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# **Climate Change and Sustainable Development: The Response from Education**

## **The Canadian Perspective**

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May 2009



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The basic vision of the United Nations Decade of Education for Sustainable Development (UNDESD) is to create

...a world where everyone has the opportunity to benefit from education and learn values, behaviour and lifestyles required for a sustainable future and positive societal transformation. (UNESCO, 2004, p.4)

Based on this foundation statement, it is clear that Education for Sustainable Development (ESD) is a complex concept that may be subject to many interpretations. As such, providing an insightful, comprehensive account of the work being done to actualize ESD in any country is challenging, even more so, for a country as vast and diverse as Canada. It is therefore important from the outset to contextualize any report that seeks to do so. This report begins with an outline of the context and delimitations we used to frame our work. This is followed by brief descriptions of Canada and the Canadian education system. The next four sections constitute the main body of the report. Here, detailed descriptive analyses of critical examples of ESD policy, practice and research from across Canada are presented. The examples included are both geographically and contextually diverse. The concluding section of the report brings together the diverse threads of policy and practice described in previous sections by identifying major themes and tensions and reflecting on how these may further the concept, and practice of ESD.

## **Context of the Report**

It is important to note, from the beginning, that this report is not a catalogue of all the examples of ESD policy, practice and research across Canada. Rather, it is an analysis of critical examples from across the country. This approach was chosen because reasonably comprehensive catalogues of ESD policy and practice for Canada already exist (e.g. CMEC 2007; 2006; 1999). However these reports are limited in their critical analyses of underpinning assumptions and outcomes of the policies and initiatives described. This report seeks to bridge that gap by providing a blend of description and analyses of several carefully chosen examples. In choosing critical examples two main criteria were considered. Firstly, examples were deemed critical if they possessed the potential to stimulate deeper thought about the concept and practice of ESD. Secondly, in order to represent Canada's diversity, exemplars from across the country were chosen.

Other delimitations of the report stem from the meaning of the term ESD. As previously mentioned ESD is a vaguely defined term, subject to multiple interpretations.

Even within Canada, several definitions of ESD exist. In developing this report, the touchstone used for analyzing the various Canadian examples is the UNESCO (2004) vision of ESD which suggests that ESD involves moving people to adopt behaviours and practices which enable them to live a full life without being deprived of the basics. However in assuming this definition it was also acknowledged that the words within it, such as ‘moving people’, ‘full life’ and ‘basics’ are themselves imprecise. Moreover, UNESCO’s further explanation of these terms within a frame of respect for human rights; social and economic justice; respect for life and diversity; and care for the Earth represents but one worldview and one interpretation that may not be shared by all. Also, in common usage, the term ESD encompasses formal, non-formal and informal educational settings. It is important to note that this report focuses on formal education only; specifically formal school settings catering to students, ages six to sixteen.

Finally, in the initial stages of preparing the report it became apparent that the term Climate Change Education (CCE) has not yet become common in Canada. However the issue of CCE has been addressed in several provinces, within the broader area of Environmental Education (EE). For this report CCE is generally subsumed under the term EE. However, as will be explicated later in the report, EE in Canada is much more than a frame for CCE. Indeed it may encompass a uniquely Canadian interpretation of ESD; one that differs fundamentally from UNESCO’s vision of the concept.

## **Some Facts about Canada**

Canada is a vast country. By area, it is the second largest country in the world covering almost 10 million square kilometres. It stretches from the Atlantic, to the Pacific Ocean to the Arctic Sea. It can be divided into six distinct geographical regions. Aboriginal people were the first inhabitants of Canada until explorers and settlers from Europe arrived in the 1500’s. Canada soon became a battleground for power between European colonial empires, until it became an independent country in 1867. Today, Canada is described as a federation of provinces and territories. There are ten provinces and three territories. It is governed by a parliamentary democratic system. The parliament consists of an elected House of Commons and an appointed Senate. The head of government is the Prime Minister.

Traditionally, Canada has been characterised as a resource rich country, renowned for its large deposits of economically valuable natural resources such as lumber, water and minerals. Ten percent of the world’s forests exist in Canada. It is the third largest diamond producer and the world’s foremost producer of potash and uranium. Primary industries such as mining and forestry have traditionally been seen as the backbone of the Canadian economy. Yet over the years, a steady tide of technological progress has moved the economy, from one based almost exclusively on exploitation of natural resources, toward a knowledge-based economy with a growing dependence on knowledge-intensive, and service industries. Indeed, it is estimated that the services sector currently accounts for 66% of the country’s gross domestic product (Statistics Canada, 2009). Presently

Canada's economy is continuing to evolve, shifting in a direction of exploiting the global marketplace though expanding liberal capitalist trading regimes.

As of 2007, Canada's population was 33.1 million, with a density of 3.5 people per square kilometre and a median income of C\$41,401. However this population is not evenly spread. Two thirds of all Canadians live within 100 kilometres of the United States border with 80% of these living in urban centres (Statistics Canada, 2007). This population is also ethnically, linguistically, and culturally diverse. While some regions are predominantly European, others still retain significant Aboriginal populations. Canada remains the home of over a million Aboriginal people belonging to three distinct groups: First Nations, Metis and Inuit (Statistics Canada, 2006). Provinces like Ontario and British Columbia are even more multicultural because of growing international immigrant populations who continue to be attracted to the country by an aggressive federal immigration policy. Immigration is so significant that Toronto, the largest city in Canada, is one of the most multicultural cities in the world, containing residents originating from every country. Quebec represents another unique example of Canada's diversity. It is a predominantly Francophone province, where French culture and language are maintained, in the heart of an otherwise English styled country. Diversity is, in many ways, a defining characteristic of Canada, so much so, that official statements acknowledge and protect it. In 1969, the government of Canada adopted a bilingual policy recognising both English and French as the official languages of all federal institutions in Canada (Office of the Commissioner of Official Languages, 2007). In these statements, Canada is described as a 'mosaic' society (as opposed to a 'melting pot'); a place where different groups of people are encouraged to live together equitably while maintaining their ethnic and cultural diversity (Citizenship and Immigration Canada, 2009).

The size and diversity of Canada can present unique challenges and exciting possibilities when seeking to implement new countrywide initiatives, such as ESD or CCE. The challenge lies in the fact that Canada is composed of thousands of individual communities each with its own local culture and priorities where general policies and programs may not be practically effective. Simultaneously, diversity and space to grow hold the potential for developing unique insights and approaches especially with loosely defined concepts such as ESD and CCE.

## **Formal Education in Canada**

A few general statements can be made about education in Canada. Beyond these the situation becomes more complex. Basic elementary and secondary education is free to all Canadians. In most provinces attendance is requisite for children ages 6-16. There are approximately 15,500 schools countrywide enrolling some 5.3 million students. The elementary school curriculum emphasizes the basic subjects of language, mathematics, social studies, science, health and physical education, and introductory arts. One of the recognized challenges of education in Canada is catering to diversity: urban, rural, indigenous, non-indigenous and a growing immigrant population (CMEC, 2008).

As mentioned previously, Canada is a federation of provinces and territories. The federal government is responsible for national concerns such as international relations, immigration policies and national security. Provincial governments are responsible for social programs such as healthcare, education and welfare. There is no overarching federal department of education and no integrated national system of education in Canada. In lieu of a highly organized federal department of education, the country possesses a less formal association called the Council of Ministers for Education Canada (CMEC). Formed in 1967, this body provides a forum for provincial ministers of education to discuss matters of mutual interest related to education; develop educational initiatives cooperatively; and represent provincial and territorial educational interests with the federal government, foreign governments and international organizations. Officially, CMEC acts as the national voice for education in Canada. Though it is not responsible for overarching policy for education in Canada, CMEC has produced several guiding documents about Canadian education (e.g. CMEC, 2008; 1997) and several reports about the state of ESD in Canada (CMEC 2007; 2006; 1999). Recently, it has published a framework which provides specific statements relating to the future of ESD in Canada (CMEC, 2008a). It is important to note, however, that there is no specific requirement for provincial/territorial Ministries of Education to adopt CMEC recommendations. Education in Canada remains strictly in the control of provincial governments.

In each of the 13 jurisdictions, departments or ministries of education are responsible for their own organization, delivery and assessment of education. At the provincial level, the education system tends to be highly structured. Each province or territory has one or two departments of education. The minister of education is an elected member of the legislature and is appointed to the position by the government leader or premier of the jurisdiction. Deputy ministers appointed from the civil service are responsible for the operation of the departments. Ministries define both the educational services to be provided, local educational policy and legislative frameworks. School governance is entrusted to subsidiary bodies — school boards, school districts, or district education councils. Members of these subsidiary bodies are elected by local public ballot. Although provincial and territorial ministries of education control education in Canada, their policies and activities are influenced by several other local and national bodies, including teachers' associations, non-governmental organizations and universities. This is particularly true for ESD.

One critical implication of the provincial control of education is that while there are great similarities among the 13 education systems, there are also significant differences, expressive of differences in geography, history, culture and language and other specialized needs of the populations served. For example in Quebec, the education system is more reflective of a continental French system, whereas in Nunavut, educational policy is greatly influenced by the culture and traditions of its majority Aboriginal population. This also means that broader federal commitments and guidelines relating to ESD and CCE may not be fully realized at the school level, since these are

always filtered through provincial bodies who exercise their authority to interpret and implement federal guidelines.

## **The Federal Government's Response**

In 2005, the government of Canada produced a key report summarizing the work of the federal government with respect to ESD. From this report it seems that the Canadian government is particularly keen to promote sustainable development, with education playing a key role (Government of Canada, 2005). According to the report:

Sustainable development meets the needs of people today without compromising the ability of future generations to meet their own needs. Education for sustainable development can help people understand what sustainable development means in everyday terms, bringing them into a clearer understanding of the issues and their interconnections. It can also help them to develop the values, outlooks, knowledge, and skills they need to move forward into a sustainable future. (Government of Canada, 2005, p. 2)

However, in taking up the concept the Canadian government has made several distinctions of its own. It recognizes that there is no universal mode of ESD and emphasizes that Canada must develop its own version of ESD:

Canada, like other nations, must move forward in defining its own priorities and actions for education for sustainable development, addressing its own social, environmental, and economic needs in ways that are culturally sensitive and forward looking. (Government of Canada, 2005, p. 1)

Secondly, it sees ESD as a process rather than as an end goal. ESD is viewed as a long term effort that “empowers people to reach the goal of sustainable development” (Government of Canada, 2005, p. 2). Thirdly, it is implied that ESD may not be a radically new concept to Canada, but one that may be accommodated by an expansion of Canada’s already strong science and environmental education programs. Fourthly, in this document it is clear that although education is considered an important strategy for promoting sustainable development, implementation of educational programs, especially formal education in schools, is not the primary focus of the federal government. Rather, the work of Canada’s federal government focuses more broadly on developing practical sustainable development strategies and raising public awareness. Finally, the overall goal of ESD is ambitious. ESD is attributed the power to improve individual and societal well-being socially, culturally and economically as described in the following statement:

The Government of Canada believes that as a result of education for sustainable development, Canadians will come to understand that sustainable development contributes to their health and well-being, sense of place, social cohesion, equity, and heritage, and supports sustainable communities. People will have better access to the knowledge and tools that allow them to seize opportunities, confront challenges, compete successfully in the global marketplace, and take advantage of the social, environmental, and economic benefits afforded by sustainable development. They will recognize the vital

role of science and technology in sustainable development, value investment in research and development, and support the further building of knowledge and capacity upon which sustainable development is built. In short, Canadians will become more accepting of the changes needed to achieve sustainable development, and more willing to alter their own behaviour accordingly. (Government of Canada, 2005, p. 4)

Two federal bodies that have been particularly active within the field of ESD in Canada are Environment Canada, the federal department responsible for environmental matters, and CMEC. In 2005, Environment Canada introduced the *Competitiveness and Environmental Sustainability Framework (CESF)* (Environment Canada, 2005), a policy document linking the concepts of sustainability, economic development and environmental protection to the Canadian context. This policy was the government of Canada's first major attempt at developing a national approach to sustainable development. Its three overarching goals were: enhancing the safety and well-being of Canadians; preserving the natural environment; and advancing the country's long-term competitiveness. Although the CESF is rarely referred to after 2006, it assisted in establishing fundamental ideas about sustainable development and ESD. The framework established the seemingly paradoxical premise that economic and environmental success, rather than being at odds, can act complementarily. The framework demonstrated in accessible language how environmental sustainability could act as a new basis for economic competitiveness. The hypothesis was supported by scientific evidence about the impact of environmental degradation on human health and well-being; the assumption that citizens believe this and want their health and environment protected; and models of how sustainability can save companies money, open new markets and develop new economically valuable technologies. The framework also helped to establish sustainable development as a national priority in Canada and supported the link between education and sustainable development by naming 'education and engagement' as one of the five pillars of the framework.

CMEC, the official national voice of education in Canada, has been more direct in addressing ESD in formal education. One of its first endorsements for making ESD an active part of the curriculum in Canadian schools is found within the *Common Framework of Science Learning Outcomes, K-12: Pan-Canadian Protocol for Collaboration on School Curriculum* (CMEC, 1997). This document was intended to be a national guide for Canada's provinces and territories as they developed their respective science curricula. It was developed during a period when the government of Canada was considering creating national guides to inform provincial curricula. The science document is unique, in that it is one of the few national statements on school curriculum. Throughout the framework the language of ESD is common. For example:

Canadian society is experiencing rapid and fundamental economic, social, and cultural changes that affect the way we live. Canadians are also becoming aware of an increasing global interdependence and the need for a sustainable environment, economy, and society. (CMEC, 1997, p. 4)

Within the document, ESD is intrinsically linked to scientific literacy and science education. Among other goals, science education is delegated the responsibility to:



- enable students to use science and technology to acquire new knowledge and solve problems, so that they may improve the quality of their own lives and the lives of others
- prepare students to critically address science-related societal, economic, ethical, and environmental issues. (CMEC, 1997, p. 5)

The approach to science education described in the Common Framework is referred to as Science, Technology, Society and Environment (STSE). STSE seeks to link science education to broader humanistic contexts (Aikenhead, 2006; Pedretti & Little, 2008; Pedretti, 2005). It shares many common goals with the UNESCO vision for ESD. However STSE places them within a science education frame (as noted earlier in the report, each province has developed their own science curricula and therefore STSE may or may not be emphasized). Positioning STSE as a central organizer for the Canadian school science curricula has had mixed effects. While it has undoubtedly aided in bringing ESD to the forefront of the curriculum debate in Canada, it may have also inadvertently assisted in twinning ESD with science education, that is, placing ESD solely into the domain of science education. Recently this effect has been identified and challenged. ESD is being re-visioned to make it not only a science issue but a broader cross-disciplinary organizer for all school curricula. This move is evidenced by the recently issued *Learn Canada 2020* (CMEC, 2008a), a framework produced for provincial and territorial ministers of education. The document identifies eight activity areas and objectives to meet the general vision of ‘Quality Lifelong Learning Opportunities for All Canadians’. ESD, defined as raising students’ awareness and encouraging them to become actively engaged in working for a sustainable society, is stated as one of these objectives.

In reflecting on the work of the federal government concerning ESD several further conclusions emerge. While it is clear that the Canadian government has espoused the idea of ESD, it is also evident that many of the major underpinning ideas have not been questioned. For example, in government documents, there is little clarification of the meanings of the terms sustainability, education and development. The universality of the meanings of these and many other terms is assumed. Moreover these meanings are taken to be representative of the Canadian population and therefore unnecessary to define or challenge. The links between economic growth, development and education are also tacitly accepted. It is rare to find any critique of the notion that these phenomena are fundamentally connected. Another point of interest, apparent particularly from analysis of the CESF proposal, is the importance of economic interests in determining federal policy in Canada. The concepts of sustainable development and ESD seem to have become fully legitimated only when they were shown to be economically viable and valuable in maintaining the country’s global competitiveness. Another observation that may partly explain the federal government’s position on ESD is that the Canadian government does not seem to believe that ESD is a radically new concept for Canada. CMEC (1997) saw ESD as a part of science education. Almost ten years later the government of Canada (2005) positioned ESD as an extension of existing environmental education traditions. Canada’s report on progress with respect to ESD describes the main challenges opposing ESD as structural rather than ideological (CMEC, 2007). Some of the main challenges to

ESD identified by this report are the already crowded curriculum, lack of teaching resources and inadequate teacher training. As yet, there is no clear evidence that the UNESCO vision of ESD has fundamentally challenged the government of Canada's ideas about the nature and purposes of education. In summary, it seems that ESD has not been so much adopted as it has been adapted by Canada to support a certain political and economic agenda.

## **Provincial Governments' Response**

In this section of the report we describe critical examples of the response to ESD from four educational jurisdictions across Canada, namely Manitoba, Newfoundland and Labrador, Nunavut and Ontario. The jurisdictions also represent the geographical diversity of the country.

### ***Manitoba***

Manitoba is a prairie province located in central Canada. Within Canada, it is considered a leader, particularly active in all aspects of ESD (CMEC, 2006). Work has been going on in Manitoba surrounding the concept of sustainable development since the mid-1980's when the term was first coined by the UN. In 1990, the Manitoba Round Table for Sustainable Development released a core document outlining principles and guidelines of sustainable development as well as proposing strategies for enacting sustainable development in the daily life of Manitobans. This initiative was followed in 1994 by the publication of the *Sustainable Development Strategy for Manitoba* (Manitoba Conservation, 1994). This framework is described as "a world, national and provincial perspective on sustainable development" (p. 2). It outlined ten principles, six guidelines and sixteen component strategies to guide the enactment of sustainable development in the province. This document is pivotal since its main ideas pervade all subsequent provincial plans about sustainable development and ESD. Sustainable development is seen to involve economy, environment, human health and well-being. One of the key principles is that economic decisions should adequately reflect environmental, human health and social effects. Emphasis is also placed on sustainable development as a shared responsibility having global connections that all citizens need to accept. Actions pertaining to sustainable development entail a combination of stewardship or caretaking; anticipation and prevention of adverse actions; conservation and enhancement; and rehabilitation and reclamation. The role of formal education in sustainable development is referred to very broadly as a component strategy for further development. In 1997, many of the components of the sustainable development strategy became provincial law when *The Sustainable Development and Consequential Amendments Act* (Province of Manitoba, 1997) was declared. The passing of this act made Manitoba the first jurisdiction in Canada to pass legislation about sustainable development. The act re-established the Manitoba Round Table for Sustainable Development and a Sustainable Development Coordination Unit and vested them with the legal authority to further develop and plan for implementing sustainable development throughout the province for both public and private sectors.

By the time UNESCO's Decade for Education for Sustainable Development (UNESCO, 2004) began, Manitoba's plans for ESD in formal education were already relatively advanced. Building on existing provincial policy regarding sustainable development, the Manitoba Department of Education, Citizenship and Youth had already produced *Education for a Sustainable Future: a Resource for Curriculum Developers, Teachers, and Administrators* (Manitoba Education and Training, 2000). This policy was intended to assist workers in education to integrate sustainability concepts into new and existing school curricula. It contained basic definitions of sustainable development, a vision for ESD and a relatively detailed interdisciplinary framework for ESD. Within it, ESD is:

- characterized as a challenge which “enables students to make choices that incorporate the essential principles and values of sustainability” (p. 3)
- linked to the concept of lifelong learning
- viewed as a combination of knowledge, values, decision-making skills and life practices
- outlined as an inter disciplinary issue that could be integrated into all traditional subject areas existing in school curricula
- framed within broader educational issues like gender equity, anti-racist education, differentiated instruction and aboriginal perspectives.

The authors of this document also proposed that curricula should provide students “with the opportunities to think and act according to the principles of sustainability” (p. 3). Evolving from this policy the department of education further developed the *Education for Sustainability Action Plan (2004-2008)* (Manitoba Education and Training, 2004) to foster teaching and learning for sustainability in Manitoban elementary and secondary schools. In addition to plans infusing sustainability concepts into curricula, the Action Plan includes provision for:

- teacher training workshops to enhance teaching and learning for sustainability
- development of websites focusing on ESD
- provision of incentive grants for educators who plan, develop and implement sustainability focused curriculum units
- establishment of a provincial Education for Sustainable Development Working Group to foster a culture for ESD in Manitoba's education system
- guidelines for benchmarking and tracking of sustainability literacy in curricula.

To date many of these plans have already been enacted (CMEC, 2006). Additionally, Manitoba's educational initiatives have influenced the national ESD agenda. Through partnership with Environment Canada and the non-governmental organization Learning for a Sustainable Future (which will be discussed later in this report) eight Provincial/Territorial ESD Working Groups, similar to Manitoba's Working Group have been established.

Despite its comprehensive policy and plans, the practical outcomes of ESD in Manitoba remain unclear. There are very few reports about the impacts of these documents on schools and classroom practices. Two recent reports are not particularly encouraging. In a study of the role of government policies in Manitoba schools, Swayze (2008) found a significant gap between the provincial sustainability frameworks and district/school policy. She found only limited awareness of provincial policy about ESD at the school level, and concluded that school level actions related to sustainability issues may not be driven by policy but by passionate individuals and influence from informal sectors. These findings are further supported by Michalos, Creech, McDonald and Kahlke (2009). These researchers sought to understand the current status of Manitoban awareness and knowledge about sustainable development concepts. A student survey in this study revealed that while student knowledge about sustainability increased as students aged, only 14% of respondents reported that they had received formal education about sustainable development.

Manitoba's experience with ESD presents a conundrum. The province boasts a long history of engagement with the concepts of sustainable development and education for sustainable development. Much work has been done by the local government to develop a vision, policies and action plans addressing these issues. Analyses of the major documents reveal a seemingly comprehensive, holistic outlook. Many of the underpinning ideas have been inspired by relevant UN documents, so that of all the provinces, Manitoba's plans most closely align with the spirit of the UNESCO vision of DESD. Yet despite much planning at a governmental level, Manitoba seems to be struggling to realize ESD at the classroom level. The explanation for this paradox is undoubtedly complex. Speculatively, the policy-practice gap may be due to the heavy emphasis on centralized curriculum development or gaps in teacher training and support. Other explanations may lie in the tacit assumptions about sustainability, development and education that underlie Manitoba's policies and plans, and the congruence between these assumptions and teacher beliefs.

### *Nunavut*

Nunavut is a territory in northern Canada in which 85% of the population is Aboriginal Inuit. This demographic has a profound impact on the governance and education system of the territory. For example, Nunavut has an overarching policy, heavily based in traditional Inuit culture and values, which frames all other territorial policies. The policy called *The Bathurst Mandate Pinasuaqtavut: that we've set out to do* (Government of Nunavut, 1999), presents an alternative view of governance and development, one that is socio-cultural rather than economic, and humanistic rather than technical. It also recognizes the mystic inter-connection of the human-nature relationship and the primacy of maintaining good human relationships as the driver for all other activities. These ideas are evident throughout the document. For example the policy starts with a basic vision:

The health of Nunavut depends on the health of each of its physical, social, economic and cultural communities, and the ability of those communities to serve Nunavummiut in the

spirit of *Inuuqatigiittiarniq*; the healthy inter-connection of mind, body, spirit and environment. (Government of Nunavut, 1999, p. 1)

The humanistic turn is further reflected in its fundamental guiding principles which state that:

- people come first
- people are responsible and accountable for their own well-being
- Nunavut needs to provide options and opportunities which will build the strengths of individuals, families and communities.

This original policy was reconfirmed and further detailed in the publication of *Pinasuaqtavut 2004-2009: Our Commitment to Building Nunavut's Future* (Government of Nunavut, 2004). Here, the importance of elders as sources of knowledge and wisdom is further established, along with the concept of Inuit *Qaujimajatuqangit*, that is, the Inuit way of life. This latter concept is designated as the essential way by which government should deliver programs and services in Nunavut. The guiding values of Inuit *Qaujimajatuqangit* identified are:

- respecting others, relationships and caring for people
- fostering good spirit by being open, welcoming and inclusive
- serving and providing for family and community
- decision making through discussion and consensus
- developing skills through practice, effort and action
- working together for a common cause
- being innovative and resourceful
- respecting and caring for land, animals and the environment.

Based on this particular worldview, the government of Nunavut has identified four specific goals for territorial development until 2020. These are healthy communities, simplicity and unity, self-reliance and continuing learning. Education is implicated within the goal of continuing learning as one key to development. As such, the policy has mandated the development of an education system within the context of Inuit *Qaujimajatuqangit*. It is important to note that although the term sustainable development is not prominent within Nunavut's guiding policy, the values of Inuit *Qaujimajatuqangit* resonate with many aspects of UNESCO's concept of sustainable development.

In response to the government's mandate, the Nunavut Department of Education, working closely with elders and educators from across the territory, has produced the *Inuit Qaujimajatuqangit Education Framework for Nunavut Curriculum Development* (Nunavut Department of Education, 2005). Within this framework 'the igloo' is identified as the metaphor for learning. Similar to the building of an igloo, education is seen as a spiralling, developmental progression aimed at producing resilient, lifelong learners. The proposed program of studies for Nunavut schools consists of four curricular strands embedded within six cross curricular competencies, all derived from Inuit *Qaujimajatuqangit*. The four strands replace the subjects of the traditional school curriculum. They are:

- Nunavut for Nunavusiutit- an integrated core of history, geography and environmental science
- wellness- an integrated core of social, emotional, physical and spiritual health
- communication- an integrated core of language and literacy
- describing and improving the world- an integrated core of math, science, technology and critical thinking.

The framing cross-curricular competencies for these strands are to:

- develop a collaborative relationship and work together for the common good
- show environmental stewardship
- be empowered and build capacity through knowledge and skills acquisition
- be resourceful and seek solutions through creativity, adaptability and flexibility
- cooperate, develop shared understanding to arrive at decisions through consensus
- contribute to the common good through serving and leadership.

Again it is important to note that although the term ESD is not used within this framework, the goals and language of ESD are clearly reflected in the descriptions of the strands and cross-curricular competencies.

As with other jurisdictions, it is difficult to say how these policies are being enacted in Nunavut's schools since there are very few research reports containing such information. Still, Nunavut is an important case that can provide some valuable insights into the concept and practice of ESD. It has been noted that the terms sustainable development and ESD are conspicuously absent from Nunavut's guiding policies. Rather than using UNESCO's vision of ESD as a starting point, Nunavut appears to have developed education policy to reflect its unique cultural tradition. These traditions happen to coincide with many of the ideas found in UNESCO's vision of sustainable development and ESD. In Nunavut, the foundations for governance and education are based on the very specific and unique set of relationships by which the Inuit have traditionally lived. The fundamental belief is that the connectedness which individuals feel for each other and to their environment ultimately determines personal character and value to the community. In Nunavut this is the definition of sustainability. In other words sustainability is a core value of Inuit life (Northwest Territories, Department of Education Culture and Employment, 1996), so that rather than having to be incorporated or infused into policies and programs, concepts of sustainability form a natural foundation from which all policies and practices are derived. This inversion of the usual order seen in most other jurisdictions within Canada has potentially far reaching implications. It provides a concrete example of how ESD can steer both education and the further development of societies.

Study of relevant Nunavut policies can also broaden understanding of the concept of ESD. Although Nunavut's policies resonate with the general vocabulary of sustainability and ESD, it seems that in Nunavut the drivers for development are socio-

culturally embedded rather than primarily economically driven. Policies are also overtly values based, derived from native culture, spirituality and tradition. Values are explicitly humanistic and ecocentric rather than mechanistically oriented. The portrait of ESD emerging in this case reinforces the idea that ESD entails more than a superficial reorientation of priorities. Instead it may require a radical shift in worldview. Additional study of Nunavut's policies and the Inuit way of life may assist in further illuminating this worldview.

### *Newfoundland and Labrador*

Located on the Atlantic coast, Newfoundland and Labrador is Canada's easternmost province. It is comprised of two parts: the island of Newfoundland situated off the country's eastern coast and Labrador located on the mainland northwest of the island. Almost 94% of the province's population lives on the island of Newfoundland. Labrador is sparsely populated and contains large areas of pristine natural wilderness. The province is the site of the Gros Morne National Park, a world heritage site renowned as an outstanding example of the Earth's natural beauty. Citizens of Newfoundland and Labrador seem to share a special concern for their natural environment. Land and sea are intimately connected with the lives of the people. Much of the economy remains directly dependent on primary industries such as fishing, mining, forestry and oil production. Increasingly eco-tourism is becoming a significant part of the economy. This may in part account for the relatively active involvement of the provincial government in addressing climate change and ESD.

Newfoundland and Labrador was one of the first jurisdictions in Canada to develop policy to directly address the issue of climate change. The province issued its *Climate Change Action Plan* in 2005 (Newfoundland and Labrador Department of Environment and Conservation, 2005). In it, the government of Newfoundland and Labrador acknowledged that climate change is a serious issue and that efforts are needed to reduce greenhouse gas emissions. The vulnerability of the province to the possible impacts of climate change especially rising sea levels and destruction of natural ecosystems seemed particularly salient to the government's interests. The document goes on to outline commitments for reducing climate change to be enacted by most government departments. The plan affirms the importance of education in addressing climate change. It says:

The importance of education in addressing climate change cannot be stated enough. Education on this issue has to be broad enough to include all aspects of this phenomenon: science, direct and indirect impacts (biophysical, socioeconomic and health), measures for reducing greenhouse gas emissions and measures to adapt to a changing climate. (Newfoundland and Labrador Department of Environment and Conservation, 2005, p. 9)

Specifically, the document promises continued support and funding to the Newfoundland and Labrador Climate Change Education Centre. This centre is part of a national network of public education and outreach hubs. Its work focuses on educating the public about Greenhouse gas emission reduction measures and encouraging actions to reduce personal emissions. Extended funding is expected to assist with program development and

expansion of public education efforts. The Climate Change Action Plan (2005) is described as complementary with the government's ongoing policy objectives and commitment to sustainable development. It is important to note that though the plan endorses increased public education it does not specifically address CCE in formal education settings.

Newfoundland and Labrador's Department of Education has developed several policies to foster the implementation of ESD and CCE in schools. An early attempt at this task is the *Foundation for the Atlantic Canada Science Curriculum* (nd), a framework developed in 1998 to guide science programs in Atlantic Canada. This document, built on the ideas of STSE as described in the *Pan-Canadian Common Framework for Science Learning Outcomes* (CMEC, 1997), lists "stewardship", defined as responsibility for living things and the environment, as a goal of science education. This policy is indicative of the province's initial vision of ESD, that it is equated with environmental science and primarily belongs to the domain of science education. More recently, the department of education issued its *Statement of Intent: Building a Better Tomorrow* (CMEC, 2007). This strategic framework affirms the principles of the United Nations DESD and outlines the Department of Education's plans to promote ESD on multiple levels. Although the plan outlines initiatives to foster education broadly in both public and private sectors; and within formal and informal settings; there are several specific commitments to advance ESD through formal education. One major initiative is the reorientation of existing educational programs to incorporate concepts related to sustainability. Accordingly, ongoing curriculum development and renewal have been taking place in all school curricula. A cross-curricular approach is being taken to infuse concepts of sustainability into all subjects taught in schools. This process is already almost complete for the disciplines of science and social studies. For example new elementary and secondary science curricula (Newfoundland and Labrador, Department of Education, 2002; 2004; 2005) attend to the value of living organisms, the impact of human activities on their survival, energy conservation, as well as cultural issues, cultural preservation and sustainability. In mandatory secondary science courses 25% of the instructional time is allocated to issues associated with sustainability. New social studies courses (e.g. Newfoundland and Labrador, Department of Education, 2004a; 2004b; 2007) focus on specific issues associated with sustainability in relation to cultural, political and social issues. The issue of climate change is generally treated in curriculum documents as a part of the issue of sustainability. However, Grade 10 and 11 Science curricula contain specific units that deal extensively with climate change (Newfoundland and Labrador, Department of Education, 2002; 2004).

In addition to a cross-curricular approach to ESD, the provincial department of education has also developed a specialized secondary Environmental Science Course (Newfoundland and Labrador, Department of Education, nd). This course is unique in that it takes an issues-based approach focused on the province's most pressing environmental issues. It locates these issues globally, nationally and locally. It provides extensive local information and detailed contextualized teaching strategies for exploring issues. Climate change is an important issue that is dealt with throughout the course, but also forms a specific focus of study in the unit titled 'The Atmosphere and the



Environment'. In this unit, climate change is identified as a human-effected event that can have catastrophic effects on the Earth. These notions coincide with UN ideas on this issue (UNESCO, 2008). This course was developed in collaboration with five federal and five Atlantic provincial government bodies concerned with environmental issues. CMEC (2007) considers this program unique, a potential pilot to initiating a pan-Canadian program of environmental science.

Newfoundland and Labrador presents an example where CCE is at the forefront of ESD policies and plans. Educational initiatives are already well developed. ESD and CCE seem to be rapidly finding their way into school curricula. Although it is difficult to explain why this change is being so rapidly effected in Newfoundland and Labrador where other provinces seem to be struggling, part of the explanation may lie in the strong provincial recognition of relevance of these issues to local interests. Both government and citizens seem to have accepted that sustainable development and climate change are issues of importance that need to be addressed urgently. If this is the case, then one of the reasons for the failure of ESD and CCE in other places may stem from a lack of deep engagement of the public and government with the issues. One way to strengthen ESD and CCE efforts in formal education settings may lie in demonstrating to all stakeholders — teachers, students and educational personnel — that these issues are locally and personally relevant and urgent. Further inquiry into how this has been achieved in places like Newfoundland and Labrador is warranted.

Another point of interest in this province is the multi-dimensional approach to implementing ESD and CCE. Both cross-curricula and specialized courses have been developed to address the issues. The concepts of ESD and CCE are being infused into all subjects and at all levels of school curricula. This cross curricular approach means that all students are exposed to the concepts of sustainable development and climate change at various stages in their formal education. It presents the issues as complex, overarching ideas important to all aspects of life. In this case a spiral developmental approach is taken. Spiral curricula (Bruner, 1960) seek to build understanding of complex concepts over time in developmentally appropriate ways. ESD is presented as developmental, growing in complexity and in tandem with students' own cognitive growth. A dedicated course allows older students to engage in detailed inquiry into the province's most pressing problems, one of which is Climate Change.

## ***Ontario***

Ontario is a province in east-central Canada. It is the most populous province in the country. Toronto, Canada's largest metropolis and Ottawa, the country's capital city are both located in this province. Residents of Ontario account for 38.5% of the national population (Statistics Canada, 2007). International immigration is a significant population growth factor in Ontario. Growing immigrant communities found mainly in and around Toronto include groups from the Caribbean, South Asia, East Asia, Central and South America, Eastern Europe, Iran and West Africa. Cultural and ethnic diversity is a major concern of education in the Greater Toronto Area.

The Government of Ontario's response to the DESD is relatively recent. In 2007, Ontario's Ministry of Environment issued *Ontario's Climate Change Action Plan: Creating our Sustainable Future*. At the time of its release, this plan was endorsed by the province's premier as the provincial response to the issues of climate change and sustainable development. The plan concedes that world-wide climate change is a reality and that "governments today have a clear choice; do nothing; or embrace the transition to a low carbon, green future" (Ontario Ministry of Environment, 2007, p. 2). The document states that Ontario has chosen the latter course and outlines provincial plans for reducing greenhouse gases by 80 % by 2050. Specific actions identified include:

- phasing out of coal fired power plants
- adoption of renewable power sources like solar, wind, biomass and water
- home energy audits and home energy improvements
- expansion of the mass transit system in the province
- development of more green spaces in the province
- creation of green jobs
- 'cap and trade' measures to limit the amount of greenhouse gases industries can emit.

This action plan subsequently led to the creation and passing of *The Green Energy and Economy Act* (Government of Ontario, 2009). This act outlines a two-pronged approach to 'green economic growth'. The first is to increase the production and use of renewable energy in the province and the second is to create more energy efficient measures to help conserve energy. In order to achieve these objectives, the bill provides for the development of administrative structures and standards for new energy projects. Incentives have also been proposed to encourage homeowners and others to develop renewable and/or energy efficient technologies and strategies.

Neither the provincial action plan nor the act contain any specific guidelines about the role of formal education in sustainable development or climate change. However in 2007, in addition to issuing the *Climate Change Action Plan*, the government of Ontario created a Curriculum Council to advise the minister of education on curriculum issues that required broader public consultation. This was done as part of a larger initiative to reform the curriculum of Ontario's schools. ESD was not one of the issues that the Curriculum Council identified for inquiry. Instead, the council chose to review how environment and conservation were being taught in elementary and secondary schools. This decision was made partly because of historical reasons. In Ontario, it was recognized that a wide range of environmentally based activities and formal and informal curricula already existed but that these lacked coherence. The working group's report titled *Shaping Our Schools, Sharing Our Future* was released in 2007. The report made recommendations towards mandating environmental education in Ontario schools. This mandate was further detailed in the policy document *Acting Today Shaping Tomorrow: A Policy Framework for Environmental Education in Ontario Schools* (Ontario, Ministry of Education, 2009). The importance of environmental education is summarized in the document's opening statement:

It is critical that we help students understand how our individual and collective behaviour affects the environment, and how environmentally responsible lifestyles can contribute to healthy, sustainable ecosystems. Environmental education is a vital tool that helps young people understand the nature and complexity of environmental challenges and builds their capacity to take appropriate action. (Ontario, Ministry of Education, 2009, p. 3)

Currently, the ministry of education is revising school curricula. Part of this process includes integrating environmental education into all subjects, across all grades. This process has already been completed for the science curriculum. Similar to Newfoundland and Labrador, the issue of climate change is dealt with at different points throughout science curricula. In Ontario, it is generally located in what is called the “big ideas” - “the broad, important understandings that students should retain ...” (Ministry of Education, 2008, p. 6). In addition, the revised Grade 10 science curriculum has a unit dedicated entirely to climate change. Furthermore, a specialized course for Environmental Science has been developed for upper secondary school science. In the new science curricula (Ontario, Ministry of Education, 2007, 2008, 2008a) ‘sustainability and stewardship’ is one of the fundamental concepts identified and integrated throughout all strands. Sustainability is defined as “the concept of meeting the needs of the present without compromising the ability of future generations to meet their needs” (Ontario Ministry of Education, 2007, p. 5). Stewardship is defined as

...understanding that we need to use and care for the natural environment in a responsible way and making the effort to pass on to future generations no less than what we have access to ourselves. Values that are central to responsible stewardship are: using non-renewable resources with care; reusing and recycling what we can; switching to renewable resources where possible. (Ontario, Ministry of Education, 2007, p. 5)

From these definitions it would seem that in Ontario sustainable development has been defined in terms of environmental concerns. Also, although it is not explicitly stated, the concept of “green economic growth” subscribed to by broader provincial policies is also tacitly promoted as a major expression of sustainable development in educational policy.

Ontario’s response to ESD and CCE are notable in that Ontario’s definition of sustainable development seems oriented towards economic and environmental concerns and focused on climate change. The provincial government seems to be particularly concerned about maintaining economic growth. It has proposed the concept of ‘green economic growth’ which combines traditional theories of economic development with a shift to adopting environmentally friendly technologies and strategies. An underlying assumption that is not fully explored in any of the related documents is the compatibility of these two concepts. Also this approach does not question traditional ideas about the structures of society, governance, or the link between economic growth and development. It has effectively combined ‘business as usual’ with the language of sustainable development and climate change. For formal education it has meant the translation of ESD into EE.

At a broader level this example shows the multiplicity of ways in which the concept of ESD can be interpreted. UNESCO (2004) states that environmental education,

which focuses on humankind's relationship with the natural environment and ways to conserve and steward it, is only one aspect of ESD. ESD is also about respect for human rights, economic and social justice for all, cultural diversity and building a culture of tolerance, non-violence and peace. The place of environmental education in ESD is described in the following statement:

Sustainable development therefore encompasses environmental education, setting it in the broader context of socio-cultural factors and the socio-political issues of equity, poverty, democracy and quality of life. (UNESCO, 2004, p. 16)

While Ontario's decision to adopt EE rather than ESD may be seen as a narrow approach, it is also clear that Ontario's vision of EE incorporates many of the broader UNESCO goals. This is evidenced by Ontario's definition of environmental education which states:

Environmental education seeks to promote an appreciation and understanding of, and concern for, the environment, and to foster informed, engaged, and responsible environmental citizenship. Effective environmental education incorporates problem solving, hands-on learning, action projects, scientific inquiry, higher order thinking, and cooperative learning, and employs relevant subject matter and topics that actively engage students in the educational process. (Ontario Working Group on Environmental Education, 2007, p. 6)

This description of Ontario's vision for environmental education links learning about environmental issues with responsible citizenship which in turn implies broader socio-political and cultural issues.

## **The Work of Non-Governmental Organizations**

Across Canada, a number of NGOs claim to be actively involved in providing ESD and CCE. Although much of their work is general, targeting the broader public audience in informal settings, some NGOs provide services specifically for formal school settings. These efforts may be independent or in cooperation with provincial ministries of education, school boards and schools. The work of NGOs in the areas of ESD and CCE is significant sometimes seemingly overshadowing the work of provincial departments of education. Two such organizations, which have countrywide influence on education in Canada, are Learning for a Sustainable Future (LSF) and Green Street.

### ***Learning for a Sustainable Future (LSF)***

Learning for a Sustainable Future (LSF) is one of Canada's oldest organizations supporting ESD, countrywide. It is a non-profit organization founded in 1991 by a diverse group of youth, educators, business and community members to implement sustainable development education in Canadian schools. The creation of the organization was fuelled largely by concerns about the environment and development arising from the

UN conference in Brundtland, 1987 and influenced by later UN events, so that the LSF's vision for ESD is similar to that of UNESCO (2004). It states:

Education for Sustainable Development (ESD) encourages us to explore the profound interdependencies of ecological, societal, and economic systems. ESD is about respecting and preserving our histories, valuing culture and community, caring for others and the environment, and taking action to create a fair, healthy, and safe world for all beings. ESD also supports flexibility, creativity, critical reflection, and fosters a sense of personal responsibility for the economy, society, and environment. (LSF, nd)

Since its establishment, the LSF reports that it has introduced many pan-Canadian sustainable development initiatives in formal education (LSF, nd; 2009). These initiatives include:

- provincial/territorial ESD Working Groups: Ten of these groups have already been established through the LSF's work in collaboration with Environment Canada and Manitoba's Education department. To date, these groups have been active in sponsoring public forums, providing input into provincial curriculum reviews, developing resources, planning conferences and creating websites. According to the LSF, one recent contribution of an ESD Working Group comes from Ontario where the group has provided significant input into the recent provincial curriculum changes
- Canadian Sustainability Curriculum Review Initiative: the LSF seeks to encourage curriculum reform across Canada by targeting each educational jurisdiction's Curriculum Review Development and Implementation process. The goal is to align school curricula with the UN DESD by clarifying and recommending what should be taught at each stage of a student's cognitive development
- youth forums: the LSF offers hands on, skill-building workshops on local ESD issues. These are offered as springboards for students to develop and implement their own action projects within their school or community
- an ESD Resource Database: Resources for Rethinking is an online database of lesson plans and other curriculum resources available for teachers to support K-12 education
- professional development for educators: the LSF provides curriculum based workshops for teachers and teacher candidates to encourage ESD in classrooms. The Education Leaders' Seminar is a program that caters to motivating senior education officials to integrate sustainability as a core value in all aspects of formal education.

The work of the LSF in Canada aligns with UNESCO's philosophy and vision. The organization's website and progress report (LSF, 2009) highlight the activities of the organization in a very optimistic way. However there is very little independent research on the impact of the work of the LSF on formal education.

## ***Green Street***

Green Street (Green Street, nd; CMEC, 2007) is a non-profit organization created and funded by a private family foundation. Its activities are endorsed by the Canadian Teachers Federation. The organization was originally established to link schools to reputable environmental organizations within the country in a bid to promote environmental education. However in 2005, in response to the declaration of UN DESD, Green Street expanded its program themes to include broader issues related to sustainability such as human health, governance, citizenship, peace and human rights. It has also set up benchmarks for excellence in environmental learning and sustainability and student engagement. Any program that Green Street recommends to schools must meet certain benchmarks. Among other criteria, programs must be credible, accessible, affordable, relevant to students' concerns, curriculum linked, encourage a sense of personal responsibility for the environment, foster a commitment to sustainable living and promote an enduring dedication to environmental stewardship. Green Street provides additional support for teachers in the form of an online blog where teachers and students can share stories and exchange ideas about local environmental and sustainability issues they are working on. The organization also offers limited project funding on a first-come, first-served basis to encourage student engagement and school-based action projects.

Green Street's approach to ESD is highly action oriented and heavily biased towards environmental issues. Much like the province of Ontario, this organization seems to have defined sustainability in terms of environmental education. This is reflected in the term 'environmental learning and sustainability', which is used several times on the Green Street website to describe the activities of the organization. The meaning of this term is ambiguous. It could imply that environmental learning is separate from broader studies in sustainability or that environmental learning encompasses sustainability. Green Street's approach links education with activism, that is, students using their knowledge to bring about tangible changes in their own lives and communities. This approach challenges the orientation of traditional educational programs that tend to be silent about student activism (Evans, 2006; Roth & Desautels, 2002).

## **Academic Criticism of ESD**

While many governmental and non-governmental organizations in Canada have affirmed their commitment to ESD and CCE and seem to be working assiduously to realize it, the response of the country's academic community has been less sanguine. Many academics in education and other relevant fields have criticized UNESCO's vision of ESD. Two broad strands of criticism can be distinguished. For some, the theoretical underpinnings of ESD are problematic. Others question the relationship of ESD to EE.

Critics in the first strand question the meanings of the term sustainability and sustainable development; the UN conception of these; and the tacit assumption that these are inherently realizable through education. David Bell, professor at York University and Chair of the LSF summarizes a chief concern of these critics when he asks whether ESD

is a cure or placebo, that is, a means of helping mankind attain a more sustainable future or a distracter from the main challenges facing mankind (Bell, 2007). Bell concludes that although ESD is not independently sufficient it is an essential component for finding a way to live more sustainably. Others are less optimistic. For scholars such as Lucie Sauvé, Bob Jickling and Connie Russell, UNESCO's conceptions of sustainable development and education are inherently flawed and possibly even the source of additional problems. Several (e.g. Daly, 2007; Daly, Cobb & Cobb, 1994; Jickling 1994, 2003) have called attention to the individual meanings of the two words that make up the term "sustainable development". Jickling (1994) argues that the term is an oxymoron, nothing more than a vague slogan susceptible to manipulation and deception. Similarly, he views the term 'education for sustainable development' as a conceptual muddle that frequently engulfs well-meaning educators.

These scholars argue that UNESCO and its supporters promote a particular ideology about the environment, education, and peoples' socio-political commitments. In the UN documents, these ideas are presented as incontestable values that are good, necessary and agreeable to all. In contesting this position, these scholars also suggest that UNESCO's ideology degrades education to a form of indoctrination, an increasingly unacceptable practice in scholarly educational circles. According to Jickling (1994, 2003), for example, education is concerned with enabling people to think for themselves, a notion inconsistent with indoctrination which forces people to accept certain values and ideas uncritically. The criticism that UNESCO's theories about education may be outmoded is supported by others, who have analyzed current practices in education claiming to promote sustainability, to show that the majority of initiatives continue to be underpinned by traditional technical ideas about education. Simultaneously they note that more recent ideas informing educational theory such as post-structural and feminist ideas are conspicuously absent (Russell, 2005; Russell, Bell & Fawcett, 2000; Russell & Bell, 2000).

The problematic nature of UNESCO's underpinning ideology about sustainability, development and education has been further illuminated by other Canadian scholars. Sauvé (1996) and Sauvé, Berryman and Brunelle (2007) have analyzed relevant UN documents to show that ESD is buttressed by:

- a resource view of the environment- the environment is viewed as a pool of resources to be managed rather than as a living entity of intrinsic value
- an economic view of development- sustained economic development is a precursor to all human development
- an instrumental view of education- education is generally seen as an instrument for predetermined goals which generally hover around development rather than as an emancipatory processes or endogenous practices.

These authors question the intrinsic truth of these ideas and their consistency with the principle of sustainability, so much so that they have suggested that UNESCO's mandate

of ESD may be an ethical and cultural mistake, an idea with the potential to create a new hegemonic world order rather than solving the world's problems.

Using this platform of criticism, another issue that has emerged from Canadian scholars is the relationship of ESD with environmental science. UNESCO's (2004) vision of ESD describes environmental education as one strand to be subsumed and integrated into a broader context of anthropocentric considerations. For Sauvé, Brunelle and Berryman (2005) this approach diminishes the role of environmental science by making it subservient to social and economic concerns. Hart (2002) seems to concur with this concern, further suggesting that environmental education entails a radically different epistemological and ontological base, one that may be antithetical to the anthropocentric foundations of UNESCO's ESD. For these scholars, environmental education is based on an ecocentric worldview. It is about construction of an ethical awareness and a critical understanding of one's relationship with the environment which is a living entity that humans are a part of and not superior to. Going further these authors have posited alternatives to UNESCO's ESD such as 'biophilic education' (Jickling, 2003), 'ecofeminist environmental education' (Russell & Bell, 2000) or 'education for the development of sustainable communities' (Sauvé, 1996). These alternative visions suggest that environmental education, embedded in a broader framework of justice, equity and respect is perhaps more consistent with the true meaning of the term sustainability than UNESCO's definition.

In summary, what some Canadian scholars seem to be suggesting is that the barriers to ESD may not be due so much to technical/structural reasons such as the lack of resources, inadequately trained teachers and overcrowded curricula, but rather to philosophical inconsistencies and theoretical weaknesses inherent to UNESCO's conception of ESD.

## **Discussion and Conclusion**

Overall analysis of the various Canadian responses to ESD and CCE reveals several themes that have the potential to enrich the debate about these issues. Four of these themes are highlighted here.

### ***Interpreting the term ESD***

This report summarizes responses from eight different Canadian bodies/organizations to ESD/CCE. Despite sharing similar language surrounding ESD, each response seems unique. This uniqueness stems largely from differences in interpretation of the meaning of the term ESD. The term ESD is conceptually complex. Its three component words education, sustainable and development are in themselves separate concepts with no universal meaning. The situation is further complicated, since each term is used in everyday language, in a variety of ways, and has become tacitly associated with many underlying assumptions and ideas that are generally taken for granted. Analysis of the various Canadian responses reveals the variability of



interpretation created by putting the three words together in the term ESD. In some cases wide differences in interpretation of the component concepts are discernable. For example, federal government responses seem to promote education as a form of training, whereas the NGO Green Street seems to interpret education as a transformative, activist process. Also the term development seems to have different meanings. In Ontario development has a particular economic focus connected to economic growth; whereas in Nunavut development is interpreted from a socio-cultural perspective, as living within the bounds of cultural tradition. In other cases, the difference is not so much a variation of the meaning of the component words but in emphasis of individual concepts to the overall vision. For example in Newfoundland and Labrador, the concept of sustainability interpreted as climatic sustainability seems to be the most important facet of ESD; whereas in Ontario development interpreted in terms of economic growth seems to be the driver of ESD.

Some members of the Canadian academic community argue that UNESCO's initiatives are underpinned by a particular worldview that may not be shared by all. Perhaps in anticipation of this critique, the architects of the UN DESD left the term ESD fairly open and suggested that individual jurisdictions interpret ESD to suit local contexts. However the wide variation of interpretation and its consequent implications may not have been fully anticipated. In this case leaving the term ESD so vaguely defined may have inadvertently transformed ESD into a 'paper tiger', since in interpreting the term, individual bodies and organizations seem to have reconstructed ESD to suit their own ideology. The Canadian experience reveals that much more work needs to be done in unpacking the term ESD. In particular, the terms education, sustainability and development and the connections between them need to be more fully explored.

### ***Fitting ESD into the School Curriculum***

A common challenge to practical implementation of ESD seems to lie in determining how best to fit it into school curricula. UNESCO (2004) implies that ESD should transform school curricula. In Canada three different approaches to fitting ESD into formal education have been highlighted in this report: ESD as a part of science education; ESD as infused across the curriculum; and ESD as a fundamental educational principle. For the federal government ESD is a concept that can be fit into traditional school curricula as part of the discipline of science especially environmental education. Indeed this approach was one of the first popular responses to ESD in Canada. For example, the Science, Technology, Society and Environment (STSE) (CMEC, 1997) movement formed the basis for introducing ESD into formal school curricula in several provinces including Ontario and Newfoundland and Labrador. Even though the desirability of consigning ESD to a single discipline is now being questioned, it still seems that in Canada science remains at the forefront of efforts integrating ESD into formal education. STSE remains one of the best developed approaches to linking a traditional school discipline to the broader acceptable principles of ESD (Pedretti & Little, 2008; Pedretti, 2005).

As early as 2000, Manitoba promoted the notion of ESD as a cross curricular initiative. Policy guidelines suggested that ESD was made up of various principles that could be matched to each subject in the traditional curriculum. In other words ESD could be infused into every discipline in the traditional school curriculum. Infusion allows the essential structure of schooling and curricula to remain the same. The work of the LSF supports infusion by providing teachers with curricular resources to supplement their classroom activities. Recent curricular revisions in Ontario and Newfoundland and Labrador also reflect a growing trend to adopt infusion approaches to ESD in Canada. One of the problems of the infusion approach is that it may reduce the status of ESD to an 'add-on'; extra work for teachers and students in an already crowded curriculum.

The third approach to bringing ESD into formal education is to re-orient school curricula to make ESD a fundamental educational goal. This is the approach taken by Nunavut where ESD, defined as a basic principle of the Inuit way of life, has been used as a foundation for re-orienting education. In this approach ESD is more than a cross-curricula add-on. As a foundational principle, it is built in to every aspect of the curriculum — content, teaching/learning strategies and evaluation.

### ***The Relationship between ESD and Environmental Education (EE)***

In outlining its vision of ESD UNESCO (2004) distinguishes ESD from EE, arguing that ESD is not the same as EE. Under this view, EE is seen as one part of a comprehensive program of ESD. Several responses from Canada reflect a departure from this position. In Newfoundland and Labrador, even though ESD has been adopted and is currently being infused across school curricula, a separate course of EE has been retained for upper secondary school. Part of the justification for this action seems to lie in the environmental emphasis that lies at the heart of the province's vision for sustainability. Climate change and other environmental concerns are of prime importance in Newfoundland and Labrador. A separate specialized EE course is seen as a necessary supplement to general ESD initiatives. In Ontario the situation seems more pronounced. EE has been adopted as the framework for formal education, rather than UNESCO's ESD. Part of the reason seems to be that in Ontario sustainability has been defined primarily in terms of environmental concerns and economic development.

Initially, the ESD-EE tension seems easily explainable. Both Ontario and Newfoundland and Labrador seem to have stumbled in the way UNESCO (2004) that cautioned against, that is, limiting the meaning of sustainability to an environmental base. However this may not fully explain the situation. EE has a long history and a strong base of support in various parts of Canada (e.g. Livingston, 1981). Canadian environmental educators have been vocal in criticizing UNESCO's recommendation that ESD subsume EE. The heart of their critique seems to lie in a lack of belief that UNESCO's vision of ESD is congruent with the principles of sustainability promoted by EE. They point out that UNESCO's ESD is based on anthropocentric values and an instrumental view of the environment while Canadian supported EE is based on ecocentric values and a view of the environment rooted in respect, justice and equity. For many Canadian environmental educators, making EE a component of ESD is a retrograde step, antithetical to the true

spirit of sustainability. Additionally, over the years the EE movement has acted as a leader for transformative education in Canada often incorporating non-traditional educational theories like post-structuralism, feminist and social justice perspectives. Many environmental educators and scholars from Canada support the notion that EE may provide an alternative vision for education about sustainability to UNESCO's ESD.

### ***Gaps between policy, research and practice***

The eight responses to ESD described in this report show that across Canada, many policy documents have been developed about ESD and CCE. The three provinces and one territory highlighted in the report have formal policies that address, in different ways, aspects of UNESCO's DESD. Although these policies are not always backed by philosophical analyses, they all seem to have brought some version of the concepts of sustainability and climate change to the forefront of governmental thinking. Many of these broad policies have also lead to the development of policies related to ESD in formal education.

Despite this profusion of policy, countrywide, it is difficult to ascertain their practical effectiveness. There is a paucity of research on how ESD, CCE or EE policy is being implemented, and its impact on schools and classrooms. Reports that do exist come from government bodies and other organizations active in the area. These self reports tend to be uncritical catalogues that focus on successes, and are silent about problems and failures. This research gap may reflect a deeper systemic weakness, that is, the lack of emphasis on research in influencing policy and practice. On the other hand, the current research gap may exist because plans surrounding ESD are relatively new and the scholarly community has yet to develop appropriate research initiatives.

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