

Skills and Innovation in the Natural Resources and Clean Technology Sector

Colleges and institutes prepare Canadians for a greener future

Improving how we exploit and manage natural resources to create a greener future is one of the most important issues of our time, requiring timely and innovative responses to many challenges. By working in close collaboration with industry, Canada's colleges and institutes have shown time and again that they are able to respond to immediate labour market needs and adapt to new and emerging jobs and technologies.



Education and Training

Tackling pressing environmental challenges requires the adoption of new practices, technologies and processes in nearly all industries. Colleges and institutes play an essential role in preparing Canadians for this new green economy.



CICan member colleges and institutes across Canada offer over

350

programs relevant to

Natural Resources and Clean Technologies

leading to a **variety of credentials**, including:

150+
Diplomas

115+
Certificate Programs

30+
Degrees²

50+
Post-graduate Certificates or Diplomas

5+
Masters Degrees

Over **47,000** companies in Canada are involved in the natural resources and clean technologies sector¹

Popular Programs



Environment

- Environmental Technology
- Environmental Technician
- Environmental Engineering
- Environmental Management



Extractives

- Oil and Gas Regulations
- Forest Technology/Forestry
- Urban Forestry
- Mining Engineering



Water

- Water and Wastewater Technician
- Water Quality
- Water Engineering
- Land and Water Management
- Water Conservation and Management

Applied Research and Innovation

Colleges and institutes boast some of the greenest campuses in the world and have been early adopters of new technologies that help reduce their environmental footprint. This expertise extends to the research sector and has allowed them to help develop greener processes and products across many industries.

Over **100** college-based research centres and laboratories are dedicated to the natural resources and clean technologies sector across the country. This includes centres such as:



The **Centre for Alternative Wastewater Treatment** at **Fleming College (ON)** is an internationally recognized research institute that works with industry partners on emerging concepts to develop real world applications, and aims to turn innovative ideas into market advantage for a cleaner world.



The **Industrial Research Chair for Colleges in Sustainable Energy Technology and Energy Efficiency (TERRE)** at the **Cégep de Jonquière (QC)** carries out applied research in sustainable supply to help isolated areas free themselves of their dependency on fossil fuels.

There are currently over **110** applied research projects³ in natural resources and clean technologies across the country. All are conducted in collaboration with local businesses and employers, the majority being small or medium-sized enterprises. Examples include:



Collège communautaire du Nouveau-Brunswick (NB) created a **Biorefinery Technology Scale-up Centre** where the team uses microbial fermentation and other processes to produce value-added industrial bioproducts such as bioethanol, biodiesel, and alcoholic beverages from agricultural and marine biomasses and industrial and municipal wastes.



Northern Alberta Institute of Technology's (AB) Centre for Oil Sands Sustainability works with government and industry to develop technologies that improve the economic and environmental performance of the oil sands, reducing greenhouse gas emissions and the use of freshwater, among other measures.



Spotlight

Through applied research **partnerships**, colleges and institutes help businesses in the natural resources and extractive sectors make their activities cleaner and more environmentally friendly.



Yukon College (YT) is helping local mining companies study the treatment of tailing effluents and plan safe mine closures.



Cégep de l'Abitibi-Témiscamingue (QC) studies the re-vegetation of contaminated mining sites in order to improve their restoration.

¹Using the North American Industry Classification System (NAICS), we include in Natural Resources and Clean Technology the Forestry and Logging, Oil and Gas Extraction, Mining and Quarrying, Support Activities (Forestry, Mining and Oil and Gas), Power and Communication Line and Related Structures, and Environmental Consulting Services sectors. See Industry Canada. "Canadian Industry Statistics," <https://www.ic.gc.ca/app/scr/app/cis/search-recherche> for details (accessed Summer 2017).

²Includes degree pathways.

³Research project data taken from Colleges and Institutes Canada's "Applied Research Survey," 2015-16.

