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**A Survey of National Environmental Education and
Education for Sustainable Development Laws and Policies:
Lessons for Canada**

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Abstract

This research paper is an international survey of the best practices in environmental education (EE) and education for sustainable development (ESD) policy. These best practices may then inform Canada's own EE and ESD policy efforts. The high level of activity in EE and ESD and number of recent developments at the international level is too great to fully address within this report; therefore, this research provides an overview of some of the major policies and action plans currently being enacted at the national and international level. There are a number of well developed laws and policies, notably: the National Environmental Education Act of 1990 in the United States, Australia's national action plan *Environmental Education for a Sustainable Future*, the UK's *Sustainable Development Action Plan for Education and Skills, inter alia*. These laws and policies provide strong commitments and models for other governments, though more research is needed to show the relative effectiveness of the laws and policies. Furthermore, education is primarily controlled by the Canadian provinces thereby complicating the implementation and enforcement of a new EE or ESD federal law or policy.

Methodology

This research was conducted using three key approaches. Firstly, a library and Worldwide Web search of available English language EE and ESD policies, action plans and frameworks was conducted. Secondly, articles discussing or reviewing such documents were searched for, read and incorporated. Thirdly, NGOs working in the field of environmental education were contacted to obtain information.

Background

Environmental education (EE) and education for sustainable development (ESD) have become a growing priority at the local, national and international levels in recent years. The central role of EE and ESD in fostering both the values and the skills necessary to fulfill the broader goals of sustainable development is reinforced by the United Nations recent launch of the Decade of Education for Sustainable Development in 2005. The Decade for Sustainable Development calls for all UN member countries to increase their commitment to educating populations on the need to create a sustainable future and providing citizens the abilities to do so (UNESCO, 2005). In addition, a recent survey assessing the most urgent issues in achieving sustainable development goals identified education as the number one priority (Globescan, 2005).

While there is often overlap between concepts of EE and ESD, there are some significant differences worth discussing. There was a sharp rise in the popularity of environmentalism and environmental education in the 1980's and 1990's that challenged mainstream values of consumerism, unfettered economic growth and disregard for contamination of natural environments and animal rights. In response there was a strong "green backlash" by those who felt that environmentalists had no right to say what should or should not be done and they certainly did not have the right to tell their children what they should and should not value (Switzer, 1997).

There was also a sharp critique put forward by academics and politicians representing the Southern (less-industrialized) countries who felt that the environmental movement would deny them the same right to industrialize and reach high levels of material wealth that the Northern (industrialized) nations already had (Rowell, 1996). Both of these critiques are valid, were persistently argued and were quite successful. Indeed environmental educators should not be telling people what to do but should rather create space for people to re-examine personal and social values and actions in light of the environmental crisis and provide useful tools or frameworks to move forward in the direction they see fit.

Similarly, Northern countries do not have the right to suggest to Southern countries that they should not economically develop; rather they should offer guidance and share lessons learned on how to balance development with an ethic of environmental stewardship. In both cases of backlash, environmentalism often was perceived to be a bad word and was replaced at the international and then national levels with sustainable development. The great success of sustainable development was -and continues to be- its ability to bring together a much broader coalition of political and business leaders around the same debate, summit, conference, or table while still welcoming environmentalists in their midst.

From the time sustainable development was first endorsed at the UN General Assembly in 1987, the parallel concept of education to support sustainable development has also been explored (McKeown, 2002). "Unlike most education movements," McKeown notes, "education for sustainable development was initiated by people outside of the education community" (Ibid: 10). International political and economic forums, such as the United Nations, the Organization for

Economic Co-operation and Development, and others are credited by McKeown with a ‘major push for ESD.’ While ESD was largely initiated at a political level, it draws deeply from two educational movements: environmental and development education, which was born in the 1970s largely from the involvement of non-governmental organizations in areas such as poverty, human rights and anti-racism. (Sterling, 2004)

The international trend towards an increase in the number of EE and ESD policies and projects can, in large part, be traced back to the 1992 Earth Summit in Rio de Janeiro and the resulting publication of the Agenda 21 document (UNESCO, 2005). Chapter 36 of Agenda 21 called on member nations to develop programs for furthering ESD and to raise awareness of environmental issues, including:

“achievement of environmental and development awareness in all sectors of society on a world wide scale as soon as possible, to strive to achieve the accessibility of environmental and development education, linked to social education, from primary school age through adulthood to all groups of people and to promote integration of environment and development concepts, including demography, in all education programs, in particular the analysis of the causes of major environment and development issues in a local context, drawing on the best available scientific evidence and other appropriate sources of knowledge.”

(Agenda 21, Chapter 36, 1992)

The importance of EE and ESD to achieving sustainable development goals was reinforced at the Johannesburg Summit in 2002 (UNESCO, 2005). Many countries have since developed and enacted substantial legislation, action plans and frameworks and in some cases, begun to track and document the success of the implementation process.

While on first appearances ESD appears to be more holistic with its explicit embrace of the social, economic and intergenerational dimensions, in practice environmental education has become more radical in its social critique and holistic philosophy. On the other hand, ESD is receiving much more funding and greater acceptance which is interconnected with the concept of ESD becoming mainstreamed, implicitly embracing economic growth and rarely questioning of structural issues of social inequality.

This report discusses both EE and ESD because the terms are closely linked with often overlapping definitions and practices. A number of nations make use of both terms or incorporate concepts from both EE and ESD in their national policies and/or action plans.

Currently, Canada lacks a national policy or coherent action plan on environmental education or education for sustainable development, although EE and ESD policies and practices have been enacted to varying degrees at the provincial level. Canada’s Constitution Act of 1867 states that “In and for each province, the legislature may exclusively make laws in relation to education” (CMEC, 2006). In addition, education funding in Canada is provided either entirely by the provincial government or through a combination of provincial funds and local tax dollars (CMEC, 2006). Educational matters are discussed at a national level through the Council of Ministers of Education, Canada (CMEC). The CMEC serves as a forum for provincial education ministers to collaborate and identify key issues and priorities in education, but does not play a

policy making role (CMEC, 2006). As a result, it is not possible for Canada to directly model nationally based policies discussed in this report. Instead, the intent of this report is to broadly identify best practices in EE and ESD policies in general, which may then inform Canada's discussion of EE and ESD activities at the inter-provincial level (via the CMEC) or formal policy at the provincial level. This report begins by looking closely at strong policy models from the United States, Australia, some EU countries, Japan and New Zealand. The focus is then shifted to current policy and practice in Canada followed by conclusions and recommendations.

Environmental Education Policy in the United States

The National Environmental Education Act of 1990

The United States was one of the first nations to implement EE legislation, passing the National Environmental Education Act (NEEA) in 1990. The NEEA is a substantial document including numerous targets and strategies improve EE. The NEEA is aimed at expanding opportunities for EE within K-12 education, as well as the promotion of enrollment in environmentally related post secondary studies and adult learning (US EPA, 1990).

One of the key components of NEEA is the establishment of the Office of Environmental Education as a new and distinct branch of the Environmental Protection Agency. The Office of Environmental Education's mandate is to create and provide support for EE programs alongside other agencies and to encourage an understanding of human impacts on ecosystems (US EPA, 1990). The office is also responsible for the creation and distribution of model environmental education curricula and resources, management of funding for environmental education, administering environmental internship and awards programs and the coordination of training programs for teachers (US EPA, 1990). The Office of Environmental Education is also intended to play a collaborative role with the Department of Education and other national education authorities, to organize educational activities relating to US national parks, forests and wildlife reserves (US EPA, 1990).

Another outcome of NEEA was the establishment of a training program for educators. The education and training program focuses on classroom training in environmental education, ranging from environmental science and theory to environmental career options and awareness of environmental issues (US EPA, 1990). Within the program, there is also the possibility of international teacher exchanges with Canada and Mexico as well as electronic and distance learning opportunities (US EPA, 1990). Generally, the education and training program places emphasis of the development of universal education resources that can be widely distributed. In most cases, these resources are readily available directly through the Office of Environmental Education portal on the EPA website.

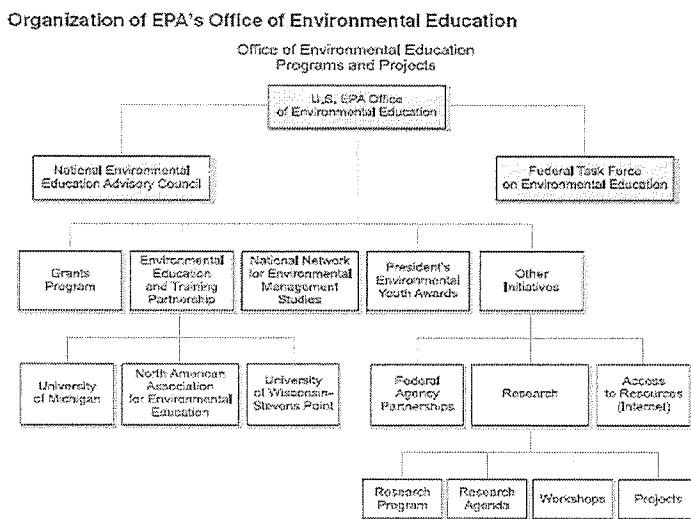
NEEA also provides a substantial amount of financial support for innovation in environmental education practices through its grants program. The intent of the grants program is to foster innovation in the design of curricula, educational tools, educator training or analysis of specific environmental issues (US EPA, 1990). However, the priority of the grants program is to fund educational methods and practices that will be able to be widely used.

Any localized education agency, post secondary institution or environmental organization is eligible to apply for a grant. Grants can be up to 250, 000 but generally, are within the range of

5000 dollars (US EPA, 1990). In addition to the grants program, NEEA established a series of EE awards for teachers and students demonstrating excellence in this area.

NEEA also resulted in the creation of the Environmental Education Advisory Council and Task Force, a separate entity from the Office of Environmental Education with its own staff (US EPA, 1990). The task force includes members with science and policy backgrounds from a cross section of government departments, whose mandate is to provide reports on the state of EE in the United States biannually, as well as emerging EE needs and barriers to implementation.

NEEA is also responsible for the establishment of the National Environmental Education and Training Foundation (NEETF). NEETF is responsible for the coordination of resources and efforts between the public and private sector, encouraging private funding donations and fostering international partnerships relating to EE, especially between the US, Canada and Mexico. Under NEEA, an annual budget of 12 million dollars, with an increase of 1 million each year the act is in place, was proposed (US EPA, 1990). Figure 1.1 below illustrates how the various organizations created under NEEA are structured.



(From report to congress on environmental education in the United States 2005)

Implementing the NEEA: Tracking Progress and the Current Status of the Act

A significant component of NEEA is its requirement that progress be monitored and analyzed in a formal report every four to five years. Through the monitoring and assessment process, gaps and shortcomings in the strategy of NEEA can be identified. The first of the progress reports was published by the National Environmental Education Advisory Council in 1996, four years after NEEA first received annual funding. The key recommendations emerging from the 1996 report were that greater resources and support, increased professional development for educators, increased access to quality educational resources and materials and a higher degree of integration

of environmental education into institutions was required in order to fulfill the original requirements of the 1990 act (NEEAC, 1996).

The second report issued by the National Environmental Education Advisory Council in 2005 indicates that across most states, many of the issues identified in the 1996 report have since been addressed, suggesting a measurable national increase in the overall quality of environmental education (NEEAC, 2005). It has been noted that in recent years, many states have developed their own frameworks and plans for EE, which have the potential to result in a much higher degree of action on the ground than is mandated through NEEA (US Office of Environmental Education, 2005). Specifically, the report states that professional development of environmental educators and the availability of quality education resources are increasing and the national status of environmental education has improved to the point where it is now beginning to be considered a profession unto itself (NEEAC, 2005). It is noted that state level certifications for environmental educators in schools are now in place and a national accreditation program is also currently in progress. Furthermore, the report suggests that the advancement of environmental education in the US through the NEEA has been a successful strategy in the promoting measurable environmental stewardship efforts (NEEAC, 2005). The report states that environmental education in the US now has the potential of being “an equal partner with enforcement as a strategy for environmental management” (NEEAC, 2005).

The 2005 progress report provides a detailed overview of how the various organizations and programs established through NEEA are working to fulfill the broader mandates of NEEA. The overview reveals that some level of success has been achieved through each of the various facets of NEEA and in several cases substantial progress has been made (NEEAC, 2005).

The 2005 progress report notes that the grants program established under NEEA has awarded over 30 million in grants across the 50 states and provided ongoing training and support to 100,000 educators since the implementation of the act 15 years ago, representing a substantial success, despite reductions in the level of funding originally intended to aid in the implementation of the various components of the act in 1996. A major contributor to the success of the grants program is the requirement that recipients of grants must match a certain percentage of the funds they receive with their own financial contribution. In spite of this requirement, competition for the grants each year remains fierce (NEEAC, 2005). The use of this strategy makes implementation of NEEA more efficient for the federal government, as a much higher level of innovation is achieved through the competitive of the grant process, while the requirement for financial backing from the recipients often exceeds what is required under the act.

The Office of Environmental Education has also collaborated with other governmental departments and federal agencies on environmental education projects to improve the cost effectiveness of the delivery of environmental education. Thus far, collaborative projects between the Office of Environmental Education and other federal agencies represent a cumulative value of 13 million US dollars (NEEAC, 2005). Of the total value, the Office of Environmental Education provided 7.5 million, demonstrating the potential of this strategy to further the goals of the act within budget constraints which could have acted as potential barriers.

Another key achievement of NEEA is the emphasis which the Office of Environmental Education has placed on generating research into its own effectiveness in achieving broader, more tangible environmental and academic outcomes, such as increases in environmental stewardship and enhanced student performance. This process allows for continuous input to the possible directions NEEA should take to meet its defining goals as well as the more encompassing goals of the EPA itself.

In its assessment of future directions for NEEA, the 2005 progress report suggests that improving the environmental literacy of average citizens will be necessary in order to achieve measurable improvements in environmental quality (NEEAC, 2005). Annual surveys distributed by the National Environmental Education and Training foundation have shown that while a majority of American citizens express a concern for the environment, many lack the level of environmental literacy necessary to fully comprehend the nature of environmental issues (NEEAC, 2005). In turn, this leaves many citizens without the ability to fully understand the relationships between actions taken in their personal lives and their connection to environmental degradation (NEEAC, 2005). As a result, it is suggested that capacity of environmental education efforts be further extended to reach beyond the K-12 system and seek broader community based outcomes (NEEAC, 2005).

Since 1990, NEEA has faced reductions in the budget allocated in the 1990 drafting of the act. In 1996, funding was reduced from 12 million to 10 million and has remained at a steady state since, in spite of the original proposal for annual increases (Bearden, 2005). The Bush administration has annually attempted to sever all funding for the act since 2003. Funding officially expires for NEEA in 2006; however the act has continued to receive funding from the US congress, as many states advocate the success of initiatives implemented under the act (Bearden, 2005). In addition, NEEA has faced criticism that some EE efforts established under the act have promoted courses of action that do not have a basis in sound science, suggesting possible conflicts between the more traditional principles of EE and concepts of ESD (Bearden, 2005). In spite of these recent challenges, NEEA is a substantial piece of EE legislation, providing several examples of best practices that could be incorporated into EE/ESD policies within Canada.

Environmental Education Policy in Australia

Australia has demonstrated a substantial amount of effort in the expansion and improvement of EE and ESD through both legislation and action plans; and has even described itself as a leader in this area (NSW Department of Education and Training, 2001). This description may be well founded, as there are a number of exemplary EE and ESD documents within Australia's strategy. Woollorton (2002) states education authorities in Australia have provided a substantial level of support for ESD initiatives at the local level.

National Level Action Plan

Australia has used several strategies to address EE and ESD. In 1999, state and territory environment ministers proposed their commitment to furthering EE and ESD, with the signing of the Adelaide Declaration. Goal 1.7 of the Adelaide Declaration states that students should "have an understanding of and concern for stewardship of the natural environment and the knowledge and skills to contribute to ecologically sustainable development" (Australian DEST, 1999). The declaration also states that the curriculum should teach the interactions between society, the environment and technology, as well as the interactions between environmental and other subject areas (Australian DEST, 1999).

Following the signing of the Adelaide Declaration, a national action plan was published in 2000: *Environmental Education for a Sustainable Future*. This is a key document in Australia's approach to ESD. *Environmental Education for a Sustainable Future* advises that in most cases, EE and ESD should be incorporated into all areas of the current formal education system, as opposed to addressing environmental and sustainability issues as an isolated subject or discipline (Environment Australia, 2000). Like the NEEA in the US, Australia's action plan emphasizes the need for a greater effort to form partnerships between various stakeholders in EE, both within and outside of formalized education. The National Action Plan also calls for the inclusion of aboriginal views on the environment.

While the action plan favors the term "environmental education" it is discussed within the broader framework of sustainable development, stating that environmental education must "provide people with the knowledge, understanding and capacity to influence mainstream society in a way which progresses environmental objectives along with other legitimate social and economic objectives" (Environment Australia, 2000) It is suggested that all of these outcomes be given equal priority in education.

The national action plan implies that Australia should seek to move beyond simply developing an awareness of environmental issues and begin to shift emphasis toward providing knowledge and skills that will lead to tangible actions (Environment Australia, 2000). Like the US, Australia's Action Plan calls for the establishment of a National Environmental Education Council. It is suggested that the council will provide input on current environmental research and education

needs and act as a coordinator for relevant national bodies. The council is also given the task of raising the profile of environmental issues within local communities (Environment Australia, 2000).

Under the National Action Plan, the Australian government also aims to create an Environmental Education Foundation within an Australian university to play a capacity building role in EE and ESD initiatives. The primary goal of this organization is to provide a means to form strategic alliances between business, government and the community (Environment Australia, 2000). It is also proposed that the Environmental Education Foundation will attempt to influence environmental policy makers, develop financial resources, create strategies for research and development and foster international cooperation (Environment Australia, 2000).

The Australian National Action Plan also makes commitments for improving communication of environmental priorities through mainstream media outlets. Similarly to the NEEA, the plan also proposes a central EE and ESD website will be used in the distribution teaching resources. In addition to the Environmental Education Council and Foundation, the Action Plan proposes the establishment of an Environmental Education Working Group. The working group will be directly aimed at the creation of a policy for EE developed through Environmental Australia. The working group would also be responsible for assessing and improving educational resources (Environment Australia, 2000).

Generally speaking, the Australian National Action Plan for Environmental Education is a substantial document in the promotion of EE and ESD which, if implemented, could be an effective catalyst for systemic change within the formal education system. In addition to significant efforts at the national level, the government of New South Wales has developed several EE and ESD strategies worthy of discussion.

New South Wales: Protection of the Environment Administration Amendment (Environmental Education) Act

Between 1994 and 1997, the New South Wales government distributed community surveys as a component of their research on how sustainable development goals could be achieved. This research determined that one of the greatest barriers to achieving sustainable development was a lack of understanding of how to behave in a manner consistent with the principles of sustainable development (Australian DEH, 2005). The resulting Protection of the Environment Administration Amendment (Environmental Education Bill) of 1998 provides the legislative backing for the direction of EE and ESD in New South Wales. The minimum annual budget to be distributed to community organizations for the purpose of environmental education was set at 500,000 dollars (Australian DEH, 2005).

New South Wales: Environmental Education Policy for Schools

In 2001, the Ministry of Education and Training for New South Wales implemented the *Environmental Education Policy for Schools*. The Environmental Education Policy for schools establishes New South Wales as an international leader in environmental education initiatives, as it is among to minority of nations and/or states to have opted for a formalized policy for EE and ESD. The adoption of the 2001 Environmental Education Policy for Schools is mandatory for all K-12 government schools (NSW Department of Education and Training, 2001). New South Wales' approach to environmental education seeks not only to provide students with an understanding of environmental and ecological principles, but also to foster a sense of caring and responsibility that will lead to concrete actions toward sustainable development (NSW Department of Education and Training, 2001).

One of the key components of the policy statement is that all K-12 schools are required to develop their own environmental management plan, which will address curriculum *and* the environmental performance of the school itself, in a manner similar to the implementation of ISO 14001 standards (NSW Department of Education and Training, 2001). This type of comprehensive approach to environmental education not only provides greater opportunity for students to engage in action based learning, but also ensures that measurable environmental outcomes will be achieved in the process. The nature of this strategy also implies that the final outcome of the environmental management plan resemble broad organizational change toward sustainability.

In terms of curriculum requirements, the NSW policy for schools requires that students begin by learning about basic ecological principles and the impacts of humans on the environment at the primary level, and show "a commitment to act for the environment by supporting long term solutions to environmental problems" by their senior year (NSW Department of Education and Training, 2001). It is proposed that these goals be addressed through a cross curriculum approach. To this end, the NSW government provides a set of mandatory environmental syllabuses that dictate specific environmental outcomes.

The curriculum requirements also stress the importance of including a community based element in environmental education by maximizing opportunities to extend environmental learning beyond the confines of the classroom. In order to aid in the achievement of this goal, scientific field study centers were renamed as environmental education centers. This change in terminology was aimed at stressing the new emphasis on environmental education in Australian society (NSW Department of Education and Training, 2001).

Another noteworthy aspect of the NSW policy is the suggestion that environmental education be linked to other broad curriculum policies and objectives such as aboriginal and multicultural education (NSW Department of Education and Training, 2001). This aspect of the NSW policy should be of particular significance to Canada, who also has a rich aboriginal heritage from which many learning opportunities relating to sustainable development could be adapted.

Another critical component of the NSW policy statement is the requirement that schools are required to continually evaluate and report their progress toward enhanced environmental education. To aid in the achievement of this goal, a framework “stages in becoming an environmentally active school” is provided. The framework provides evaluation criteria, reporting guides and suggested stages in the transition towards becoming a sustainable school.

The legislation and action plans developed to further environmental education and education for sustainable development in Australia should be regarded as a success. The New South Wales environmental education policy for schools is a particularly important example of best practices in environmental education policy because of its incorporation of principles both enhanced learning and concrete environmental action.

Current Status of EE & ESD in Australia

In 2005, the Australian government published *Educating for a Sustainable Future: A National Environmental Education Statement for Australian Schools*. The statement provides a coherent national standard for EE and ESD and provides implementation guidelines for educators of all levels (Australian DEST, 2005).

The statement also includes a review of all curriculum documents relating to EE and ESD at the state and territory level, as well as information on current best practices and an updated set of indicators defining characteristics of a sustainable school. In keeping with prior EE and ESD documentation in Australia, the indicators include objectives for improving the real environmental performance of the school in addition to curriculum content. The publication of the document reaffirms Australia’s commitment to becoming a leader in the field of EE and ESD.

Environmental Education Policy in the European Union

Within the European Union there are significant examples of environmental education policy at the international and national levels. Environmental education has been included in the EU agenda since the late 1980s (Stokes, Edge & West, 2001; Nicolae, 2005). A 1988 resolution adopted by the Council of Environmental Ministers acknowledges the importance of including an educational component in environmental policy. Even at this time, the EU approach to EE was reflective of sustainable development objectives.

“ [environmental policy should] ...increase public awareness of the problems in this field, as well as possible solutions, and to lay the foundations for a fully informed and active participation of the individual in the protection of the environment and the prudent and rational use of natural resources”

(Stokes, Edge, & West, 2001)

The objectives expressed in the 1988 resolution were again reinforced in 1993 with a second EU resolution encouraging member states to include an environmental component in all aspects of education at all levels. Furthermore, the Fifth European Community Environment Programme had the objective of including an environmental component in all aspects of government policy as a means of encouraging the type of behavioral transformations that will be necessary to meet the goals of sustainable development (Nicolae, 2005). To this end, education is viewed as being as important to European environmental policy as environmental protection legislation and market based instruments in efforts to gear human behavior toward more environmentally sustainable patterns (Nicolae, 2005).

Most EU member countries include environmental education as a component of their standard curriculum, although the degree to which the environment is addressed within the curriculum varies between nations (Filho, 2005). In the majority of EU member countries, environmental education themes are integrated into other subjects in the curriculum, as opposed to being taught as a subject unto itself (Stokes, Edge, & West, 2001).

Discussions on ESD among the Baltic 21 region, including Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Norway, Poland, the Russian Federation and Sweden took place in 1996 (Wooltorton, 2001). In 2002, Ministers of the Environment from the Baltic 21 nations of the EU held a conference on ESD that resulted in the development of an action plan to fulfill their Agenda 21 requirements, entitled Baltic 21E (UNECE, 2003). In addition the United Nations Economic Commission for Europe (UNECE), composed of 55 countries from the EU and abroad, proposed their commitment to ESD in a 2003 conference (UNECE, 2003). This commitment was reaffirmed in 2005, with the publication of an implementation strategy proposing the inclusion of ESD at all levels of education and the improvement of teacher competency in ESD by 2007. It is also important to note that the development of the UNECE strategy was a

collaborative effort that involved input from a variety of stakeholders, including international organizations such as UNESCO, non government organizations, regional environmental centers and research institutions (UNECE, 2003).

Filho (2005) notes that while many northern European countries have demonstrated support for education for sustainable development, southern and eastern European countries have been slower to embrace ESD concepts outside of the traditional environmental education paradigm. In spite of this divergence, there are examples of progress in EE and ESD occurring at the national level. The following section provides two examples of such efforts.

Finland

Finland makes reference to both EE and ESD in its national objectives for education. In 1999, the publication of the document *Education and Research 1999-2004* identified sustainable development as an educational priority for the country (Loukola, Isoaho, Lindstrom, 2001). The National Board of Education is currently in the process developing a dedicated EE and ESD program, out of recognition that progress is best achieved when a coherent set of objectives is established to measure progress against (Loukola, Isoaho, Lindstrom, 2001). The aim of this program is to advance EE and ESD toward a more comprehensive approach similar to New South Wales' Environmental Policy for Schools, in which sustainable development is addressed both through the curriculum as well as the environmental performance of school facilities (Loukola, Isoaho, Lindstrom, 2001).

Finland is also in the process of developing an environmental certificate to encourage individual schools to promote ESD. The proposed certificate is to be granted to schools that are making visible efforts toward implementation of ESD. Criteria for receiving the environmental certificate would include management of facilities, instruction and participation as well as maintenance of environmentally friendly activities (Loukola, Isoaho, Lindstrom, 2001).

Denmark

Denmark's Ministry of Environment has included concepts relating to sustainable development as a significant component of its education programs for roughly a decade (Danish National Commission for UNESCO, 2004). In 1995, the Danish Ministry of the Environment published the document *A Green Approach to Education* in 1995, which focused directly on the purely environmental or ecological aspects of environmental education, while more recent efforts have tried to incorporate the social aspects of sustainable development. Since then, there has been effort to incorporate the "green approach" into all subject areas of K-12 education. In addition, the green approach to teaching standard curriculum subjects is incorporated into the teacher training process (Danish National Commission for UNESCO, 2004).

United Kingdom

In 2003, the United Kingdom published the *Sustainable Development Action Plan for Education and Skills*. This action plan focuses on four central objectives in ESD. These objectives include general education for sustainable development, the environmental impact of the department of education itself and its associate departments, the environmental impact of the education estate and local and global partnerships (Clarke, 2003). The action plan proposes that increasing awareness of sustainable development issues will be achieved through a variety of departments and individuals, including school governors, teacher training and school leadership organizations as well as school business managers, who would be educated in the sustainable operation of school facilities (Clarke, 2003).

In terms of revising curriculum content to reflect sustainable development, the plan proposes to explore holistic models of ESD and identify best practices in this area (Clarke, 2003). The UK action plan also proposes the development of a centralized ESD website titled “the global gateway for schools”, which will provide online help and resources for implementing ESD into school curricula (Clarke, 2003).

The action plan also makes an impressive commitment to implementing the ISO 14001 Environmental Management System in central UK education offices. Action in this area will include reductions in water and energy consumption, a shift toward use of renewable energy sources, increased recycling, transportation reform and a shift to fair trade and locally produced foods. These principles are also intended to be applied to school facilities where possible (Clarke, 2003). Targets for the percentage of students traveling to school by environmentally sustainable methods are also suggested (Clarke, 2003).

At the school level, a number of proposals are included in the action plan. The plan proposes the development of an online self assessment tool for schools to measure their progress toward implementing education for sustainable development. In addition, all new schools will be required to be designed according to the concepts of “Building Schools for the Future” (similar to the Canadian LEED standard for buildings) from April 2004 onward (Clarke, 2003). The plan also proposes that a study be conducted to assess the impact of building design reform on the overall experience of the learning, an aspect that was overlooked in previously discussed policies and action plans that included sustainable design and on site environmental management as a component of their approach to ESD.

Community based education is also incorporated into the act, specifically by providing students with the opportunity to participate in debate relating the Agenda 21 strategies within local fora (Clarke, 2003). This participatory component could be beneficial in developing the critical reasoning skills that would be necessary to assess environmental issues and engage in activities that have real environmental outcomes.

Other examples of Government-led initiatives towards learning for sustainability include the new sustainable development strategy – *Securing the Future: delivering the UK sustainable development strategy* (2005), as well as the goal set by the Sustainable Development Education

Panel of the Department of the Environment, Transport and Regions, that 'by 2010 all UK further and higher education institutions will have staff fully trained in sustainability and provide relevant learning opportunities to students' (ARIES, 2005)

The Higher Education Academy (HEA) has responded to the mounting emphasis of the Government on sustainable development and education for it by commissioning the study "Sustainable Development in Higher Education: Current Practice and Future Developments," which was publicized on the HEA web site in March 2006. The report of this study (Dawe *et al.*, 2005) provides a succinct analysis of policy context for ESD development, reviews main literature sources on ESD teaching and curriculum approaches, presents results from HEA Subject Centres of emerging good ESD practice, examines barriers and solutions to embedding ESD, and looks at the student experience and ESD. Commenting on the state of progress of ESD in UK universities, the authors note *substantial work in progress, a range of good practice, but overall a patchy picture with sustainable development being marginal or non-existent in some influential disciplines but increasingly higher profile in others* (*Ibid*: 4).

Environmental Education Policy in Japan

In 2003, Japan enacted the Law for Enhancing Motivation on Environmental Conservation and Promoting of Environmental Education. The purposes of the legislation are to foster a broad based willingness to commit to environmental conservation activities on a volunteer basis and the promotion of education efforts geared toward the improvement of citizens understanding of environmental conservation (Government of Japan, 2003).

Being a relatively new addition to Japans legislative framework, the Law reads as a precursor to more substantial legislation to come. Targets for reaching specifically defined outcomes are not present in the Law. Instead, the general purpose of the Law is to encourage voluntary efforts within the public and private sectors, as well as civil society.

At the state level, it is proposed that measures will be implemented to aid in encouraging willingness for conservation activities and EE in cooperation with local governments (Government of Japan, 2003). The Law states that the Environment Minister, in cooperation with the Minister of Education, Culture, Sports, Science and Technology will seek public input and draft a basic policy to promote environmental education at the national level. With respect to EE in particular, the intent of the Law is to encourage the promotion of EE both within the formal school setting and through other non formal channels (Government of Japan, 2003). While its aims are fairly broad, the Law seeks to develop hands on approaches to environmental learning, measures for improving teacher skills in environmental education and mechanisms for progress monitoring (Government of Japan, 2003).

The Law also establishes a program that allows institutions who lend their services and expertise to the aims of the Law to register themselves through a governmental accreditation process (Government of Japan, 2003). In addition, the law proposes that the Japanese government take measures necessary to encourage land or building owners to make their property available to serve as a site for participatory environmental learning activities where possible (Government of Japan, 2003). The Law also lays the groundwork for financial assistance and tax breaks for entities engaged in promoting environmental education efforts, but does not specify a timeline or provide budget figures.

The Law will be reviewed to determine its effectiveness in 2008; however, the Ministry of Education, Culture, Sports, Science and Technology issued an interim report on progress in environmental education since the enactment of the Law in 2003.

The 2004 progress report *Overview of the Current Situation in Japan on Education for Sustainable Development*, identifies a number of environmental education initiatives currently in place at the school level. The report cites a 56% participation rate in EE activities for elementary schools nationwide and a 40% participation rate for schools at the junior high level (Hiroushi, 2004).

The Ministry of Education, Culture, Sports, Science and Technology has also recently launched an Eco Schools pilot program. The Eco Schools program is similar to the LEED standard used for sustainable design in North America. Similarly to other nations previously discussed, the Ministry of Education, Culture, Sports, Science and Technology aims to use the Eco Schools program as a means of generating real gains in environmental performance, while simultaneously creating new learning opportunities for students (Hiroushi, 2004).

In addition to these projects, the Ministry has developed an action plan, *The Green Plan for Advancing Environmental Education* that includes initiatives such as nationwide EE conferences for teachers to share best practices and experiences, a collaborative effort with the Ministry of Environmental Affairs to create a database of information on EE, implementation of teacher training courses and the development of new educational materials and resources (Hiroushi, 2004).

Environmental Education Policy in New Zealand

While New Zealand currently has no formalized policy or legislation on environmental or sustainability education, an action plan has been developed that embraces these concepts. In addition, the New Zealand Ministry of Environment currently allows an annual budget of 1.3 million to be dedicated to the promotion of environmental and sustainability education (New Zealand MOE, 2005). In 1998, New Zealand published its national strategy, *Learning to Care for our Environment*. The document was the result of a multi stakeholder consultation with parties involved in EE and is intended to serve as a framework to promote activities in the field from both governmental and non governmental organizations. Among the key goals of the strategy are sharing of experiences between environmental education practitioners, identifying gaps in current environmental education effort and initiatives, the centralized organization of educational resources and materials, improving the effectiveness of current activities, establishing a set of environmental education priorities and securing additional financial resources (New Zealand MOE, 1998).

The New Zealand action plan makes a clear distinction between “learning about the environment” and “learning in which activities are directly aimed at addressing and influencing environmental issues”. The action plan states that one of its primary aims is to promote the latter category of environmental education efforts (New Zealand MOE, 1998). The use of action oriented language throughout the New Zealand action plan gives the impression that environmental education efforts within New Zealand go beyond the ‘environmental knowledge accumulation’ paradigm and are instead aimed at generating actions and behaviors compatible with the goals of sustainable development. To this end, the New Zealand action plan states that effective environmental education efforts can either act in place of formal environmental policy or as a companion to policy in that environmental awareness in itself can promote sound environmental decisions without the necessity of legal requirements to do so (New Zealand MOE, 1998).

Within the action plan, the New Zealand government identifies clear goals for itself in achieving its list of desired objectives. The list of objectives includes:

- “encouraging integration and coordination of existing activities,
- evaluating and improving the effectiveness of environmental education activities in the transfer of knowledge and the implementation of policy,
- maintaining and enhancing the capacity of indigenous populations to fulfill their responsibilities as environmental stewards,
- incorporating the aims of environmental education through school curricula,
- promoting environmental education within business training and providing individuals and communities with the ability to make environmentally sound decisions.” (New Zealand MOE, 1998)

Within the action plan, the New Zealand government also proposes funding for research into what environmental education activities are the most effective in changing behavioral patterns and generating action (New Zealand MOE, 1998).

Current Status of EE/ESD in Canada

1999: The Status of Sustainable Development Education in Canada

The 1999 report *Educating for Sustainability: The Status of Sustainable Development Education in Canada*, published through Sustainable Development Initiative of the Manitoba Department of Education and Training, provides a baseline study of initiatives in environmental education and education for sustainable development across the provinces. The report highlights statements by the Canadian Council of Ministers of Education (CMEC) regarding the importance of environmental education. In the 1997 *CMEC Framework for Science Learning Outcomes*, it is stated that science education should;

“Encourage students at all grade levels to develop a critical sense of wonder and curiosity about scientific and technological endeavors, Enable students to use science and technology to acquire new knowledge and solve problems, so that they may improve their own lives and the lives of others and prepare students to critically address science related societal, economic, ethical and environmental issues” (Manitoba Education and Training, 1999)

The report also highlights specific environmentally related outcomes for science learning at the elementary and secondary levels. By the mid elementary level, students are expected to understand the differences between positive and negative applications of science in their own lives and in the larger environment and be able to critically assess scientific applications through the lens of sustainable development by the end of high school. (Manitoba Education and Training, 1999)

At the provincial level, where the vast majority of jurisdiction over the educational system and curriculum content in Canada lies, the 1999 assessment found that essentially no formal policy dealing with environmental education or education for sustainable development had been enacted, with the exception of Manitoba, where the *Sustainable Development Act* was implemented in 1998. The act requires the development of a provincial sustainable development strategy, as well as a set of sustainability indicators and regular reporting on progress of implementation (Government of Manitoba, 1997).

The passing of the act also resulted in the creation of a Sustainable Development Initiative, organized within the Manitoba department of education and training. The Sustainable Development initiative seeks to ensure that all policies, legislation, programs and curricula developed within the Manitoba Department of Education and Training reflect the principles of sustainable development (Government of Manitoba, 1997). Under the act, an action plan was developed which requires each branch of the Department of Education and Training to submit regular reports on how principles of sustainable development are being implemented (Government of Manitoba, 1997).

Manitoba has also established a grants program for education for sustainable development initiatives. The grants program provides teachers with funds up to 2000 dollars for development of learning units relating to sustainability that incorporates socio-cultural, economic and environmental perspectives (Manitoba Education, Citizenship and Youth, 2006). Eligibility requirements also state that the unit must be interdisciplinary, interactive and preferably involve community based learning in some form.

In the remaining provinces, environmental education and concepts of sustainability are addressed, but to varying degrees and in different contexts. The 1999 report also indicates that professional development options for teachers to improve their environmental knowledge and teaching abilities are often limited and not required by school boards. (Manitoba Education and Training, 1999)

The 1999 report also recommends that the CMEC develop policies and guidelines for education for sustainable development, as well as curriculum outcomes. It is also suggested that the CMEC provide leadership in developing a nation wide strategy for sustainable development education which would establish guidelines, targets, responsibilities and an action plan (Manitoba Education and Training, 1999).

A Framework for Environmental Learning and Sustainability in Canada

In 1999 the government of Canada also began a consultation process on possible directions for ESD after public pressure was applied to the Minister of Environment to review Canada's commitment to sustainable development (Environment Canada, 2002). As a result, the document *A Framework for Environmental Learning and Sustainability in Canada* was produced. The document is also intended to act as a response to Canada's responsibilities under chapter 36 of Agenda 21 (Environment Canada, 2002).

The document provides a list of criteria and broad objectives which would ideally be included in a national action plan or policy for education for sustainable development. The extensive list of objectives include forming alliances between public and private sector institutions, identifying intended outcomes, indicators and regular monitoring of progress, establishing dialogue within the education community to identify current gaps in educating for sustainability and the incorporation of traditional aboriginal knowledge and an intergenerational approach to learning, and general integration of sustainability concepts into all levels of education in Canada (Environment Canada, 2002).

The Canadian Sustainability Curriculum Review Initiative

An exciting, recent and on-going project is the Canadian Sustainability Curriculum Review Initiative coordinated by Learning for a Sustainable Future - L'éducation au service de la Terre

(LSF-LST). This is a well thought out initiative aimed to make high quality ESD material available, and easy to integrate into curriculums in all provinces and territories.

Curriculum Policy, organized by subject and grade level, directs what is taught in Canadian schools. Changes to curriculum policy take place through the Curriculum Review, Development, and Implementation (CRDI) process in each province or territory. This project supports the improvement of curriculum policy by participating in CRDI processes across Canada. As our contribution to ongoing educational reform, we focus on the fundamental concepts for twelve themes or topics with which every citizen should be familiar, and the most effective instructional methods that can be used to address them at the classroom level.

...The United Nation's Decade of Education for Sustainable Development, starting in 2005, is the international call for all jurisdictions to review their educational programming as a means of preparing their citizens to meet the mounting challenges through informed decision making and active democratic civic participation. The Canadian Sustainability Curriculum Review Initiative, a project of Learning for a Sustainable Future, is one Canadian response to the call for action.

For each of the twelve themes chosen (from the twenty-one identified by the UN)... we use relevant research literature and practice to identify the fundamental concepts, related skills, and values that should be included in the four stages of each student's educational experience: Kindergarten to Grade 3, Grade 4 to 6, Grade 7 to 9, and grade 10 to 12. (Learning for a Sustainable Future, 2006)

In addition to the already completed *Canadian Sustainability Curriculum Review Initiative: Rationale, Context, and Scope* which is quoted from at length above, LSF-LST is in process of completing and making public:

- Education for Sustainable Development –International Survey
- Curriculum Review, Development and Implementation (CRDI) across Canada-Current Practices and Opportunities for Participation
- Instructional Methods and Education for Sustainable Development
- Status of Education for Sustainable Development across Canada

Conclusions and Recommendations

With the emergence of a variety of policies and action plans to address EE and ESD throughout the international community, Canada is currently in a favorable position for the development of its own national action plan in this area. Canada should follow examples and standards for EE and ESD currently being established abroad and define itself as a leader in this growing field. The 1999 assessment of education for sustainability in Canada and the 2002 framework for ESD provide a starting point in identifying current needs and potential directions for the future.

Generally speaking, Canada's environmental education efforts as defined in the 1997 *CMEC Framework for Science Learning Outcomes* are reflective of the traditional EE paradigm and should be updated to reflect the current trends towards ESD that have been embraced in areas such as Australia and the EU. In addition, EE and ESD should be addressed through a more holistic approach in which sustainable development themes are incorporated across curriculums, instead of being addressed solely within the context of the sciences or as an add-on to an already over-crowded curriculum.

While the implementation of a formal policy has been an effective means of encouraging and improving EE and ESD elsewhere, this may not be possible for Canada at the national level, as jurisdiction over educational content lies within the individual provinces. However, the CMEC should place a greater emphasis on the promotion of EE and ESD in Canada through the creation an action plan to serve as a follow up document to the 2002 framework. A national action plan would demonstrate increased national commitment to EE and ESD and provide a useful resource for provinces to draw upon in incorporating ESD into their respective curricula.

Research in other nations such as Australia and the US has demonstrated that a lack of understanding the connections between human actions and environmental consequences and general environmental literacy are substantial barriers to achieving the broader goals of sustainable development. In the US, education was described as being a tool comparable to enforcement in achieving positive environmental outcomes (NEEAC, 2005). This analogy was also made in the EU comparing education to market based instruments for environmental efficiency (Nicolae, 2005). Therefore, through strengthening and expanding efforts in EE and ESD, Canada could also increase the likelihood of improving national environmental performance, thus heightening its reputation in the international community.

A Canadian action plan for ESD should seek to establish a number of initiatives which have recurred throughout the EE and ESD documents reviewed in this report including the following:

- Development of a government affiliated body, or office of EE and ESD to coordinate efforts between various societal sectors involved in EE. This approach has been effective for capacity building, developing learning resources and materials and creating new avenues for funding and organizing activities occurring in different areas.

- Encourage the enactment of EE and ESD legislation at the provincial level, similar to what has been accomplished in Manitoba with *The Sustainable Development Act*.
- Development of a centralized EE and ESD website to provide widespread access to educational resources and curriculum development tools for the provinces (or continued and wider support for the LSF-LST website and connected resources).
- Encourage the development of provincial accreditation and certification programs for schools and educators making demonstratable efforts in EE and ESD.
- Support high quality research into the effectiveness of ESD, using qualitative and quantitative research methodologies, longitudinal studies and comparative studies all of which are in line with on-going international research into these areas.
- Development of an EE and ESD grants and/or rewards program to encourage the development of education resources and to reward and highlight best practices. Use of the US funding model, in which recipients must match funding, could also be employed to improve the cost effectiveness of the program.
- Promote the incorporation of traditional Aboriginal knowledge and worldviews into EE and ESD
- Encourage community based service learning opportunities in EE and ESD by establishing partnerships with local organizations and NGOs working in the field of EE and ESD.
- Use EE and ESD as an opportunity to enhance learning and improve national environmental performance by encouraging schools to develop their own environmental management plans similar to ISO 14001 standards that include roles and responsibilities for administrators, staff and students.
- Establish a clear set of criteria marking stages of progress toward becoming a sustainable school that identify both curriculum goals and targets for the performance of the school facility itself
- Encourage inter-provincial cooperation in the enhancement of EE and ESD activities. To this end, Manitoba may serve as a useful resource to other provinces, as it is currently the only province to have enacted formalized EE and ESD legislation and is also in the process of implementing aspects of EE and ESD discussed in this report that are becoming commonplace in the international community.
- Re-establish the national commitment to tracking and monitoring progress in ESD proposed in the 2002 ESD framework through the requirement of regular national progress reports on the status of EE and ESD in Canada. In addition, a new action plan should include a timetable for reviews of its own relevance and effectiveness based on current sustainable development goals as they emerge.

By incorporating some or all of these recommendations into a new national action plan for EE and ESD, the Canadian government will ensure that it is performing at the level of international norms currently being established in this field. The 2002 Canadian framework for ESD served as an initial response to pressure from citizens to improve national commitment to sustainable development and subsequently ESD. However, Canada now needs to establish a more substantial action plan describing how it will address both the concerns of its citizens and the growing need to meet international norms in environmental performance.

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