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National Centre for Workforce Development

Canadian Centre for UNESCO's International Network on Technical and Vocational Education
Centre canadien du réseau international pour l'enseignement technique et professionnel de l'UNESCO

SKILLS TO LAST

**BROADLY TRANSFERABLE SUSTAINABLE DEVELOPMENT
SKILLS FOR THE CANADIAN WORKFORCE**

**A Technical Research Report for
Human Resources development Canada
Human Resources Partnerships**

**National Centre for Workforce Development
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Broadly Transferable
Sustainable Development Skills
for the Canadian Workforce

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Acknowledgments

The national Centre for Workforce Development (NCWD) is the Canadian Centre for UNESCO's International Network on Technical and Vocational Education. The vision and mission of NCWD is to contribute to the improvement of human performance and conditions through research and development, information exchange, networking and national and international collaborations.

I wish to express my gratitude to the HRDC, Human Resources Partnerships branch for giving the NCWD the opportunity to conduct this research and to make this important contribution to the knowledge base on sustainable development. I am also very grateful to Mr. François Hénault, Senior Policy Analyist, for his assistance in designing and conducting this study so that we can successfully meet the information need of Human Resources Partnerships. I want also to thanks all my national and international colleagues who provided direct or indirect input to this study.

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Dr. Chris Chinien
Director, National Centre for Workforce Development

Executive Summary

Human Resources Development Canada (HRDC) contracted the National Centre for Workforce Development to conduct a study designed to identify the broadly transferable sustainable development-related knowledge, skills and attitudes required by the workforce. This study fits under the HRDC Sustainable Development Strategy – Target 3.2.3, which calls for an assessment of the overall SD-related knowledge/skill needs in the economy over the medium term and how these might be better incorporated into HRDC's sectoral human resources programs and strategies.

This study was conducted in two phases. In Phase I, we conducted an extensive review of literature and research to identify knowledge, skills and attitudes (KSAs) related to the three elements encapsulated in sustainable development, namely: Environment, Society and Economy. In Phase II, we validated these KSAs using a focus group of individuals (N=23) representing Canadian diversity, and with expertise in environment, sustainable development and workforce development. The experts confirmed that the great majority of the KSAs were relevant to the goals of sustainable development. They provided some concrete suggestions for consolidating the KSAs and for collapsing the KSAs under unifying themes in order to capture their interconnectedness and interdependencies. The experts also recommended the use of action-focused statements in the formulation of KSA statements. Six major themes emerged form the analysis of the KSAs. These are:

- Ethics and Values
- Integrated Decision-Making
- Responsible Use of Resources
- Valuing Diversity
- Safety and Well-being
- Continual Improvement

The experts who participated in the focus group were invited to comment on these categories by e-mail. All those who responded supported the use of these skill clusters for organizing the KSAs. The core KSAs from the environment, society and economic categories were analyzed and classified under these five unifying clusters. The Sustainable Development Skills Profile (SDSP) was generated as a result of this analysis process.

This SDSP consists of a set of broadly transferable skills for the Canadian workforce, regardless of job function, sector, and level of education and training. It is also broadly applicable to general education, adult education, and the technical and vocational education and training.

SECTION 1.0
Introduction

1.1   Overview

In 1987, the World Commission on Environment and Development (WCED) published *Our Common Future*, a groundbreaking report that brought the terms "sustainable development" and "sustainability" into widespread use. That report defined sustainable development as "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs" (WCED, 1987) and called on the global community to take steps towards that goal. Building on that definition, numerous efforts have been undertaken to put this concept into practice.

One of the most prominent activities in this regard was the development of Agenda 21 as a part of the Rio Earth Summit of 1992. A global action plan for achieving sustainable development, Agenda 21 has provided a useful starting point for many government and industry-based projects. For instance, sustainability projects have been initiated at the national, regional, and local government levels all over the world.

However, as repeatedly noted at the 2002 Johannesburg World Summit on Sustainable Development, there is still much work to do. If the concept of sustainable development is ever to be put into widespread practice, its principles must be integrated into all disciplines at every level of society. This necessity was explicitly recognized by Agenda 21, which placed education among its top priorities for the advancement and implementation of sustainable development. Even in countries with strong education systems, there is a need to reorient education, awareness, and training to increase understanding and support for sustainable development (HDRC, 2003).

Canada must make continued efforts to address this challenge. A 1999 report by the Canadian Council of Ministers of Education (CMEC) noted that little attention has been paid to educating the Canadian workforce with regard to sustainable development (CMEC, 1999). Considering that these are the people who need to apply the principles of sustainable development in their day-to-day activities, it is essential that the work begins now.

The Government of Canada is committed to integrate sustainable development into its decision-making process to ensure that social, economic and environmental implications are considered in the development of various federal programs, products, and services.   This commitment has been demonstrated in numerous federal programs, including the ongoing Environment and Sustainable Development Indicators Initiative being undertaken by Environment Canada and the National Round Table on the Environment and Economy. In keeping with this Canadian Government's commitment to sustainable development, Human Resources Development Canada (HRDC) has developed a Sustainable Development Strategy. The strategy of the Human Resources Partnership (HRP) branch calls for an assessment of overall sustainable development-related knowledge and skills needed over the medium term and how these might be incorporated into HRDC's human resources development and sector strategies.

1.2 Purpose

The principle of sustainable development calls for an integrated approach to environmental, social, economic and global considerations. The prospect of full integration cannot be guaranteed in the longer terms by the instruments of science, technology, economics and law alone. If the principle of sustainable development is to be implemented successfully, there is also a need for workforce education and training (BIBB, 2000). Workers will require new ways of thinking, new attitudes and skills to be able to contribute to the achievement of the goals of sustainable development. This will require significant changes in the training of the Canadian workforce. The implementation of education for sustainable development programs for the workforce pre-supposes that the sustainable development-related knowledge, skills and attitudes needed have been identified. However, an extensive review of literature indicated that such information is not available in the Canadian or international contexts. The purpose of this project was to identify the sustainable development-related knowledge, skills, and attitudes required by the Canadian workforce. A secondary objective of the study was to establish a priority for sustainable development training within the Canadian economic sectors.

1.3 Conceptual Framework

A scan of literature and research was conducted to provide the guiding theoretical orientation and the underpinning foundation to the study. This review was used to elaborate a conceptual framework for the identifications of the sustainable development skills profile required by the workforce. This framework consisted of two main elements, namely (1) sustainable development; and (2) human performance enablers. Taking into account the interconnectedness of the world in which we live, sustainable development was viewed in the context of three principal elements, namely the environment, society, and the economy. The human performance enablers incorporated three dimensions which are assumed to be critical for sustainable human performance, namely knowledge, skills, and attitudes. An illustration of the framework is presented in Figure 1.

Figure 1. Conceptual Framework for Sustainable Development Skills

Sustainable Development	Human Performance Enablers		
	Knowledge	Skills	Attitudes
Environmental			
Social			
Economic			

Adapted from Buckland, 2002.

1.4   *Scope*

The focus of this study was to identify the broadly transferable sustainable development-related knowledge, skills, and attitudes needed for the Canadian workforce, regardless of job function, sector, and level of education and training. This study did not address occupationally specific sustainable development skills.

1.5   *Methodology*

The study was conducted in two main phases. Phase 1 consisted of a general scan of literature and research on environment, society and economy in order to identify key issues related to skill needs for sustainable development. In Phase 2 and extensive review of literature and research was conducted to identify sustainable development-related knowledge, skills, and attitudes (KSAs) required by the Canadian workforce. These KSAs were then validated using a Focus Group methodology. Finally a briefing meeting was held to present a technical report of this study to senior managers of the Human Resources Partnerships branch.

SECTION 2.0
Background Information

Sustainable development is a concept emphasizing the need to establish a balance between, and ultimately an integration of the economic, environmental, and social concerns. Rather than treating issues related to the economy, environment, society and globalizations as though they are mutually exclusive, the sustainable development approach recognizes the interconnectedness and interdependencies among these elements and supports a holistic and integrated decision-making strategy in generating solutions to problems. A sustainable development strategy would therefore include interrelated strategies for the environment, the economy, and societal health and well being, all vital in determining our quality of life. The environment pertains to structure, function and behavior of ecosystems; the maintenance and conservation of natural resources, atmospheric stability, and other ecosystem functions. The economy includes the production of goods and services on a continuing basis. Social factors include achieving distributional and gender equity, adequate provision of social services, and political accountability and participation.

The purpose of this scan of literature and research on environment, society and economy in order to identify key issues related to skill needs for sustainable development. The following sections present concise summaries of the most important issues and sustainable development considerations for the workforce. The purpose of this research activity was to assist the research team in selecting appropriate publications for review in order to identify the sustainable development-related knowledge, skills and attitudes.

2.1   Environment

Canada's ecosystems and its people are bound together in a grand but tenuous symbiosis. We depend on ecosystems to sustain us, but the continued health of ecosystems depends, in turn, on what we know about ecosystems and our care of them. Ecosystems are the productive engines of the planet, providing us with everything from the water we drink to the food we eat and the fiber we use for clothing, paper, or lumber. Yet, nearly every measure we use to assess the health of ecosystems tells us we are drawing on them more than ever and degrading them at an accelerating pace. The current rate of decline in the long-term productive capacity of ecosystems could have devastating implications for human development and the welfare of all species (World Resources Institute, 2000). Modern examples of the human costs of degrading ecosystems surround us as well. In Canada's maritime provinces in the early 1990's, the collapse of the cod fishery from over-fishing left 30,000 fishers dependent on government welfare payments and decimated the economies of 700 communities in Newfoundland alone. In most cases, the poor suffer most when ecosystems decline because they are usually the most directly dependent on them for survival. Hence, maintaining our ecosystems has strong implications for Canada's economy and social system, specifically our poor (World Resources Institute, 2000).

From a global perspective, the scale of human pressures on ecosystems increased enormously in the last 100 years -- and even more so in the last few decades. Since 1980, the global economy has tripled in size, and the population has grown 30 percent to over 6 billion people. Consumption of everything from food to paper to computers to oil has risen

substantially - all at a cost to ecosystems. These pressures are not likely to disappear. Demographers predict the population to grow to nine billion during the next 50 years; the global economy is expected to expand five times during this period. By 2020 the demand for food such as rice, wheat and maize is expected to grow 40 percent, pushing water demands for irrigation up to 50 percent or more. By 2050, the demand for wood could double (World Resources Institute, 2002).

What is the status of Canada's ecosystems? Overall, there are considerable signs that the capacity of ecosystems to provide many of the goods and services we depend on is declining. Human activities have begun to significantly alter the Earth's basic chemical cycles - the water, carbon, and nitrogen cycles – on which all ecosystems depend on. Our emission of CO_2 has brought the threat of global climate change, and with it, potential changes in the distribution and productivity of ecosystems. Our emissions of nitrogen - in the form of fertilizer runoff and nitrogen oxides from fossil fuels and land clearing -- have thrown off the balance of nutrients in many ecosystems. Our appropriation of more than half the planet's freshwater runoff has pushed aquatic ecosystems to the point of depletion. These stresses strike at the foundation of ecosystem functioning and add to the fundamental erosion of our productive capacity on a global scale.

In recent years, there has been a growing concern that some of the pollutants we release into our environment will persist and pose a risk to the health of humans and other living organisms. In a 1996 survey, almost two out of three Canadians said that their health had been affected by pollution, and more than one out of two people said they were very concerned about air quality (Government of Canada, 1999). If our natural and built environments (our economy and our social structure) are not sustainable, then the health of Canadians will inevitably suffer (Government of Canada, 1999).

To protect ecosystem health, the Canadian workforce requires both specific knowledge and skills regarding how ecological systems and cycles work, as well as an understanding of the values that influence decisions and actions taken (Strategic R&D Plan, 2001-2006). Workers need to recognize that the resources of our planet are not infinite and to realize the need to use natural resources wisely to ensure a sustainable supply for future generations. They must become aware of major ecological problems as well as their cause and effects. Workers must also understand the importance of complying with environmental regulations and how they, as individuals can contribute to environmental problem solving and resource management. Having a systems view (taking into consideration environmental, social, economic factors) in all decision making and actions taken in the workplace will enhance the ability of future workers to think "outside the box" and simultaneously see themselves as part of a sustainable system. Sustaining the health of the planet for future generations is our ultimate challenge and goal (Government of Canada, 1999).

2.2   Society

In its Pre-Budget presentation to the House of Commons Standing Committee on Finance 2003, the Canadian Council on Social Development (CCSD, 2003) noted that "having established ourselves as a strong economic performer in the challenging global economy, it is possible for us to imagine a country where all citizens share the benefits of our success. Our

economic growth has surpassed all G7 nations for several years, and we have had a continuous five-year period of federal budgetary surplus." (CCSD, 2003). Despite this prosperity, an unequal distribution of wealth remains prevalent in our society. This is illustrated by the fact that disparities between the haves and have-nots are widening.

The CCSD (2003) noted that the annual incomes of Canadians families amounting to $100,000 have boomed over the last decade. In contrast, incomes of those in the middle portion of the income ladder have been sustained, while incomes for those in the lower middle class have declined. In the last decade the earnings of low-income families have increased by a meagre $81 annually despite the fact that income needed for subsistence (cost of living) has risen at a much greater rate. It becomes evident when analyzing these figures that many Canadians are not sharing in the wealth and benefits of the new economy.

> *Canadian society is becoming increasingly polarized. The richest 10%*
> *of our population has seen its income grow by a whopping 14% while*
> *the bottom 10% has seen only a slight increase of less than 1%. Moreover,*
> *the income of many working families has actually declined. (CCDS, 2003).*

For most of the last decade Canada has been ranked at the top of the United Nations Human Development Index (HDI) and has most recently been ranked at number three in the world. However, significant room for improvement exists. Consider, for instance, that Aboriginal peoples, when measured using the same criteria, rank only 63rd. Other issues with which Canada is struggling include racism, gender inequity, and child poverty.

Results of a survey released by Statistics Canada (cited by the Winnipeg Free Press, 2003) indicate that, although discrimination is on the decline, many Canadians still suffer from the harmful effects of racism. Approximately twenty per cent of non-Caucasian, non-native adults reported having experienced racism. Fifteen per cent of visible minority groups also reported being subjected to discrimination. Ten percent reported feeling out of place due to their ethnicity, culture, race, language or accent (CBC News, 2003). Furthermore, people with disabilities are often marginalized.

Income disparities are still prevalent according to gender. Much research has been undertaken demonstrating that income inequalities still exist between men and women. Research indicates that women working full-time earn 30 per cent less than their male counterparts (approximately 70 cents of the male dollar). For years women have been segregated into traditionally "female" occupations that have much less earning potential than those occupations deemed to fall into traditional "male" realms.

In 1989, the House of Commons passed a resolution to end child poverty. However, a decade later, child poverty has remained unchanged (CCSD, 2003). Recent changes in the Canadian family structure such as an increase in single parent households combined with a decrease in the earning capacity of young adults, had a direct impact on the persistence of high child poverty (Kerr & Beaujot, 2003).

In order to reach a more even distribution of wealth among Canadians, we need to address key issues that plague our society. By addressing these issues we will be able to reach our goal of equity and social justice for all: "We can now afford to set in place social policies that will knock down the shameful barriers of exclusion, and give everyone the chance to make the most of their abilities" (CCSD, 2003). The development of a skilled and flexible workforce is essential to the attainment of this goal.

Access and equity in adult education and training is seen as an essential policy for combating exclusion and promoting inclusion, especially among disadvantaged groups. Continuing education models that will meet workers' lifelong learning needs have to be relevant and flexible to provide just-in-time learning without the constraints of timing and proximity imposed by traditional face-to-face programs (Manitoba Education and Training, 1998).

In a recent report on human resources development, the International Labour Organisation (ILO) noted: "People with low skill levels, outdated skills or no employable skills are more likely to be excluded from the labour market. Research indicates that the fastest growing occupations require the most education. Disadvantaged groups are excluded from opportunities that are central to the participation in the social, political and cultural life of society, resulting from their limited access to education, skills training, health care and employment. Their exclusion incurs high costs on social security systems and society in general. Also, the opportunity cost to national economies of having such a large supply of excess labour is substantial" (ILO, 2002).

Unemployment and underemployment are also of major significance when the issues are examined within the context of sustainable development. Although employers claim critical skill shortages, thousands of Canadians are unemployed or underemployed. Forty percent of Canadians adults are working for $10 per hour and surprisingly, one third of them hold some form of post-secondary education and training (university or college). Younger Canadian workers are also experiencing a clear disadvantage. Those under the age of forty are earning less than they did a decade ago.

Life in the 21st century seems more complex than ever, as adults cope with the demands of multiple roles, the stresses of a fluid workplace, and the pressures of child and elder care. There is an increased requirement on individuals to update their work-related knowledge and skills and to keep up with the proliferation of information.

A key question for the workforce includes; how can individuals change their work-life situation in order to live a healthy and balanced lifestyle? The critical questions for employers include; (1) how can the workplace/employers adapt to ensure employees have a more balanced work-life situation? and (2) how can the workplace/employers assess and re-evaluate their own assumptions about work and productivity?

2.3   *Economy*

The original issue of sustainable development has been widened from focusing on limits to economic activity to the realization that a balance must be found between economic

prosperity, environmental protection, and social equity (Isaksson and Garvare, 2003). Current and future generations will experiencing difficulties in achieving solid economic performances without environmental and social stability. In the same way, a healthy economy is an essential component of sustainable development.

Achieving sustainable development, however, does require a different approach to conventional economic thinking. Under the conventional model, the system that grows the most and the fastest is considered to be the best – regardless of its impact on the environment or on human society. The concept of sustainability addresses this imbalance by explicitly adopting the concept of "development" over "growth." Sustainable economic development does not necessarily involve sustained growth. While growth inherently suggests getting bigger, development can mean growth, but it can also mean improving or achieving potential (Hart, 1998).

This distinction is critical to understanding sustainable development from an economic perspective. From a practical standpoint, what sustainable development calls for is a more effective deployment of resources. Although there is nothing mentioned about restraining growth, there is the inference that existing resources must be utilized in a more efficient manner. A primary goal of any sustainable entity is to produce the greatest possible ends with the least possible means (Meadows, 1998).

If viewed in this light, applying the principles of sustainable development can promote innovation and inject fresh thinking into conventional economic thoughts, policies, and practices that may ultimately lead to significant cost savings. Consider how sustainable development-based concepts such as industrial ecology, life cycle assessment, design for environment, and eco-efficiency have helped to lower costs, reduce risk, and create new economic opportunities. However, in order to effect a shift from an economic model based on growth to one based on development, these initiatives must be supported by innovations in the financial community.

An economic model based on sustainable development requires significant improvement in accounting practices. Although there is a growing movement to report on the "triple bottom line" of environmental, economic, and social performance, more fundamental changes are required. In particular, the use of discount rates, the assumption of substitutability, and the failure to properly account for the services provided by the natural environment must be revised (Graedel & Allenby, 1995).

If these changes are to occur, efforts must be undertaken to educate the Canadian workforce with regard to sustainability and its implications for the economy. If members of the workforce are not aware of the knowledge, skills, and attitudes necessary to achieve sustainable development, it will not be possible for them to integrate its concepts into their decision-making. While there is no consensus on the specific systems of knowledge required to achieve this integration, concepts such as efficiency, continuous improvement, life-cycle analysis, and eco-management are an essential starting point in addressing this need.

SECTION 3.0
Results

3.1.   Draft Inventory of sustainable development-related knowledge, skills, and attitudes

The work performed during this stage consisted an extensive review of literature and research. The review focused on materials pertaining to sustainable development, education, and workforce development. Particular effort was directed at how this information applies to government organizations involved in workforce development policies. Information was gathered from local, provincial/state, national, and international sources through a review of a wide variety of sources including books, government documents and reports, journals, and the worldwide web.   A complete summary of the information examined at this stage is located in the Bibliography.

The literature review was supplemented by limited consultation with relevant expertise. These experts were contacted primarily through email and postings on listservs and electronic bulletin boards. The primary aim of these virtual distance consultation was to identify existing sustainable development-related skill sets and other relevant published literature and research for the review process. The Conceptual Framework developed for this study guided the process of information gathering process. It also assisted the researchers in placing the knowledge, skills and attitudes or values in the appropriate cells related to the environment, society and economy. Although this Conceptual framework provided a very useful tool for identifying the KSAs, the limitation of classifying KSAs according to the categories of environment, society and the economy separately was recognized. In many cases some KSAs had implications for more than one category. The decision to place a KSA element in a particular cell was based on an analysis of whether that particular element had more implications for the environment, society or economy.

No single sustainable development skills profile for the workforce were identified in the Canadian and international contexts during this extensive review of literature. As shown in Table 1, a total of 588 KSAs were identified; 161 for environment, 258 for society and 169 for the economy.

Table 1 Breakdown Of KSAs Identified For Environment, Society and Economy

Sustainable Development	Human Performance Enablers			
	Knowledge	**Skills**	**Attitudes**	**Totals**
Environment	66	58	37	**161**
Society	78	101	79	**258**
Economy	67	63	39	**169**
Totals	**211**	**222**	**155**	**588**

3.2. Validation of the of knowledge, skills, and attitudes Inventory

Given the methodology used for identifying the KSAs, it was determined that these KSAs had to be validated by a group of experts. The focus group meeting was held on November 3, 2003 in Winnipeg, Manitoba to validate the knowledge, skills, and attitudes inventory. The experts participants were selected on the basis of their experience with sustainable development and/or workforce development.   The list of experts who participated in the Focus Group Validation Meeting can be found in Appendix A. The meeting was organized around the agenda presented in Appendix B. All participants were provided with a copy of the agenda and the inventory of skill profiles before the focus group meeting. This Focus Group meeting had three objectives:

- Validate the relevance and importance of each KSAs;
- Identify any gaps in the KSAs; and
- Assess the presentation format of the KSAs included in the skills profile.

The experts were divided into three groups, balanced with regards to expertise in sustainable development expertise, and workforce development experience. Each group was assigned the task of validating a profile related to the environment, society and the economy respectively. A professional facilitator, specialized in sustainable development was hired for coordination of the validation process and the small group validation was facilitated by project staff.

The experts were also asked to classify the KSAs according to four skill levels used by the Canadian Government in the National Occupational Classification handbook:

Occupations usually require:

A   University education
B   College education or Apprenticeship training
C   Secondary school and/or occupation-specific training
D   On-the-job training only

Table 2 shows the breakdown of the KSAs after the validation process. The numbers in bracket represent the KSAs before validation. The total number of KSAs was reduced from 588 to 523. While a few KSAs were added in the area of society (5), 16 were eliminated from economy, and 44 form environment. Repetitive listing was the most frequent reason for the elimination of these KSAs. The final inventory of the KSAs can be found in Appendix E.

The experts indicated that all the 523 KSAs apply to all the skill levels A, B, C and D. This confirmed that these KSAs were broadly transferable across the workforce.

Table 2 Breakdown of KSAs Identified For Environment, Society and Economy

Sustainable Development	Human Performance Enablers			
	Knowledge	**Skills**	**Attitudes**	**Totals**
Environment	43 (66)	46 (58)	28 (37)	**117 (161)**
Society	66 (78)	109 (101)	78 (79)	**253 (258)**
Economy	57 (67)	59 (63)	37 (39)	**153 (169)**
Totals	**166 (211)**	**214 (222)**	**143 (155)**	**523 (588)**

3.3 Focus Group Debriefing

A plenary debriefing session was held immediately following the validation sessions. The purpose was to get a general sense of the experts' reaction to the KSAs. The experts were asked to focus their discussions around five thematic questions rather than providing a detailed report of the validation. Key comments generated by these questions are summarized below.

a.   How can we consolidate the knowledge, skills, and attitudes into a more manageable set?

- develop themes to better organize the information
- create a visual image of the information
- organize the information so that it flows from individual to organizational to national levels
- group skills into generic categories
- keep in mind that the detail required for an overview is not the same as the detail required for implementation
- consider that attitudes are reflected throughout society and could therefore be generic while knowledge and skills could be sector-specific
- redefine "attitudes" as "values"
- eliminate environment, economy, society divisions within each cluster
- consolidate similar ideas and concepts

b.   Is it appropriate to use these three clusters (economy, environment, society) to classify the knowledge, skills, and attitudes?

- it is necessary to focus on the interdependencies between and within the groupings
- be careful not to create "silos" or "islands" where each cluster is looked at as being on its own

- recognize that the skill sets for the workforce and day-to-day living are very similar

c. Are the organizing statements used to breakdown the three clusters appropriate?

- the categories seem passive
- more concrete action statements are required
- it would be helpful to link the breakdown within the clusters

d. Have we adequately covered the knowledge, skills, and attitudes in all three clusters?

- incentives to change are lacking
- future considerations should be a major focus, but it is still important to consider past history
- implications for specific sectors should be more clear
- messages need to be tailored to specific audiences/target groups
- valuing the role of science is an important attitude that has not been captured
- provide a glossary

e. What are some of the critical knowledge, skills, and attitudes that cut across all three areas?

- integration
- innovation
- responsibility
- open-mindedness
- creativity
- interdependency
- medium to long-term objectives

3.4 Implications for Human Resources Partnerships (HRP)

As a part of the focus group consultation, participants were requested to identify implications of the results of this study for HRP. A summary of the key implications identified are listed below.

- There is an urgent need to move from rhetoric to tangible action and implementation
- There is a need to build a broad understanding of sustainable development from ground level
- Promoting sustainable development should become a part of HRDC's mission
- HRDC must provide the guidance necessary to lead the sectors through the required process of learning
- Recognizing that sustainable development cannot be everything to everyone, it is important not to limit the scope of the challenge to just apprenticeships and sector councils
- Political backing is an absolute necessity if a sustainable development initiative is to succeed

- There is a need to recognize the value of traditional knowledge in achieving sustainable development
- Sustainable development considerations should be integrated into the National Occupational Analysis
- Integrating sustainable development principles into the trade exams would highlight its importance
- There is a need to reduce the preconditions required to obtain employment, particularly for immigrants
- There is a need to establish a vision of where we want to be in 10-15 years as well as an outline of the challenges associated with attaining that vision
- In order to obtain buy-in from the corporate sector, there is a need to build the business case for sustainable development
- There is a need to approach problems holistically
- Addressing Aboriginal issues must be a part of any sustainable development strategy

3.5 Priority Sectors for Improvement Efforts

The expert participants were also asked to establish priorities for implementing sustainable development training in the goods and service-producing economic sectors. Results for the goods-producing sector are shown in Table 3. The priorities within the goods-producing sector include Agriculture as the top priority, followed closely behind by Oil and Gas, Manufacturing, and Forestry.

Table 3 Priorities for goods producing sectors

Sector	Number of Votes
Agriculture	13
Forestry	9
Mining	0
Fishing	3
Oil and Gas	12
Utilities	4.5
Construction	1.5
Manufacturing	10

Priorities identified in the services-producing sector included Educational Services as the top priority, while Public Administration, Health Care/Social Assistance were also mentioned as significant sectors. Table 4 shows the complete results of the focus group prioritization for the services-producing sector.

Table 4 Priorities for services producing sectors

Sector	Number of Votes
Trade	4
Transportation and Warehousing	1
Finance, Insurance, Real Estate, and Leasing	1
Professional, Scientific, and Technical Services	10
Management, Administration, and Other Support	10
Educational Services	14
Health Care and Social Assistance	11
Information, Culture, and Recreation	4
Accommodation and Food Services	1
Other Services	0
Public Administration	12

SECTION 4.0
Sustainable Development Skills Profile

4.1   *Revised Skill Clusters*

Based on the feedback received from the experts involved in the focus group, the first draft of the KSAs was revised by the research team. The most important revision decision was to move away from the clusters of environment, society and economy to avoid repetition and to demonstrate interconnectedness and interdependency among these three elements. To achieve this result, the research team grouped the KSAs related to environment, society and economy seperately. These three sets of KSAs were then analyzed for commonalities and differences. Six major themes or categories emerged from that analysis. These are:

- Attitudes
- Cognitive literacy
- Responsible Use of Resources
- Valuing Diversity
- Healthy Lifestyle
- Continuous Improvement

These five categories were e-mailed to the Focus group participants for comments. All those who responded confirmed that these categories were appropriate and some offered suggestions for improvement. Following is a list of the final skill clusters after taking into consideration the comments and suggestions:

Ethics and Values

- Ethics and Values are defined as the attitudes needed to behave and act ethically.

Integrated Decision-Making

- The Integrated-Decision-Making theme is defined as the knowledge and skills needed to process information effectively and efficiently.

Responsible Use of Resources

- Responsible use of resources is defined as the knowledge and skills needed to use resources responsibly.

Valuing Diversity

- Valuing Diversity is defined as the knowledge and skills needed to contribute to, and support, diversity.

Healthy Lifestyle

- The Healthy Lifestyle theme is defined as the knowledge and skills needed to maintain workplace health and safety.

Continual Improvement

- Continual improvement is defined as the knowledge and skills needed to improve quality of life.

4.2. *Sustainable development Skills Profile (SDSP)*

The research team used the five skill clusters identified in 4.1 above, to organize and classify the KSAs. This activity generated the Sustainable development Skills Profile (SDSP). This restructuring of the KSAs was performed to address two of the most important recommendations made by the experts, namely the need to provide for interdependencies among the key elements of sustainable development (environment, society and economy) and the need for consolidating the KSAs. The SDSP provides a list of the broadly transferable, sustainable development-related knowledge, skills, and attitudes required by the Canadian workforce.

BROADLY TRANSFERABLE SUSTAINABLE DEVELOPMENT SKILLS PROFILE FOR THE WORKFORCE (SDSP)

ETHICS AND VALUES: ATTUTUDES NEEDED TO BEHAVE AND ACT ETHICALLY

• Appreciate the diversity of environmental, social and economic systems • Demonstrate a commitment to stewardship • Demonstrate leadership for sustainability • Respect human dignity • Show concern for quality of life • Embrace a learning culture • Support equity, inclusion, human rights, social justice and peace • Acknowledge constraints, but adopt a "can do" attitude • Demonstrate integrity and trustworthiness • Demonstrate self-reliance in dealing with complex issues • Embrace change with an open-mind and with confidence • Solve problems with persistence and perseverance • Accommodate different values and competing interests	• Accept trade-offs among conflicting goals • Use ethical principles in decision-making processes • Consider multiple perspectives in the decision-making process • Respect privacy of information • Respect intellectual property rights • Adhere to legislation, which protects the environment, promotes fair business practices and safeguards human rights • Understand the need for political systems in a democratic society • Learn from and work with others • Deal with others fairly and with transparency • Appreciate the dignity of work and fair pay • Adopt a "prevention is better than cure" attitude

INTEGRATED DECISION MAKING: KNOWLEDGE AND SKILLS NEEDED TO PROCESS INFORMATION EFFECTIVELY AND EFFICIENTLY

• Develop and maintain essential cognitive literacy skills • Develop and maintain integrative skills • Develop and maintain essential skills • Develop and maintain ICT literacy skills • Develop and maintain technological and scientific literacy skills • Reflect critically about issues • Work in collaborative workgroups • Learn to learn • Apply interpersonal skills to resolve conflicts • Recognize the importance of involving stakeholders in decision-making	• Think globally and act locally • Evaluate impacts and consequences of actions taken • Use a system approach for thinking and analysis • Make efficient, timely, accountable, and cross-sectoral decisions • Realize that today's decisions must be balanced with tomorrow's effects • Think imaginatively and creatively • Practice cross-functional and multi-criterial thinking • Consider multiple perspectives in the decision-making process • Recognize the interdependence between environmental, economic and social systems

REPONSIBLE USE OF RESOURCES: KNOWLEDGE AND SKILLS NEEDED TO USE RESOURCES RESPONSIBLY

• Acknowledge the limits of an area's carrying capacity • Understand shared responsibility for using resources efficiently • Recognize the need to use renewable resources • Demonstrate basic economic literacy and accountability • Minimize waste and view waste as a potential resource • Understand factors that contribute to degradation of resources and the need for restoration • Act as caretaker to environmental, social and economic systems for present and future generations, from a local, national and global perspective • Apply precautionary principles	• Anticipate and prevent problems • Use a proactive and strategic approach toward the use of resources • Understand the need for equitable distribution of resources and making provisions for social services • Understand that economic growth and development are compatible with responsible use of resources • Recognize the values associated with natural, human, social and produced capitals and understand the relationship among them • Recognize the key contributions of SME and entrepreneurs in economic development

VALUING DIVERSITY: KNOWLEDGE AND SKILLS NEEDED TO CONTRIBUTE AND SUPPORT DIVERSITY

• Understand the importance of biodiversity to humankind and the environment • Understand that economic diversity is a competitive advantage in a global economy • Understand and respect the need to maintain cultural and linguistic diversity for strengthening the social fabric	• Recognize the contribution of the cultural heritage and traditional knowledge of Aboriginal people for sustainable development • Understand that the social fabric is strengthened when the workforce reflects the diversity of a population • Encourage and facilitate diversity in the workforce • Adapt to cultural diversity

SAFETY AND WELL-BEING: KNOWLEDGE AND SKILLS NEEDED TO MAINTAIN WORKPLACE HEALTH AND SAFETY

• Understand that a healthy ecosystem benefits human health now and in the future • Recognize the effects of environmental degradation to health and safety • Select environmentally-friendly materials, products and processes • Handle hazardous materials safely (WHMIS).	• Practice a healthy lifestyle: healthy diet and regular exercise • Recognize the consequences of alcohol and substance abuse • Recognize the economic impact of accidents and unhealthy lifestyles • Practice accident prevention • Think and act safely

CONTINUAL IMPROVEMENT: KNOWLEDGE AND SKILLS NEEDED TO IMPROVE QUALITY OF LIFE

• Contribute to research and innovation to further economic growth, environmental welfare, human health and social well-being • Recognize the importance of sustainable development indicators for assessing growth and development • Understand that maintaining status quo is not an option • Understand the principles of continual improvement	• Understand the need for using more efficient means for distributing environmental resources and economic growth • Adapt to changing requirements • Recognize the need for checking and correction action • Upgrade skills to cope with socio-economic and socio-technical changes and environmental sustainability

4.3   *Human Resources Partnerships Briefing*

A meeting was held on November 12, 2003 in Ottawa/Hull, to present the results of the study to senior managers of the Human Resources Partnership branch. The participants in the review are listed in Appendix C while the meeting agenda can be found in Appendix D.

Two main issues dominated the discussion during the HRP briefing: (1) The formulation of the knowledge, skills, and attitudes (KSA's); and (2) How Human Resources Partnerships Branch Managers would use the results of the study.

Some participants expressed their concern regarding the formulation of the KSA'S. Their concern was centered around the difficulty of distinguishing between knowledge, skills, and attitudes in the sustainable development skill profile (SDSP). It was also noted that a few of the KSA statements were too broad and in need of reformulation to describe the knowledge, skills, and attitude elements more precisely. It was pointed out that the KSA's should be formulated in measurable terms. There was also an interesting discussion regarding occupationally specific sustainable development KSA's versus the broadly transferable sustainable development KSA's. However, the group generally agreed that occupationally specific KSA's could best be identified during the development of national occupational analysis (NOA).

Participants inquired whether the content of the SDSP included various skills sets that have recently been identified. It was highlighted that many KSA's from recently developed skills profile have been incorporated in the SDSP such as the Essential Skills, the Blue Print for Life, CCHRIE, Learning for a Sustainable Future, Manitoba SD Curriculum Framework, Conference Board of Canada Employability Skills, Scientific Literacy Skills, Employability Skills and Innovation Skills, the Education of Testing Service ICT Literacy Skills, and many others.

The final part of the discussion focused on the implications and application of the study and the SDSP for the Human Resources Partnership Branch. There was a general consensus that the study helped the branch to meet Target 3.2.2 of its Department Sustainable Development Strategy which called for the assessment of the overall sustainable development-related knowledge/skill needs in the economy over the medium term and how these might be better incorporated into the department's sectoral human resources programs and strategies. The result of the study was also perceived as an enlightenment for the participants as it helped them to see that many of their existing programs, policies, guidelines, practices, program design implementation and assessment were already contributing in part to the goals and principles of sustainable development. The immediate implication identified for this realization is the necessity for tracking and reporting more systematically the branch contributions towards addressing the principles, guidelines, goals and targets for sustainable development.

HRDC has been developing some scorecards for assessing the performance of the sector councils. These scorecards provide precise indicators related to five dimensions that are used by the sector councils to conduct self-assessments. These dimensions are: interventions; administrative; accountability; partnering; socio-economic integration. The participants saw a

great potential for converting the SDSP into a scorecard that HRP can use to conduct a self-assessment of their contribution to the branch sustainable development strategy.

During the discussion, participants agreed on the importance of securing the collaboration of key partners of Human Resources Partnerships such as Sector Councils and Apprenticeship Training in order to develop a strategy for the integration of sustainable development in workforce education and training.

The sector councils on environment had already conducted an extensive amount of research and development for the related occupation. Consequently, it was suggested that the collaboration of this council could be sought to implement a pilot project for integrating sustainable development in workforce education and training.

In conclusion, all the participants felt that the result of this research and the SDSP will be very useful for the branch and they highly recommended further validation and refinement of the SDSP.

SECTION 5.0

Conclusions

The Government of Canada has identified sustainable development as one of the cornerstones of its overall economic, environmental and social agenda. Consistent with this commitment, the mandate of Human Resources Development Canada (HRDC) is to assist all Canadians in their efforts to lead rewarding lives, as well as to promote a fair and safe workplace, a competitive labour market with equitable access to work, and a strong learning culture.

The principle of sustainable development calls for an integrated approach to environmental, social, economic and global considerations. The prospect of full integration cannot be guaranteed in the longer terms by the instruments of science, technology, economics and law alone. If the principle of sustainable development is to be implemented successfully, there is also a need for a workforce, which is equipped with sustainable development-related knowledge, skills and attitudes (KSAs). It is noteworthy that there are two distinct sets of sustainable development-related KSAs: (1) generic or broadly transferable skills; and (2) occupationally specific skills.

This study is the first systematic attempt made to identify the essential broadly transferable sustainable development KSAs needed by the workforce. These skills must be woven into workforce development so that workers can become reflective practitioners who can effectively and efficiently contribute to the goal of sustainable development. The KSAs provide the underlying foundation to support reflective practice in the workplace and in personal life.

The Sustainable Development Skills Profile (SDSP) generated by this study has multiple applications. It can be used for developing performance indicators, score cards, curriculums, training programs, self-assessment tool, needs assessment instruments, performance evaluation, feedback mechanisms, just to name a few.

Although the KSAs identified through the literature review was validated by a group of experts, the SDSP, which emerged form these KSAs has not been validated. The SDSP must be validated before its widespread use.

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APPENDIX A

PARTICIPANTS IN FOCUS GROUP CONSULTATION

Name	Organization
Barto, William	Manitoba Conservation
Chiarella, Teresita	City of Winnipeg
Cook, Jason	UNEVOC Canada
Doern, Fred	Red River College
Doyle, John	Manitoba Federation of Labour
Eckstein, Brett	Manitoba Conservation
Fitznor, Laara	University of Manitoba
Fradette, Jean-Paul	Employment Projects of Winnipeg Inc.
Gibson, Tammy	Manitoba Conservation
Gorvie, Emma	Manitoba Hydro
Hamilton, Nicole	Management Consultant
Harapiak, Leonard	Winnipeg Technical College
Heanault, Francois	HRDC
Henley, Thomas	National Resources Institute UofM
Matanga, Zephania	ACDCA
Menzies, Eleanor	Manitoba Quality Network
Mercier, Gabe	Mountain View School Division
Narth, Peter	Louis Riel Arts and Technology
Nepihak, Darryl	UNEVOC Canada
Riffell, Margaret	Red River College
Robson, Marla	UNEVOC Canada
Roy, Marlene	International Institute for Sustainable Development
Sammons, Jonas	Workforce Education Manitoba
Schroeder, Roger	Manitoba Conservation

APPENDIX B

AGENDA FOR FOCUS GROUP CONSULTATION

9:00 – 9:10 a.m.	Greetings: Jonas Sammons
9:10 – 9:20 a.m.	HRDC Sustainable Development Strategy: Francois Henault
9:20 – 9:30 a.m.	Research Framework and Methodology: Chris Chinien
9:30 – 9:40 a.m.	Focus Group Procedures: Sheldon McLeod
9:45 – 12:00 p.m.	Small Group Breakouts for Validating the Profiles Group 1 – Ecological Literacy: Christina McDonald Group 2 – Social Literacy: France Boutin Group 3 – Economic Literacy: Cory Searcy
12:00 – 1:00 p.m.	Lunch
1:00 – 2:15 p.m.	Complete Validation of Profiles
2:15 – 2:45 p.m.	Report of Breakout Groups on Validation in Plenary Session
2:45 – 3:00 p.m.	Establishing Priority for Sectors to be Addressed
3:00 – 4:00 p.m.	Discussion of Implications for HRDC
4:00 p.m.	Adjournment

APPENDIX C

PARTICIPANTS IN HRP BRIEFING SESSION

Name	Title
Clemenson, Heather	
Doiron, Michel	
Dick, Shirley	
Gillespie, Brian	
Henault, Francois	
Lemieux-Nault, Evelyne	
Nadon, Luke	
Nixon, Marie	
Parisien, Eric	
Pelletier, Marie-Claude	
Smith, Mary	
Tocchi, Silvano	
Walford, Kathy	
Wilson, Patty	
Wise, Nick	

APPENDIX D

AGENDA FOR HRP MEETING

9:00 – 9:05 a.m.	Greetings: Eric Parisien
9:05 – 9:15 a.m.	HRDC Sustainable Development Strategy: Francois Henault
9:15 – 9:30 a.m.	Research Framework and Methodology: Chris Chinien
9:30 – 10:00 a.m.	Results: Cory Searcy
10:00 – 10:30 a.m.	Question Period on Methodology and Results
10:30 – 10:45 a.m.	Break
10:45 – 11:30 a.m.	Roundtable Discussion Focused on the Implications, Opportunities, and Challenges of the Study Results for HRDC
11:30 – 12:00 a.m.	Drafting Recommendations. Establishing Priorities for Implementing Recommendations
12:00 p.m.	Adjournment

APPENDIX E

ENVIRONMENT-SOCIETY-ECONOMY FRAMEWORK

As noted in Section 3.0, the sustainable development-related knowledge, skills, and attitudes were originally organized around a framework based on the three most widely accepted elements of sustainable development, namely the environment, society, and the economy. The clusters of knowledge, skills, and attitudes used are provided below.

CLUSTER #1
DEVELOP ECOLOGICAL LITERACY TO CONTRIBUTE TO ENVIRONMENTAL PROTECTION

1.1 Awareness of how ecological systems and cycles work.
1.2 Understanding that the resources of our planet are finite.
1.3 Understanding the need to use natural resources wisely to enable a sustainable supply for future generations.
1.4 Awareness of major ecological problems and their cause and effects.
1.5 Understanding the importance of complying with environmental regulations

CLUSTER #2
SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING

2.1 Understand the Need for Equity, Inclusion, Human Rights, Social Justice, and Peace
2.2 Commit to a Healthy Lifestyle
2.3 Develop and Maintain Essential Cognitive Skills
2.4 Acquire and Maintain Essential Skills
2.5 Develop and Maintain ICT Literary Skills
2.6 Develop and Maintain Technological Literacy Skills
2.7 Practice Health and Safety at Work

CLUSTER #3
ECONOMIC LITERACY TO SUSTAINABLY MEET HUMAN NEEDS

3.1 An awareness of how economic systems work
3.2 Understand the need to efficiently use resources
3.3 Understand the need for continuous improvement
3.4 Understand the importance of life-cycle considerations for products and services
3.5 Awareness of the importance of eco-management

The KSAs embodied in each of the sub-clusters are identified in the following skill inventories.

1. DEVELOP ECOLOGICAL LITERACY TO CONTRIBUTE TO ENVIRONMENTAL PROTECTION

Sub-Cluster 1.1
Awareness of how ecological systems and cycles work

Sustainable Development	Knowledge		Skills		Values	
Environment	1.1.1	Environmental protection is an integral part of achieving sustainable development	1.1.7	Bring environmentally damaging activities under control, to restore and protect the integrity of the Earth's systems upon which we depend	1.1.19	Concern for and appreciation of all living things, their needs and interrelationships
	1.1.2	There is a need to preserve ecosystem structure, function and behaviour	1.1.8	Conduct development activities in a manner that maintains essential ecological processes		
	1.1.3	Human beings are dependent on ecosystems for life and sustenance.	1.1.9	Recognize that the success of the whole system depends on individual components working together		
	1.1.4	Ecological cycles act as feedback loops	1.1.10	Demonstrate behaviors that contribute to the well being of the environment		
			1.1.11	Identify links between environmental impacts and natural cycles		
Social	1.1.5	Building partnerships with key stakeholders is an essential component in implementing SD principles	1.1.12	Reflect critically on one's lifestyle and choices in light of interdependence	1.1.20	Appreciation of the diversity of human beings, of species, habitats and communities within ecosystems
	1.1.6	Sustainability is a continual process, not a fixed end point	1.1.13	Recognize our responsibility as an individual in achieving a sustainable future for human beings and other living things	1.1.21	Appreciation that each and every one of us is a member of a larger community of living things, whose home is the global biosphere
			1.1.14	Practice good networking skills	1.1.22	Realization that a sustainable society is characterized by people who live in harmony with one another both locally and globally
			1.1.15	Practice resolving conflicts		
			1.1.16	Respect the views of others	1.1.23	Appreciation that maintaining effective relationships is important for sustainability
			1.1.17	Develop effective interpersonal skills	1.1.24	Appreciation that participating in a

1. DEVELOP ECOLOGICAL LITERACY TO CONTRIBUTE TO ENVIRONMENTAL PROTECTION			
Sub-Cluster 1.1 **Awareness of how ecological systems and cycles work**			
Sustainable Development	**Knowledge**	**Skills**	**Values**
			democracy is important to move to a sustainable future
Economic		1.1.18 Create methods for valuing, accounting, and accessing the health, value, economics and use of Canada's ecosystem	

1. DEVELOP ECOLOGICAL LITERACY TO CONTRIBUTE TO ENVIRONMENTAL PROTECTION			
Sub-Cluster 1.2 **Understanding that the resources of our planet are finite.**			
Sustainable Development	**Knowledge**	**Skills**	**Values**
Environment	1.2.1 The earth's ability to assimilate waste is finite 1.2.2 The earth's ability to provide food and energy is finite 1.2.3 Canada has the responsibility to ensure that activities within our jurisdiction or control do not cause damage to the environment of other jurisdictions 1.2.4 The carrying capacity of the earth as a whole is limited by natural systems and resources	1.2.8 Manage resources more efficiently 1.2.9 Give priority to efficient use of energy, water and other materials, including the expansion of conservation and recycling	1.2.12 Appreciation that human life depends on the earth's ecosystems 1.2.13 Appreciation that the quality of life of future generations is endangered or enhanced by action that we take now 1.2.14 Appreciation of the need to purchase/use products less harmful to the environment
Social	1.2.5 The earth's resources are finite, and access to them is unequal 1.2.6 The impact of consumption patterns on a global scale	1.2.10 Consider present consumption patterns	1.2.15 Appreciation that consumption patterns in Canada affect other jurisdictions in the world
Economic	1.2.7 Awareness of the economic factors affecting recycling	1.2.11 Recognize that economic factors encourage recycling	1.2.16 Preference for eco-labels

1. DEVELOP ECOLOGICAL LITERACY TO CONTRIBUTE TO ENVIRONMENTAL PROTECTION

Sub-Cluster 1.3

Understanding the need to use eco-systems wisely to enable a sustainable supply for future generations

Sustainable Development	Knowledge		Skills		Values	
Environment	1.3.1	Existing natural resources can be used more effectively than they are now	1.3.13	Make wise and effective use of renewable and non-renewable resources	1.3.25	Appreciation that there is a range of possible approaches to sustainable development
	1.3.2	Conservation, efficiency and restraint in the use of resources is necessary to ensure quality of life in the future	1.3.14	Maximize conservation of renewable resources	1.3.26	Willingness to act as a responsible citizen
			1.3.15	Harvest renewable resources on a sustained yield basis	1.3.27	Willingness to learn from and work with others
			1.3.16	Promote the development and use of substitutes for scarce resources	1.3.28	Personal acceptance of sustainable lifestyles and a commitment to participating in change
			1.3.17	Evaluate the impact and consequences of actions	1.3.29	Willingness to share resources
			1.3.18	Recognize the long-term implications of decisions and actions taken		
Social	1.3.3	Human beings are part of a web of life for sustainable development	1.3.19	Become ecologically literate through formal and non-formal education and training	1.3.30	Willingness to share resources and knowledge
	1.3.4	Improved ecological literacy is required	1.3.20	Encourage sustainable activities/practices	1.3.31	Willingness to maintain a sustainable lifestyle and participate in change
	1.3.5	Understanding and respect for different social customs, norms, values, and traditions, with respect to resource use	1.3.21	Develop opportunities for workers to acquire skills and apply knowledge		
	1.3.6	There are inequalities in the distribution of global resources	1.3.22	Work towards negotiated consensus and cooperative conflict resolution.		
	1.3.7	Canada's is a high consumption society and has a responsibility to lead reduction initiatives	1.3.23	Practice full environmental costing of decisions and developments		
	1.3.8	Understand that over consumption has an impact				
	1.3.9	Environmental exploitation has				

1. DEVELOP ECOLOGICAL LITERACY TO CONTRIBUTE TO ENVIRONMENTAL PROTECTION			
Sub-Cluster 1.3 **Understanding the need to use eco-systems wisely to enable a sustainable supply for future generations**			
Sustainable Development	**Knowledge**	**Skills**	**Values**
	consequences for present and future generations 1.3.10 Humans have an ethical responsibility to protect other species 1.3.11 The perceptions and values that workers hold regarding natural resources have a profound impact on ecosystems		
Economic	1.3.12 A sustainable economy works in harmony with the environment, rather than against it	1.3.24 Evaluate wants and needs in light of using resources efficiently and wisely	1.3.32 A sense of the need to balance wants and needs

1. DEVELOP ECOLOGICAL LITERACY TO CONTRIBUTE TO ENVIRONMENTAL PROTECTION

Sub-Cluster 1.4
Awareness of major ecological problems and their causes and effects.

Sustainable Development	Knowledge		Skills		Values	
Environment	1.4.1	Understanding and accepting that we can make an ecosystem more fragile when we alter it	1.4.12	Exercise precautionary principles in decision making when impacts are unknown	1.4.23	Appreciation of the urgency of the challenges facing the global community
	1.4.2	Awareness of current global environmental issues	1.4.13	Enhance the long-term productive capability of our ecosystems	1.4.24	Recognition that long-term planning is desirable in building a sustainable future
	1.4.3	Human decisions influence environmental quality	1.4.14	Propose creative options to solve problems and consider all impacts associated with a decision	1.4.25	Appreciation of the need care about local, national and global ecological issues
	1.4.4	Human activities inflict damage to the environment and critical resources	1.4.15	Through a consultative process consider the best course of action		
	1.4.5	Developed nations are the largest polluters in the world today	1.4.16	Develop, implement and evaluate action plan for sustainable solution		
	1.4.6	The acts of one country may have unknown impacts on others	1.4.17	Communicate with stakeholders		
	1.4.7	Damage done to one section of the environment has repercussions in others	1.4.18	Think globally act locally		
	1.4.8	Recognition that there are no boundaries to our environment	1.4.19	Endeavor to restore damaged or degraded environments to beneficial uses		
Social	1.4.9	Workers of all vocations require training to build sustainability into their jobs	1.4.20	Promote increased awareness of sustainability	1.4.27	Appreciation of diverse views
			1.4.21	Provide incentives for employees who develop sustainable solutions	1.4.28	Willingness to support for sustainable development initiatives
			1.4.22	Develop and improve training programs pertaining to sustainability		
Economic	1.4.10	All economic activities affect the environment			1.4.29	Respect for all life on earth

1. DEVELOP ECOLOGICAL LITERACY TO CONTRIBUTE TO ENVIRONMENTAL PROTECTION			
Sub-Cluster 1.4 **Awareness of major ecological problems and their causes and effects.**			
Sustainable Development	**Knowledge**	**Skills**	**Values**
	1.4.11 Through recycling, conservation, and sustainable measures, the life of nonrenewable resources be extended		

1. DEVELOP ECOLOGICAL LITERACY TO CONTRIBUTE TO ENVIRONMENTAL PROTECTION

Sub-Cluster 1.5
Understanding the importance of environmental regulations.

Sustainable Development	Knowledge	Skills	Values
Environment	1.5.1 Understanding what environmental legislation is 1.5.2 Understanding of how laws and regulations are enforced or not enforced 1.5.3 Knowledge of relevant environmental legislation 1.5.4 Environmental standards, management objectives and priorities reflect the local environmental and developmental contexts in which they apply	1.5.8 Identify sources of data 1.5.9 Identify types and uses of environmental reports 1.5.10 Identify tools for accessing environmental legislation, regulations 1.5.11 Comply with environmental regulations 1.5.12 Learn how to conduct an environmental risk assessment and audits	1.5.15 Appreciation of the importance of adhering to environmental regulations for environmental protection
Social	1.5.5 Dispute resolution contributes to environmental problem- solving and management 1.5.6 Sustainable development laws and regulations should be available to all workers	1.5.13 Analyze moral/ethical dilemmas 1.5.14 Develop policies related to sustainable development	1.5.16 Appreciation that our actions may have unforeseen consequences even when environmental regulations are met 1.5.17 Willingness to advocate for legislation/policies that protect the environment
Economic	1.5.7 There are consequences for failing to comply with environmental regulations		

2. SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING			
Sub-Cluster 2.1 **Understand the need for Equity, Inclusion, Human Rights, Social Justice and Peace.**			
Sustainable Development	**Knowledge**	**Skills**	**Attitude**
Environmental	2.1.1 Equity, social justice, and peace are essential features of environmental protection 2.1.2 Relationship of Aboriginal people with the environment 2.1.3 Significance of traditional knowledge for environmental protection 2.1.4 Destructive effects of human rights violations on the environment 2.1.5 Environmental laws and regulations 2.1.6 War has a degrading effect on the environment 2.1.7 Legal and constitutional rights of Aboriginal people 2.1.8 Earth's natural resources are finite	2.1.15 Identify and raise equity issues among social groups 2.1.16 Promote an inclusive and sustainable society 2.1.17 Learn from the successes/failures of other cultures 2.1.18 Promote the need for a healthy environment for all 2.1.19 Ensure awareness of applicable laws and regulations 2.1.20 Apply principles to promote a culture of peace 2.1.21 Protect the rights and customs of Aboriginal people	2.1.44 Demonstrate an openness to an environmentally friendly lifestyle 2.1.45 Value the contributions of individuals and groups promoting environmentally conscious decisions 2.1.46 Respect and empathy toward other cultures 2.1.47 Respect human rights and human dignity 2.1.48 Appreciation of the value of traditional knowledge
Social	2.1.9 The socio-economic conditions experienced by disadvantaged minority target groups can prevent them from meeting their basic needs 2.1.10 Social inequality is reproduced across generations and within certain segments of the population 2.1.11 Social welfare programs can assist disadvantaged segments of the populations attain an adequate standard of living 2.1.12 Certain segments of the Canadian population unfairly experience inequities in salary	2.1.22 Identify the economic and social contributions of immigrants and other disadvantaged target groups to Canadian prosperity 2.1.23 Contribute to the promotion of an inclusive workforce 2.1.24 Recognize Canada as a multicultural society working toward a common goal 2.1.25 Contribute to the promotion of an inclusive society 2.1.26 Recognize the importance of diversity in the workforce 2.1.27 Recognize the importance of preparing Canadian youth for employment 2.1.28 Recognize the pros/cons of delayed retirement	2.1.49 Acceptance and embracement of Canada as a cultural mosaic (multicultural society) 2.1.50 Empathy toward disadvantaged target groups 2.1.51 Sensitivity and understanding toward all Canadians 2.1.52 Acceptance of all social groups as key contributors to the workplace and to society 2.1.53 Not constrained by existing ways of thinking 2.1.54 Commitment to and acceptance of social improvement initiatives 2.1.55 Acceptance of all persons as productive co-workers as well as

2. SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING			
Sub-Cluster 2.1 **Understand the need for Equity, Inclusion, Human Rights, Social Justice and Peace.**			
Sustainable Development	**Knowledge**	**Skills**	**Attitude**
	and benefits 2.1.13 The reduction of poverty is one of the most urgent challenges facing the global community 2.1.14 Demographic changes in the population can drastically effect social programs	2.1.29 Identify and eliminate discriminatory barriers to employment 2.1.30 Improve the availability and accessibility of educational and training opportunities for disadvantaged and minority target groups 2.1.31 Think critically about issues relating to social exclusion 2.1.32 Develop legislation 2.1.33 Interpret legislation 2.1.34 Analyze basic statistical data 2.1.35 Maintain balanced work and life roles 2.1.36 Think critically about existing social structures	co-citizens 2.1.56 Sensitivity on the part of society that barriers exist and changes need to take effect 2.1.57 Acceptance that all segments of the population deserve equal access to education and training 2.1.58 Commitment to fostering an equal and open society 2.1.59 Acceptance of change and growth throughout one's life
Economic		2.1.37 recognize the benefits that can be achieved by ensuring all Canadians enjoy an adequate standard of living 2.1.38 Recognize low socio-economic status as a major determinant of social exclusion 2.1.39 Develop and implement initiatives offering disadvantaged target groups equal access to opportunities 2.1.40 Recognize the presence of income and advancement disparities experienced by disadvantaged target groups 2.1.41 Learn from the experiences of others when dealing with similar issues 2.1.42 Maintain and expand universal social programs 2.1.43 Identify current and future demographic trends	2.1.60 Acceptance of social programming designed to assist disadvantaged segments of the populations 2.1.61 Acceptance of initiatives offering equal access to education and training 2.1.62 Support for initiatives designed to alleviate income disparities 2.1.63 Acceptance that comparable levels of work deserve comparable levels of pay 2.1.64 Willingness to learn from the experience of other cultures 2.1.65 Acceptance of collective thinking as opposed to self-interest 2.1.66 Tolerance of the need for redistributions of wealth

2.	SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING		
Sub-Cluster 2.2 **Commit to a healthy lifestyle**			
Sustainable Development	**Knowledge**	**Skills**	**Attitude**
Environment	2.2.1 Canadians are all affected by environmental degradation 2.2.2 Environmental regulations are necessary to ensure that public health is protected	2.2.8 Comply with environmental and health regulations 2.2.9 Promote and practice healthy lifestyles	2.2.12 Appreciation that a healthy ecosystem benefits human health now and in the future
Social	2.2.3 Universal healthcare in an inclusive society is critical 2.2.4 There is a direct correlation between socio-economic status and health	2.2.10 Promote equal access to quality healthcare	2.2.13 Appreciation of the importance of a healthy lifestyle 2.2.14 Care for and respect for one another 2.2.15 Appreciation that a society's health status is a function of the individuals within it
Economic	2.2.5 Income level is an important measure of health 2.2.6 Literacy level is an important determinant factor in locating employment and in effect, health status 2.2.7 An unhealthy life style has an economic impact	2.2.11 Invest money and effort in reducing disparities	2.2.16 Appreciation that safety is an important component of human health 2.2.17 Appreciation that jobs are an important consideration in promoting a healthy lifestyle

2.	SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING		
Sub-Cluster 2.3 **Develop and Maintain Essential Cognitive Skills.**			
Sustainable Development	**Knowledge**	**Skills**	**Attitude**
Environmental	2.3.1 Multiple perspectives 2.3.2 Self-directed learning 2.3.3 Transformative learning	2.3.16 Listen to a range of voices and opinions 2.3.17 Critically evaluate a range of voices and opinions 2.3.18 Learn from a range of voices and opinions 2.3.19 Gather and synthesize relevant information 2.3.20 Choose among alternatives and advocate a position 2.3.21 Work with ill-defined problems 2.3.22 Assess one's preference for learning 2.3.23 Develop learning strategies 2.3.24 Develop lifelong learning plan 2.3.25 Learn independently 2.3.26 Learn to learn 2.3.27 Apply learning to initiate change 2.3.28 Demonstrate individualism and autonomy	2.3.47 Appreciation of the contribution made by different interest groups 2.3.48 Objectivity in assessing information from multiple sources 2.3.49 Commitment to learn independently and interdependently 2.3.50 Confidence in applying knowledge and skills to new and unfamiliar situation 2.3.51 Openness to ambiguity 2.3.52 Confidence and self-determination in applying knowledge to initiate change and innovation
Social	2.3.4 Information processing 2.3.5 Analytical thinking 2.3.6 Focusing skills 2.3.7 Reflective thinking skill 2.3.8 Strategic thinking skill 2.3.9 Complex thinking skill 2.3.10 Comparative analysis skill 2.3.11 Open to ambiguity 2.3.12 Systems thinking 2.3.13 Synthesizing skill	2.3.29 Acquire, process, store and retrieve information to solve problems 2.3.30 Analyze weaknesses in information processing to enhance one's cognitive skills 2.3.31 Think critically 2.3.32 Use systems thinking strategy 2.3.33 Recognize the various components of a given problem as distinct and unique pieces comprising the whole 2.3.34 Maintain attention to the specific and important part in the problem and disregard all irrelevant data 2.3.35 Take sufficient amount of time to make a complete and accurate comparison between the given problem and prior	2.3.53 Appreciation of why equity and justice are necessary to a sustainable society 2.3.54 Willingness to apply knowledge to remove barriers

2.	SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING		
Sub-Cluster 2.3 **Develop and Maintain Essential Cognitive Skills.**			
Sustainable Development	**Knowledge**	**Skills**	**Attitude**
		problems 2.3.36 Select a solution that most accurately satisfies the problem task, from a range of alternative solution strategies 2.3.37 Define a problem accurately for the purpose of selecting appropriate solutions 2.3.38 Compare a problem with others in a similar category 2.3.39 Apply solution procedures that have been successful in the past 2.3.40 Demonstrate the ability and willingness to deal with information that may not be consistent with previous knowledge and experience 2.3.41 Explore novel approaches to learning	
Economic	2.3.14 Innovative thinking 2.3.15 Realization that knowledge makes a contribution to products and services	2.3.42 Generate new ways to solve problems 2.3.43 Think outside the box 2.3.44 Transfer skills and knowledge to solve problems 2.3.45 Use knowledge with wisdom and ingenuity in the problem solving process 2.3.46 Learn from experience	2.3.55 Tolerance to ill-defined problems 2.3.56 Openness to constructive criticism 2.3.57 Positive views regarding innovation and change 2.3.58 Respect and support for ideas, approaches and contributions made by others 2.3.59 Willingness to experiment with new ideas 2.3.60 Recognition of the value of learning from experience 2.3.61 Openness to opportunities for change 2.3.62 Accept and provide feedback and guidance in a constructive way 2.3.63 Adoption and promotion of a "can-do" attitude 2.3.64 Be tenacious

2.	SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING		
Sub-Cluster 2.4 **Understand the need to acquire and maintain essential skills**			
Sustainable Development	**Knowledge**	**Skills**	**Attitude**
Environmental	2.4.1 Systematic thinking 2.4.2 Communication about sustainable development issues 2.4.3 Collaborative work group	2.4.11 Participate in decision-making to solve sustainable development related problems 2.4.12 Express ideas orally 2.4.13 Find information related to sustainable development 2.4.14 Memorize and access key information 2.4.15 Work in collaborative teams	2.4.29 Tolerance for complex and ambiguous situations 2.4.30 Willingness to demonstrate ecological, social and economic consciousness 2.4.31 Willingness to demonstrate trustworthiness and team spirit
Social	2.4.4 Learning to learn 2.4.5 Learning style	2.4.16 Learn independently within both formal and informal settings 2.4.17 Select most appropriate strategy to learn 2.4.18 Select most appropriate input to maximize learning outcomes 2.4.19 Gain access to a variety of materials, resources and learning opportunities	2.4.32 Have respect for others 2.4.33 Be sensitive to the needs of others 2.4.34 Demonstrate a learning culture 2.4.35 Values learning and skill development
Economic	2.4.6 Information acquisition by reading labels, prints, non-print media, paragraph-length text in charts, tables and graphs 2.4.7 Procedure for completing forms 2.4.8 Writing strategies for text materials	2.4.20 Read for information 2.4.21 Read to perform job tasks 2.4.22 Perform job tasks using various types of document formats 2.4.23 Communicate in both writing long hand and with the use of a computer 2.4.24 Read, interpret, write and complete documents 2.4.25 Check off items on a list of tasks, plot	2.4.36 Appreciate the need for accurate interpretation of information 2.4.37 Demonstrate objectivity and reliability 2.4.38 Demonstrate a positive attitude toward technology 2.4.39 Recognize and appreciate the need for accuracy 2.4.40 Willingness to integrate the use of

2.	SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING		
Sub-Cluster 2.4 **Understand the need to acquire and maintain essential skills**			
Sustainable Development	**Knowledge**	**Skills**	**Attitude**
	2.4.9 Related mathematics 2.4.10 Computer literacy	information on a graph, and enter information on an activity schedule 2.4.26 Select and perform basic mathematical functions 2.4.27 Use print and non-print media 2.4.28 Use computers to perform related tasks	ICT in work practices

2. SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING			
Sub-Cluster 2.5 **Develop and Maintain ICT Literary Skills**			
Sustainable Development	**Knowledge**	**Skills**	**Attitude**
Environmental	2.5.1 The use of various sources of information is preferable	2.5.3 Access online information and data bases	2.5.11 Value ICT as a learning tool 2.5.12 Demonstrate an openness for the use of learning technology 2.5.13 Objectivity in assessing information from multiple sources
Social	2.5.2 ICT can be used effectively for personal use and performing job tasks	2.5.4 Collect, retrieve and format information 2.5.5 Apply an existing organizational or classification scheme to collect, retrieve and format information 2.5.6 Access information 2.5.7 Manage information 2.5.8 Integrate information 2.5.9 Evaluate information 2.5.10 Create information	2.5.14 Demonstrate concern for the quality and accuracy of information 2.5.15 Demonstrate ethical behaviors in the use and dissemination of information 2.5.16 Be sensitive toward the privacy of information

2. SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING			
Sub-Cluster 2.6 **Develop and Maintain Technological Literacy Skills**			
Sustainable Development	**Knowledge**	**Skills**	**Attitude**
Environmental	2.6.1 Impact of technological development	2.6.5 Identify positive and adverse impacts of technology on the environment, society and the economy	2.6.8 Willingness to update general knowledge about technology
Society	2.6.2 Technology offers both benefits and threats to human kind and other living organisms		2.6.9 Objectivity in assessing the impact of technology on society 2.6.10 Ethical use of technology
Economy	2.6.3 Research, and development are important factors in the use of technology 2.6.4 Impact on jobs and skills	2.6.6 Identify the contribution of technology to various sectors of the economy 2.6.7 Identify changes in workplace and skill requirements	2.6.11 Openness in discussing the benefits, issues and concerns related to technology applications 2.6.12 Willingness to implement change

2.	SOCIAL LITERACY TO CONTRIBUTE TO HUMAN HEALTH AND WELL-BEING		
Sub-Cluster 2.7 **Practice Health and Safety at Work**			
Sustainable Development	**Knowledge**	**Skills**	**Attitude**
Environmental	2.7.1 Environmental conditions for a healthy workplace 2.7.2 Effects of hazardous materials on the environment and living organisms 2.7.3 Workplace, Health, and Safety regulations	2.7.15 Identify hazardous materials 2.7.16 Handle hazardous materials safely 2.7.17 Dispose of hazardous materials safely 2.7.18 Abide by applicable regulations	2.7.31 Safety consciousness 2.7.32 Environmentally conscious 2.7.33 Act as a role model to novice workers
Social	2.7.4 Healthy lifestyle, healthy diet, regular exercise 2.7.5 Consequences of alcohol and substance abuse 2.7.6 Effects of environmental degradation to health and safety 2.7.7 Effects of hazardous materials on the health and safety of the public 2.7.8 Effects of accidents on society, the family, the individual and the workplace	2.7.19 Exercise regularly 2.7.20 Choose and follow a healthy diet 2.7.21 Assess the negative effects of hazardous materials on the environment, society, and the economy 2.7.22 Assess the negative impact of accidents on the environment, society, and the economy	2.7.34 Safety consciousness 2.7.35 Demonstrate an interest in accident prevention
Economic	2.7.9 Importance of safe work practices 2.7.10 Elimination or reduction of workplace hazards 2.7.11 Workplace Hazardous Material Information System (WHMIS) 2.7.12 Environmental, social and economic impact of accidents 2.7.13 Consequences of accidents on productivity and competitiveness 2.7.14 Rising costs of the health systems	2.7.23 Perform tasks according to safe work practices 2.7.24 Use tools safely 2.7.25 Operate equipment safely 2.7.26 Remove, control, mitigate workplace hazards 2.7.27 Use and wear protective devices 2.7.28 Conduct safety audits 2.7.29 Perform task safety analysis 2.7.30 Maintain safe workplace environment	2.7.36 Demonstrates safety consciousness 2.7.37 Show regard for the safety of co-workers

3. ECONOMIC LITERACY TO SUSTAINABLY MEET HUMAN NEEDS			
Sub-Cluster 3.1 **An awareness of how economic systems work**			
Sustainable Development	**Knowledge**	**Skills**	**Attitudes**
Environmental	3.1.1 A sustainable economy occurs when development decisions, policies, and practices of people do not exhaust the Earth's resources 3.1.2 Economic growth is not sustainable if it degrades the environment 3.1.3 Recreational use of nature generates significant economic activity	3.1.24 Utilize resources according to the principles of development rather than growth 3.1.25 Develop systems to recognize the relationship between environmental stewardship and economic development 3.1.26 Protect the environment and promote environmental stewardship in day-to-day activities 3.1.27 Recognize the benefits of nature-related activities to the economy	3.1.38 An appreciation that economic decisions have environmental consequences 3.1.39 An appreciation for the power of the human beings to modify the environment
Social	3.1.4 A sustainable economy cannot succeed in societies that fail 3.1.5 There are basic human needs that are universal 3.1.6 Poverty is a significant barrier to sustainability 3.1.7 In the emerging knowledge-based economy, appropriate education and training is crucial 3.1.8 A variety of entry, middle, and high level jobs are essential to economic vitality 3.1.9 Wages should, at a minimum, provide workers with the means to meet their basic needs 3.1.10 Unions can play an role in ensuring the rights of workers are protected	3.1.28 Establish policies and programs to combat poverty 3.1.29 Distinguish between wants and needs 3.1.30 Recognize the need for appropriate development both locally and globally 3.1.31 Provide equitable access to employment 3.1.32 Provide access to low-interest loans	3.1.40 Appreciation of why equity is essential to a sustainable society 3.1.41 A concern for economic and social inequities 3.1.42 A sense of fairness 3.1.43 Strong sense of community 3.1.44 Realization of the effects of sustainable or unsustainable development on work, the community, and private lives

3. ECONOMIC LITERACY TO SUSTAINABLY MEET HUMAN NEEDS			
Sub-Cluster 3.1 **An awareness of how economic systems work**			
Sustainable Development	**Knowledge**	**Skills**	**Attitudes**
Economic	3.1.11 The economy is an inseparable part of society as a whole 3.1.12 Economic development gained as a result of exploitation is not sustainable 3.1.13 An understanding of basic economic principles and ethics is a necessity 3.1.14 An understanding of the concept of globalization and current economic issues 3.1.15 The exchange of goods and the delivery of services are the economy's two primary components 3.1.16 Volunteerism is an important component of a sustainable economy 3.1.17 International trade agreements and organizations influence decisions made in Canada 3.1.18 Diversity is a requirement of a sustainable economy 3.1.19 Adherence to the rule of law is an essential component of a sustainable economy 3.1.20 Economic growth is not necessarily the same as economic development 3.1.21 The GDP measure flows of	3.1.33 Distinguish between growth and development 3.1.34 Devise or adopt new measures of measuring economic and human progress 3.1.35 Recognize the importance of generating wealth 3.1.36 Recognize consequences of actions 3.1.37 Think in terms of local and global awareness	3.1.45 Appreciate the need for sustainable economic development 3.1.46 Realization of the need to adopt a global perspective

3. ECONOMIC LITERACY TO SUSTAINABLY MEET HUMAN NEEDS			
Sub-Cluster 3.1 **An awareness of how economic systems work**			
Sustainable Development	**Knowledge**	**Skills**	**Attitudes**
	money; it does not measure economic, environmental, or social welfare 3.1.22 Goods and services must deliver on their promises 3.1.23 Sustainability initiatives provide opportunities for product differentiation, a key component of competitive advantage		

3. ECONOMIC LITERACY TO SUSTAINABLY MEET HUMAN NEEDS				
Sub-Cluster 3.2 **Understand the need to efficiently use resources**				
Sustainable Development	**Knowledge**		**Skills**	**Attitudes**
Environmental	3.2.1	Resources can be used in a more effective and efficient manner	3.2.8 Minimize the use of energy, materials, water, and land 3.2.9 Eliminate or reduce air emissions, water dispersions, and waste disposals 3.2.10 Maximize the use of renewable materials	3.2.17 Appreciate that the quality of life of present and future generations is endangered or enhanced by the actions we take now
	3.2.2	More value must be created with less environmental impact		
Social	3.2.3	Improve social conditions using fewer resources	3.2.11 Create conditions that reward efficiency 3.2.12 Reflect critically on one's lifestyle in the light of interdependence	3.2.18 Personal acceptance of a sustainable lifestyle and a commitment to participation in change
Economic	3.2.4	Sustainable consumption is not only about consuming less, but consuming differently: consuming efficiently	3.2.13 Make fair and efficient use of resources with respect to meeting basic human needs 3.2.14 Reduce material requirements for goods and services 3.2.15 Strive for zero waste 3.2.16 Focus on selling functions that customers actually need	3.2.19 A sense of balance in deciding among conflicting priorities
	3.2.5	Efficiency can help reduce risk, find additional savings, and identify economic opportunities		
	3.2.6	Enhanced resource productivity makes economies more competitive		
	3.2.7	It is possible to increase the quality of life without depleting our natural resources		

3.	ECONOMIC LITERACY TO SUSTAINABLY MEET HUMAN NEEDS					
Sub-Cluster 3.3 **Understand the need for continuous improvement**						
Sustainable Development	**Knowledge**		**Skills**		**Attitudes**	
Environmental	3.3.1	We must continuously improve our capacity and our systems for sustainably managing environmental resources	3.3.7	Design and implement systems for managing environmental resources	3.3.12 3.3.13	Appreciation that there are a range of possible solutions to any problem Recognition of the need for continuous improvement
Social	3.3.2	We will not succeed in creating a more sustainable world if we focus merely on doing more efficiently what we currently do	3.3.8	Design and implement programs for improved social accountability	3.3.14	An appreciation of the role of human ingenuity and individual creativity
Economic	3.3.3 3.3.4 3.3.5 3.3.6	Current methods of doing things should not be assumed as a given Incremental improvement and improvement by innovation are needed for the economy to be sustainable Understand the danger of maintaining the status quo in a globally competitive economic environment The economy's ability to thrive depends in large part on how well it adapts to demands imposed by changing conditions	3.3.9 3.3.10 3.3.11	Continue to work on optimizing processes Think in line with the theory of "if it isn't perfect improve it" rather than "if it ain't broke, don't fix it" Maintain constructive dissatisfaction with the present level of performance	3.3.15 3.3.16 3.3.17 3.3.18 3.3.19 3.3.20	Positive attitude towards innovation and change Willingness to experiment with new ideas Willingness to learn from experiences Recognition of the need for both incremental and innovative improvement Not constrained by existing ways of thinking Persistence and willingness to persevere through times of change

3. ECONOMIC LITERACY TO SUSTAINABLY MEET HUMAN NEEDS						
Sub-Cluster 3.4 **Understand the importance of life-cycle considerations for products and services**						
Sustainable Development	**Knowledge**		**Skills**		**Attitudes**	
Environmental	3.4.1	There are environmental impacts at every stage of a product or service's life cycle	3.4.9	Evaluate the inputs and outputs at every stage of the life cycle	3.4.22	Think in terms of the entire life cycle of a product or service
	3.4.2	Waste produced by society must not systematically increase in nature	3.4.10	Determine points in the life cycle where the greatest reduction in resource requirements and emissions might be achieved		
			3.4.11	Give preference to solutions that minimize environmental impact		
			3.4.12	Properly scope problems		
			3.4.13	Train personnel responsible for reducing environmental impact		
Social	3.4.3	Capacity building is an essential component of partnership	3.4.14	Build sustainability considerations into the creative process	3.4.23	Willingness to help others
Economic	3.4.4	Decisions made during the design and formulation stage have ramifications for the entire life cycle of the product or service	3.4.15	Approach problems with a "whole systems" mentality	3.4.24	Open to constructive criticism
	3.4.5	Though sustainability considerations are important, other criteria such as cost, must also be considered	3.4.16	Enhance product and material recyclability	3.4.25	Appreciation that there are a number of methods in which problems may be solved
	3.4.6	Understanding customer requirements and how product will actually be used by the end user is critical	3.4.17	Apply concepts from the "sustainable development toolbox" including design for environment, industrial ecology, and green procurement	3.4.26	Openness to using products with recycled content
	3.4.7	Preventing problems before they occur is preferable to reacting to them after the fact	3.4.18	Purchase from a local supplier wherever practical in order to minimize transportation distances		
	3.4.8	There are different ways to	3.4.19	Increase product flexibility, modularity, and durability		
			3.4.20	Implement product "take back" programs		
			3.4.21	Eliminate the need for packaging wherever possible		

3.	ECONOMIC LITERACY TO SUSTAINABLY MEET HUMAN NEEDS		
Sub-Cluster 3.4 **Understand the importance of life-cycle considerations for products and services**			
Sustainable Development	**Knowledge**	**Skills**	**Attitudes**
	meet needs		

3.	ECONOMIC LITERACY TO SUSTAINABLY MEET HUMAN NEEDS					
Sub-Cluster 3.5 **Awareness of the importance of eco-management**						
Sustainable Development	**Knowledge**		**Skills**		**Attitudes**	
Environmental	3.5.1	Market solutions must be a part of the strategy to prevent environmental degradation	3.5.14	Establish policies that reflect the fact that economic strength and environmental stability are mutually dependant rather than mutually exclusive	3.5.32	Appreciation of the need to develop lifestyles that respect resources and carrying capacity limits
	3.5.2	Natural assets are not fully reflected in current Canadian economic calculations	3.5.15	Recognize the consequences of undervaluing the services provided by the environment	3.5.33	Think and act responsibly
	3.5.3	A healthy environment makes significant contributions to the economy	3.5.16	Devise means to measure the impact on the economy of loss or degradation of natural assets	3.5.34	Willingness to be accountable for individual and group actions
	3.5.4	The Earth's resources are finite	3.5.17	Recognize the importance of using natural assets sustainably		
Social	3.5.5	Social obligations should be seen as an investment rather than another cost	3.5.18	Improve stakeholder participation processes	3.5.35	Respect for governance and democracy
	3.5.6	Key stakeholder issues must be taken seriously	3.5.19	Focus on creating partnerships and good relations with stakeholders	3.5.36	Recognize we can manage co-operatively what we cannot manage individually
			3.5.20	Pursue socially responsible courses of action		
Economic	3.5.7	An understanding of the precautionary principle	3.5.21	Develop and implement economic instruments to measure the value of services provided by the environment	3.5.37	Tolerance to ambiguity
	3.5.8	Subsidies are a major barrier to efficient markets			3.5.38	Value transparency
	3.5.9	Organizational reporting should focus on the "triple bottom line" of economic, environmental, and social performance	3.5.22	Include cost of pollution and social damage within the cost of goods and services	3.5.39	Appreciation for nature and the irreplaceable services it provides
			3.5.23	Promote voluntary initiatives	3.5.40	Recognition of the effects of unsustainable economic development on the environment
			3.5.24	Promote agreements that result in higher resource productivity and emissions reduction	3.5.41	Sense of balance in deciding among conflicting priorities
	3.5.10	Support from top management is critical	3.5.25	Recognize and reward sustainability as an investment criterion	3.5.42	Behave ethically in dealing with conflict of interest, liability, negligence , obligation , responsibility, and risk
	3.5.11	Current accounting practices provide strong incentives to	3.5.26	Recognize that the substitutability		

3. ECONOMIC LITERACY TO SUSTAINABLY MEET HUMAN NEEDS			
Sub-Cluster 3.5 **Awareness of the importance of eco-management**			
Sustainable Development	**Knowledge**	**Skills**	**Attitudes**
	use resources today 3.5.12 Many economic analyses assume that there are substitutes for all resources 3.5.13 Sustainable development makes economic sense	assumption is questionable 3.5.27 Consider the financial impact of resource limitations 3.5.28 Integrate sustainability into the business strategy 3.5.29 Report sustainability performance openly to stakeholders 3.5.30 Identify and eliminate unfair subsidies 3.5.31 Apply the "user pays" principle	