers of such education.

**Responsibility for Education:** In Canada, exclusive legislative responsibility for education is granted to the provinces in Canada's Constitution Act of 1867; similar responsibilities are delegated to the territories by the federal government. In the 13 jurisdictions — 10 provinces and 3 territories — departments or ministries of education are responsible for the organization, delivery, and assessment of education at the elementary and secondary levels. The institutions in the postsecondary system have varying degrees of autonomy from provincial or territorial government control. The ministers responsible for education in the provinces and territories come together in the Council of Ministers of Education, Canada, to discuss matters of mutual interest, undertake educational initiatives cooperatively, and represent the interests of the provinces and territories nationally and internationally.

**The Policy, Regulatory, and Operational Frameworks:** Two pan-Canadian networks have been established and are working actively to accomplish the work of the Decade of Education for Sustainable Development. Ministries of education have released frameworks for the introduction of sustainability into education, as well as plans to highlight the principles of education for sustainable development (ESD). The Government of Canada has passed a Federal Sustainable Development Act and developed priorities and strategies for working toward environmental sustainability.

**Sustainable Development in Formal, Non-Formal, and Informal Education:** This chapter of the report covers six key issues:

- The first section on sustainable development in formal education demonstrates how the themes of sustainable development are integrated throughout the curriculum — starting with the broad areas of learning or broadest outcomes and then translated

through the other levels of curriculum planning and documents to appear in the subject-specific learning outcomes.

- To implement sustainable development, the provinces and territories introduce the concepts in sustainable development in the curriculum as essential elements of core courses, as stand-alone courses, as strategies and content that can be introduced in any subject and at any level, as learning outcomes that are further developed as the students move through the grades, as cross-curricular content, and as both content and pedagogy that are infused throughout the curriculum, teaching, and learning.
- The concept of involving whole institutions and schools in education for sustainable development and sustainability practices is growing across Canada. In some cases, it reflects a government policy adopted by departments or ministries, including education, and then by school boards, postsecondary institutions, and individual schools. It may also be a support and recognition program at the ministerial level, or the initiative may come from the school division or institution. In some cases, the focus is on operations and infrastructure; in others, course content, teaching and learning, and the approach to education are changed.
- The quality assessment and evaluation systems for education for sustainable development are largely found in the learning outcomes in the curriculum documents, although some broader research is being undertaken to assess progress in knowledge, skills, and attitudes.
- Non-formal and informal education for sustainable development is offered throughout Canada by government departments and agencies, not-for-profit organizations, foundations, associations, and the private sector in a wide range of settings and formats for children, young people, families, and adults. The programs are most often focused on the environmental aspects of sustainable development, although there are some that address the social issues. Economic aspects of sustainable development receive less attention.
- ESD is demonstrated to be a multistakeholder process through highlighting the work of the five Regional Centres of Expertise for Education for Sustainable Development in Canada (in Toronto, Montreal, Sudbury, Saskatchewan and Vancouver), many of the provincial and territorial working groups for ESD, and the Canadian Commission for UNESCO — all of which involve stakeholders from government, educational institutions, school systems, civil society, and often the private sector in accomplishing their goals.

**Educator Competencies:** Training for teachers and other professionals involved in education for sustainable development is delivered by ministries, school boards, teacher associations, universities, not-for-profit organizations, and many other groups, using classrooms and active learning and often developing networks of educators as a consequence.

**Tools and Materials:** Ministries and departments of education produce, finance, contribute to, assess, and make available a vast selection of materials tied to the learning outcomes linked to the issues subsumed in sustainable development. Nongovernmental organizations may have many of the same roles: some define their themes very broadly and include materials that have

been reviewed by educators. Others have a focus on environmental resources and a few of the examples focus by subject and geographic region. All of the groups, and many more, provide tools and materials to support teaching and learning around sustainable development.

**ESD Research and Development:** Research on issues of sustainable development can be found at postsecondary institutions, nongovernmental organizations, and governments. Research institutes and specializations at colleges and universities address specific aspects of sustainable development and are often involved in teaching and collaborations with public and private partners. The work of the UNESCO chairs demonstrates an international approach to sustainable development research and dissemination.

**International Cooperation:** Cooperation between Canadian institutions and organizations and their international counterparts takes place at all levels of education, both formal and non-formal. Many of the projects receive funding from the Government of Canada through the Canadian International Development Agency. The examples provided stress cooperation with the other countries in the UNECE region.

**Indigenous, Local, and Traditional Knowledge:** In addition to working with governments and organizations across Canada to share their knowledge and integrate it into sustainable development practices and education for sustainable development, Aboriginal groups are working within their own organizations to advance and protect the sustainability issues and rights of Aboriginal peoples and communities.

**Challenges and Obstacles:** The report to this point has highlighted a considerable wealth of, and diversity in, education for sustainable development, whether in terms of topics, providers, approaches, resources, or research — and as has already been mentioned, this report is in no way comprehensive. Despite this, both challenges and obstacles remain, especially in the task of truly integrating education for sustainable development into education at all levels. The challenges are outlined under the headings of terminology, educational priorities, responsibility, the process of change, integration, and funding.

**Improving Implementation of ESD:** Looking at the challenges and obstacles offers one perspective on the implementation needs, as each of these challenges needs to be addressed. They all require continued education, negotiation, adaptation, planning, and change at the legislative, policy, program, and strategy levels.

**Concluding Remarks:** The length and complexity of this *Report for Canada 2007–2010* demonstrates the commitment to education for sustainable development across Canada. While recognizing and celebrating this, it is also important to realize that much remains to be done to make education for sustainable development more comprehensively a part of education in Canada.

# Introduction

## Context of the Report

1. In 2004, the United Nations declared the years from 2005 to 2014 the Decade of Education for Sustainable Development (DESD), with the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as the lead agency for the decade. In 2005, a regional Strategy for Education for Sustainable Development was adopted by officials from education and environment ministries throughout the United Nations Economic Commission for Europe (UNECE). UNECE is the forum in which all countries of western, central, and eastern Europe, central Asia, and North America — 56 countries in all — come together to forge the tools of their economic cooperation.

### **Significant Themes of ESD**

2. The objective of the UNECE strategy is to incorporate the key themes of sustainable development into all education systems. As described in *Learning from Each Other: The UNECE Strategy for ESD*, the key themes include poverty alleviation, citizenship, peace, ethics, responsibility in local and global contexts, democracy and governance, justice, security, human rights, health, gender equity, cultural diversity, rural and urban development, economy, production and consumption patterns, corporate responsibility, environmental protection, natural resource management, and biological and landscape diversity. Education for sustainable development (ESD) is characterized as a lifelong process that implicates formal, non-formal, and informal education; encourages systemic, critical, and creative thinking and reflection; and fosters respect for and understanding of different cultures.

### **Essential Partners for ESD**

3. The UNECE document also describes education for sustainable development as requiring multistakeholder cooperation and partnership among governments; local authorities; education, scientific, and health sectors; the private sector, including industry, transport, and agriculture; trade and labour unions; mass media; nongovernmental organizations (NGOs); civil society; communities; Indigenous peoples; and international organizations.
4. An important element of the UNECE strategy is the preparation of reports on its implementation in member countries. UNESCO and UNECE have agreed on a common format for the collection of information about the progress of education for sustainable development. Canada is a member of both organizations and has been represented since 2005 on the UNECE Steering Committee for Sustainable Development and is also a member of the UNECE Expert Group on Competencies in Education for Sustainable Development and the UNESCO Global Evaluation and Monitoring Expert Group for the United Nations Decade for Sustainable Development (UNDESD).

5. The Council of Ministers of Education, Canada, the Canadian Commission for UNESCO, and Environment Canada are collaborating in the preparation of the reports about the implementation of the strategy and the decade in Canada. In 2007, the first report, *Report to UNECE and UNESCO on Indicators of Education for Sustainable Development: Report for Canada*, covering the years 2005 to 2007, was published. This second report looks at the activities during the years from 2007 to 2010. A third report will review the years to the end of the decade. The report covering the years 2005 to 2007 can be seen as the companion document to this one, as it highlights the early development of many of the policies and initiatives included in this depiction of the activities from 2007 to 2010.
6. Consistent with the principles of sustainable development, this report is the result of a collaborative and consultative process. The Strategy for Education for Sustainable Development and the UN Decade of Education for Sustainable Development have had considerable impact on education at all levels in the provinces and territories of Canada. To reflect this wide arena of activity, the Council of Ministers of Education, Canada, the Canadian Commission for UNESCO, and Environment Canada supplied resources and contacts with educational, community, nongovernmental, and governmental bodies. Web sites of key contributors were also researched. Draft reports were circulated to the ministries and departments of education in the 13 educational jurisdictions in Canada; to the NGOs, civil society organizations, and experts affiliated with the Canadian Commission for UNESCO; and to relevant departments of the Government of Canada for review. Their comments and revisions have been incorporated into the final report, providing a pan-Canadian portrait of education for sustainable development.
7. This broadly representative approach conveys the scope and inclusiveness of ESD in Canada. However, it is important to state that only limited examples of the policies, legislation, programs, research, and other activities can be included; the document is not intended to be comprehensive or exhaustive. Selected examples are provided to demonstrate the diversity, the quality, and the range of ESD in all parts of Canada; they have been chosen on the basis of geographic representation, client groups, types of initiatives, levels of education, and stakeholder involvement. Education for sustainable development does not have to encompass all the themes outlined above — but it may focus on specific aspects, such as human rights, environment, or cultural diversity. Depending on the goals of the educational strategy or project, the partners, the tools, the content, and the teaching strategies can be different.
8. Detailed information on ESD in Canada is available on the Web sites of the provincial and territorial departments and ministries of education responsible for education, and those of the nongovernmental and civil society organizations, postsecondary institutions, and federal government departments. The Web site addresses are provided in the appendix along with the list of documents consulted for this report.

9. The reporting format supplied by UNECE uses a very detailed questionnaire, with a number of “yes” or “no” questions and lists in which the existence of activities is to be indicated with a check mark. Given the 13 educational jurisdictions, other government involvement, and the vast array of NGOs working in ESD, this format has been modified to better reflect the reality of the activity in Canada. This report responds to the themes and questions of the UNECE questionnaire by providing examples that illustrate the implementation of ESD.

### **Outline of Report**

10. The UNECE reporting format is based on nine main issues, which correspond to the chapter headings in this report:
- to ensure that policy, regulatory, and operational frameworks support the promotion of education for sustainable development;
  - to promote sustainable development through formal, non-formal, and informal learning;
  - to equip educators with the competencies needed to include sustainable development in their teaching;
  - to ensure that adequate tools and materials for education for sustainable development are accessible;
  - to promote research into, and the development of, education for sustainable development;
  - to strengthen cooperation in education for sustainable development at all levels within the UNECE Region;
  - to foster the conservation, use, and promotion of Indigenous, local, and traditional knowledge as part of education for sustainable development;
  - to describe any challenges and obstacles encountered in the implementation of the strategy;
  - to describe any assistance needed to improve the implementation of the strategy.
11. In 2009, the UNESCO World Conference on Education for Sustainable Development was held in Bonn, Germany. At this meeting, the *Bonn Declaration* was issued as a joint statement and a call for action. This document has been widely circulated in Canada and is influencing policies and programs.
12. The report for Canada has been prepared within this very broad context of education for sustainable development — encompassing the themes of the questionnaire, the multiple issues conveyed by the words “sustainable development,” and the involvement of many stakeholder groups.

## Responsibility for Education

13. In Canada, exclusive legislative responsibility for education is granted to the provinces in Canada's Constitution Act of 1867; similar responsibilities are delegated to the territories by the federal government. In the 13 jurisdictions — 10 provinces and 3 territories — departments or ministries of education are responsible for the organization, delivery, and assessment of education at the elementary and secondary levels. The institutions in the postsecondary system have varying degrees of autonomy from provincial or territorial government control. In some jurisdictions, one department or ministry is responsible for elementary-secondary education and another is responsible for postsecondary education and skills training. The ministers responsible for education in the provinces and territories come together in the Council of Ministers of Education, Canada, to discuss matters of mutual interest, undertake educational initiatives cooperatively, and represent the interests of the provinces and territories nationally and internationally. More detailed information on the structure, funding, and functioning of education in Canada can be found on the Web site of the Council of Ministers of Education, Canada ([www.cmec.ca](http://www.cmec.ca)).

## The Policy, Regulatory, and Operational Frameworks

14. The policy, regulatory, and operational frameworks in Canada, as presented in this report, comprise three key areas of activity: the important structures that have been created for pan-Canadian cooperation by multistakeholders — one at the governmental level and the other combining the governmental and nongovernmental levels; the development of policies and frameworks for education for sustainable development at the provincial and territorial levels; and the legislative and strategic role of the federal government.

## Pan-Canadian Cooperation

15. In April 2008, the Council of Ministers of Education, Canada (CMEC) issued *Learn Canada 2020*, a framework that now guides the provincial and territorial ministers of education as they work to enhance Canada's educational systems, learning opportunities, and overall educational outcomes. Within the framework are four pillars of lifelong learning: early childhood learning and development; elementary to high school systems; postsecondary education; and adult learning and skills development. Eight key activity areas are also presented, with education for sustainable development prominent among them. The goal of education for sustainable development is to raise students' awareness and encourage them to become actively engaged in working to create a sustainable society.

16. In June 2008, the CMEC Advisory Committee of Deputy Ministers of Education established the Education for Sustainable Development Working Group (ESDWG) so that, through CMEC, the provinces and territories would show leadership in the development and promotion of ESD in educational institutions across Canada. With representatives from the departments of education in almost all jurisdictions, the CMEC ESDWG's objectives are to:

- coordinate action to support and strengthen implementation of ESD in all provinces and territories;
- develop a CMEC Pan-Canadian ESD Framework for Collaboration and Action that builds on current activities to lead to enhanced collaboration at the jurisdictional level;
- focus on encouraging activity in the elementary and secondary systems, with the integration of sustainable development into curricula, development of ESD-related teaching resources and materials, and provision of pre-service and in-service teacher education and support in ESD concepts and practices;
- establish Canada as a leader in ESD, with this leadership demonstrated through reports on progress made toward these goals.

17. The working group began by collecting information from each jurisdiction on ESD activities, available resources, teacher training, and the integration of ESD beyond curriculum in schools. In 2010, the background paper *Developing a Pan-Canadian ESD Framework for Collaboration and Action* was released. The next stage, the development of a framework for collaboration and action, is underway for the elementary and secondary school levels, with four priority areas:

- infusing ESD competencies into the provincial or territorial curriculum;
- building ESD capacity through professional development and research;
- identifying and promoting learning resources to support ESD competencies;
- implementing ESD system-wide.

Goals, principles, strategies, and general outcomes are being established for each of the priorities — as well as measures of progress, partnerships, and communication strategies. The UNECE Regional Strategy and the UN Decade of Education for Sustainable Development have inspired and guided much of the work being done by the CMEC ESDWG.

18. Equally inspired by the Decade of Education for Sustainable Development was the partnership between the nongovernmental organization Learning for a Sustainable Future (LSF), the federal government Department of the Environment, and Manitoba's Department of Education and Department of Advanced Education and Literacy. Through their efforts, provincial and territorial Education for Sustainable Development Working Groups have been established that bring together provincial and territorial

governments, the federal government, educational institutions, non-formal and informal learning, NGOs and community organizations, the private sector, teachers, and others involved with ESD. These working groups are active in their own jurisdictions, but they also cooperate on a pan-Canadian level under the leadership of ESD Canada.

19. The ESD Canada National Council (previously known as the National Education for Sustainable Development Expert Council) was established in 2006 to bring a complementary and pan-Canadian perspective to the work being done by the provincial and territorial working groups. The purpose of ESD Canada and the working groups is to support systemic change toward ESD within the formal, non-formal, and informal education systems in order to help citizens acquire the knowledge, skills, and values they need to contribute to the development of a socially, environmentally, and economically sustainable society. The National Council works through four committees:
  - The communications committee builds awareness and support for ESD through collaboration with provincial and territorial ESD working groups and others.
  - The research committee identifies, nurtures, and disseminates ESD research to provincial and territorial ESD working groups and national and international organizations.
  - The innovation and leadership committee gathers information about ESD projects and programs to acquire a better understanding of what exists and to provide examples for the improvement of other programs. This committee has developed an assessment rubric and an assessment summary.
  - The fundraising committee is working to identify funding and partnership opportunities.
  
20. The priorities and actions of each provincial and territorial working group respond to the needs and circumstances within its jurisdiction. One working group that has focused on the development of an ESD action framework is the Saskatchewan Education for Sustainable Development Network. Much of the work of this network is about “going green,” but it also goes beyond consideration of the environment to address socioeconomic issues and to foster cultural development. The network’s mission is to foster strategic planning and collaboration among people and organizations with common interests in ESD, and they carry out this mission through communication, partnerships, and empowerment.
  
21. In 2009, the Saskatchewan ESD Network Steering Committee released *A Guide to the Saskatchewan Education for Sustainable Development (ESD) Action Framework*. The document describes the organization and the sustainability challenge, as well as education for sustainable development. It then outlines four goals, along with objectives, actions, and example projects. The goals are:
  - to foster public education and awareness of sustainability;

- to support the engagement of all sectors;
- to integrate sustainability into formal education;
- to promote “learning by doing”.

The actions include using the media for promotion, developing training opportunities, integrating ESD into teacher training programs, and helping young people take action on sustainability.

22. These Saskatchewan examples constitute only one set of activities among many undertaken by the provincial and territorial ESD working groups. Information about their programs, as well as those of many other stakeholders, is found throughout this report.

## Frameworks for Education

23. In the policies and documents of the provincial and territorial governments, the wide scope or particular aspects of ESD may be addressed in frameworks for teaching and learning or highlighted in strategy documents. In some provinces and territories, the vision and objectives for education may reflect the guiding principles of ESD without making direct reference to sustainability.
24. In 2008, the British Columbia Ministry of Education established the *Sustainability Education Framework* to encourage the K–12 education system to show leadership in adopting and promoting environmentally sustainable practices and learning opportunities that support healthy, natural, social, and economic environments for current and future generations. This vision is aligned with the *BC Energy Plan*, which sets out a strategy to encourage British Columbians to take responsibility for the climate and the environment. The framework helps ensure that all K–12 students are being educated in the basics of living sustainably, examining issues within the context of economic prosperity, consumption, social justice, and ecological stewardship.
25. The *BC Sustainability Education Framework* uses a whole-school approach, involving teachers, students, parents, administrators, support staff, and the community. Among the objectives and key messages of the framework are:
- Sustainability requires a respect for all cultures and recognition of the interdependence of all people in the global community.
  - Aboriginal peoples have a long history of sustainability through their traditional ecological knowledge.
  - Sustainability lessons learned at school transfer to home and the community.
  - Sustainability, climate change, energy consumption, and waste awareness are issues of environmental and socioeconomic concern.
  - Environmental sustainability issues should be addressed in as many subject areas as possible, in an age-appropriate context, and using a range of educational

methods — including systems and futures thinking, inquiry, discovery, active learning, and problem solving.

26. In June 2007, the Working Group on Environmental Education in Ontario issued its report, *Shaping Our Schools, Shaping Our Future: Environmental Education in Ontario Schools*. The report provided a vision for environmental education with four key areas of recommendations: the development of an environmental education policy; leadership and accountability in all parts of the province, the Ministry of Education, school boards, and schools; curriculum initiatives that include cross-curricular integration and curriculum content; and teaching and resources.
27. The policy framework for environmental education in Ontario schools, *Acting Today, Shaping Tomorrow*, was released in 2009. Situating itself in the context of the UN Decade of Education for Sustainable Development, the document responded to the recommendations of the working group by promoting an integrated approach to environmental education. Strategies and actions for the ministry, school boards, and schools are expressed in terms of three goals:
  - By the end of grade 12, students will acquire knowledge, skills, and perspectives that foster understanding of their fundamental connections to each other, to the world around them, and to all living things.
  - Student engagement will be increased by fostering active participation in environmental projects and by building links between schools and communities.
  - The capacity of system leaders to implement evidence-based environmental education programming, practices, and operations will be increased.
28. Nunavut's Education Act, which received assent on September 18, 2008, specifies that the public education system shall be based on Inuit societal values and on the principles and concepts of Inuit Qaujimajatuqangit (which translates as 'that which is long known by Inuit'). The population of Nunavut is more than 80 per cent Inuit, and the territory's education system reflects their essential beliefs, including those governing their relationships with each other and with the land. Many of these beliefs reflect the issues addressed in education for sustainable development — in terms of both content and pedagogy:
  - respecting others and relationships and caring for people
  - fostering good spirits by being open, welcoming, and inclusive
  - serving and providing for family or community or both
  - decision making through discussion and consensus
  - development of skills through practice, effort, and action
  - working together for a common cause
  - being innovative and resourceful;
  - showing respect and care for the land, animals, and the environment

29. The New Brunswick plan for the revitalization of education, *When Kids Come First*, does not specifically address ESD, but many of its provisions are consistent with ESD goals and precepts. The basic starting point for education for sustainable development is access to, and retention in, quality education, and this is consistent with the purpose of *When Kids Come First*. The vision describes children who are creative problem solvers, ethical people, and well-informed citizens who understand the world and contribute to their communities with the skills they need for a lifetime of rewarding work. The plan addresses school readiness, a focus on essential learnings, developing a passion for learning, empowering educators, providing inclusive education, engaging communities and partners, promoting linguistic growth and cultural identity, and creating safe and healthy schools. Specific links between ESD and the New Brunswick document include preparing students to be active citizens who understand political, social, and economic systems in a global context and the principles and actions of just, pluralistic, and democratic societies.
30. The government of Manitoba's history of sustainable development began in the early 1990's with the establishment of a Round Table for Sustainable Development to redefine its sustainable development policies. This was followed in the late 1990's with the Sustainable Development Act which serves as a framework for sustainable policy development and implementation. Manitoba has continued to develop, refine, and revise its strategies to ensure that education for sustainable development is integrated into various ministerial statements, policies, and programs. The commitment of the Department of Education is reflected in its mission to ensure that all Manitoba's children and youth have access to an array of educational opportunities such that every learner experiences success through relevant, engaging, and high quality education that prepares them for lifelong learning and citizenship in a democratic, socially just, and sustainable society. The first overarching goal is to ensure that education in Manitoba supports students experiencing and learning about what it means to live in a sustainable manner.
31. Manitoba Education also developed a provincial *Education for Sustainability Action Plan 2004 – 2008* that directed the first steps in fostering teaching and learning for sustainability in elementary and secondary classrooms. Since this first action plan, Manitoba schools and school divisions have made considerable progress towards the implementation of ESD. Numerous examples of programs and initiatives are found throughout this report.
32. In an example that reaches outside the formal education system, the Government of Northwest Territories published *Building a Path for Northern Science: The NWT Science Agenda*, a strategic framework for the development and management of science knowledge and the use of traditional knowledge in all scientific and other research. Five areas of research focus were determined: cultural sustainability, environmental

sustainability and stewardship, health and wellness, natural resource management, and sustainable communities. The strategies for implementation include educational activities with government officials, communities, the education system, and Aboriginal groups in order to promote community engagement, science education, and capacity building. The agenda was developed by a government committee that included the territorial Departments of Aboriginal Affairs and Intergovernmental Relations; Education, Culture and Employment; Environment and Natural Resources; Health and Social Services; Industry, Tourism, and Investment; Public Works; and Transportation.

33. A document describing the development and implementation of the Alberta curriculum outlines its goals; the first few are particularly resonant with education for sustainable development:

- reflect the essential knowledge, skills, and attitudes that Alberta students need to be well prepared for future learning and the world of work;
- anticipate and plan for the needs of the future by considering changes and developments in society, such as trends in employment, globalization, advances in technology, and stewardship of the environment;
- provide learners with attitudes, skills, and knowledge that will enable them to become engaged, active, informed, and responsible citizens;
- promote the recognition and respect for individual and collective identity that are essential in a pluralistic and democratic society.

34. The examples in this section illustrate how provincial and territorial framework and strategy documents for education focus on and/or include the concepts found in education for sustainable development — whether as deliberate inclusions or as inherent qualities of the education that is provided. Education for sustainable development can be an all-encompassing approach that permeates all aspects of education. However, not all applications of ESD embrace all of ESD's components or infuse it throughout an institution or an educational system. The following chapters of the report provide examples of multiple strategies, understandings, stakeholders, and programs that exemplify the diversity of ESD across Canada and how ESD may be seen as an inclusive concept for education or approached through its component parts to provide opportunities for learning and social change.

## **A Federal Sustainable Development Strategy for Canada**

35. The Government of Canada is currently implementing the Federal Sustainable Development Act, passed in June 2008, which requires the development of a federal sustainable development strategy to strengthen ways in which the government promotes environmental sustainability and improves the transparency of, and accountability for, how sustainability is achieved. This government-wide strategy provides an integrated picture of the actions required to attain environmental

sustainability; links sustainable development planning and reporting with the government's core expenditure planning and reporting system; and establishes measurement, monitoring, and reporting in order to track and report on progress to Canadians.

36. In March 2010, the Government of Canada released a consultation paper, *Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada*, so that Canadians can comment on the content and priorities. The four themes — addressing climate change and air quality, maintaining water quality and availability, protecting nature, and shrinking the environmental footprint beginning with the government — are amplified by goals, targets, and implementation strategies. The strategies include such non-formal and informal education activities as the development and promotion of public awareness and best practices in environmental sustainability using information programs and decision-making tools for all Canadians regarding such issues as water quality and energy-efficient vehicles and for federal government staff on energy-saving behaviours.
37. The frameworks that have been established in Canada over the past few years include jurisdictional and pan-Canadian working groups, documents from ministries of education to guide the integration of sustainability into education, and a federal strategy guiding governmental goals and activity.

## **Sustainable Development in Formal, Non-Formal, and Informal Learning**

38. This chapter reports on many critical components of education for sustainable development — the inclusion of the key themes of sustainable development in formal education, the strategies for implementation of ESD, the presence of whole-institution approaches to ESD, the inclusion of ESD in quality assessment programs, sustainable development in non-formal and informal learning, and the involvement of multiple stakeholders in ESD.

## **Addressing the Key Themes of Sustainable Development in Formal Education**

39. The multiple themes in sustainable development have been listed in the Introduction to this paper. Some or all themes are often addressed in the broad learning outcomes for K–12 education, as well as being integrated into various subjects in the curriculum. The teaching and learning methods and the learning outcomes may also encompass more active, critical, and involved educational practices, aligned with ESD principles. Postsecondary education also offers a wide variety of programs that address the key themes of education for sustainable development.

## Elementary and Secondary Education

40. In this section, the overall educational philosophies, key learnings, and general curriculum outcomes are presented as indications of how the curricula in the provinces and territories are aligned with the concepts of ESD. In some cases, these broad elements are traced through to a specific subject to demonstrate how the general learning principles become specific. More subject-specific examples are provided in the next section on implementing education for sustainable development.
41. Over the past decade, Quebec has been restructuring its elementary and secondary curriculum, starting with the earliest grades and completing the highest level in 2008. The Quebec Education Program outlines the objectives, strategies, and content of this revision and is built around broad areas of learning that deal with the major contemporary issues young people confront during their lives. The areas of learning correspond to the key themes of sustainable development:
- Health and well-being include self-awareness and awareness of basic needs, knowledge of the impact of choices on health and well-being, active lifestyles and safe behaviour, and awareness of the consequences of collective choices on individual well-being.
  - Career planning and entrepreneurship focus on self-knowledge and awareness of individual potential and how to fulfill it; the adoption of strategies related to planning; and familiarity with the world of work, social roles, occupations, and trades.
  - Environmental assessment and consumer rights and responsibilities highlight knowledge of the environment; the responsible use of goods and services; an awareness of the social, economic, and ethical aspects of consumption; and the construction of a healthy environment based on sustainable development.
  - Media literacy covers an awareness of the place and influence of the different media in daily life and in society, an understanding of the media's representations of reality, familiarity with methods for producing media documents, and a knowledge of, and respect for, individual and collective rights and responsibilities regarding the different media.
  - Citizenship and community life encompass the promotion of the rules of social conduct and democratic institutions; participation, cooperation and solidarity; and adoption of a culture of peace.
42. In Alberta, the rationale and philosophy for the K–12 social studies program provide another example of the inclusion of many components of sustainable development throughout the curriculum. The social studies program is described as providing opportunities for students to develop the attitudes, skills, and knowledge that will enable them to become engaged, active, informed, and responsible citizens. Among the values, understanding, skills, and processes outlined as the outcomes of the teaching of

social studies are many that reflect ESD in terms of both content and teaching and learning methods:

- value the diversity, respect the dignity, and support the equality of all human beings;
- demonstrate social compassion, fairness, and justice;
- demonstrate a consciousness of the limits of the natural environment, stewardship of the land, and an understanding of the principles of sustainability;
- understand the diversity of Aboriginal traditions, values, and attitudes;
- understand contemporary challenges and contributions of Aboriginal peoples in urban, rural, cultural, and linguistic settings;
- understand the role of social, political, economic, and legal institutions as they relate to individual and collective well-being and a sustainable society;
- engage in active inquiry and critical and creative thinking;
- engage in problem solving and conflict resolution with an awareness of the ethical consequences of decision making;
- recognize and responsibly address injustices as they occur in schools, communities, Canada, and the world.

43. The 2008–2009 annual report for the Saskatchewan Ministry of Education highlights its activities in developing curriculum for K–12 that includes environmental education, conservation, and sustainability. The curricula for career education, English language arts, health and physical education, social studies, mathematics, science, and arts education at various grade levels have been revised so that they address ESD through attention to education concerning the environment, economics, and/or social justice. Environmental education is especially evident in the goals, outcomes, and indicators developed for the new science and social studies curricula.

44. These changes are consistent with the revised outcomes-based curricula that Saskatchewan introduced in 2008, with its broad areas of learning aimed at building lifelong learners, a sense of self and community, and engaged citizens. The cross-curricular competencies are aligned with sustainable development learning as they develop thinking, identity and interdependence, literacies, and social responsibility. For example, the revised arts curriculum for grades 6 to 9 provides a focus for each grade level, along with key outcomes:

- In grade 6, identity is the focus, with students identifying ways that First Nations, Métis, and Inuit artists express cultural identity in contemporary work.
- In grade 7, the focus is place, and students create dance, music, drama, and visual art works that express ideas about the importance of place, such as relationships to the land and urban and rural environments.

- In grade 8, social issues are the focus, and students create dance, drama, music, and visual art works that express ideas and student perspectives on poverty, racism, homophobia, sustainability, and gangs.
- In grade 9, the focus is on taking action with students in analyzing the role of the arts as a way of raising awareness and affecting social change and applying this understanding to reflections on their own work.

45. The Manitoba curricula all share four foundation skill areas and nine essential elements, which are then expanded by the general and specific learning outcomes for each curriculum area. The following table presents the curriculum-wide elements, as well as the outcomes for social studies, as an example of how the key elements of sustainable development move from essential elements to specific outcomes:

<b>Foundation Skills for All Curriculum</b>	<b>Essential Elements for All Curriculum</b>	<b>General Learning Outcomes for Social Studies</b>	<b>Specific Learning Outcomes for Social Studies</b>
Information technology	Sustainable development	Global interdependence	Skills for active democratic citizenship
Problem solving	Aboriginal perspectives	Power and authority	Skills for managing ideas and information
Human relations	Resource-based learning	Economics and resources	Critical and creative thinking skills
Literacy and communication	Differentiated instruction	Identity, culture, and community	Communication skills
	Gender fairness	The land, places, and people	
	Subject-area connections	Historical connections	
	Age-appropriate portrayals		
	Human diversity		
	Anti-racist/anti-bias education		

46. Supporting these curriculum-wide elements, the Manitoba Department of Education has established a Web site for education for sustainable development. The purpose of the site is to assist Manitoba teachers in integrating sustainability into their classroom activities — whether as a subject of learning, as an issue of discussion and debate, or as an approach to learning. The ESD initiative in Manitoba is linked to the UN Decade of Education for Sustainable Development and built around the vision of students as informed and responsible decision makers playing active roles as citizens of Canada and the world and contributing to social, environmental, and economic well-being and an

equitable quality of life for all, now and in the future. ESD is being embedded in the K–12 curriculum with specific outcomes established in science, social studies, health, and physical education, as well as new curriculum being developed and curriculum being analyzed (including in technical and vocational education), to determine where SD concepts can be introduced.

47. In 2008, the Atlantic provinces (New Brunswick, Newfoundland and Labrador, Nova Scotia, and Prince Edward Island) revised their science curriculum for grades 5 and 6. The aim of science education in the Atlantic provinces is to develop scientific literacy described as an evolving combination of the science-related attitudes, skills, and knowledge that students need to develop inquiry, problem-solving, and decision-making abilities; to become lifelong learners; and to maintain a sense of wonder about the world around them.
48. The Atlantic province science curriculum is built around essential graduation learnings — the knowledge, skills, and attitudes expected of all students who graduate from secondary school. Some of these reflect the tenets of ESD:
  - Citizenship: Graduates will be able to assess social, cultural, economic, and environmental interdependence in a global context.
  - Communication: Graduates will be able to use the listening, viewing, speaking, reading, and writing modes of language(s), as well as mathematical and scientific concepts and symbols, to think, learn, and communicate effectively.
  - Personal development: Graduates will be able to learn and to pursue an active, healthy lifestyle.
  - Problem solving: Graduates will be able to use the strategies and processes needed to solve a wide variety of problems, including those requiring language, mathematical, and scientific concepts.
49. Within the Atlantic provinces, general curriculum outcomes that tie these essential learnings to the science curriculum are the content areas of science, technology, society, and the environment in which students develop an understanding of the nature and social and environmental contexts of science and technology. The next step in the curriculum document for grades 5 and 6 science outlines the subject-specific outcomes. Among these is stewardship, focusing on a sense of responsibility for the welfare of other people, living things, and the environment.
50. Nova Scotia has identified curricula outcomes for various subjects that relate to education for sustainable development and has evaluated resources that have an ESD focus and approved many of these for addition to the provincial list of authorized learning resources.

51. Reference was made above to the Ontario policy framework for environmental education, *Acting Today, Shaping Tomorrow*. To help achieve the goals laid out in the document, the Ministry of Education is working to embed environmental education expectations and opportunities in all grades and in all subjects of the Ontario curriculum. An annual document on the scope and sequence of expectation identifies how and where various subjects can incorporate environmental education, covering all subjects in elementary and secondary school. For example, in grade 9 or 10 business studies, students can demonstrate an understanding of ethics and social responsibility in business and explain controversial business practices from local, national, and international perspectives. Grade 10 career studies looks at workplace issues such as employer and employee rights and responsibilities. In the science and technology curricula from grades 1 to 12, relating science and technology to society and the environment is addressed in the specific expectations in every grade and course. For example, in grade 5 Science and Technology, students can analyze the long-term impacts on society and the environment of human uses of energy and natural resources and suggest ways to reduce these impacts. Two new grade 11 Environmental Science courses allow students to study the topic in depth, as do the Environment and Resource Management courses in grade 12. As well, the environment is a fundamental concept underlying all courses in the grades 9 to 12 curriculum for Canadian and World Studies.
52. Nongovernmental organizations have also been active in bringing ESD into the curriculum of elementary and secondary education. The nongovernmental organization Learning for a Sustainable Future (mentioned above) has established the Canadian Sustainability Curriculum Review Initiative. The initiative identifies what should be included in formal curriculum policy, as well as the most appropriate instructional methods for learning about key themes selected from recommended by the UN Decade of Education for Sustainable Development. The goal of the initiative is to inform educators about the most effective concepts, tools, skills, and values in ESD to bring to the classroom. Documents have been developed for 5 of the 12 themes — water, climate change, ecosystems, energy, and biodiversity, featuring context and description, organizing strands, notes to curriculum designers, grade-specific exemplary learning programs, and learning progression charts.
53. Some recent research has looked at how students perform in areas of ESD, as well as examining the sources of their learning. The 2009 report on the 2006 Programme for International Student Assessment (PISA) undertaken by the Organisation for Economic Co-operation and Development looked at how 15-year-olds performed in environmental science and geoscience. Over 90 per cent of students in Canada demonstrated at least a basic proficiency in environmental science, among the best results in the 57 countries involved in the study. In addition, 26 per cent of 15-year-olds in Canada scored at Level A, the highest proficiency, again among the best international scores. In terms of awareness, over 90 per cent of the 15-year-olds reported that they were familiar with or

knew something about air pollution, energy shortages, extinction of plants and animals, clearing of forests for other land use, and water shortages.

54. The students' reported levels of responsibility for these factors ranged from 76 per cent for water shortages to 93 per cent for air pollution. For each of these issues, the students reported low levels of optimism that there would be improvement over the next 20 years — with between 10 and 17 per cent feeling some optimism, depending on the issue. The main source of information about the environment for the students was schools, with media, the Internet, books, family, and friends as other sources. Almost 30 per cent of the students stated that their schools offered a course on environmental topics, while 98 per cent mentioned environmental topics as part of a natural science course, 72 per cent as part of a geography course, and 62 per cent as part of another course.
55. The examples in this section have stressed how the themes of sustainable development are integrated throughout the curriculum — starting with the broad areas of learning or broadest outcomes and then being translated through the other levels of curriculum planning and content to appear in the subject-specific learning outcomes.

### **Postsecondary Education**

56. The themes of sustainable development are also prominent in postsecondary education, although they are harder to track as each institution develops its own curricula. A non-exhaustive list compiled through informal research by the Association of Canadian Community Colleges reveals that there are over 100 programs with an environmental theme offered in almost 60 member institutes and colleges. These programs have titles such as applied environmental studies, environmental technology, environmental and conservation sciences, and environmental conservation and reclamation. Some examples of these programs include the following:
  - A four-year Conservation Enforcement applied degree from Lethbridge College in Alberta that equips students to deal with problem wildlife, investigate violations, and enforce resource laws to help prevent the illegal exploitation of land, wildlife, and fisheries resources.
  - A Sustainable Energy Centre at Cambrian College in Ontario, where students in the Energy Systems Technology Program can monitor equipment and building materials, energy usage, ease of installation, resilience, and cost.
  - A performing arts centre built by the students in the Sustainable Building Design and Construction certificate program at Fleming College in Ontario, using sustainable and recyclable building materials.
57. There are also a few programs in governance, conflict resolution, and peace building, as well as community economic development. The Mir Centre for Peace Studies in Canada

at Selkirk College in British Columbia offers programs that combine coursework in humanities, social sciences, and sciences with a core course in peace studies and conflict resolution. One program focuses on peace and the environment and the other on peace in a cultural and international context.

58. In Quebec, the Cégep de Saint-Hyacinthe and the Association québécoise pour la promotion de l'éducation relative à l'environnement (Quebec Association for the Promotion of Environmental Education) undertook research to develop an inventory of the pedagogical activities related to the environment throughout the cégeps. With responses from 430 instructors in 40 public and private institutions, the inventory provides detailed outlines for numerous courses.
59. Collège Boréal, the French-language community college serving the northern and central-south west regions of Ontario, provides a number of programs under the heading of environment and sustainable development that are unique to the college. Two- and three-year programs are available in forestry, fish, and wildlife management, as well as environmental chemistry.
60. The program database of the Association of Universities and Colleges of Canada lists degree, diploma, and certificate programs offered in French and English in their member institutions across the country. Following is a sample of those that can be related to sustainable development and the number of programs offered:
  - environmental design and architecture — 9
  - environmental biology — 20
  - environmental toxicology — 11
  - ecology — 32
  - environmental and environmental health engineering — 85
  - intercultural/multicultural/diversity — 16
  - environmental health — 11
  - bioethics and medical ethics — 11
61. Specific university-based initiatives offer illustrations of how sustainable development is being offered at this level across Canada:
  - A certificate program and a graduate degree program in adult education and community development are being offered by the Ontario Institute for Studies in Education at the University of Toronto, with courses in adult education for sustainability.
  - McMaster University in Hamilton, Ontario, has established a Centre for Peace Studies, which provides undergraduate courses and is closely aligned with the health sciences and has expertise in researching and applying ways to build peace through health initiatives.

- The Coady International Institute in Nova Scotia focuses on community-based development. Its 19-week program in Development Leadership provides a framework for just and sustainable development based on a participatory, bottom-up, holistic approach.
- Dalhousie University in Nova Scotia launched a College of Sustainability in 2009, offers an interdisciplinary program in environment, sustainability, and society. The program consists of problem-solving classes within the university and community-based experiential learning opportunities.
- The University of Alberta is developing a post-baccalaureate diploma program in environmental and sustainability education.
- In the fall of 2011, the University of Winnipeg in Manitoba will be offering a new graduate degree program in Development Practice focusing on Indigenous development, in partnership with the MacArthur Foundation. The program includes a field practice component.
- At the French-language Université de Moncton in New Brunswick, the Groupe littoral et vie (Coastlines and Life), within the Faculty of Education, integrates education for sustainable development into its interactions with teachers, students, and communities. The Groupe has created effective pedagogical strategies for use with both adults and children, as well as undertaken research on how people interact with their environments, how to encourage individual and collective environmental action, and the impacts of these interventions.

62. Although there are numerous postsecondary programs that address the environmental, social, and economic issues of sustainable development, the structure of the disciplines and degrees makes a more inclusive approach to education for sustainable development an enormous challenge.

## **Strategies for Implementing Education for Sustainable Development**

63. The UNECE questionnaire explores how ESD is part of the curriculum — whether through existing courses, cross-curricular approaches, specific programs, or stand-alone courses. In the jurisdictions across Canada, many of these approaches are used to bring ESD into the classroom.
64. Sustainability concepts and learning outcomes are found in many of the British Columbia Ministry of Education curriculum documents, with four courses that focus particularly on sustainability issues. These courses have many similar topics and learning outcomes. Using this commonality as a basis, *Sustainability Course Content: A Curriculum Framework* was developed with seven modules that can be used individually by being adapted into existing courses or developed as entire courses. For each of the modules, topic areas and learning outcomes are provided, along with an extensive list of learning resources. The seven modules cover:

- introduction to sustainability
  - environmental ethics and social development
  - ecology and nature
  - environmental challenges and sustainable solutions
  - sustainable design and transport
  - balancing ecology and economics
  - sustainable actions
65. From 2009 on, all curriculum documents for English-language programs developed by the Prince Edward Island (PEI) Department of Education and Early Childhood Development integrate education for sustainable development into the context of teaching and learning. For example, Applied Science 701A engages students in an energy project that promotes learning from social, environmental, and economic perspectives and allows them to explore how these themes are interrelated and interdependent. The learning outcomes expected by the end of grade 12 include personal and shared responsibility for maintaining a sustainable environment; the capacity to project the personal, social, and environmental consequences of proposed actions; and the desire to take action for maintaining a sustainable environment.
66. Other PEI curriculum guides exhibit other emphases for ESD. In arts education, the focus within ESD is on a commitment to equity by valuing, appreciating, and accepting the diverse multicultural and multiracial nature of society, as well as fostering awareness and critical analysis of individual and systemic discrimination. In Geography 521A, under the general outcome of citizenship, power, and governance, this course helps students analyze factors that influence human movement and settlement patterns and that influence development within regions.
67. The Quebec Education Program from the Ministry of Education, Recreation and Sports includes social studies for the senior level, known as cycle two, and comprises the History and Citizenship Education program and the Contemporary World program. The curriculum documents for History and Citizenship Education demonstrate how sustainable issues are the core of the learning. The Quebec Contemporary World program stresses two competencies: interpret a contemporary world problem and take a position on a contemporary world issue. The content is built on five themes that are integral to sustainable development. For each of the themes, the students have a choice of two issues on which they are to develop a personal position:
- The theme of population offers the issues of management of urban expansion or migration and the world of work.
  - The theme of tension and conflicts offers applications of principles of humanitarian assistance or interests of the intervening parties versus those of the population.

- The theme of environment offers the use and consumption of resources or the harmonization of environmental standards.
  - The theme of power offers the capacity of states to take action or the sovereignty of states and economic or political associations.
  - The theme of wealth offers balancing social justice and economic development or the control of resources.
68. In a final example of strategies for implementing education for sustainable development in the Quebec Education Program, the teacher is able to teach environmental science in different ways. One is through a focus on the content with a view to helping students acquire knowledge about the environment — education about the environment. In the second approach of education using the environment, the environment is used as a pedagogical resource for teaching science and technology. Thirdly, education for the environment focuses on solving problems and preventing environmental problems. The fourth strategy is education in the environment, using the environment to define learning by making use of the school’s surroundings or the biophysical or social context.
69. In Yukon, some specific course offerings reflect sustainable development and cross-curricular approaches. Experiential Science for grade 11 students integrates biology, geography, forestry, chemistry, arts, and field methods courses, which are taught through a variety of themes usually revolving around resource management. The ACES program (achievement, challenge, environment, service) provides challenging experiences that help students develop intellectually, physically, socially, emotionally, and culturally so as to become responsible citizens. Among the objectives of ACES are the continued development of:
- a responsible attitude about learning, sharing, cooperation, and investigating;
  - a responsible attitude about themselves, their behaviour, fitness, and personal attitudes;
  - a responsible attitude about their role in society;
  - a knowledge and appreciation of the natural environment of Yukon, Canada, and the world
  - a better understanding of resource management issues in Yukon, Canada, and the world;
  - leadership skills, teamwork, and group awareness.
70. The *Program of Studies for Newfoundland and Labrador* presents numerous examples of how sustainable development issues are introduced into existing courses. The base is established at the primary level (grades 1 to 3), when physical education, for example, helps students to understand the social and environmental context in which they live, develop personal strategies to live in harmony in that context, and work appropriately toward change where there is a need. At the elementary level (grades 4 to 6), science emphasizes the development of an understanding of the relationships between science,

technology, society, and the environment. This approach is continued throughout the science curriculum from kindergarten to grade 12.

71. At the intermediate level (grades 7 to 9) in Newfoundland and Labrador, the health curriculum is organized around environmental and social well-being; human sexuality; relationships; smoking, alcohol, and drugs; active living; nutrition; and environmental health and safety. At the senior level (grades 10 to 12), Consumer Studies looks at issues of needs versus wants, effective consumer purchasing, and corporate citizenship. The course in Religious Studies examines various approaches by many religions to ethical issues facing humanity, such as morality and ethics, sexuality and gender roles, creation and the environment, peace and security, and tolerance and caring. A science course designed especially for adult education in *A Global View of Ecosystem Sustainability and Weather* looks at sustainable development and how it applies to ecosystems. The secondary school course Environmental Science uses sustainable development to address a variety of social and environmental issues so that students acquire the knowledge, skills, attitudes, and perspectives to address sustainability issues. This course is highly congruent with the goals of the UN DESD.
  
72. A cross-curricular approach to sustainable development can be found in the Saskatchewan curriculum. Looking at the social sciences for grades 6 through 9, the broad aim is defined as students who have a sense of themselves as active participants and citizens in an inclusive, culturally diverse, interdependent world. To reach this aim, goals are outlined that delineate the various disciplines implicated in the achievement of each goal:
  - The goal of interactions and interdependence encompasses anthropology, archaeology, philosophy, psychology, and sociology.
  - The goal of dynamic relationships brings together history and geography in the analysis of the dynamic relationships between people and land, environments, events, and ideas.
  - The goals of understanding power and authority are found in the study of political science and law.
  - The goals related to resources and wealth examine various worldviews about the use and distribution of resources and wealth in relation to the needs of individuals, communities, nations, and the natural environment and this learning is found in both economics and environmental studies.

The teaching and learning is based on inquiry, and the curriculum guide specifies that education for and about sustainable development permeates the courses in grades 6, 7, 8, and 9 social studies with a broad focus that includes environmental, economic, and social sustainability.

73. Manitoba Education has implemented multiple strategies for education for sustainable development. Among them are the ESD correlation charts of student learning outcomes. On the charts, the curriculum for kindergarten to grade 10 has been analyzed, and the learning outcomes in social sciences, science, and physical and health education that are linked to Manitoba sustainable development priorities are organized according to grade level. In addition to integrating ESD into the curriculum, Manitoba Education is rewriting its grade 12 World Issues course to be a Global Citizenship and Sustainability course with a strong emphasis on sustainability.
74. Illustrations of integrating ESD throughout the curriculum and then taking it beyond the classroom and into the home are in brochures prepared by Manitoba Education for parents, which explain how ESD themes are integrated into each subject in every grade, with an emphasis in social studies, science, and physical and health education. According to the brochures, from kindergarten to grade 4, the overarching ESD themes are:
- respect and concern for other people in the local community and in other places in the world;
  - concern for all living things in the environment and learning that human survival is dependent on the environment.

The themes developed in grades 5 through 10 are:

- make decisions that allow students to understand and be good stewards of their environment;
- develop the knowledge, skills, and values to care about and take part in their communities;
- develop an action plan to promote physical activity and healthy lifestyle practices.

75. Looking at the curriculum for the francophone sector of the Department of Education in New Brunswick shows a variety of approaches to the issues of ESD. The learning outcomes related to personal health and human rights demonstrate the students' progression through the years of study:

<b>For kindergarten through grade 2</b>	<b>For grades 3 through 5</b>	<b>For grades 6 through 8</b>	<b>For grades 9 through 12</b>
<b>Personal Health</b>			
Recognize the importance of developing habits of a safe and healthy life.	Explain the benefits associated with the development of a safe and healthy lifestyle.	Develop the habits of a safe and healthy lifestyle.	Value and practise autonomously the behaviours of a healthy and safe lifestyle.

Human Rights			
Demonstrate respect, politeness, and cooperation in the classroom and their immediate environment.	Demonstrate respect, courtesy, and cooperation in a variety of groups.	Develop strategies that permit students to accept their responsibilities as part of various groups.	Evaluate and analyze their roles and responsibilities within various groups and adjust their strategies to improve their effectiveness and styles of participation.

- 76. The New Brunswick francophone education senior-level Environmental Science course places science within human, social, cultural, and ethical dimensions, as well as linking it to individual and collective responsibility for the environment. The course themes include the equilibrium of the ecosphere, soil and vegetation, water and water systems, air and atmospheric pollution, and energy.
- 77. A cross-curricular resource, *Energy and Me*, focused on education for sustainable development for students in grades 2 and 3, was prepared for use in Nova Scotia schools.
- 78. The provinces and territories implement the concepts in sustainable development in the curriculum as essential elements of core courses, as stand-alone courses, as strategies and content that can be introduced in any subject and at any level, as learning outcomes that are further developed as the students move through the grades, as cross-curricular content, and as both content and pedagogy that are infused throughout the curriculum, teaching, and learning.

### Whole-Institution Approach

- 79. The next point on the UNECE questionnaire asks about whether or not educational institutions have adopted an approach to sustainable development that covers the whole institution — not only the teaching and learning but also the infrastructure and practices within the institution.
- 80. The International Institute for Sustainable Development (IISD) is a Canadian-based policy research institute that conducts research into sustainable development. IISD, in partnership with Manitoba Education, is exploring the role of education for sustainable development policies in guiding institutions to strengthen their sustainability learning and living practices. IISD maintains a *Sustainable School and Campus Policy Bank* that provides models of institutional sustainable development policies for K–12 and postsecondary education. The policy database is organized under headings such as curriculum, energy management, environmental management of facilities and grounds, chemicals and hazardous waste management, purchasing and procurement, waste management and recycling, transportation, and education for environment and

sustainable development. It provides the context, commitment, and guidelines for sustainable action at institutions and the frameworks for monitoring performance and results.

81. In 2008, the International Institute for Sustainable Development, finding that sustainable activity at the school board and school levels was relatively new, published the document entitled *Environment and Sustainable Development Policy Development in K–12 Schools in Manitoba and Canada: An Initial Exploration*.
82. The Eco-Globe Schools program was set up in 2009 by Manitoba Education as a way of recognizing schools that are involved in a variety of activities that promote and integrate ESD and as a way of facilitating the sharing of ideas and innovative practices. There are three levels of participation: awareness, in which a school community has an awareness of the principles and practices of sustainability; action, in which the school community is committed to ongoing sustainability practices; and transformation, in which the school-wide culture is transformed by an ongoing commitment to the principles and practices of ESD.
83. Manitoba Education and Manitoba Hydro offer Education for Sustainable Development Grants to cover expenses such as teacher release time, professional development, and teaching and learning resources. Among the 2010 grant winners were projects on greening of schools and grounds, ecology, and outdoor education. School divisions can also receive grants to support the incorporation of ESD into all aspects of school division and school activities, operations, and programming.
84. The International Institute for Sustainable Development, mentioned above, with the support of the Manitoba government, prepared *Sustainability Policies at the School Division Level in Manitoba: The Status of Policy Development and Its Relationship to Actions in the School*. The report looked at the state of development of policies and actions and made recommendations to enhance their alignment and effectiveness. Responding to one of the recommendations, Manitoba Education is working with divisional representatives to develop a framework that would include divisional policies, recommendations, resources, and tools for guiding individual school sustainability planning and action.
85. The government of British Columbia is working to become carbon neutral in 2010, and its Ministry of Education supports this goal in its operations and educational activities across school districts. The *Climate Action Charter* has been signed by all 60 school districts in the province. In return for committing to actions such as reducing emissions from operations and transportation and offering educational opportunities for students (in partnership with their parents) that promote sustainability and climate action at school and at home, the school districts are reimbursed annually for all the carbon tax they paid in the previous year.

86. Other Green School initiatives in British Columbia focus on supporting teachers and students, developing school communities, and enhancing school infrastructure and transportation systems. To support students becoming more aware of and active in sustainability, the BC Green Games is a province-wide competition that motivates environmental action, enables sharing, and rewards and celebrates the green efforts of schools. To encourage schools to take actions that support reduction of greenhouse gas emissions and encourage the wise use of resources, the *Sustainable Schools Best Practice Guide* has been prepared. It outlines some environmental best practices in energy, water, waste, school grounds, and transportation.
87. The Quebec Ministry of Education, Recreation and Sports issued an *Action Plan for Sustainable Development 2008–2012* that corresponds to the government-wide action plan. The major activities of the ministry include:
- implementing activities that support the success of the government plan for awareness and training of public service personnel;
  - promoting activities that support sustainable development;
  - supporting programs and resource development in health, security, and the environment;
  - adopting practices and initiatives that contribute to an eco-responsible government;
  - implementing the government plan of action as it relates to the networks of teaching institutions — in ways that encourage regional creativity;
  - continuing financial support from the ministry and having the ministry contribute its expertise in the program against poverty and social exclusion;
  - making available educational services to improve school attendance and graduation rates.
88. There are now 1,000 Brundtland Green Schools in Quebec, which act locally and think globally to help create a green, peaceful, united, and democratic world. The schools carry out projects to reduce, reuse, recover, and recycle and link their actions to sharing, cooperation, democracy, fairness, solidarity, peace, human rights, and respect. Sponsored by the Centrale des syndicats du Québec, projects highlight energy, combating poverty and racism, climate change, food security, children of the world, and investing in communities.
89. Ontario has almost 1,000 schools that are part of EcoSchools, a five-step program to help schools play a part in keeping the natural environment healthy for future generations. The steps include establishing an Eco team; assessing the needs of the school through a review that determines where energy can be conserved; identifying priorities and developing an action plan for the conservation of energy; implementing the action plan with the involvement of the entire school community; and monitoring

and evaluating progress. Program guides have also been developed to reduce energy use, minimize waste, and redesign school grounds.

90. The Ministry of Education in Ontario supports and encourages school boards to adopt environmentally sustaining practices in the construction and maintenance of school boards. Over the two fiscal years from 2009 to 2011, the ministry is investing \$550 million to increase the energy efficiency of schools for projects such as energy audits; the installation of renewable energy technologies; better monitoring, control, and reduction of energy in schools; replacement and installation of energy-efficient components; and renovations and retrofitting. Funding is also being made available for testing and showcasing new and innovative green products and technology.
91. The Department of Education in Yukon is committed to promoting environmental stewardship in the department as well as in the schools as part of the government's *Climate Change Action Agenda*. To reduce the footprint of the Department of Education, a partnership between the Departments of Environment; Energy, Mines, and Resources; Highways and Public Works; and Education has developed a system-wide framework that includes reducing energy costs and developing a stronger understanding of environmental literacy. The Department of Education has set up a fund that offers grants to schools to support recycling education and activities. The Seeds Foundation operates a Green Schools program and over half of Yukon schools participate. The program promotes values and skills associated with responsible eco-citizenship and encourages students to develop greater environmental understanding and to make responsible choices.
92. The Ministry of Education in Saskatchewan is in the process of developing a comprehensive strategic plan to support school divisions in their efforts to address ESD. It is anticipated that the strategic plan and resulting actions will provide support for school divisions, schools, and teachers to initiate and enhance practices and policies at the board, school, and classroom levels that will address the tenets of ESD and encourage sustainable practices at all levels. Another aspect of the strategic plan is the development of material to assist provincial curriculum writers in the incorporation of education for sustainable development principles into all curricula as they are renewed.
93. Learning for a Sustainable Future (LSF) works to advance ESD in all areas of education, one of which is through working with schools to implement a whole-school model. In this model, the schools use sustainability as an integrating context for teaching and learning, decision making, civic engagement, community partnerships, and campus practices. LSF's role in the setting up of an ESD school includes engaging and motivating staff, students, administration, and the school community; facilitating collaborative decision making; enhancing teacher development through extensive relationship building and modelling; creating opportunities for meaningful action projects; and measuring and documenting impacts and outcomes.

94. Postsecondary institutions have also embraced the whole-institution approach to sustainable development. The colleges and institutes have taken on the challenge of sustainable development, with 50 (as of May 14, 2010) having signed a *Pan-Canadian Protocol for Sustainability* developed by the Association of Community Colleges of Canada. The signatory institutions agree to undertake a number of actions, including:
- establishing a sustainability policy and institutional plan that tracks progress;
  - incorporating the principles and best practices of sustainability in corporate documents and reports;
  - integrating the principles of sustainability within the curricula;
  - incorporating sustainable practices in procedures and operations;
  - working collaboratively with governments, business, and the community to develop and implement joint strategies to move society toward sustainability.

The Canadian College Environmental Network connects educators, students, employers, and programs to facilitate communication, information sharing, and collaborative action on education, training, and research among the college environmental programs and with outside partners.

95. A few examples of projects in colleges and institutes across Canada include:
- The *Greening of Nova Scotia Community College* is a multilayered vision that involves the construction of environmentally friendly buildings, the creation of ecologically themed curricula, and the development of leading-edge environmental knowledge and sustainability practices. The college has recently added a two-year diploma program called Energy Sustainability Engineering Technology, focused on creating sustainable buildings.
  - Camosun College in British Columbia incorporated an *Energy Project Charter* as part of the college's corporate mandate; developed a strategic communication plan; conducted awareness surveys with staff, faculty, and students; and held a campus-wide sustainability event.
  - Aurora College in Northwest Territories has installed a hybrid system to generate power for its own research institute.
  - At Red Deer College in Alberta, Leadership in Energy and Environmental Design (LEED) concepts were integrated into building design and overall campus planning. A Green Campus task group was created to explore campus-wide initiatives such as transportation alternatives, recycling programs, and numerous energy and water conservation initiatives.
96. Universities have also been active in "greening" their institutions. Through the Knowledge Infrastructure Program, federal and provincial governments are investing more than \$4 billion in building and improving research and teaching infrastructures at

postsecondary educational institutions across the country. Making reference to the UN Decade of Education for Sustainable Development, universities are using some of this funding to ensure that they reduce their carbon footprint. For example, at the University of British Columbia, they have chosen to renovate, rather than replace, deteriorated buildings. The University of Calgary is building a cogeneration plant and implementing a campus-wide energy performance program that will save millions in annual energy costs and significantly reduce carbon emissions. Universities in the Atlantic region are using the funding for retrofitting and renewal projects that will improve energy efficiency, through reducing consumption and, in some cases, using alternative sources.

97. In its document *Horizon 2012: Development Directions for Laval University*, this Quebec City institution addressed the issue of governance and sustainable development. The statement established objectives and strategies aimed at promoting sustainable development, promoting physical and mental health for members of the university community, improving living conditions for students and for the entire university, and ensuring quality services for students. At the University of Alberta in Edmonton, in the context of the UN Decade of Education for Sustainable Development, an Office of Sustainability was created and worked with faculty and students on a sustainability initiative. This began with a sustainability audit, which identified best practices and challenges. Projects such as retrofitting lighting, are underway. The University of Waterloo in Ontario is expanding and renovating facilities for the Faculty of Environment with a “green” building that will serve as a demonstration site for environmental teaching and learning.
98. The British Columbia Working Group and Network on Sustainability Education, Walking the Talk, is part of ESD Canada, described above. It is a multisectoral, collaborative working group and network, funded by Environment Canada, Learning for a Sustainable Future, and the BC Ministries of Education and Advanced Education and Labour Market Development. The group undertook research to track how postsecondary institutions were responding to the requirement that all government institutions in BC be carbon neutral by 2010, what actions they were taking, and the challenges they faced. At the time of the research (2009), all institutions interviewed had taken some steps to becoming carbon neutral, and they were at various points in the process of becoming sustainable. Financing was the greatest challenge they faced. The results are published in *Taking Action: British Columbia’s Universities and Colleges Respond to Greenhouse Gas Reduction Targets Act*.
99. ENvironnement JEUnesse is a network of young people engaged in environmental issues in Quebec. It is a not-for-profit organization that focuses on educational activities, both formal and informal, in educational institutions and businesses. One of the organization’s projects is the awarding of the environmental certification of a Quebec Green Cégep (Cégep Vert du Québec). Through a structured process, the cégep establishes an action committee focused on the environment and made up of members

from all parts of the institution. An environmental policy is written, action plans put in place, funds dedicated to environmental interventions, training and support provided by ENvironnement JEUnesse, and projects undertaken. Certificates are awarded at four levels, with progress made through increased numbers of projects and training.

100. In May 2010, the 4th Conference on the Eco-Development of Educational Institutions in Quebec was held, welcoming delegates from school boards, cégeps, and universities. Created by the Association québécoise pour la promotion de l'éducation relative à l'environnement (Quebec Association for the Promotion of Environmental Education), the event combines two key elements of eco-development. The first embraces management aspects such as air quality, water usage, energy efficiency, and waste management. The second looks at the development of an environmental culture that supports awareness raising and education about the environment and integration of the environmental issues into academic activities.
101. The concept of involving entire institutions and schools in education for sustainable development and sustainability practices is growing across Canada. In some cases, the concept reflects a government policy adopted by departments or ministries, including education, and then by school boards, postsecondary institutions, and individual schools. It may also be a support and recognition program at the ministerial level — or the initiative may come from the school division or institution. In some cases, the focus is on operations and infrastructure; in others, course content, teaching and learning, and the approach to education are changed.

## Quality Assessment and Enhancement Systems

102. As with all educational change, the monitoring of progress and improvements is an essential component of the process. In many of the above descriptions of curricular and pedagogical integration of education for sustainable development, learning outcomes related to sustainable development principles have been highlighted. This section provides a few examples of particular tools and research from ministries of education and the nongovernmental sector.
103. The Ontario Principals' Council, the Catholic Principals' Council of Ontario, and l'Association des directions et directions adjointes des écoles franco-ontariennes (Association of Principals and Vice Principals of Franco-Ontarian Schools) jointly has issued a list of student knowledge, skill, and attitude outcomes for environmental education. Samples of outcomes listed under each heading include:
  - Knowledge
    - understand the resources of the earth — particularly soil, water, minerals, and air, their characteristics, and their roles in supporting living organisms;

- be aware of the characteristics of human societies and the impact of each on the natural environment;
  - understand the process of urbanization and the implications of deruralization;
  - appreciate the interconnectedness of political, economic, environmental, and social issues in the present world.
- Skills
    - develop problem-solving skills and critical and curative thinking skills, including the ability to reason and apply logic, to recognize and apply abstract patterns, to identify connections and relationships between ideas and issues, and to test ideas against new information and against personal experience and beliefs;
    - work toward a negotiated consensus when there are different points of view;
    - recognize the need to incorporate an environmental perspective in decision-making models.
  - Attitudes
    - appreciate the resilience, fragility, and beauty of nature and develop respect for the place and function of all living things in the overall planetary ecosystem;
    - appreciate that human life depends on the resources of a finite planet;
    - become mindful of perspectives other than their own and be prepared to modify their ideas and beliefs when appropriate, such as a respect for First Nations, Métis, and Inuit concepts of knowledge.
104. In 2008, a pilot study was undertaken by the International Institute for Sustainable Development (IISD) and the Province of Manitoba, to measure people’s understanding, attitudes, and behaviour concerning sustainable development and education for sustainable development. The research included both adult and student populations. In January 2008, surveys were mailed out to a random sample of 5,000 households with a 10 per cent return, weighted to reflect the demographic composition of the province as a whole. The results indicated quite high levels of knowledge and generally favourable attitudes toward sustainable development. Reported sustainable behaviours had lower response rates. The results can be applied to the design of a more precise measuring tool.
105. The student survey was sent to grade 6, 8 and 9 through 12 students in three school districts — a “convenience” sample based more on ease of access than on the development of a statistical sample. The students did not show as strong a knowledge base as the adults, but progression between the grades was demonstrated in both knowledge and attitudes. However, there was a significant drop in positive behaviours, with younger students more likely to behave sustainably. The results are published in

the document *Measuring Knowledge, Attitudes and Behaviours towards Sustainable Development: Two Exploratory Studies*.

106. Based on what was learned from these two studies, the questionnaire has been refined and a new study is underway that uses a statistically fairly representative sample of grade 10 students from across Manitoba. The results of this study are to provide a baseline of what Manitoba students know, believe, and do about sustainability. IISD will repeat the survey toward the end of the UN Decade of Education for Sustainable Development to test whether ESD activities in the province have led to significant changes in the understanding and choices of young people.
107. The innovation and leadership committee of the nongovernmental organization ESD Canada has prepared an assessment rubric as a way of evaluating ESD projects and programs. Categories address issues such as goals, partnerships, transferability, scalability, innovation, and leadership.
108. The Canadian Parks and Wilderness Society and the Sierra Club of Canada, BC Chapter, released a document on *Measuring the Success of Environmental Education Programs*. The document looks at using outcomes-based evaluation and processes for evaluating such difficult factors as behaviour change and benefits to the environment, as well as including a tool kit, a checklist, and sample evaluations.
109. With the launch of the United Nations Decade of Education for Sustainable Development, evaluation was recognized as an essential component of the implementation strategy. UNESCO established a Monitoring and Evaluation Expert Group to advise on appropriate monitoring mechanisms for assessing global progress in the implementation of the DESD and to assess UNESCO's own contribution to the implementation of the DESD. The Expert Group recommended that three evaluation reports be published during the decade. The first, *Review of the Contexts and Structures for Education for Sustainable Development*, was released in 2009 and focused on the context and structures of work on ESD in UNESCO Member States; the second, to be released [Authors: ok?] in 2011, is to highlight the processes and learning initiatives related to ESD; and the third is to present the impacts and outcomes of the DESD. Canada is represented in the Monitoring and Evaluation Expert Group by Dr. Alex Michalos of the University of Northern British Columbia and Brandon University. The group is charged with the design of the information-gathering instruments and preparation of these reports.
110. The quality assessment and evaluation systems for education for sustainable development are found largely in the learning outcomes in the curriculum documents, although some broader research is being undertaken to assess progress in knowledge, skills, and attitudes.

## ESD in Non-Formal and Informal Learning

111. Examples of how ESD is included in non-formal and informal learning in Canada are plentiful — whether provided by governments, nongovernmental organizations, or the private sector. Often, all three groups are involved. Educational programs and public awareness campaigns are provided for adults, families, and children and young people in schools and in communities. This section of the report highlights only a very small portion of the learning opportunities available, highlighting a variety of providers, topics, and approaches.

### Provincial, Territorial, and Municipal Governments

112. *One Simple Act* is a Government of Alberta public information and education program that supports and inspires Albertans to lead more environmentally friendly lifestyles. It provides help with saving energy, reducing waste, and conserving water by providing information and resources to motivate action at home, at work, in communities, and at school. The *One Simple Act* Web site offers stories for newsletters, posters for bulletin boards, how-to guides, and tools for calculating personal and workplace travel emissions.
113. The guide for Alberta's *One Simple Act at Work* outlines a seven-step process for change that starts with the formation of a green implementation team. Actions for each step are detailed, and a set of worksheets is provided. When completed, the worksheets can become the workplace green plan. To supplement the guides, a green purchasing guide and a list of over 100 possible actions is available online.
114. The New Brunswick government provides communities and organization with financial assistance for action-oriented projects with tangible, measurable results aimed at protecting, conserving, and enhancing the province's natural environment. In 2010–2011, over \$1.3 million has been awarded for general public, professional, and school education programs, publications, and displays. Here are some of the funded projects:
- Fort Folly First Nations to install signage explaining the traditional, medicinal uses of native plants and the importance of biodiversity and ecosystem health;
  - Bathurst Sustainable Development to operate a climate change action centre providing information about climate change, energy efficiency, and reducing greenhouse gas emissions, as well as to recognize the International Year of Biodiversity by mobilizing individuals to take action and provide programs for the public in order to make positive changes to address climate change;
  - The Cape Jourimain Nature Centre to develop a provincial information hub on small-scale renewable energy;

- Partners for Youth to continue their “Enviromania” program, in which youth explore habitats and develop conservationist attitudes as they gain an understanding of the intricacies of environmental balance.
115. The City of Charlottetown in Prince Edward Island has developed an *Integrated Community Sustainability Plan*, created in consultation with the community, to provide directions for the achievement of sustainability objectives for its environmental, economic, social, and cultural dimensions. The vision statement demonstrates a broad sustainability focus, and the goals and action plans list activities in all four domains that emphasize public involvement, consultation, education, and awareness.
116. In cooperation with the Yukon Department of Education, the Association of Yukon Communities is managing a four-year project that focuses on strengthening governance, partnerships, and institutions; protecting the environment; and building healthy and safe communities. The training is offered to municipalities and to First Nations to develop their ability to maintain their existing and future infrastructure and governance arrangements.

### **Federal Government Examples**

117. The Government of Canada also offers non-formal and informal learning opportunities related to sustainable development. Departments of the federal government provide education for sustainable development for students and adults through seminars, awareness raising, displays, and other approaches, involving museums, parks, media, and outreach activities.
118. Environment Canada’s Biosphère, is an environment museum located in Montreal, Quebec, but with a national mandate, which features exhibitions, guided tours, activities, and animated programming. Visitors can explore and learn about the environmental issues facing the planet, including climate change and air quality. The Biosphère has developed unique and innovative educational programs that inform Canadians about the importance of reducing their greenhouse gas emissions and encourage them to do their part to protect the environment. It recently developed and tested two new educational programs to help youth and young adults craft SD projects. One initiative provided training, mentoring, and logistical support for young workers who proposed and created SD projects for their workplaces; the other helped 13- to 17-year-olds who were trained and supported in the launching of community projects. The latter is to be part of a Biosphère exhibit in the summer of 2010.
119. Since 2007, the Biosphère has developed a series of thematic videoconferences on climate change and clean air to reach young people in schools across Canada. Students can talk directly to the specialists, view live presentations and activities on climate change, and ask questions about how greenhouse gases are formed and what students

can do to minimize them. Approximately 7,000 students have benefited from these events. The Biosphère has developed a videoconference on biodiversity, *Variety Is the Spice of Life*, which helps students understand the importance of biodiversity and the pressures exerted on the natural environment. Two new videoconferences include *Drop by Drop*, about water and *One World, One Planet*, about responsible consumption.

120. Another way in which Environment Canada's Biosphère is supporting ESD is through a series of BioKits aimed at encouraging families to explore natural areas and urban landscapes. The Urban BioKit encourages participants to discover biodiversity in Canadian cities such as Montreal, Halifax, and Edmonton. Through its pages, participants explore the sights, sounds, smells, and various species that can be found near their homes and in their neighbourhood parks. Complementary to the Urban BioKit is the Nature BioKit, which offers participants an opportunity to explore biodiversity in the wilderness and to learn about such things as carnivorous plants and species at risk. Two site-specific BioKits have been developed — one for the Cap Tourmente National Reserve and the other on Île Sainte-Hélène, where the Biosphère is located.
121. Other programming for families includes the film *X-treme Weather*, with footage of extreme weather events in Canada and the rest of the world, their impact and link with climate change, and ways to be prepared and protected. The exhibition entitled *U-TURN — Toward Sustainable Transportation* looks at the impact that personal vehicles have on the environment and public health — and at alternative forms of transportation. Interactive zones are set up around a dissected automobile; with parts spread out to help visitors better understand the ecological footprint of a car.
122. The *Retire Your Ride* program helps Canadians recycle their older, higher-polluting vehicles and make sustainable transportation choices, leading to reduced air pollution and greenhouse gas emissions. The program is being delivered by Summerhill Impact, a national not-for-profit organization, using a network of local delivery organizations, incentive partners, and recyclers. The program includes a strong educational component, to increase older vehicle owners' awareness and understanding of the environmental impacts of their vehicles. It also encourages more environmentally friendly transportation choices and ensures that all retired cars are recycled in an environmentally sound way.
123. Parks Canada, responsible for Canada's national parks and historic sites, is another federal government department that offers programs related to sustainable development. One example of a citizen science program in action is underway in Kejimikujik National Park and National Historic Site in Nova Scotia (Keji). Keji has established strong participatory monitoring programs that generate important information while facilitating opportunities for hands-on activities for both visitors and local residents. One such program is the Keji Quest, which provides grade 4 students

with curriculum-linked nature activities or programs, including pre-visits to participating schools, on-site activities in the park and monitoring plots, and post-visit follow up. Teachers are encouraged to have students continue monitoring changes in their environment through activities such as Leaf Watch and Ice Watch. The program has involved almost 1,000 students over the past two years and is directly tied to curriculum.

124. Another Parks Canada initiative is at the Palisades Stewardship Education Centre at Jasper Park in Alberta. The centre offers a cohesive education program with week-long education sessions, complemented by videoconference engagement before and after the field visit, to build appreciation for, and understanding of, nature and national parks for secondary school students from across Canada. The centre provides three full-credit courses in stewardship of protected land, winter travel, and water experience, as well as the enrichment of curricula in biology, geology, geography, history, wildlife studies, Aboriginal studies, and outdoor education. Other non-formal and informal programs in recent years include a New Canadians program in partnership with Outward Bound Canada, a Quebec exchange program, a long-distance secondary school bike trip, a forensic science field day, and a youth environmental leadership summit.
125. The Canadian Museum of Nature in Ottawa has a Green Legacy exhibition that looks at the ecological, cultural, and economic values of plants. Some aspects of the display highlight how Canada's identity is linked with the plants that define the regions and create a sense of place. The displays also presents a board game in which the players take the roles of endangered native plants and explains the multiple uses of plants and their travels through time and space.
126. Transport Canada's ecoTECHNOLOGY for Vehicles (eTV) program helps reduce the environmental impacts of transportation by working in partnership with Canadians, governments, and industry to identify and mitigate market barriers to innovative passenger vehicle technologies in Canada. As part of this responsibility, Transport Canada undertakes a number of outreach and education activities to encourage more sustainable passenger vehicle transportation choices. The eTV Web site provides comprehensive information about new clean vehicle technologies, including technology articles, test results, and video resources. The ecoTECHNOLOGY for Vehicles program also attends public events to demonstrate new technologies and provide information about clean vehicle options. In addition, eTV is working in collaboration with the Canadian Science and Technology Museum Corporation to develop an EduKit resource tool and virtual education program to be used by secondary school teachers to incorporate information about sustainable transportation into curricula.
127. Transport Canada's ecoMOBILITY program aims to reduce emissions from the urban passenger transportation sector by helping municipalities attract residents to less polluting forms of transportation. The program also supports an information network

that provides information and tools to transportation practitioners and decisions makers on how to reduce emissions from urban transportation. A third Transport Canada program, ecoFREIGHT, aims at reducing the environmental and health effects of the freight industry by promoting the adoption of new and existing sustainable innovation technologies, best practices, and the use of alternative sources of energy.

128. In 2008, Natural Resources Canada established the Consortium Dedicated to the Sustainable Development of the Bioeconomy to exchange information and knowledge among practitioners and others interested in the sustainable design of new bio-based industries. Information is exchanged using a listserv, and webinars are hosted in which experts address the most frequently asked questions. The webinars are open to all and typically have an attendance of between 50 and 100 people from across the country. The subjects have included: new development in life cycle assessments; agricultural sustainability issues and approaches; forestry sustainability issues and approaches; ways to include the social dimension; clean energy projects involving First Nations; and a discussion of tools and databases. All webinar documentation is available on request.
129. *National Science and Technology Week (NSTW)* furthers education in sustainable development with activities, events, and resources designed to raise awareness among Canadians, especially young people, about science and technology and how they impact communities and society. In 2009, activities centered on the theme of Exploration and Discovery: Past, Present and Future (including contributions from the International Year of Planet Earth). Natural Resources Canada and the federal Science and Technology Cluster managed the national scope of the week, with 222 participating organizations and 176 events across Canada. The NSTW was launched from the International Space Station by Canadian astronaut Dr. Robert Thirsk. NSTW festivities have taken place nation-wide for almost 20 years, with participation from government, industry, and not-for-profit and academic organizations.
130. The Office of Greening Government Operations (OGGO) was created in April 2005 within Public Works and Government Services Canada to accelerate the greening of the federal government's operations. OGGO provides advice and guidance on a wide range of greening activities (such as green procurement, electronic waste management, and sustainable buildings) and supports the development of policy and performance management related to these activities. The Government of Canada's *Policy on Green Procurement* applies to the procurement of goods, services, and construction across all stages of the procurement process, from planning and acquisition through use, maintenance, and disposal. The policy strives to enable government to procure, operate, and dispose of its assets in a manner that protects the environment and supports sustainable development objectives. Education is an important avenue to help green government purchases and, among other courses, OGGO has developed an online Green Procurement training course for federal government employees through the Canada School of Public Service. OGGO also promotes the exchange of information

through the Green Procurement Forum, which brings together over 60 federal government departments and agencies.

131. Within the Office of the Auditor General of Canada, the Commissioner of the Environment and Sustainable Development provides Parliament with objective, independent analysis and recommendations concerning the federal government's efforts to protect the environment and foster sustainable development (SD). Positioning SD within its environmental, social, and economic framework, the commissioner released a discussion paper, *Managing Sustainable Development*, to build awareness and support a dialogue with senior federal government officials about how sustainable development practices and techniques can be put into practice. The study contains examples of practices and analytical techniques that can help address the challenges of SD implementation.
132. The Canadian International Development Agency has funds that are earmarked for public engagement tied to international development. Some of the projects can be seen as facilitating sustainable development goals:
  - Youth against HIV/AIDS focuses on the HIV/AIDS pandemic with an emphasis on how it is affecting sub-Saharan Africa, particularly its female population. Through this project, students from Vanier College, Montreal, are inspired to offer sustained support and take informed action to support Canada's development efforts. The student make presentations about World AIDS Day, develop a Web site on HIV/AIDS, attend and provide training workshops, and get training and a better understanding of the pandemic through a visit to Malawi.
  - Energy and Poverty Reduction: Twenty-two municipalities in British Columbia are encouraged to reduce their energy footprint through a variety of public education initiatives. The municipalities are to be educated about the link between energy, consumption, poverty, and development, partly through an educational tour by experts in these issues from countries in the southern hemisphere.

### **Nongovernmental Organizations and the Private Sector**

133. YOUCAN is one of the many nongovernmental organizations involved in education related to sustainable development. YOUCAN is a non-profit organization specializing in youth-led methods for non-violent conflict resolution. The peace builder program is offered in schools and communities for children and young people, as well as providing restorative-approach training for educators and community members. The *Inside the Walls* program is designed for prisons to help inmates incorporate conflict resolution skills into their lives and relationships. Training modules on cross-cultural conflict resolution, peer helping, peace circles, and active peace building are available.

134. The Foundation for the Study of Processes of Government in Canada is a non-profit organization that fosters understanding among young Canadians of the roles and functions of Canada's three levels of democratic government while also promoting awareness of the meaning of Canadian citizenship. In week-long sessions, participants are given opportunities to learn about governance, democracy, and citizenship; meet with influential figures in public life; and exchange with and learn from other students from across Canada.
135. Inspiring citizens, organizations, and governments to make choices that are fair and that respect interdependence and the ecology is the goal of Équiterre, a non-profit organization that focuses on building society. Équiterre provides solutions through its results-oriented projects, its awareness raising, and its research. Projects are in agriculture, transportation, business, energy, responsible consumption, and the fight against climate change. One research project looked at identifying the most effective strategies to encourage consumers to make responsible choices in food purchases. Another initiative provides a certificate in ecological horticulture for businesses.
136. The Quebec-based Program in Environmental Education and Citizenship uses the Action Research for Community Problem Solving approach to help people solve problems in their communities that involve the physical, bio-physical, and social environments. The problems might be violence, bullying, pollution, vandalism, energy wastage, and poverty. The program is available for all levels of education and adults and has been featured in a National Film Board film, *Hope Builders*.
137. Through projects such as a Youth Ecology Club and sustainable living programs, Ecology North, based in Yellowknife in Northwest Territories, supports sound environmental decision making on individual, community, and regional bases. The Youth Ecology Club offers learning for youth 7 to 14 years old about the land, local ecology, and ways to live more lightly on the land. Activities with adults include workshops on energy efficiency, a sustainable living fair, a rent-a-plate service so that organizations do not have to use disposable items for their events, and tours of energy-efficient premises.
138. The Bedeque Bay Environmental Management Association in Prince Edward Island is a not-for-profit organization with a mission to provide opportunities and direction for citizens of the area to conserve and enhance their environment through planning, education, partnerships, and projects. The activities focus on soil erosion, water quality, natural habitat conservation, climate change, and public awareness. The water monitoring, education, and outreach program helps community members better understand aquatic ecosystems and take responsibility for preserving these resources through environmental stewardship. The program also provides curriculum-based materials and a specially designed program for the Mi'kmaq Confederacy of Prince Edward Island, a First Nations alliance.

139. In New Brunswick, the Falls Brook Centre is a sustainable community demonstration and training centre that strives to promote exemplary sustainable practices in forestry and farming. The core of the work is community development through the creation of social and economic benefits to community members while also not harming the environment. This is achieved largely through educational programs for audiences in Canada and abroad. Community forums, case studies, and youth engagement projects, as well as extensive in-school programs and the development of resources, all support the mission.
140. The David Suzuki Foundation, led by the well-known scientist, works with government, business, and individuals to conserve the environment by providing science-based education, advocacy, and policy work. The Foundation's top goals are protecting the climate, transforming the economy, protecting nature, reconnecting with nature, and building community. There is a renewed focus on public engagement, enhanced by educational programs on how to eat for a healthy planet, reduce carbon footprints, and create green workplaces.
141. Learning for a Sustainable Future has a youth action program called EcoLeague™— Linking Education to Action. The goals are:
- to challenge and empower students to take action on sustainability issues that directly affect them, so that they can create more sustainable communities;
  - to assist teachers in meeting curriculum expectations through engaging in sustainability-focused learning activities;
  - to engage community organizations and volunteers to work with schools in understanding the issues and supporting their action plans.
142. The private sector company BC Hydro provides resources for teachers and also sponsors extensive youth and family programming. The Super Science Club is an after-school program for students from inner-city schools targeting at-risk children. Pitch-In BC is a volunteer-driven program in BC communities that encourages recycling, composting, stream and community clean-ups, and energy efficiency. BC Hydro also supports Green Kids Inc, a non-profit live theatre group dedicated to environmental education for young people through performance. The group has toured shopping malls in BC and Alberta.
143. ECO-Cell, a cell phone recycling program, and the Toronto Zoo collaborate with over 90 other zoos, aquariums, and wildlife institutions in educating visitors and the public about the negative impact of the growing cell phone industry on wildlife, particularly gorillas and their habitat in Africa. ECOexecutives is a new program championed by the Toronto Zoo that consists of a series of one-day sustainability workshops for executives of small- and medium-sized businesses. The workshops focus on improving or developing a green approach to business that increases what is called the triple bottom line of people, planet, and profits. The zoo has also set up a Ways of Knowing

Partnership through the Turtle Island Conservation program. The team brings together keepers of traditional knowledge, Elders, and community members to establish community needs in conservation, promote the value of traditional knowledge, and develop an awareness of traditional Aboriginal knowledge among non-Aboriginals.

144. Conferences provide opportunities to link education for sustainable development to the particular themes and interests of the host organization. An illustration of this is the 2010 international conference being organized by the Canadian Association for Prior Learning Assessment (CAPLA) with the theme of innovative assessment practices to support sustainable development. The practices and purposes of prior learning assessment and recognition (PLAR) are viewed through the lens of sustainable development as PLAR seeks to reuse and recycle transferable skills and past learning in the same way that people approach environmental sustainability.
145. As shown in this section of the report, non-formal and informal education for sustainable development is offered throughout Canada by government departments and agencies, non-profit organizations, foundations, associations, and the private sector in a wide range of settings and formats for children, young people, families, and adults. The programs are most often focused on the environmental aspects of sustainable development, although there are some that address social issues. Economic aspects of sustainable development receive less attention.

### **ESD Implementation as a Multistakeholder Process**

146. The final section in this chapter on the promotion of sustainable development through formal, non-formal, and informal learning looks at the essentially collaborative nature of education for sustainable development. The projects described above have included illustrations of the involvement of multiple groups in their planning, delivery, and assessment. In this section, the focus is on civil society stakeholders and how they work together with governments, each other, and the private sector to advance understanding of sustainable development and issues related to sustainable development. The five Canadian Regional Centres for Expertise for Education on Sustainable Development and their activities are presented, followed by descriptions of many of the provincial and territorial working groups that are part of ESD Canada. The work of the Canadian Commission for UNESCO, in concert with its many partners, highlights the pan-Canadian nature of multistakeholder collaboration.

### **Governments and Civil Society**

147. Manitoba Education provides an example of partnerships and collaboration that strengthen and expand its reach and effectiveness. Among its key partners are Ducks Unlimited, the Manitoba Forestry Association, the International Institute for Sustainable Development, Learning for a Sustainable Future, the Canadian Council on Learning, the

Manitoba Education Research Network, and Manitoba Hydro. Manitoba Education co-chairs the Manitoba Education for Sustainable Development Working Group and supports the ESD work of the Manitoba Teachers' Society, the Manitoba Association of School Superintendents, the Manitoba Association of School Business Officials, and the Manitoba School Boards Association. The department is also collaborating with the Manitoba First Nations Education Resource Centre to create a culture of education for sustainable development in First Nations schools and to have the resource centre advise Manitoba Education on Indigenous perspectives to be integrated into curriculum documents.

148. The development of the *Prince Edward Island Strategy for Healthy Living*, with its emphasis on public education and action, demonstrates another broadly collaborative approach. Among the departments involved were Education, Community and Cultural Affairs, Agriculture, Development and Technology, Attorney General, and Health and Social Services. Provincial school boards, education associations, federal and municipal government departments, university departments and institutes, regional health authorities, health associations and alliances, and workers' and seniors' groups were all part of the consultation. The mission of the strategy reinforces its collaborative development as it seeks to work through its partners to collectively encourage and support Islanders to take measures to address the common risk factors that contribute to chronic disease.
149. In another example of groups working together, the Alliance of Natural History Museums of Canada is celebrating the International Year for Biodiversity with educational activities at different venues to explore questions about biodiversity, how it is lost, possible solutions, and the roles museums can and should play in helping stem the loss of biodiversity. Fifteen institutions, such as the Yukon Beringia Interpretative Centre, the Vancouver Aquarium Marine Science Centre, the Royal Tyrrell Museum in Alberta, the Prince of Wales Northern Heritage Centre in Northwest Territories, and Montreal's Botanical Gardens, are offering an impressive diversity of programs, displays, and activities for all ages.

### **Regional Centres of Excellence for Education on Sustainable Development**

150. Five Regional Centres of Expertise (RCE) for Education on Sustainable Development Designations have been awarded from the United Nations University Institute of Advanced Studies. The centres are in Toronto, Montreal, Sudbury, Saskatchewan, and Vancouver. An RCE is a network of existing formal, non-formal, and informal education organizations aiming to deliver education for sustainable development to a region or local community. RCEs aspire to achieve the goals of the UN Decade of Education for Sustainable Development by translating its global objectives into the context of communities.

151. The members of RCE Saskatchewan include postsecondary institutions, the Craik Sustainable Living Project, Regina Eco-Living Inc., the Royal Saskatchewan Museum, L.A.M.B. Environmental Education and Consulting, the provincial telephone company, and municipal governments. The goal is transformative education that promotes sustainable lifestyles and livelihoods. Two cross-cutting themes — sustaining rural communities and education approaches for regional ESD — focus the educational activity in concert with six thematic issues:

- climate change;
- health;
- farming and local food production, consumption, and waste minimization;
- reconnecting to natural prairie ecosystems;
- bridging cultures for sustainable living and community development;
- building sustainable infrastructure, including water and energy conservation.

A recent initiative is the creation of an inventory that identified projects, researchers, and schools involved with ESD. The Craik Sustainable Living Project, one of the RCE members, has offered seminars on waste reduction, rural development alternatives, and a school program on climate change. In addition, meetings and conferences about ESD have been organized by the RCE.

152. In Sudbury, Ontario, the RCE involves the Sudbury District Health Unit for Active Living, EarthCare for the Natural Environment, the Social Planning Council for Civic Engagement, and the Greater Sudbury Development Corporation for Economic Growth. The RCE's activities are based on four pillars of sustainable development: active living and healthy lifestyle; natural environment; civic engagement and social capital; and economic growth, which are also part of the *Healthy Community Charter*. The Sudbury RCE has been active in promoting the International Year of Biodiversity with an action plan that provides a comprehensive way to address risks to plant and wildlife habitat. The plan was developed in consultation with the community.

153. The Toronto RCE is a forum for sharing information and forging partnerships in the delivery of programs in sustainable development. Among the partners are postsecondary institutions, the Toronto District School Board, the Toronto Regional Conservation Authority, Citizens' Environment Watch, Educational Alliance for a Sustainable Future, and Environment Canada. The aim is to integrate local sustainability challenges into formal, non-formal, and informal education in the Toronto region. The RCE undertook the development of a baseline inventory on ESD research, training, and programs. A gap analysis revealed that resources were lacking in the ESD content areas of poverty alleviation and peace studies.

154. The Montreal RCE was recognized in 2008. Its membership includes the City of Montreal; I.C.I. Environnement, which is a network of 16 postsecondary institutions

active in science, technology, environmental engineering, and sustainable development; the Biosphère; and the Montreal School Board. The RCE has conducted an inventory of ESD projects initiated by members and providing an eco-leadership program.

155. In 2009, the Montreal RCE and the Biosphère hosted the 4th World Conference of the United Nations University and Global Regional Centre of Expertise Network. Over 150 international delegates discussed key issues related to the RCEs and next steps for the network, including its role in celebrating the International Year of Biodiversity. The Sudbury RCE has been proactive in promoting the International Year of Biodiversity with the recent launch of its Biodiversity Action Plan, which provides a comprehensive way to address risks to plant and wildlife habitat. The plan is one way to engage the community, help prevent biodiversity loss, and raise awareness about the importance of biodiversity and ecosystems to health and well-being. It was developed in consultation with the public and is viewed as a “living” document whereby the community continues to have the opportunity to provide their input.
156. In January 2010, Walking the Talk, the British Columbia Working Group and Network on Sustainability Education received formal designation as the new United Nations Regional Centre for Expertise for Education on Sustainable Development for the British Columbia (North Cascadia) region. The new RCE was officially launched in May 2010, with the goal of continuing its work to make the last half of the DESD a continued success in its region.

### **Provincial and Territorial ESD Working Groups**

157. Most of the jurisdictions have a working group that is dedicated to education for sustainable development and that is also a member of ESD Canada, described above. Activities of the working groups are highlighted in other chapters; the emphasis here is on providing examples of multistakeholder structures and on describing how this allows them to undertake a wide range of initiatives.
158. The Sustainability Education Alliance of New Brunswick has a steering committee that consists of the Conservation Council of New Brunswick, Energia Inc., Learning for a Sustainable Future New Brunswick, the New Brunswick Department of Education, and Nature New Brunswick, as well as a very large group of participant organizations. Among its members are Business New Brunswick, Healthy Families Healthy Communities Association, the New Brunswick Lung Association, the Union of New Brunswick Municipalities, the Fédération des jeunes francophones du N.B., the Atlantic Canada Association of Science Educators, and the Maliseet Nation Conservation Council, in addition to many others from universities, the community college, schools and school districts across the province — and groups concerned with conservation.
159. The alliance has outlined an action plan with goals that reflect the UNECE strategy, which are aimed at developing and maintaining collaborative efforts by all stakeholders

involved in sustainability education in New Brunswick. At the alliance's March 2010 conference, the progress of the teams who have been working to achieve these objectives was highlighted. The policy team has developed a draft green schools policy and is discussing this with the Department of Education. The schools team has been setting up teacher contacts in each school and developing sustainability education workshops to be presented on professional development days. The community action team has been developing an online resource list of materials applicable to communities. The regional forum team has established regional forums in six regions across the province to link schools, youth, and community groups and to support them in working toward local sustainability projects. A number of sustainability education action projects have resulted from these forums.

160. Sustainability Education in Nova Scotia for Everyone (SENSE) is a group of organizations, businesses, and individuals dedicated to the promotion of ideas and practices that will help Nova Scotia become sustainable. Over 150 members are drawn from governments, school boards, teachers, as well as community, industry, and nongovernmental organizations. The initiatives have included the following:

- Network meetings: SENSE holds quarterly face-to-face and teleconference meetings around the province for mutual learning, sharing, and organizing.
- Sustainable development resource directory: SENSE is developing an online directory with hundreds of resources already available.
- Schools and facilities greening: SENSE is working with schools to green facilities management and operations and develop a standardized process for responsible facilities management.
- Atlantic Canada Sustainability Initiative: Using the framework developed by The Natural Step, the initiative works with community groups, businesses, and municipalities on sustainable planning.
- Sustainability Education Symposium: The 2010 Green Roots Symposium, organized by the Nova Scotia Departments of Education and Environment and SENSE, had the theme of community action on sustainability, education, and partnerships. Sessions looked at moving ESD forward in Nova Scotia, a Mi'kmaq concept of two-eye seeing as a guiding principle for sustainability, and a celebration of the SD work done by community groups.

161. The vision for ESD Alberta is that the global community sees Alberta as a safe, just, and economically viable society that protects and enhances earth's systems. The organizations involved in ESD Alberta include Alberta Education, Alberta Environment, Alberta Council for Environmental Education, Asokan Project, Carbon Busters Inc., Human Rights City (Edmonton), City of Edmonton, EcoCanada, Global Education Network, the Pembina Institute, the University of Alberta, and many concerned individuals. Four subgroups are active in ESD, with an impact statement and a logic model prepared for each one:

- The impact statement for lifelong learning for sustainability outlines the group’s model of community-centred education, in which people create spaces to work together to build healthy, vibrant, safe, and sustainable communities.
  - The impact statement for sustainability leaders underlines the fact that leadership in the fields of peace, social justice, and sustainable living is developed through mentorship, education, and involvement initiatives at all levels of society.
  - The logic model for sustainable communities works toward Alberta communities embracing sustainable living — positing outcomes such as designers, developers, and renovators being trained to implement sustainable building designs.
  - The organization’s subgroup is developing workshops for pilot organizations, to support them in implementing practices and policies to model sustainability, and then delivering the workshops across Alberta.
162. The Prince Edward Island Sustainability Network was established through the cooperation of the Department of Education and Early Childhood Development; the Department of Environment, Energy, and Forestry; and the Model Forest Partnership Ltd., in partnership with Learning for a Sustainable Future, Environment Canada, and Manitoba Education. The group is in the early stages of development and is focusing on raising the profiles of ESD and the network so they are more visible to decision makers. The vision of the group is for all Islanders to integrate the principles, values, and practices of sustainable development into their everyday activities, to create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations.
163. In Newfoundland and Labrador, the steering committee has been expanded, and efforts continue to be made to form a working group. Working with the Department of Education, the steering committee has hosted a one-day workshop for school district leaders to examine how ESD is already part of the school system and to outline next steps. A series of regional meetings are planned as precursors to forming the group.
164. The purpose of the Nunavut Education for Sustainable Development Working Group is to provide advice and direction to the Departments of Education, Economic Development and Transportation, and the Environment, as well as to their partner organizations, in order to create opportunities at all levels to educate the people of Nunavut for a sustainable future. One of the group’s objectives is to develop an action plan for promoting public awareness and broad community education, as well as specific, school-based initiatives, in addition to providing a forum for discussing challenges and concerns and sharing best practices. The work plan has a very strong community-based focus.

165. The mission of the Education Alliance for Sustainable Ontario (EASO) to provide a forum for collaboration and leadership to advance education for thriving, diverse communities and ecosystems. The alliance has been particularly active in working in the formal education sector, providing professional development workshops on ESD-integrated programs with the Ontario Teachers' Federation and the Association des enseignantes and enseignants franco-ontarian and partnering with faculties of education to advance the inclusion of ESD in teacher education programs. Learning for a Sustainable Future has been working in consultation with the Ministry of Education to develop a resource for teachers called *Connecting the Dots*, intended as a practical guide to using environmental and sustainability themes to integrate learning; the guide is in English and French. In informal learning, EASO has been working with the Toronto and Region Conservation Authority on a pilot project called EcoCentre, a certification and standards program similar to Ontario EcoSchools, described above, designed for educational centres.
166. The Manitoba Education for Sustainable Development Working Group (MESDWG) was the first to be set up as a pilot in 2005 and established the framework for the other groups created across the country. Manitoba was also a partner, with Environment Canada and Learning for a Sustainable Future, in the establishment of the National Education for Sustainable Development Expert Council (now ESD Canada). MESDWG membership now includes school divisions, postsecondary institutions, government representatives, Manitoba Hydro, the International Institute for Sustainable Development, the Manitoba First Nations Education Resource Centre, the Centre for Indigenous Environmental Resources, educators' associations, Youth Encouraging Sustainability, the Manitoba Forestry Association, LP Canada Ltd., and other groups.
167. Five committees have identified strategies and priorities to guide their work:
- Youth engagement: A youth engagement workshop attracted more than 40 organizations and groups. An ESD internship for youth and an ESD leadership program at universities and colleges are action items for the future.
  - Aboriginal education: An ESD Initiative workshop was held in 2010 in northern Manitoba in order to present information on projects already operating for ESD, to discuss approaches for ESD project development, to create a plan-of-action framework, and to consider next steps.
  - Teacher education: The team consulted with Manitoba Education on the new grade 12 course on Global Citizenship and Sustainability, which has been outlined above.
  - ESD measurement: The research reports undertaken by IISD and Manitoba Education have been described above.
  - ESD partnerships: The first in the Educate the Educators Series 2010 was held to facilitate learning opportunities and sharing in the environmental education community.

## The Canadian Commission for UNESCO

168. The Canadian Commission for UNESCO has members and partners from across Canada at all levels of government, in professional associations, in academic institutions, and in civil society, who provide support for, and active contributions to, its work of achieving the ideals of UNESCO, including the implementation of the Decade of Education for Sustainable Development.
169. A continuing activity of the Commission is the coordination of the celebration of International Adult Learners' Week (IALW) in Canada. A collaborative effort involving the Commission, ministries of education, and partners from across the country, this event focuses on the successes of learners and on adult learning as a tool of democracy and against poverty. In Canada, IALW has a particular theme each year. In 2008, it commemorated the 60th anniversary of the Universal Declaration of Human Rights and the right to education and learning. In 2009, it was linked with the upcoming Sixth International Conference on Adult Learning (CONFINTEA), which had the theme of Living and Learning for a Viable Future — The Power of Adult Learning. For 2010, IALW was linked to the CONFINTEA VI *Framework of Action*, which called for equal access to education for all people, as inclusive education is fundamental to the achievement of human, social, and economic development. As part of the IALW celebrations, the Commission annually prepares a magazine-style publication, thousands of copies of which are distributed across Canada. It is also available on the Web site.
170. The Commission continues to give priority to the development of the Associated Schools Project (ASPnet) in Canada. Fifty-two schools now belong to the Network, with innovative pedagogical approaches adopted through social justice activities, twinning with schools in the southern hemisphere, and pilot projects on such topics as peaceful conflict resolution, environmental protection, prevention education to fight drug use, physical education, and the promotion of cultural diversity. An example of an ASPnet project is a poverty walk held in Winnipeg that involved 12 ASPnet schools and 600 students at all levels of the public and private systems. The students collected one ton of non-perishable food for donation to the local food bank. Another ASPnet school focused on food safety and planned projects around poverty, climate change, violence, and human rights, which included fundraising for a project in Bolivia. An ad hoc committee is now at work on an action plan for strengthening the network at the national level. Networking has also started between the ASPnet schools and Biosphere Reserves.
171. Each year, the Commission sponsors the Canadian Commission Award for Science for Peace and Development for an outstanding student at the Canada-Wide Science Fair. The award recognizes science in the service of humanity, including science concerning basic human needs, the environment and sustainable development, peace and conflict

resolution, science education, or science and ethics. The winner of the award is able to participate in Expo-Sciences Internationale, organized to promote youth engagement in science.

172. Biosphere Reserves are key instruments within UNESCO's Man and the Biosphere Programme. Canada has 15 biosphere reserves in eight provinces, featuring a variety of ecosystems from the Atlantic to the Pacific Coast. The Biospheres are established to explore the reconciliation of economic development, social development, and environmental protection through partnerships between people and nature. Local people and organizations are central to the establishment and functioning of each Biosphere as it provides support for research, monitoring, education, and information exchange related to local, national, and international issues of conservation and development. The Canadian Biosphere Reserve Association is a member-based, non-profit organization, which provides coordination for the Biosphere Reserves. Federal government funding for the Reserves and the association of \$5 million over five years supports environmental monitoring, the promotion of sustainable tourism, the facilitation of sustainable agriculture, public awareness campaigns on sustainable development, and the promotion of sustainable development activities.
173. Human rights receive considerable attention in the Commission's work. The 48th Annual General Meeting of the Commission, with 200 attendees, was structured around the theme of Rights and Responsibilities: New Challenges for Learning and Action. The Commission has worked with Journalists for Human Rights to prepare a training package for human rights educators, has encouraged the development of the Canadian Coalition of Municipalities against Racism and Discrimination as part of the international network of UNESCO, and played a role in organizing the Northern Aboriginal Seminar with the theme Aboriginal Perspectives on the Universal Declaration of Human Rights.
174. The Commission also participated in a number of events linked to the Decade of Education for Sustainable Development. As a partner in the World Youth Conference, Regeneration 2008, the Commission presented workshops on the differences between countries' environmental needs and the right to a quality education. The Commission was an official supporter of the Choose the Future — Education for Sustainable Development Conference in 2008 and a member of the executive board made a presentation on current trends in ESD research. Working with a Montreal theatre and dance group and many other partners, the Commission supported a project called Célébrons la biodiversité (Let's Celebrate Biodiversity), in which 700 children from disadvantaged communities were introduced to issues of biodiversity.
175. On a continuous basis, the Commission collaborates with partners and the members of its Sectoral Commissions to promote UNESCO's Conventions, recommendations, decades, years, and projects. Through meetings, conference presentations, sponsorship of and involvement in events, and cooperative initiatives, the Canadian Commission for

UNESCO has been working since 2005 with government and civil society to promote the Decade of Education for Sustainable Development.

176. This section has stressed the cooperative efforts of multiple partners from different sectors — government, education, civil society, the private sector — who work together on projects and plans linked to education for sustainable development. Another perspective on the multistakeholder reality of ESD is illustrated by the numerous individual NGOs, associations, postsecondary institutions, Aboriginal, environmental, and social justice groups, businesses, and many other players who contribute to education for sustainable development. Their essential roles are highlighted throughout this report.

## **Equipping Educators with Competencies in Sustainable Development**

177. The UNECE questionnaire focuses on two aspects of preparing teachers to include sustainable development in their teaching. The first spotlights pre-service and in-service training for educators and educational leadership. The second concentrates on opportunities provided for educators to cooperate on education for sustainable development. The examples of training below often combine these two elements as teachers, while being trained, are also encouraged to set up supportive networks. In addition to training for teachers, there is also training for community leaders, adult educators, corporate executives, and others who are working to adopt sustainable development practices.
178. The Nova Scotia Department of Education, working with various partners, has presented workshops to teachers, government agencies, and non-formal and informal groups on ESD in the curricula and support processes. For example, professional development in sustainable development issues for teachers is provided through its Summer Institute program. In 2010, the course offerings included:
- Sustainable forestry: This program involves sponsored tours of managed woodlands, operations, and mills developed to provide information about the forest environment.
  - Exploring social justice issues in the primary–6 classroom: These workshops look at how children’s literature, conversations, and learning experiences in a classroom (in the context of literacy learning) can be used to engage students in the work of social justice.
  - United Nations Decade for Education for Sustainable Development: This workshop focuses on ESD, with specifics structured around the subjects of the teachers’ choice. Participants match the activities with outcomes in the courses that they teach — combining environment, economy, and social justice.

- Mapping a year of healthy living: This session presents teaching and learning experiences to support the new healthy living curriculum outcomes for grades 7 to 9. Teachers are exposed to best practices and then share ideas and work together to build a curriculum map of the year ahead.

In all cases, teachers are provided with resources and materials they can use in their classroom teaching.

179. Manitoba Education supports the faculties of education in incorporating ESD in teacher pre-service training by providing ESD training for student teachers and hosting an ESD seminar for faculty members, which resulted in a committee of faculty representatives being formed to make recommendations on incorporating ESD into teacher pre-service education. In Alberta, courses related to the themes of SD are available in the faculties of education at the universities, while the University of Alberta is considering integrating ESD principles into specific course development. With revisions occurring in Quebec education, university curricula for pre-service training and in-service training offered by school boards are under revision to incorporate the new areas and approaches.
180. In-service programs by the Ministry of Education in Saskatchewan support the renewed curriculum foundation statements, discussed above, which incorporate environmental education (EE) principles into all curricula. With Ontario's revised curriculum, the principles of EE are included in the in-service training for implementation of all revised curriculum and in summer workshops offered to teachers by the Ontario Teachers' Federation in consultation with the Ministry of Education. . Principals' associations in Ontario have set up Webinars (seminars delivered over the Web) to support the implementation of the new environmental education framework that has been presented above. In addition, an online resource is offered on their Web sites, to help principals meet the goals articulated in the environmental education policy framework.
181. The Prince Edward Island Department of Education and Early Childhood Development and the PEI Sustainability Network are partnering with the Atlantic Canada Association of Science Educators to host the association's 2010 annual conference, with ESD as the theme. The 2010 Atlantic Summer Institute, held at the University of PEI, concentrates on Innovation and Collaboration: Building Resilient Communities, with attention being paid to social and economic development, crime prevention and community safety, health and safety promotion, and environmental sustainability. This institute is not specifically for teachers, but is for all who lead community innovation.
182. The Ontario Teachers' Federation offers a number of Going Green Workshops in cooperation with the Ontario Ministries of Education and Natural Resources. At both the elementary and the secondary levels, the workshops enable participants to discuss various approaches to environmental education and to develop partnerships with individuals, organizations, and agencies delivering environmental education programs.

183. The Alberta Teachers' Association offers an extensive program of workshops, courses, and other professional development opportunities concerning many of the issues related to sustainable development:
- Sexual orientation and gender identity: a series of three workshops exploring the issues and everyday lived experiences of lesbian, gay, bisexual, and trans-identified students; examining prejudice, power, and privilege; and taking action to create safe schools.
  - Responding to cultural diversity in Alberta schools: This workshop explores cultural competence as an approach to examining beliefs, attitudes, policies, structures, and practices, in order to enable schools to work effectively cross-culturally.
  - Building inclusive schools: With a focus on racism, sexism, and homophobia, this workshop offers instructional strategies to build inclusive learning communities.
  - Green Street — Environmental and Global Education: This program endeavours to provide opportunities to actively engage students and teachers in environmental learning and sustainability education.
184. The Sustainability and Education Academy (SEdA) is a partnership between Learning for a Sustainable Future and the Schulich School of Business, the Faculty of Education, and the UNESCO Chair on Reorienting Teacher Education towards Sustainability — all at York University in Toronto. SEdA's Education Leaders' Seminar motivates and equips senior education officials to lead the integration of sustainability as a core value in all aspects of formal education, including policy, curriculum teaching, learning, professional development, and the sustainable management of human, physical, and financial resources. The seminar is designed for senior officials from ministries of education, school boards, and faculties of education across Canada. The seminar is also focused on creating networks that can work together in the future.
185. The SEdA Education Leaders' Seminar has been offered in Ontario and Manitoba, bringing in participants from school districts in five provinces, six ministries of education, and eight faculties of education. Twenty school divisions in Manitoba (of 37) have taken part in the seminar, and Manitoba Education has worked with York University to develop a post-SEdA ESD kit and guide so that alumni can provide ESD training in their school divisions. At the SEdA in October 2010 in Manitoba, it is hoped that six more Manitoba school divisions will participate, as well as delegates from the Manitoba First Nations Resource Centre and from Yukon. Saskatchewan is now planning to provide sustainability education for senior administrators through SEdA in early 2011.
186. Extensive professional development in ESD and SD is also provided by nongovernmental organizations. The Canadian Network for Environmental Education and Communication

(EECOM) is a national, bilingual network for environmental education and communication that works with provincial groups and multiple sectors to support and develop competency in educators, communicators, learners, and consumers and to build capacity for environmental learning and sustainability. EECOM facilitated the establishment of, and continues to provide financial support for, the annual *Canadian Journal of Environmental Education* and *Éducation relative à l'environnement : regards, recherches, réflexions*. It also produces bimonthly electronic newsletters in English and French.

187. EECOM, with several partners, offers leadership clinics to build capacity within provincial, regional, and national environmental learning organizations. The clinic provides an intensive focus on organizational and leadership skill development for environmental learning professionals, with opportunities for the exchange of information and ideas and the development and refining of action plans.
188. The Alberta Council for Environmental Education also provides leadership clinics that are attended by teams from participating organizations. Each team identifies a goal before the clinic and commits to implementing the plan after the clinic, with time during the session given to the creation of an action plan for the achievement of the goal. Team members help to design the agenda of the clinic to be sure that it meets their needs, choosing such topics as the latest research, organizational development, and effective program design and evaluation.
189. A special hands-on ESD workshop was designed for students from Brandon University's Northern Teachers Education Program, featuring an immersion approach to understanding ESD by bringing the students to a provincial park in Manitoba. The workshop was supported by the Manitoba Model Forest and organized by the Manitoba First Nations Education Resource Centre, Brandon University, and the West Region Tribal Council Resource Management Office. The students interacted with First Nations Elders, environmental specialists, and the logging industry, learning about the Ojibway worldview of the forest and traditional teachings and sustainable logging practices. The student teachers were expected to follow up on the workshop by developing lesson plans about the things they had learned — to be published and distributed to First Nations schools surrounding the park.
190. EcoSource is an Ontario-based environmental education organization serving youth, adults, and families, which partnered with York University to offer professional development courses in whole-school approaches to educating for sustainable development. The course looked at SD and ESD, Indigenous perspectives, leading and managing change, and new policies and practices in Ontario.
191. Educators at the Canadian Parks and Wilderness Society in southern Alberta provide professional education workshops for teachers, environmental educators, corporate

groups, and youth workers. Topics include biology in a session on grizzly bears, endangered species, the design of five-minute field trips, and encouraging action and commitment.

192. LEAD Canada, the Canadian affiliate of Leadership for Environment and Development International, is offering a professional development program for people interested in leadership training in sustainable development. The training is available to mid-career professionals from any sector and involves 20 days of education over an 18-month period.
193. The Association of Canadian Community Colleges has created a networking site hosting affinity groups. The affinity groups comprise individual members of the college community who share a similar position, a similar sector focus, or some other common interests and come together to share ideas, best and worst practices, advocacy concerns, and any other topics. Among the affinity groups are those focusing on the environment and electricity/renewable energy, as well as the World Federation of Colleges and Polytechnics affinity group, which focuses on environmental sustainability and renewable energies.
194. As highlighted in the introduction to this paper, Canada is a member of the United Nations Economic Council for Europe (UNECE) Expert Group on Competencies in Education for Sustainable Development, which has been mandated to prepare general recommendations for policy makers and a range of competencies in ESD for educators. Among the 19 members of the group, Dr. Léonard Rivard, Dean of the Faculty of Education at the Collège universitaire de Saint-Boniface, represents Canada. In addition to his work on the UNECE report on teacher competencies for ESD, to be released in 2011, Dr. Rivard is active in related activities in Canada. His presentation to the Association of the Canadian Deans of Education led to the sponsoring of a joint session with the Canadian Association of Teacher Education at the annual meeting of the Canadian Society for Studies in Education in May 2010 on teacher competencies for education for sustainable development. Dr. Rivard also reported on the activities of the Expert Group to the Western Association of Deans of Education and has been regularly informing the Council of Ministers of Education, Canada, and the Manitoba Deputy Minister of Education, Gerald Farthing, who is the Canadian member of the UNECE Steering Committee on ESD.
195. The UNESCO Chair in Reorienting Teacher Education towards Sustainability is held by Dr. Charles Hopkins, at York University in Toronto. Dr. Hopkins is active both nationally and internationally, presenting at conferences and workshops, meeting with associations, deans of education, government officials, and other stakeholders to explain, encourage, and support the integration of ESD into education and teacher training. For example, Dr. Hopkins has been meeting with the presidents of the core subject teachers' associations in Ontario (history, science, mathematics) to discuss the possible roles and contributions

of their subjects in ESD and the formation of special interest groups in the associations to investigate this.

196. Dr. Hopkins has also worked with Dearness Environmental Society, a not-for-profit organization providing environmental education and services to schools, communities, and businesses in Ontario. Dr. Hopkins and the society worked with school boards in Ontario to bring about a shift in culture to greener environment. Dr. Hopkins is involved in the development and delivery of the SEdA leadership program for ESD, and his presentations for these programs are being recorded by Dearness.
197. Internationally, Dr. Hopkins has developed the International Network for Reorienting Teacher Education towards Sustainability, building over the last few years from one teacher training institute in 30 countries to networks of three, four, or more institutions in 60 countries. The work of the network has expanded from research to both research and implementation, to bring about change in response to the *Bonn Declaration*.
198. Training for teachers and other professionals involved in education for sustainable development is delivered by ministries, school boards, teacher associations, universities, not-for-profit organizations, and many other groups, using classrooms and active learning and often developing networks of educators as a consequence. As in every other chapter in this report, the examples presented are a small portion of the myriad opportunities available.

## Tools and Materials for ESD

199. Three questions need to be asked regarding the tools and materials for education for sustainable development: (1) Are ESD resources produced? (2) Do quality-control mechanisms exist? and (3) Are the resources available? The response to each of these questions is positive. As the same bodies are often responsible for two or three of these functions, the information is organized according to provider — beginning with governments and then detailing some of the contributions of nongovernmental organizations. The majority of the materials support the environmental aspects of sustainable development, although many other resources are also available.
200. The guides and frameworks provided for sustainable development by the British Columbia Ministry of Education have been described above, all of them accessible through the Green Schools Web site created for educators. A *Green Schools Newsletter* was created in 2009, which covers sustainability initiatives at the ministry, school district, and school levels, as well resources for teaching and sustainable action. For example, the April 2010 issue highlighted the new ministry documents, the initiatives of the Campbell River School District, and resources available from Youth 4 Action, including a list of print materials, online videos and links on sustainability.

201. Most jurisdictions have a process by which materials related to learning outcomes, including those for education for sustainable development, are authorized according to standard evaluation processes, in order to ensure that the resources meet specific criteria. For example, the criteria used by Alberta Education include factors such as congruence with curriculum, quality instructional and technical design, recognizing diversity, promoting respect, a preference for Canadian content, and the integration of valid Aboriginal content. Print and digital learning and teaching resources are authorized as basic or support resources. The basic resources, with their associated instructional materials, are available in French and English, while support materials are available in French or English. They are all accessible from the authorized learning and teaching resources database.
202. In jurisdictions across Canada, materials are closely reviewed for bias, and resources for ESD are subject to the same process. In Nova Scotia, the document *Bias Evaluation Instrument* explains the learning resource assessment process and the assessment criteria used for evaluating bias related to belief system, appearance, ability/disability, family structures, gender, ethnocultural background, and socioeconomic status. This instrument is for educators, consultants, teachers, administrators, librarians, curriculum writers, and publishers so that they can review learning resources for use in public schools. Nova Scotia is also planning an ESD-specific Web site for all grades.
203. All jurisdictions have tools and materials related to ESD on their resources lists. Information on a wide array of environmental education and ESD materials and opportunities available to New Brunswick teachers is provided through two online Department of Education sites: Greening Our Schools and Écoles Vertes. The secondary school science portal offers more links to, and resources for, ESD-related outcomes in the curriculum.
204. Resources produced by other government departments are also available to teachers, such as in Nunavut, where sources include the Departments of the Environment; of Culture, Language, Elders, and Youth; and others. The Department of Education provides resources online, especially those linked with the new Language Arts program, on topics such as peace. As the new curriculum is developed, additional ESD resources will be developed. In Northwest Territories, the Department of the Environment and Natural Resources provides links to educational activities and to an extensive list of organizations that provide educational resources, such as Climate Change North, Parks Canada, Wild Education, EcoKids, the Canadian Forestry Association, Environmental Education North, and Environment Canada.
205. In Prince Edward Island, the Department of Education and Early Childhood Development is leading an interdepartmental ESD working group of government departments. One of the tasks is the identification of ESD-related resources that can be reviewed and possibly

used to support the ESD curriculum. Saskatchewan has recently held two sessions with ministry personnel to provide background about ESD, to identify specific opportunities in the curriculum where ESD key knowledge themes can be addressed, and to begin the development of a scope and sequence of ESD-related learning outcomes to be used by curriculum writers to infuse ESD into the renewed curriculum.

206. Manitoba Education has developed a bibliography, *Learning Resources for Education for Sustainable Development, Kindergarten to Grade 12: A Reference for Selecting Learning Resources*. Manitoba and other Canadian provinces worked with Learning for a Sustainable Future to review learning resources and identify high-quality and relevant materials that support ESD. The review process focused on both quality and curriculum match. As well as dealing with multiple dimensions of sustainability, the materials must include activities or lesson plans and be a good fit with some age-appropriate curriculum expectation.
207. The Ontario Ministry of Education has prepared a publication entitled *Ready, Set, Green: Tips, Techniques, and Resources from Ontario Educators*, to support effective environmental education in Ontario schools by providing practical tools and strategies that educators have shared and which can be put to use in boards, schools, and communities. Future resources include the online availability of EE projects and best practices that have been developed at the school and board levels with funding from the ministry. The ministry is currently developing a further edition of *Ready, Set, Green: Tips, Techniques, and Resources from Ontario Educators* based on more recent practices and projects.
208. Memorial University in Newfoundland and Labrador has produced the *St. John's Sustainable Living Guide*, which is the product of a class project for a geography graduate course concerning the conservation and sustainability of natural resources.
209. Environment Canada offers a wide array of tools and materials for both elementary and secondary education, as well as community and youth groups. Lesson plans, teachers' guides, and supplementary resources can be found online, as well as suggested activities and links to museums, speakers, networks, and training.
210. Available free of charge from the Government of Canada, the RETScreen® Clean Energy Project Analysis Software is a clean energy decision-making software and instrument to promote sustainable development. RETScreen is available in 35 languages and has over 250,000 users around the world. Training is an integral feature, not only on how to use the software itself, but also on clean energy more generally. The training can range from a single lecture to a two-semester course. The training materials include webcasts, presentation slides, instructor notes, case studies, assignments, solutions, and a Clean Energy Legal Toolkit. More than 270 universities and colleges worldwide use RETScreen for teaching and research, to facilitate good decisions related to clean energy, and as a

means of global knowledge sharing and capacity building regarding sustainable development. RETScreen was developed by Natural Resources Canada's CanmetENERGY Research Centre in Quebec in collaboration with several partners, including the National Aeronautics and Space Administration's Langley Research Center in Virginia, the United Nation's Environment Programme's Energy Unit in Paris, and the Renewable Energy and Energy Efficiency Partnership in Vienna.

211. Natural Resources Canada has developed a video about oil sands processing and the work being carried out at its CanmetENERGY research centre in Alberta, to find solutions to the environmental challenges associated with developing this resource. The video was developed for National Science and Technology Week 2009 for teachers in and around the city of Edmonton, Alberta. Over 500 copies were distributed via partners and by CanmetENERGY researchers, who visited schools. The video, as well as numerous other resources, is available online.
212. Transport Canada has worked with the Canadian Science and Technology Museum Corporation to develop resources for use in schools. The EduKit helps secondary school teachers incorporate information about sustainable transportation into their teaching, and a virtual school program complements the curriculum with supplementary information, lessons, and activities about sustainable transportation.
213. Many of the provincial and territorial governments, along with many other partners, also provide some support for the work of nongovernmental, environmental, and community organizations, which produce and offer educational resources for ESD.
214. Green Street/Ma rue verte, supported by the McConnell Family Foundation, the Canadian Teachers' Federation (CTF), and the Centrale des syndicats du Québec (CSQ), offers environmental education programs that are credible, pre-screened, and curriculum aligned. It also provides a platform on which teachers and students can exchange ideas and collaborate on projects of mutual interest, along with project funding to encourage student engagement at the level of the school and the local community.
215. Green Street has developed *Benchmarks for Excellence in Environmental Learning and Sustainability and Student Engagement*, in order to determine which programs are listed on its site. The criteria for inclusion set standards for themes of interest; program design and content; pedagogical methods; mechanisms for long-term impact; and marketing, communications, and evaluations. Green Street supports programs that actively engage youth in environmental stewardship and has expanded its program themes to include broader issues related to environment and sustainability. Green Street used the implementation scheme for the UNDESD to expand its list of themes, which now includes:

- biodiversity
- climate change
- ecosystems
- energy
- water
- lifestyles and sustainable consumption
- food and agriculture
- peace and human rights
- human health and the environment
- governance and citizenship
- sustainable urbanization and transportation
- Indigenous and local knowledge

216. The groups that support Green Street/Ma rue verte have other links to ESD as well. The Centrale des syndicats du Québec (CSQ) has been mentioned above in relation to the Brundtland Schools. The Canadian Teachers' Federation (CTF) has recently published *Acting Sustainably, Living Peacefully*, a document that develops the link between peace and the environment and includes activities that explore solutions at the international and regional levels to achieve harmony and balance between peace and the environment. The document is supported by a Web site that houses all the necessary tools for the teacher to effectively deliver the activities.
217. GreenLearning is a resource for teachers interested in trends affecting students' future well-being and helping students gain a more holistic and hopeful understanding of complex energy and environmental challenges. The resource addresses conservation, ecosystems, energy, and the quality of life and alternative futures. GreenLearning is provided by the Pembina Foundation for Environmental Research and Education, a charitable organization. The Pembina Foundation promotes public education and information, as well as the research, development, and production of educational materials and programs that assist formal and informal educators in school, adult, and community education.
218. Resources for Rethinking (R4R) is a free, online database of peer-reviewed, curriculum-matched teaching resources (available from Learning for a Sustainable Future) that support active, interdisciplinary learning about key environmental, social, and economic issues. R4R features over 660 print, electronic, and audiovisual resources published by not-for-profit, government, and educational organizations. Teachers have reviewed the materials before inclusion. The database can be searched by sustainability theme, grade, subject, jurisdiction, and language.
219. Green Teacher is a non-profit organization that publishes resources to help educators (both inside and outside schools) promote global and environmental awareness among young people from elementary school through secondary school. The organization's

primary activity is the publication of *Green Teacher*, a quarterly magazine with ideas from successful green teachers. Five resource books have also been issued on *Greening School Grounds: Creating Habitats for Learning*; *Teaching about Climate Change: Cool Schools Tackle Global Warming* (also available in French); and a series of three books on teaching green for primary, middle, and senior grades.

220. In Quebec, the Centre REP'ERE — Ressources pédagogiques en éducation relative à l'environnement (pedagogical resources related to the environment) is linked to the Canada Research Chair in Environmental Education at the University of Quebec at Montreal. The centre offers a variety of services, including an extensive resource collection of almost 3,000 monographs, periodicals, teaching kits, games, videos, and CDs linked to environmental education. It also provides consulting and training, organizes events, and produces environmental education materials.
221. The mandate of the Canadian Environmental Literacy Project is to develop open-access curriculum materials in support of teaching environmental studies in universities, colleges, and secondary schools in Canada. The focus is on materials that address Canadian issues within local, regional, and international contexts. The project's Web site offers a searchable database, in addition to links to other organizations that house information on environmental issues and a list of environmental studies programs at postsecondary institutions.
222. Targeting elementary schools, EcoKids is a free, environmental education program that offers curriculum-linked materials and activities. The Web site is designed for children, families, and educators with information that encourages children to form their own opinions, make decisions, and get involved. The topics include wildlife, the North, land use, waste, Earth Day, climate change, First Nations and Inuit, and renewable energy.
223. Ducks Unlimited has a particular focus on waterfowl and wetlands. The organization offers curriculum-based wetland and environmental education programs for students of all ages. Project Webfoot presents lesson plans, resources, games, and contests for children inside and outside classrooms and expands these offerings with others for parents, landowners and farmers, researchers, media, outdoor enthusiasts, and sportspeople. Green Street/Ma rue verte, along with some private company sponsors, supports Ducks Unlimited Canada in providing free environmental education programs to schools across Canada.
224. Sierra Club Atlantic's environmental education program was running in Nova Scotia during the 2009–10 school year to raise understanding and appreciation of environmental issues and action. The core philosophies of the program include bringing people together, connecting with the earth, empowerment, and education by doing.

225. Climate Change North is an educational Web site operated by the Northern Climate Exchange at Yukon College. Climate Change North has been created by northerners for northerners with:
- materials developed with Aboriginal content and advice;
  - lesson plans developed by northern teachers and educators;
  - lessons clearly linked to learning outcomes in Yukon, Northwest Territories, and Nunavut;
  - backgrounders filled with northern examples and images;
  - a user-friendly format for computer beginners.
226. The Web site of the Alberta Council for Environmental Education is set up to describe programs and services for all audiences — whether youth, adults, community groups, or children in school — and any organization or service. It provides information about environmental education organizations, teaching resources, presentations, workshops, and events. The site can be used to search for relevant materials and activities; promote organizations, materials, and events; and network with peers and find partners.
227. Taking IT Global is a non-profit organization that enables a collaborative learning community primarily for youth between the ages of 13 and 30, featuring an online community and educational resources. Under its listing of issues, which include environment, human rights, health, peace and conflict, and globalization, Taking IT Global provides links to organizations, publications, blogs, policies, statistics, and news. For educators, it offers the opportunity to participate in a community of global educators, as well as access to resources such as *Tread Lightly — A Secondary School Resource for a More Sustainable Future* and *GRUB — Youth Perspectives on Food Choices and Food Systems*.
228. Museums, parks, and other natural-science locations provide a rich array of programs and resources for teachers, as well as children and families. The Royal Saskatchewan Museum features school programming about First Nations traditions, earth sciences, and life sciences. For example, the ecosystem lab introduces students to human impacts on Saskatchewan environments and the need to balance resource use with conservation. The Living Prairie Museum in Winnipeg, Manitoba, offers programs for children and adults, which can take place at the museum or in the classroom. One of these programs looks at the tall grass prairie, its diversity, and its present plight.
229. An important source of visual materials on ESD is the National Film Board of Canada (NFB), the public film producer and distributor. Using its extensive inventory, the NFB has created playlists of materials covering many environmental themes. One is called *Footprints: The Environment and the Way We Live*, and it lists the films that document relationships between environmental questions and the social and cultural lives of Canadians. Other playlists bring together films on anti-racism, Canada's diverse cultures,

peace, nationhood, and racism in the workplace. Teachers' guides are published to provide links to the curricula in each province, assessment options, and pedagogical strategies.

230. In a recent National Film Board initiative in partnership with the Canadian Commission for UNESCO, two playlists have been devised to celebrate the International Year of Biodiversity and the International Year for the Rapprochement of Cultures in 2010. The films can be downloaded from the NFB Web site, shared in electronic newsletters or e-mails, embedded on blogs, and shared through Facebook and Twitter. The NFB also provides a platform for discussing the films and the issues they raise.
231. This fairly lengthy chapter on produced, available, and assessed resources that support teaching and learning about sustainable development presents only a selection of the materials provided and the organizations involved. Ministries and departments of education produce, finance, contribute to, assess, and make available a vast selection of materials tied to the learning outcomes linked to the issues subsumed under sustainable development. Nongovernmental organizations may have many of the same roles. Some, such as Green Street/Ma rue verte and Resources for Rethinking, define their themes very broadly and include materials that have been reviewed by educators. Others, such as Ducks Unlimited and REP'ERE, focus on environmental resources — and a few of the examples provided, including Climate Change North, have both a subject and geographic focus. Regardless, all of the groups, and many more, provide tools and materials to support teaching and learning related to sustainable development.

## ESD Research and Development

232. Research about, and development of, education for sustainable development are the subjects of numerous questions from UNECE, which examine content, support, postgraduate programs, dissemination of results, and support for innovation and capacity sharing in ESD. It is difficult to respond to each of these questions separately, as, in many cases, the same institutions and bodies are involved in research, development, and dissemination. This chapter is organized in such a way that it examines a few examples of how ESD-related research is approached, beginning with the important role of postsecondary education and looking at both research institutes and a few studies. The roles of some of the UNESCO Chairs in Canada related to sustainable development are presented, followed by some of the work of nongovernmental organizations and the federal government.
233. The Association of Canadian Community Colleges (ACCC) has published two reports that focus on the roles of colleges in innovation. In 2009, *Colleges, Institutes and Polytechnics: Accelerating Innovation, Productivity and Competitiveness* showcased the work of colleges, institutes, polytechnics, and cégeps in applied research and

development. Among the key topics were renewable energy; natural resources and environmental science and technology; building technology; and health, medical, and life sciences. Topics linked to SD include air quality, wave power, living lab for green sustainable building design; and residue reclamation and green energy production.

234. In 2010, the second ACCC report, *Partnerships for Productivity and Advanced Skills: The Role of Colleges in Canada's Innovation System*, revealed a substantial growth in college involvement in applied research over the past four years, with increases in private sector funding, specialized research centres, dedicated applied research divisions, and applied research partnerships. Many of the research centres and specialized laboratories found in the colleges, institutes, polytechnics, cégeps, and university colleges are linked with SD practices, with 31 centres in natural resources and the environment; 21 in environmental science and technology; 20 in health, medical, and life sciences; and 17 in social innovation. A look at the areas of research, innovation, and specialization reveals extensive involvement with sustainable development:

- 53 areas of specialization in natural resources and energy, such as renewable energy, sustainable housing, and waste management;
- 25 areas of specialization in environmental science and technology, including urban development and boreal forest reclamation;
- 39 specializations in health, medical, and life sciences, including food security, nutrition, and health promotion;
- 19 specializations in social innovation, with projects on justice, social economy, and rural economic development.

235. The Social Economy Research Network of Northern Canada brings together community partners, colleges, universities in Nunavut, Yukon, Northwest Territories, Nunavik (in northern Quebec) and Labrador in a five-year research program looking at the social economy of the North. The project has been funded by the Social Sciences and Humanities Research Council of Canada, and the grant is administered by Yukon College. Four themes guide the work of the Social Economy Research Network of Northern Canada:

- a profile of the social economy in northern Canada;
- resource regimes and social economy in the North;
- the state and the social economy in the North;
- Indigenous communities and the social economy.

236. The Nunavut Research Institute at Nunavut Arctic College is part of the network and provides leadership on the development, facilitation, and promotion of Inuit Qaujimanituqangit, science, research, and technology as a resource for the well-being of the people of Nunavut. The research topics are related to the life and needs in Nunavut, exploring ecology, sea ice, climate change, contaminants, authority and identity,

conservation, traditional knowledge, social change and Indigenous culture, access to healthy food, and violence prevention.

237. Centennial College in Ontario has established an Institute for Global Citizenship and Equity to focus on activities and research related to social justice and citizenship education at the college. The research agenda is framed around earth, fire, water, and wind, in recognition of the essential elements. Earth activities, for example, include the environment; community services; and ethnicity, culture, and identity.
238. Universities have created a number of research centres that delve into the issues connected to sustainable development. At the University of British Columbia, the Centre for International Sustainable Development Law (CISDL) promotes sustainable societies and the protection of the ecosystem by advancing the understanding, development, and implementation of international sustainable development law. CISDL fellows include learned jurists and scholars from all regions of the world and a diversity of legal traditions. The centre publishes books, articles, working papers, and legal briefs in English, Spanish, and French, as well as organizing workshops, courses, and conferences. CISDL also provides instructors and capacity-building materials for the governments of developing countries and international organizations in national and international law in the field of sustainable development.
239. The Human Rights Research and Education Centre at the University of Ottawa, in Ontario, works to further the discussion of linkages between human rights, governance, legal reform, and development; to support human rights institutions in Canada and abroad; and to engage in multidisciplinary research and evaluation in these areas. POWER (Progress and Opportunities for Women's Equality Rights) is an example of a project — a partnership including Canadian and African women's rights groups and scholars — that seeks to advance the human rights of women and girls in Africa. The centre also provides student awards to advance research, such as a research-oriented scholarship in human rights or health promotion and the George F. Henderson Human Rights Scholarship.
240. The Trudeau Centre for Peace and Conflict Studies at the Munk Centre for International Studies in Toronto engages in research to better understand peace and conflict, focusing on the links between resource scarcities and violence, sources of justice in international affairs, and the relationship between environmental stress and violent conflict. The centre has issued reports on environmental scarcities, state capacity, and civil violence in relation to the environment, population, and security.
241. The Centre for Sustainable Community Development at Simon Fraser University in British Columbia provides both teaching and research, with a focus on community mobilization. In its research work, the centre is committed to developing practical,

effective solutions for environmental, social, and economic challenges and to supporting businesses and communities in their transitions to sustainability.

242. At the University of Saskatchewan, the International Centre for Northern Governance and Development concentrates on the Circumpolar North and its relationships with northern Saskatchewan. With an emphasis on innovation, the goal of the centre is to further research, graduate training, and capacity building related to issues of governance and development in partnership with northern and Aboriginal communities, industry, and government.
243. The University of Prince Edward Island's Institute of Island Studies supports the development of progressive public policy for the province by studying the economy, culture, and environment of small islands. The institute performs agricultural research and holds public forums to consider strategies for diversifying the economy in ways that are suitable to small islands with limited resources. In the case of agriculture, this has involved using more diverse, high-end, low-volume crops that reduce soil erosion and the industrial-scale application of pesticides, which likely contribute to the province's relatively high rates of certain cancers, chronic illnesses, and birth defects.
244. Many of the UNESCO Chairs held in universities in Canada have links to sustainable development. The UNESCO Chair in Sustainable Development at Laval University in Quebec, held by Dr. Philippe La Prestre, concentrates on analyzing the sociopolitical dimensions of development, using a multidisciplinary perspective to reinforce the development of policies that integrate the environment with development. The chair is affiliated with the Hydro-Québec Institute on the Environment, Development, and Society at Laval.
245. Also at Laval University, Dr. Claude Dubé holds the UNESCO Chair in Cultural Heritage, promoting activities related to four themes: traditional crafts and knowledge; the media and heritage; cooperation and partnerships; and building public awareness about cultural heritage and the dissemination of research. Among the chair's research partnerships is one with the Économusée d'Europe du Nord, whose goal is to maintain vibrant and accessible cultural heritage in isolated regions.
246. At the University of Montreal, the UNESCO Chair in Landscape and Environmental Design focuses on the social development and cultural characteristics of landscapes and territories, targeting three areas in its research: urban landscapes, rural issues, and the environment. Each year, the Chair, Dr. Philippe Poullaouec-Gonidec, organizes a workshop that gathers students, professors, and professionals from around the world to help cities resolve problems related to city planning. These events have been held in Morocco, Tunisia, Lebanon, South Korea, China, and Japan.

247. The UNESCO Chair in Studies of Philosophic Foundations of Justice and Democratic Society is located at the University of Quebec at Montreal. Dr. Josiane Boulad-Ayoub, the Chair, seeks to bring the rigour of philosophical reflection to world problems and to make this approach more widely accessible, becoming an essential element in considerations of democracy, social justice, and the culture of peace. Conferences, publications, virtual research seminars, and discussion sessions unite visiting scholars and academics from Canadian universities.
248. A research study commissioned by the British Columbia Working Group and Network on Sustainability Education (a nongovernmental organization) investigated the involvement of linguistically and culturally diverse communities in sustainability education and described the ways community groups can collaborate to achieve this involvement. The report, *Catalyzing Collaboration: Building Culturally Inclusive Sustainability Education in Metro Vancouver*, provides eight recommendations and a model for culturally inclusive sustainability education in the future.
249. In another project that focuses on broader involvement, Green Street produced *The Green Street Guide to Authentic Youth Engagement*. The intent of the manual is to help environmental and sustainability education organizations to further their level of youth integration and engagement. The resource offers a youth engagement primer; advice on the best ways of working with youth; project ideas; worksheets, forms, and checklists for projects; and further references and resources.
250. In 2010, the International Institute for Sustainable Development undertook a study to develop an understanding of what progress has been made toward helping First Nations schools in Manitoba undertake sustainability programming and initiatives. The goal was to identify successes and challenges while developing recommendations and strategies to respond to the gaps. The report is entitled *The Decade of Education for Sustainable Development (DESD) and Sustainability Education in First Nations Schools in Manitoba*.
251. In 2009, the Canadian Council on Learning issued a document with the title *Making the Environmental Grade: The Benefits of Going Green in the Classroom*, which assessed the research on how environmental education improves overall learning. The conclusions stressed how the multifaceted nature of environmental education is a key component of its effectiveness, as it allows for the integration of many techniques connected to good education, such as critical thinking, inquiry, hands-on learning, and group work. The need for teacher professional development and support from school and school division administrators was also underlined.
252. The Canadian Council on Learning held a national symposium in 2008 on the theme of *Community Sustainability: Towards a Culture of Adult Learning in Canada*. Sessions looked at the connections between active citizenship, civil society, and governance; adult literacy and community sustainability; and rural and regional development.

253. Also in 2008, the Manitoba Education for Sustainable Development Working Group, in partnership with the Science Teachers Association of Manitoba and Manitoba Education, hosted an International Education for Sustainable Development conference. Under the theme *Choose the Future*, over 450 delegates heard speakers address 16 ESD issues, including corporate responsibility, climate change, cities of the future, ESD leadership, food security, Aboriginal perspectives, and natural resources. The proceedings were published by the International Institute for Sustainable Development as *Conference Report: Choose the Future: Education for Sustainable Development*.
254. In 2009, the Fifth World Environmental Education conference was held in Montreal with nearly 2,200 participants from 106 countries to share expertise and consolidate partnerships. The event was organized to look at the broad sweep of environmental education and to:
- promote the role environmental education plays in developing and enriching human identity and constructing more healthy individuals, communities, and societies;
  - highlight the contributions environmental education brings to social innovation by addressing socio-ecological issues and contributing to eco-development within all societies;
  - emphasize the role environmental education can play in public policy development and how public policy can strengthen environmental education.
255. The federal government has also provided research reports on sustainable development. Parks Canada produced its second edition of *Action on the Ground*, called *Action on the Ground II: Working with Canadians to Improve Ecological Integrity in Canada's National Parks*. The report highlights examples of shared stewardship from across Canada and reflects a host of creative and innovative approaches used by park team members and partners to address challenges specific to improving and maintaining ecological integrity in Canada's national parks.
256. With funding from Agriculture and Agri-Food Canada's Agricultural Bioproducts Innovation Research and Development Program, Natural Resources Canada and the Saskatchewan Flax Development Commission pilot tested the use of "The Natural Step" framework to help Canada's flax industry define what sustainable development means in their context and to develop strategic sustainability goals. The exercise was carried out with participation from stakeholders from different stages in the value chain, allowing all participants to speak the same sustainability language. The approach was shown to be both time- and cost-effective and to produce practical results. It is being recommended to other developers of new bio-based industries. The sustainability vision and goals, completed in 2009, are currently being used in the design and selection of

new value chains. The work has been presented at conferences in Canada, Belgium, and Spain.

257. Research on issues of sustainable development has been carried out by postsecondary institutions, nongovernmental organizations, and governments. Research institutes and specializations at colleges and universities address specific aspects of sustainable development and are often involved in teaching and collaboration with public and private partners. The work of the UNESCO Chairs demonstrates an international approach to sustainable development research and dissemination.

## International Cooperation in ESD

258. Cooperation between Canadian institutions and organizations and their international counterparts takes place at all levels of education, both formal and non-formal. Many of the projects receive funding from the Government of Canada through the Canadian International Development Agency. The UNECE questionnaire places particular emphasis on cooperation with the other countries in the UNECE region — and these are highlighted in the examples provided, along with projects in other regions of the world. As in all chapters of this report, the following examples present only the proverbial “tip of the iceberg” in terms of Canadian international involvement with the issues in, and education for, sustainable development.
259. *Équitas*, the International Centre for Human Rights Education, based in Montreal, is a leader in human rights education, providing training so that participants can engage more effectively in human rights education, as well as engaging in monitoring and advocacy activities. Many of those who completed the *Équitas* program then worked with *Équitas* to develop joint programs applicable to their regions — so new programs have been developed in Asia, Africa, and Central and Eastern Europe. Among current projects are human rights education capacity building in Central and Eastern Europe and Central Asia and human rights education capacity development for the European Roma Rights Centre.
260. The International Centre for Sustainable Cities is a partnership between the three levels of government, the private sector, and civil society organizations. Among the current projects are the following:
- Sustainable Cities: PLUS Network: This network is made up of over 40 towns, cities, regions, and communities in developed and developing countries in North and South America, Asia, and Central Europe. The participants share best practices, expertise, tools, and learning about long-term planning for urban sustainability.

- The Local Government Support Program: This program focuses on the development of capable and efficient local government, as well as cooperation and skill sharing across the Czech Republic, Slovak Republic, Hungary, and Poland.
261. The YMCA of Greater Vancouver offers a three-month learning and volunteer opportunity for participants aged 17 to 30 from all over the world, known as the YMCA Youth Peace Network. Participants develop skills in leadership, peace building, conflict resolution, community development, and environmental stewardship.
  262. Developed within the context of sustainability and cultural specificity, the Early Childhood Development University is essentially a capacity building program that provides training for early childhood education leadership in Africa. Created by Dr. Allan Pence, the UNESCO Chair in Early Childhood Education, Care and Development at the University of Victoria in British Columbia, the virtual university offers both a graduate degree and a certificate program. An essential principle is the use of local and traditional knowledge and making this knowledge more accessible through an online early childhood development reference tool.
  263. Natural Resources Canada is participating as an advisor and reviewer on a four-year European Union project entitled PROSUITE that was launched in the fall of 2009. PROSUITE stands for the development and application of a standardized methodology for the PROspective SUstainability Assessment of TEchnologies. Led by Utrecht University in the Netherlands, PROSUITE aims to develop a coherent, scientifically sound methodology for the sustainability assessment of current and future technologies. Four new, high-profile technologies will be studied — biorefineries, nanotechnology, multifunctional mobile devices, and carbon storage and sequestration. Natural Resources Canada will be sharing its expertise in integrated assessment to develop new tools that assess the economic, environmental, and social dimensions of technologies in a standardized, comprehensive way, and these tools will be available as free and open-source software.
  264. The Canadian Forest Service, a part of Natural Resources Canada, houses the Secretariat of the International Model Forest Network (IMFN). As a global community of practice, the members of the IMFN work toward a common goal: the sustainable management of forest-based landscapes. The IMFN is made up of more than 50 model forests and 30 member countries across five continents. Model forests are based on a flexible approach that combines the social, cultural, and economic needs of local communities with the long-term sustainability of large landscapes in which forests are important features. By design, they are voluntary processes that bring together local stakeholders with forestry, research, agriculture, mining, recreation and other interests within a given landscape. While each model forest sets its own priorities, common themes include

biodiversity, conservation, sustainable economic development, education, and good governance.

265. The Canadian International Development Agency (CIDA), an agency of the Government of Canada, funds development projects around the world. The following is a small sample of the projects that respond to SD and ESD:

- Community-based agriculture development in Tajikistan: The project is to help communities develop equitably and sustainably, increase agricultural diversity, and sustain long-term development activities.
- PRET — Opportunities for training in needed skills: This project in Sri Lanka increases the acceptance of appropriate skills development for marginalized populations, setting up sustainable vocational training opportunities to combat poverty.
- Gender and Development Fund: The goal of this project is to ensure that poverty reduction and sustainable development activities in Cameroon take into account the equal participation of women.
- Municipal Governance and Management: The purpose of this project is to strengthen effective governance and to reduce poverty through developing sustainable municipalities in Guyana.
- China Council for International Cooperation on Environment and Development: CIDA funding allows the provision of international expertise to aid this council in policy analysis and recommendations to the Government of China on environmentally sustainable development.
- The Canada-Russia Northern Development Partnership Program: Three regions in Russia were supported during policy reforms focused on improving governance systems and stimulating economic development within priority areas of youth programming, cultural preservation and development, sustainable economic development, and entrepreneurship development.

266. The projects outlined here provide a taste of the many other international collaborative efforts that are underway, with their consistent attention to providing education and opportunities for sustainable development.

## **Indigenous, Local, and Traditional Knowledge**

267. The influence and integration of Aboriginal knowledge into education for sustainable development has been highlighted throughout this report as an essential quality of ESD across Canada. This chapter highlights a few of the provincial and territorial curriculum documents and institutions that specifically address the inclusion of Aboriginal knowledge, as well as focusing on the work of some of the many Aboriginal centres and networks that concentrate on sustainable development.

268. As part of its curriculum renewal, the Ministry of Education in Saskatchewan articulated its vision for First Nations and Métis education as part of a provincial education system that foundationally places First Nations and Métis ways of knowing together with the historical, contemporary, and future contributions of First Nations and Métis peoples to create a culturally responsive education system that benefits all learners. First Nations and Métis education is to be foundational in school division plans, in reviewing and revising current policies and practices at division and schools, in all areas of program planning, and in all subject areas.
269. The Yukon Department of Education has provided teachers with the publication *Handbook 2008–2009: Yukon First Nations Education Resources in Public Schools*. The handbook provides introductory information about Yukon First Nations and about some of the First Nations education programs, services, and resources that are available. It is intended to foster the integration of First Nations culture, history, and language into the classroom.
270. The Ministry of Education in British Columbia prepared the guide *Shared Learnings: Integrating BC Aboriginal Content K–10* for use in all schools. It is organized by grade level and subject area, with each section containing Aboriginal content that is appropriate to the grades and subjects, suggestions for classroom integration, and lists of recommended and locally produced resources. The guide also includes information about Aboriginal peoples in BC.
271. Nunavut Arctic College serves a vast region in northeastern Canada with a population that is more than 80 per cent Inuit. The teaching and learning principles of the college include:
- respect and honour Inuit language and culture;
  - involve Elders as an integral part of college life;
  - promote an understanding of Inuit culture and languages;
  - value student connections to family and community.
272. Confederation College in northern Ontario includes the Negahneewin College of Academic and Community Development, a college within and throughout Confederation College that offers programs of special interest to Aboriginal students and works to integrate the understanding of Aboriginal culture throughout all full-time programs.
273. Within the policy division of the Assembly of First Nations, the Environmental Stewardship Unit (ESU) works on a broad spectrum of international, national, and regional/local environmental issues. The Assembly of First Nations is the national organization representing First Nations citizens in Canada. The ESU has a mandate to conduct research, develop policy, and advocate on behalf of First Nations, all of the

unit's work being consistent with recognizing First Nations jurisdictions over the environment and conforming to Aboriginal and Treaty rights as they relate to environmental stewardship. Many of the ESU key issues and activities pertain to education, consultation, and awareness in relation to First Nations communities. Among the initiatives are these:

- Species at Risk: One of the goals for 2010 is the development of a tool kit and publication.
- First Nation Food, Nutrition and Environment Study: A 10-year research project focusing on the safety and nutritional benefits of traditional diets in over 100 First Nations communities. It will address the issue of environmental health.
- National First Nations Environmental Contaminants Program: The AFN supports the program and promotes it within First Nations communities.
- Climate change: The ESU conducts research that looks at unique climate change impacts for First Nations, especially with respect to renewable energy and human health.

274. The Centre for Indigenous Environmental Resources (CIER) is a national, First Nations–directed environmental, non-profit organization based in Winnipeg. CIER's role is to assist First Nations with building the capacity to address the environmental issues they face, with programs relating to the specifics of taking action on climate change, building sustainable communities, protecting lands and waters, and conserving biodiversity. The CIER Web site also provides access to a collection of resources related to Aboriginal people and the environment. For the most popular topics, reading lists are already prepared, and the entire collection can be searched by topic.
275. At the Inuit Tapiriit Kanatami, the Inuit Knowledge Centre is being established to lead education and training efforts to ensure an increasingly active role for Inuit and Inuit knowledge, in order to advance sustainable Arctic science. The centre has been formed, as it is seen that, despite a recent surge of interest in Inuit perspectives and Inuit involvement in scientific research, significant challenges remain in acquiring Inuit knowledge and understanding how it can be used in policy development.
276. The First Nations Environmental Network is a national organization of individuals, non-profit groups, and First Nations actively involved in environmental issues. The network's principles include faith, honesty, caring, sharing, and respect. Through traditional Indigenous values and following the path of their ancestors, they encourage the work of protecting, defending, and healing Mother Earth.
277. The Manitoba First Nations Education Resource Centre (MFNERC) has been working to provide curriculum and project support for a quality education grounded in the local environment and community — an advancement of ESD in First Nations schools. Numerous education projects have been established that have targeted the three areas

of sustainability: environmental, economic, and social. Some of these projects have included land-based initiatives that support a traditional sustenance way of life, such as trapping and fishing. Others are tied to school gardens; cultural and traditional knowledge youth camps; First Nations language immersion; astronomy from an Indigenous perspective; community traditional names mapping; and the infusion of First Nations knowledge and culture into the curriculum.

278. MFNERC has been funded by the federal Department of Indian and Northern Affairs as a means of supporting the First Nations education system in Manitoba as it builds its capacity in ESD and as a means of engaging as an active agent for ESD at the provincial and local levels. MFNERC plans to host professional development sessions for First Nations educators, develop a funding grant program to host local ESD projects, and develop curriculum. Manitoba Education is a partner in this initiative.
279. First Nations organizations have also received funding for the Canadian International Development Agency to share their knowledge internationally — within the following programs:
- **Mayan Traditional Justice Knowledge Exchange:** This project aims to promote awareness and understanding of Aboriginal and Mayan justice practices through two series of workshops in Guatemala and Canada.
  - **A Nation Is Not Conquered:** The Native Women’s Association of Canada and Indigenous organizations in Latin America and the Caribbean are cooperating to increase the capacity of Indigenous women to participate in policy dialogue, particularly dialogue related to equality and sustainable development.
  - **Knowledge Sharing Using the Cooperative Method:** This project enables knowledge sharing between an Inuit-owned federation of cooperatives and a Chilean Aymará-owned cooperative, to improve the socioeconomic situation of their communities.
280. In addition to working with governments and organizations across Canada to share their knowledge and integrate it into sustainable development practices and education for sustainable development, Aboriginal groups are working within their own organizations to advance and protect the sustainability issues and rights of Aboriginal peoples and communities.

## Challenges and Obstacles

281. The report to this point has highlighted the wealth of diversity in education for sustainable development — in terms of topics, providers, approaches, resources, and research. However, as already mentioned, this report is in no way comprehensive. Despite the impressive quality and quantity of education for sustainable development, challenges and obstacles remain — especially in relation to the task of truly integrating ESD into education at all levels. Although considerable progress has been made in this area, much of what is called ESD remains only parts of programs scattered across the curriculum. Therefore, the enormous change capacity that could be harnessed by the full inclusion of education for sustainable development has not been fully used. Change in education is a slow and deliberate process, and the progress made needs to be celebrated at the same time as the obstacles and challenges are acknowledged.
282. The challenges presented below have been gathered from the numerous sources consulted in the development of this report, from talks with experts in education for sustainable development, and during a discussion with the CMEC Education for Sustainable Development Working Group. The challenges have been organized under the headings of terminology, educational priorities, responsibility, process of change, integration, and funding.
283. **Terminology:** Education for sustainable development faces a major challenge in terms of a shared understanding of what exactly it means and what it includes. A particular challenge is the confusion between education for sustainable development and environmental education. At its broadest, ESD represents a fundamental change in the content, delivery, and organization of education and is fundamental to both access to, and retention of students in, quality education. ESD is also often understood to be largely about the environmental aspects of sustainability — not the social or economic factors. When education is looked at collectively, all the aspects of sustainable development are often found within the content and delivery, but they are rarely treated as a unified concept. Even those who are involved in ESD have different interpretations of the scope and consequences of ESD. This confusion makes it difficult to move forward, as much time is spent on developing a shared understanding.
284. **Educational Priorities:** Educators and administrators often recognize the importance of education for sustainable development, but the priorities are literacy, numeracy, science, job skills, and other components of the system. The subject areas, whether at elementary, secondary, postsecondary, or adult levels, are already “full” of content and so the introduction of new content, perspectives, and approaches is difficult. Changes in leadership in departments or ministries of education, especially at the level of minister and deputy minister, create other challenges, as the new officials may have different priorities and ESD must be reintroduced and championed.

285. **Responsibility:** Many of the decisions relevant to education for sustainable development and sustainable development are not made at the school level but at the level of boards or divisions, or even at the level of the ministry or government bodies. This can impede the establishment of the “whole-school approach,” although many ministries are now becoming more supportive of this initiative in their own policies and funding. Responsibility can also be complicated by the scope of education for sustainable development, since it crosses many subject, policy, and administrative responsibility lines and it is not always clear where the centre of responsibility lies. In some cases, ESD is determined to be a shared, cross-departmental or cross-discipline responsibility.
286. **Process of Change:** The scale of the change in education implied by education for sustainable development — with its reorienting of existing educational models, values, and ethics — creates a challenge that is difficult to overcome. To make any change in the public education system also requires reciprocal change at the postsecondary level, especially in teacher-training institutions. Trainers of teachers would have to modify what they teach and how they teach in order to prepare teachers for the classroom. Teachers already in classrooms would require both training and support for their schools and divisions.
287. **Integration:** ESD often lacks a cohesive strategy, approach, and framework, since it is cross-disciplinary. This makes specific learning outcomes for ESD difficult to create and progress difficult to measure. The school day and postsecondary curriculum are organized in discrete subject time slots — leading to the question of where to insert sustainable development. Another question also arises: how to link ESD to other initiatives in order to more feasibly broaden education (such as integrating Aboriginal content, and perspectives, and learning through the arts).
288. **Funding:** Adequate funding for ESD is an ongoing challenge, especially for nongovernmental organizations. Without a clear mandate for, and design of, education for sustainable development, it is difficult to acquire financial support, especially in times of economic recession.
289. An additional issue related to education for sustainable development has been raised by experts at the University of Calgary — and that is the inclusion of vulnerable populations. Many groups have been the subject of this concern — including women, the economically disadvantaged, rural communities, and others and some of their concerns are addressed in ESD programs. However, one group not found in the literature or projects is the disabled. They have not been considered either in terms of the specific impacts of sustainable development that they may encounter or in terms of efforts to involve them in ESD initiatives. As a group within a culturally diverse population that is often subject to poverty, inequities, and health issues that are factors within the scope of sustainable development, people with disabilities could benefit from

ESD not only as students, but also as providers of knowledge and commitment and as participants in research and initiatives.

290. The challenges listed above can be quite daunting and can constrain the adoption of ESD within education systems. However, as this report has demonstrated, change is underway in Canada, and these challenges are being met with concerted effort and considerable success.

## Improving the Implementation of ESD

291. None of these challenges or obstacles can be overcome with quick and easy solutions. Instead, they need to be examined carefully in order for ESD to be implemented. They all require continued education, negotiation, adaptation, planning, and change at the legislative, policy, program, and strategy levels.
292. While there may be a broad understanding that the future depends, to a large extent, on all sectors of society working together to achieve sustainable development, a common value system among the many stakeholders is necessary in order to define how decisions are made and implemented. Key to such a set of values is an education system that empowers people to identify shared challenges and opportunities, to apply critical thinking to understanding the complexities, and to build partnerships in order to make decisions and take action for sustainable development.
293. In 2009, the BC Working Group and Network on Sustainability Education asked participants at their conference how a cohesive movement for sustainability education could be developed. The results of the discussion were published in a report entitled *How Sustainability Education? Solutions Summit Report, June 2009*. The report presents steps that are described as a roadmap to “education as sustainability.”
294. The BC steps to education as sustainability provide the core components of a response to the question posed by UNECE concerning what assistance is necessary to improve implementation. They have been modified here to encapsulate the suggestions and strategies put forward in other documents used in the preparation of this report:
- redesign the education system so that the principles of sustainability education are integrated into the foundations of education systems;
  - involve everyone in every sector and at every institution;
  - communicate and connect with each other, with sustainability education opponents, and with the general public to keep a transformative discourse alive;
  - collaborate and share with each other;
  - cultivate leaders and change agents;
  - develop common management and measurement processes and tools;

- develop new funding and resource strategies;
  - collectively advocate for policies that support top-down and bottom-up change within education systems.
295. This *Report for Canada* has highlighted educational policies; curriculum redesigns and revisions; program, content, and learning outcome expansions; educator and leadership training initiatives; pan-Canadian, regional, and jurisdictional collaborations; and initiatives by not-for-profit and community organizations — all of which are taking on the challenges and moving toward greater implementation of education for sustainable development in education systems and across Canada.

## Concluding Remarks

296. The UNECE *Strategy for Education for Sustainable Development* and the UN Decade of Education for Sustainable Development have had considerable impact in Canada — with direct links to the establishment of pan-Canadian working groups and the guidance they have provided for the development of policies, curriculum, resources, and programs across all sectors of education.
297. The *Reports for Canada* that have been prepared in order to report to UNECE and UNESCO concerning education for sustainable development have used examples to respond to the questions, and this approach makes any direct comparisons between the report for 2005–2007 and the report for 2007–2010 difficult. However, there are clear signs of progress — illustrated by the increase in provincial and territorial policies, curriculum frameworks, and other documents that have addressed the concepts of sustainable development and made them central concepts in education. Nongovernmental organizations are increasingly involved in program delivery, teacher training, resource development, and research. Postsecondary institutions have more programs and research that address ESD. Indigenous ways of knowing are more fully integrated into many curricula, especially regarding environmental sustainability and relations to the land. Even the greater length of the second report that has been required to provide adequate coverage of the initiatives and stakeholders involved in ESD demonstrates the increase in education for sustainable development across Canada.
298. While recognizing and celebrating the progress that has been made, it is also important to realize that much remains to be done to make education for sustainable development more comprehensively a part of education in Canada.

## Appendix – Sources Used in the Preparation of the Report

### Provincial and Territorial Departments and Ministries Responsible for Education

Alberta Advanced Education and Technology

<http://www.advancededucation.gov.ab.ca>

Alberta Education

<http://www.education.gov.ab.ca>

British Columbia Ministry of Advanced Education and Labour Market Development

<http://www.gov.bc.ca/aved>

British Columbia Ministry of Education

<http://www.gov.bc.ca/bced>

Manitoba Department of Advanced Education and Literacy

<http://www.edu.gov.mb.ca/ael>

Manitoba Department of Education

<http://www.edu.gov.mb.ca/edu>

New Brunswick Department of Education

<http://www.gnb.ca>

New Brunswick Department of Post-Secondary Education, Training and Labour

<http://www.gnb.ca>

Newfoundland and Labrador Department of Education

<http://www.gov.nl.ca/edu>

Northwest Territories Department of Education, Culture and Employment

<http://www.ece.gov.nt.ca>

Nova Scotia Department of Education

<http://www.ednet.ns.ca>

Nunavut Department of Education

<http://www.gov.nu.ca/education/eng>

Ontario Ministry of Education

<http://www.edu.gov.on.ca>

Ontario Ministry of Training, Colleges and Universities

<http://www.edu.gov.on.ca/eng/tcu>

Prince Edward Island Department of Education and Early Childhood Development

<http://www.gov.pe.ca/education>

Prince Edward Island Department of Innovation and Advanced Learning

<http://www.gov.pe.ca/ial>

Quebec Ministry of Education, Recreation and Sport

<http://www.mels.gouv.qc.ca>

Saskatchewan Ministry of Advanced Education, Employment and Labour

<http://www.aeel.gov.sk.ca>

Saskatchewan Ministry of Education

<http://www.education.gov.sk.ca>

Yukon Department of Education

<http://www.education.gov.yk.ca>

## **Departments and Agencies of the Government of Canada**

Biosphère

<http://www.ec.gc.ca/biosphere>

Canadian International Development Agency

<http://www.acdi-cida.gc.ca>

Environment Canada

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

Environment Canada Retire Your Ride Program

<http://www.retireyourride.ca>

Environment Canada's Take Action for the Environment

<http://www.ec.gc.ca/education>

International Model Forest Network

<http://www.imfn.net>

National Science and Technology Week  
Government of Canada Science and Technology Cluster  
<http://www.science.gc.ca>

Natural Resources Canada  
<http://www.nrcan.ca>

Office of Greening Government Operations  
Green Procurement Training Course  
Public Works and Government Services Canada  
<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/index-eng.html>

Office of Greening Government Operations  
Public Works and Government Services Canada  
<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/index-eng.html>

Parks Canada  
<http://www.pc.gc.ca>

Parks Canada Keji Quest  
<http://www.friendsofkeji.ns.ca/kejiquest/index.html>

Public Works and Government Services Canada  
<http://www.tpsgc-pwgsc.gc.ca>

RETScreen  
Natural Resources Canada  
<http://www.retscreen.net>

Transport Canada  
<http://www.tc.gc.ca>

Transport Canada ecoTECHNOLOGY for Vehicles (eTV)  
<http://www.tc.gc.ca/eTV>

## **Pan-Canadian Links**

Canadian Commission for UNESCO  
<http://www.unesco.ca>

Council of Ministers of Education, Canada  
<http://www.cmec.ca>

## **Nongovernmental, Non-Profit, Civil Society, and Private Sector Organizations**

Alberta Council for Environmental Education

<http://abcee.org>

Alliance of Natural History Museums of Canada

[http://www.naturalhistorymuseums.ca/iyb\\_e.htm](http://www.naturalhistorymuseums.ca/iyb_e.htm)

Assembly of First Nations

<http://www.afn.ca>

Association of Canadian Community Colleges

<http://www.accc.ca>

Association of Canadian Deans of Education

<http://www.csse-scee.ca/associations/about/acde>

Association québécoise pour la promotion de l'éducation relative à l'environnement

<http://www.aqpere.qc.ca>

Association of Universities and Colleges of Canada

<http://www.aucc.ca>

BC Hydro

<http://www.bchydro.com>

Bedeque Bay Environmental Management Association

<http://www.bbema.ca>

British Columbia Working Group and Network on Sustainability Education

<http://www.walkingthetalk.bc.ca>

Brundtland Green Schools

<http://www.evb.csq.qc.net/index.cfm/2,0,1666,9457,0,0,html>

Canadian Association for Prior Learning Assessment

<http://capla.ca>

Canadian Association of Teacher Education

<http://www.csse-scee.ca/associations/about/cate-acfe>

Canadian Biosphere Reserve Association

<http://www.biospherecanada.ca>

Canadian College Environmental Network

<http://www.eco.ca/ccen>

Canadian Environmental Literacy Project

<http://www.celp.ca>

Canadian Museum of Nature

<http://nature.ca>

Canadian Network for Environmental Education and Communication

<http://www.eecom.org>

Canadian Parks and Wilderness Society

<http://www.cpaws-southernalberta.org>

Canadian Society for Studies in Education

<http://www.csse.ca>

Canadian Teachers' Federation

<http://www.ctf-fce.ca>

Centrale des syndicats du Québec

<http://ww.csq.qc.ca>

Centre for Indigenous Environmental Resources

<http://www.cier.ca>

Centre REP'ERE

<http://www.unites.ugam.ca/ERE-UQAM/Repere/index.html>

Climate Change North

<http://www.climatechangenorth.ca>

David Suzuki Foundation

<http://www.davidsuzuki.org>

Dearness Environmental Society

<http://www.dearness.ca>

Ducks Unlimited Canada

<http://www.ducks.ca>

EcoKids

<http://www.ecokids.ca>

Ecology North

<http://www.ecologynorth.ca>

EcoSource

<http://www.ecosource.ca>

Educational Alliance for Sustainable Ontario

<http://www.sustainable-ontario.org/index.html>

ENvironnement JEUnesse

<http://www.enjeu.qc.ca>

Equitas

<http://www.equitas.org>

Équiterre

<http://www.equiterre.org/a-propos>

ESD Alberta

<http://albertaesd.ca>

ESD Canada

<http://www.esdcanada.ca>

Falls Brook Centre

<http://www.fallsbrookcentre.ca>

First Nations Environmental Network

<http://fnen.org>

Foundation for the Study of Processes of Government in Canada

<http://www.forum.ca>

Green Learning

<http://www.greenlearning.ca>

Green Street/Ma rue verte

<http://www.green-street.ca>

Green Teacher

<http://www.greenteacher.com>

Hydro-Québec

<http://www.hydroquebec.com>

International Centre for Sustainable Cities

<http://sustainablecities.net>

International Institute for Sustainable Development

<http://www.iisd.org>

Inuit Knowledge Centre

<http://www.itk.ca>

LEAD Canada

<http://www.leadcanada.net>

Learning for a Sustainable Future

<http://lsf-lst.ca>

Living Prairie Museum

<http://www.winnipeg.ca/publicworks/naturalist/livingprairie/LPMbrochure.pdf>

Manitoba Education for Sustainable Development Working Group

<http://www.mesdwg.ca>

Manitoba First Nations Education Resource Centre

<http://www.mfnerc.org>

Manitoba Hydro

<http://www.hydro.mb.ca>

Manitoba Model Forest

<http://manitobamodelforest.net>

The J. W. McConnell Family Foundation

<http://www.mcconnellfoundation.ca>

National Film Board of Canada

<http://www.nfb.ca>

Ontario EcoSchools

<http://www.ontarioecoschools.org>

Ontario Principals' Council

<http://www.principals.on.ca>

Ontario Teachers' Federation

<http://www.otffeo.on.ca>

Pembina Foundation

<http://www.greenlearning.ca/about-pembina>

Prince Edward Island Sustainability Network

<http://www.lsf-ist.ca/en/projects/education-sustainable/provincialterritorial-working-groups/prince-edward-island>

Program in Environmental Education and Citizenship

<http://www.claudepoudrier.com>

Regional Centres of Expertise (RCE) on Education for Sustainable Development

- RCE British Columbia (North Cascadia)
  - <http://www.walkingthetalk.bc.ca>
- RCE Greater Sudbury
  - [http://www.ias.unu.edu/resource\\_centre/RCE%20Greater%20Sudbury.pdf](http://www.ias.unu.edu/resource_centre/RCE%20Greater%20Sudbury.pdf)
- RCE Montreal
  - [http://www.cer-montreal.ca/en/accueil/accueil\\_em.html](http://www.cer-montreal.ca/en/accueil/accueil_em.html)
- RCE Saskatchewan
  - <http://www.saskrce.ca>
- RCE Toronto
  - <http://www.toronto.ca/legdocs/mmis/2010/pe/bgrd/backgroundfile-26577.pdf>

Royal Saskatchewan Museum

<http://www.royalsaskmuseum.ca>

Saskatchewan Education for Sustainable Development Network

<http://saskesd.ca>

Seeds Foundation

<http://www.seedsfoundation.ca>

Sierra Club Atlantic

<http://atlantic.sierraclub.ca>

Sierra Club of Canada, BC Chapter

<http://www.sierraclub.bc.ca>

Sustainability Education Alliance of New Brunswick

<http://www.nben.ca>

Sustainability Education in Nova Scotia for Everyone

<http://www.nsen.ca/education/php>

Taking IT Global

<http://www.tigweb.org>

Toronto Zoo

<http://torontozoo.ca>

YMCA Youth Peace Network

<http://www.vanymca.org/id/youthpeacenetwork.html>

YOU CAN

<http://youcan.ca>

Walkingthetalk

<http://www.walkingthetalk.bc.ca>

## **Postsecondary Institutions and Research Centres**

Brandon University

<http://brandonu.ca>

Cambrian College

<http://www.cambriancollege.ca>

Camosun College

<http://camosun.ca>

Cégep de Saint-Hyacinthe

<http://www.cegepsth.qc.ca>

Centennial College  
Institute for Global Citizenship and Equity  
<http://www.centennialcollege.ca/citizenshipandequity>

Coady International Institute  
<http://coady.stfx.ca>

Confederation College  
<http://www.confederationc.on.ca>

Dalhousie University  
<http://www.dal.ca>

Fleming College  
<http://www.fleming.on.ca>

Laval University  
<http://www.ulaval.ca>

Lethbridge College  
<http://www.lethbridgecollege.ab.ca>

McMaster University  
<http://www.mcmaster.ca>

Nova Scotia Community College  
<http://www.nsc.ca>

Nunavut Arctic College  
<http://www.nac.nu.ca>

Nunavut Research Institute  
<http://www.nri.nu.ca>

Ontario Institute for Studies in Education/University of Toronto  
<http://www.oise.utoronto.ca>

St. Boniface College  
<http://www.ustboniface.mb.ca>

Selkirk College  
<http://selkirk.ca>

Simon Fraser University  
Centre for Sustainable Community Development  
<http://www.sfu.ca/cscd>

Social Economy Research Network of Northern Canada  
<http://dl1.yukoncollege.yk.ca/sernnoca>

Trent University  
<http://www.trentu.ca>

UNESCO Chair in Cultural Heritage  
Laval University  
<http://www.patrimoineunesco.chaire.ulaval.ca>

UNESCO Chair in Early Childhood Education, Care and Development  
University of Victoria  
<http://www.ecdvu.org>

UNESCO Chair in Landscape and Environmental Design  
University of Montreal  
<http://www.unesco-paysage.umontreal.ca>

UNESCO Chair in Reorienting Teacher Education towards Sustainability  
York University  
<http://yorku.ca/susweb/initiatives.curriculum.html>

UNESCO Chair in Studies of Philosophic Foundation of Justice and Democratic Society  
University of Quebec at Montreal  
<http://www.unesco.chairephilo.uqam.ca>

UNESCO Chair in Sustainable Development  
Laval University  
<http://www.ihqeds.ulaval.ca>

University of Alberta  
<http://www.ualberta.ca>

University of British Columbia  
Centre for International Sustainable Development Law  
<http://www.cisd.org>

University of Northern British Columbia  
<http://www.unbc.ca>

University of Ottawa  
Human Rights Research and Education Centre  
<http://www.cdp-hrc.uottawa.ca>

University of Prince Edward Island  
<http://www.upei.ca>

University of Saskatchewan  
International Centre for Northern Governance and Development  
<http://artsandscience.usask.ca/icngd>

University of Toronto  
The Trudeau Centre for Peace and Conflict Studies at the Munk Centre for International Studies  
<http://www.utoronto.ca/mcis/trudeaucentre/prgram/index.htm>

University of Winnipeg,  
<http://www.uwinnipeg.ca>

Vanier College  
<http://www.vaniercollege.qc.ca>

York University  
<http://yorku.ca>

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<http://www.accc.ca/english/advocacy/sustainability.htm>

Association of Canadian Community Colleges. (2009). *Colleges, institutes and polytechnics: Accelerating innovation, productivity and competitiveness*. Retrieved April 16, 2010, from [http://www.accc.ca/ftp/pubs/brochures/200910\\_Research.pdf](http://www.accc.ca/ftp/pubs/brochures/200910_Research.pdf)

Association of Canadian Community Colleges. (2010). *Partnerships for productivity and advanced skills: The role of colleges in Canada's innovation system*. Retrieved April 18, 2010, from <http://www.accc.ca/ftp/pubs/studies/201002researchbackgroundpaper.pdf>

Association of Universities and Colleges of Canada. (2008). *Momentum: The 2008 report on university research and knowledge mobilization*. Retrieved April 20, 2010, from [http://www.aucc.ca/momentum/2008\\_report\\_e.html](http://www.aucc.ca/momentum/2008_report_e.html)

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British Columbia Ministry of Education. (2009). *Sustainable school best practice guide*. Retrieved April 20, 2010, from <http://www.bced.gov.bc.ca/greenschools/sustbestpractices.htm>

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