



Green Skills for Sustainable Economic Growth

The Role of Canadian Colleges and
Institutes in Advancing Education
for Sustainability in Canada
and Overseas

Executive Summary

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EXECUTIVE SUMMARY

OVERVIEW

Following the United Nations (UN) Climate Change Conference in Paris in 2015 and the adoption in the same year by the United Nations General Assembly of the 2030 Sustainable Development Goals (SDGs), there is a new sense of urgency about escalating the global response to climate change. This should drive an increase in demand across the globe for new types of skills—“**green skills**”—that will equip people to drive “clean” or “green” economic growth. For Technical and Vocational Education and Training (TVET) in both developing and developed countries, the challenge is not only building the capacity to deliver a “next generation” of technical skills development, but the need to rethink education “post-2015”—in effect, to reconsider the culture of education as it is known, in order to respond to the pressing issues of our time.

This report, commissioned by Colleges and Institutes Canada, positions Canada’s colleges, institutes and Cégeps within the rapidly changing global landscape of **Education for Sustainable Development (ESD)**. It examines the capacity of Canadian colleges and institutes to contribute to, and partner in, what is now increasingly known as the “**Greening of Technical and Vocational Education and Training (GTJET)**”. It provides an overview of this capacity against the backdrop of a growing demand for transforming education and skills development systems globally to address climate change. The study also serves as an important first, though far from comprehensive, effort to assess the range and scope of what might be referred to as the “greening” of Canada’s colleges and institutes and how these activities measure up with the current state of knowledge and practice in ESD and GTJET.

STRUCTURE

The study is made up of several components:

- An examination of international literature (after 2012) on climate change and the role of TVET in anticipating and responding to rapid developments in skills needs and professional training;
- A review of key definitions and concepts related to climate change, sustainability and the “greening” of the economy, and their relevance to TVET (**Section 3**);
- An assessment of the literature addressing the primary functions of TVET and the need to adapt institutional policies, processes and practices to respond effectively to the post-2015 Education for Sustainable Development (ESD) agenda (**Section 3.4**);
- An overview and assessment of the current activity of Canada’s colleges and institutes in furthering ESD and technical skill development for a greening economy, including the ways in which sustainability has been infused across institutional policy, processes and practices (**Section 4**);

- Identification of Canadian examples and case studies to help illustrate the depth and breadth of institutional capacity and potential in ESD as well as responsiveness to the greening of the economy (Section 5.2).

UNESCO-UNEVOC's Five Dimensions of Greening TVET

| GREEN CAMPUS | GREEN CURRICULUM | GREEN COMMUNITY | GREEN RESEARCH | GREEN CULTURE |
|--|---|---|---|--|
| Managing campus <ul style="list-style-type: none"> • energy management • water management • waste management • pollution management | Integrating ESD <ul style="list-style-type: none"> • green technology • clean technology • green jobs • greening existing jobs | Adapting Community <ul style="list-style-type: none"> • capacity building • renewable technology • resource support • unique practices | Fostering Research <ul style="list-style-type: none"> • renewable energy • water treatment • green innovations • waste recycling | Promoting culture <ul style="list-style-type: none"> • green values • green attitude • green ethics • green practices |
| KEY ELEMENTS & INDICATORS | | | | |
| <ul style="list-style-type: none"> • Green policy and objectives • Resource management • Management systems in monitoring & evaluation | <ul style="list-style-type: none"> • Green programs & courses • Green practices in classroom and lab • Industry-institute interaction | <ul style="list-style-type: none"> • Green practices at community level • Community participation • Innovative programs and projects | <ul style="list-style-type: none"> • Applied research programs • Impact and outcome • Management and monitoring | <ul style="list-style-type: none"> • Values and practices • Participation • Innovative programs |

UNESCO-UNEVOC's *Five Dimensions of Greening TVET* is a key framework for understanding the GTVET approach to Education for Sustainable Development, and influenced the way this study organizes and describes the many different practices in Canada's colleges and institutes that were collected. Defined as *green campus*, *green curriculum*, *green community*, *green research* and *green culture*, they have been assumed by UNESCO UNEVOC as the lens through which to view the greening of TVET.

FINDINGS

The *current* capacity and expertise of Canada's colleges and institutes to design and develop Education for Sustainable Development (ESD) and to drive the growth of green skills is considerable and, in many cases, innovative and unique in the world. Compared to the perceived need, this capacity represents an untapped reservoir of knowledge that could help to make Canada a leader in the new sustainable development agenda. The Canadian programs and practices examined illustrate how Canadian colleges and institutes have been:

- responsive and nimble in their approach to integrating sustainability within their institutions and educational offering, and;
- forward thinking and innovative despite—or perhaps because of—the lack of an overarching public policy framework to stimulate and support the growth of ESD.

The range and scope of initiatives related to the **greening of campuses** has in many instances gone far beyond the “low-hanging fruit” of modelling good practices related to waste management or the conservation and reduction of energy and water resources. There is widespread adoption of “whole of institution” approaches to campus greening that seek systemic changes to policy and procedures related to facilities management and campus operations and extend into local communities through partnerships and engagement (e.g., sustainable commuting).

Colleges and institutes have also been leaders in advancing the use of **sustainable building technologies** and integrating student life, academics and community service in new kinds of **cross-over learning spaces**. Green campus initiatives have also been closely tied to efforts to promote inclusiveness, gender equality and social justice.

In the area of **applied research**, Canadian colleges and institutes have been particularly successful at partnering with small- to medium-sized enterprises and community organizations. Applied research is a vehicle for collaborating on problem-solving at the community level to address issues of local and regional significance and to bring products or services to market with a quick turn-around. In the context of the SDGs and climate change adaptation and mitigation, it is well worth evaluating such an approach to developing regionally-based economic solutions, one in which TVET institutions not only are able to engage students in applied solutions but also help stimulate green economic growth, steer graduates to green jobs and develop practical responses to local development needs.

Curriculum and program development is a core business for Canada’s colleges and institutes. It is through curriculum innovation and program design that colleges and institutes respond to emergent needs, both in the form of flexibility and responsiveness in program delivery and in the development of new education and training content. Canadian institutions have become adept at the integration of sustainability across the curriculum and in developing programs in emergent and cross-sectoral occupational areas related to sustainability. They have nurtured a competency-based culture of quality assurance, qualifications frameworks and credentialing that are important in promoting student academic and workplace mobility in an evolving labour market.

Canada’s colleges and institutes have always had a strong mandate to **engage with the community**. This longstanding function has allowed them to develop good models for **experiential learning** such as co-op, internships, field work and field placements, service learning and community based research. These are models which will be of increasing relevance as GTVET further engages in community development through a sustainability lens. Public-private partnership development and experience working with not-for-profits and non-

governmental agencies at all levels are important elements for GTVET in developing countries. And in Canada, these activities are being developed in an institutional culture that reflects the social principles of the SDGs including working with Indigenous communities and respecting local knowledge.

CANADIAN ESD EXPERTISE & INTERNATIONAL DEVELOPMENT

Many Canadian colleges, institutes and CEGEPs are engaged in international education cooperation projects in which environmental sustainability is a significant point of focus of the activities. In some cases, this has been through Colleges and Institutes Canada's *Education for Employment* (EFE) projects in Africa, Latin America and the Caribbean, where Canadian institutions develop partnerships with local institutions in developing countries to share their expertise, with TVET reform as a main programmatic objective.

The cases examined in this study show that partnership mechanisms already exist to adapt the core competencies and capacities of Canadian colleges and institutes to the international development context. These core competencies combine these institutions' strengths in applied education and training with specializations in environmental and sustainability education. Canadian colleges collaborate with partners in education in developing countries to build skills development capacity in key areas such renewable energy, water conservation and treatment, sustainable agriculture and many others. As a part of this activity, they:

- Work with local TVET partners to develop environment- or sustainability-focused academic programs, curricula and professional qualifications, e.g., solar and wind energy technology;
- Share approaches to integrating and embedding sustainability into all TVET curricula, teacher training programs and vocational qualification frameworks in partner countries;
- Support the development of "green campus" activities to help TVET schools in developing countries develop institutional sustainability practices and culture, often as demonstration or "living laboratory" projects involving students, and;
- Managing applied research projects (involving students) to address environmental issues, e.g., improving extraction processes in artisanal mining.

These competencies allow colleges to respond effectively to local and community needs in developing countries while assisting local partners to build lasting capacity in education systems. Canada's colleges and institutes have demonstrated a state of readiness for change and are positioned to respond to the overarching goal of the 2014 UNESCO Road Map for Implementing the Global Action Programme on Education for Sustainable Development, "to generate and scale up action in all levels and areas of education and learning to accelerate progress towards sustainable development."