



Adapting Infrastructure to Face Climate Change

Colleges and institutes' leadership in driving Canada's transition to a net-zero and climate-resilient infrastructure sector

Submission to the Standing Committee on Transport, Infrastructure and Communities

June 2023



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CICan is the national and international voice of Canada's largest post-secondary education network. It advocates, builds capacity, and drives knowledge to strengthen Canada's publicly supported colleges, institutes, CEGEPs, and polytechnics. With more than **95%** of Canadians living within **50 km** of a member institution, and thanks to its extensive reach around the globe, CICan works to future-proof communities in Canada and abroad.

We respectfully acknowledge that CICan's offices in Ottawa are located on the traditional and unceded territory of the Algonquin Anishinaabe Nation.

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About Colleges and Institutes Canada

Colleges and Institutes Canada (CICan) represents Canada's largest post-secondary education network with over 140 members. Across more than 680 campuses and access centres, our members collaborate with governments, industries and not-for-profits to train millions of diverse learners. With partners around the world, our members scope and practical approach equip colleges to respond to both global challenges and Canadian workforce needs. CICan's members are within 50 km of 95 percent of Canadians and 86 percent of Indigenous peoples. They provide practical and flexible pathways for learners in urban, rural, northern and remote communities to develop the skills needed to grow and adapt as industries change. Colleges' grassroots, ground-level perspective enables partnerships with businesses to train learners for today's jobs and to solve tomorrow's problems, from wherever they are. CICan's members have a vital role to play in strengthening Canada's infrastructure resilience in the face of climate change and must be considered as key partners and crucial infrastructure holders.

Summary of Recommendations

Recommendation 1: The federal government should support colleges in their efforts to build climate resilient campuses by:

- Opening direct access to the Disaster Mitigation and Adaptation Fund and other similar programs to colleges to support them in building climate-resilient and sustainable infrastructure or repair and renovate existing infrastructure.
- Recapitalizing the Natural Infrastructure Fund Small Projects stream and open eligibility in the stream's next application intake to include college-led projects where the primary purpose is for student and staff use or benefit.

Recommendation 2: The Government of Canada should undertake an inventory of critical skills infrastructure to ensure that Canada has the training space available to meet the needs of key economic sectors going forward, including the construction sector and occupations needed in climate mitigation and adaptation efforts.

Recommendation 3: Re-align federal training and learning programs, such as the Canada Training Benefit and Canada Student Financial Aid Program, to support employment transitions through learning assessments and retraining of up to a year in length.

Recommendation 4: Accelerate net zero initiatives at colleges and in communities by investing \$125M over 5 years in a new network of 50 College Sustainability Centres across Canada to leverage college assets including campus infrastructure, industry, and community partnerships to meet Canada's net zero goals.

Recommendation 5: Federal investments in research related to infrastructure adaptation and resilience should ensure that college applied research centres and laboratories are eligible to submit proposals and participate in research calls.

1. Introduction

CICan's network of over 140 publicly assisted colleges, institutes, CEGEPs, and polytechnics¹ collaborate with government, industries, and not-for-profits to train nearly a million diverse learners every year.

CICan's members are a vital part of advancing Canada's objective to achieve net-zero emissions and a climate-resilient building sector. CICan's 2019 Survey of Institutional Infrastructure Needs found that there is a substantial backlog of deferred maintenance in colleges and institutes across the country. The survey showed that CICan members have over 300 shovel-ready projects, the majority (62%) of which are for needed renovations and repairs on campuses, and/or to make campuses more energy efficient (60%).

Colleges are already leading the way as adopters of clean technologies and striving to have the greenest campuses in the world. In November 2021, our system came together to make a commitment to net zero campuses by 2050.

With an unparalleled footprint and proximity to communities across the country – colleges are ideally positioned to anchor federal efforts to build climate resiliency.

2. Climate adaptation and mitigation in colleges

Colleges are public, community serving institutions that possess important infrastructure, including classrooms, laboratories, and training facilities. This infrastructure is used to deliver quality training that ensure learners develop the skills needed to compete in all sectors of the economy.

Every year, more than 700,000 students enrol in colleges across Canada². College infrastructure is relied upon by students completing their courses, as well as professors and researchers working on applied research projects. College buildings are also shared with the broader community for diverse purposes, such access to childcare services.

To continue to provide skills development for the economy, innovate and support communities, colleges need to have reliable and secure infrastructure.

Recommendation 1: The federal government should support colleges in their efforts to build climate resilient campuses by:

- Opening direct access to the Disaster Mitigation and Adaptation Fund and other similar programs to colleges to support them in building climate-resilient infrastructure or repair and renovate existing infrastructure
- Recapitalizing the Natural Infrastructure Fund Small Projects stream and open eligibility in the next application intake to include college-led projects where the primary purpose is for student and staff use or benefit

Canada is committed to reducing greenhouse gas emissions to keep global temperatures in check. Projected temperature increases are associated with a rising prevalence of high-impact climate-related events, including extreme heat, floods, stronger storm systems, and wildfires³.

These events and the other impacts of climate change can pose significant challenges to buildings by leading to damage or destruction of infrastructure, accelerating deterioration of building facades and reducing the

¹ References to "colleges" in this document refer collectively to publicly-assisted colleges, institutes, cegeps, and polytechnics.

² [Postsecondary enrolments, by field of study, registration status, program type, credential type and gender \(statcan.gc.ca\)](https://www150.statcan.gc.ca/n1/pub/95-009-x/2020001/article/00001-eng.htm)

³ Warren, F. and Lulham, N., editors (2021). [Canada in a Changing Climate: National Issues Report](#); Government of Canada, Ottawa, ON

structural integrity of buildings⁴. These impacts can disrupt business operations and services and give rise to significant infrastructure costs.

College infrastructure is at risk to these impacts. This risk is increased by the fact that most college buildings are not constructed to withstand projected climate conditions and increased frequency of extreme weather events⁵. Additionally, according to CICan's 2019 Survey of Institutional Infrastructure Needs, there is a substantial backlog of deferred maintenance in colleges across the country. CICan members currently have over 300 shovel-ready projects, the majority which (62%) are for needed renovations and repairs on campuses. Colleges are critical infrastructure that provides training, applied research, and community services that are at-risk of destruction and damage unless this aging infrastructure is climate proofed. Colleges need government partners to assist with upgrades to our built environment.

Colleges have not been able to access any significant infrastructure funding since the 2016 Post-Secondary Institutions Strategic Investment Fund. Colleges are ineligible or have limited eligibility under existing infrastructure funding programs but there are two programs that colleges could benefit from with eligibility amendments:

- The Disaster Mitigation and Adaptation Fund, which colleges are currently limited when working with specified applicants, such as municipalities.
- The Small Project Stream of the Natural Infrastructure Fund, which if college-led projects where the primary purpose is for student and staff use or benefit were made eligible for the next application intake, would help colleges update their natural infrastructure.

Colleges have infrastructure projects that align with the DMAF's objective and are actively involved in natural-based climate initiatives. Niagara College worked in collaboration with the World Wildlife Fund in activities to address biodiversity loss and climate change like starting pollinator gardens.

With additional investment from the federal government, colleges can continue to champion climate-adaptation and natural infrastructure initiatives.

3. Training and incentivizing a skilled workforce

Making informed decisions that support training infrastructure

Canada's National Adaptation Strategy identifies "economy and workers" as a key system where strengthened climate-adaptation is needed, as climate change has significant impacts on the economy, and employment. Colleges will play a key part in achieving this objective, as they have trained generations of workers to meet Canada's labour market needs.

Recommendation 2: The Government should undertake an inventory of critical skills infrastructure to ensure that Canada has the training space available to meet the needs of key economic sectors going forward, including the building sector and skilled trades.

Skills development for the economy must be a core component of tackling the transition towards a climate resilient economy, and must go hand in hand with infrastructure funding, ensuring one is helping advance the other in tandem.

Colleges are ideally positioned to train, upskill and reskill workers as the economy and workforce needs evolve with the impacts of climate change. Colleges offer a range of accessible and innovative programs, from certificates, microcredentials, diploma, and apprenticeship training that support reskilling and upskilling.

⁴ Swanson, F. and al. (2021). [Advancing the Climate Resilience of Canadian Infrastructure](#). International Institute for Sustainable Development.

⁵ This is the case for most buildings in Canada according to the [National Infrastructure and Buildings Climate Change Adaptation State of Play Report](#) (Amec Foster Wheeler & Credit Valley Conservation, 2017).

Colleges train learners in occupations that will strengthen the building sector's climate resilience⁶. Additionally, through the federally supported ImpAct-Climate project⁷, CIGan and our members raise awareness of and promote behavioral change to reduce GHG emissions within the college sector.

However, colleges' capacity to provide skills development for the economy is limited by the infrastructure they possess, as they need classroom space, equipment and facilities to deliver their programs. This is especially the case for training in high-demand or technical fields. To optimize training capacity and to avoid bottlenecks in the training pipeline, the government needs to support colleges' infrastructure needs. Yet, investments in skills and innovation infrastructure have not kept pace with the needs to upgrade outdated skills training infrastructure.

CIGan recommends that the federal government assess the skills infrastructure needed to train the next generation of workers. Assessing the skills infrastructure training facilities in Canada and an audit of the spaces would help to determine Canada's maximum training capacity and identify the sectors needing investments in skills training infrastructure.

CIGan also recommends that the government support colleges in advancing reconciliation and strengthening collaboration with First Nations, Inuit and Metis peoples. The Government Adaptation Action Plan recognizes that indigenous leadership and knowledge must be included in climate action to strengthen climate-resilience in Canada⁸. With their proximity and existing partnerships with Indigenous communities, colleges are well placed to accelerate reconciliation efforts, support Indigenous-led climate action and play a significant role in sharing and teaching Indigenous Knowledge.

Supporting the shift to sustainable jobs

As climate change impacts become more apparent, workers will require expanded skills and competencies to support the transition to a low-carbon economy and navigate climate change impacts. Investing in training at colleges will ensure workers have the skills they need to succeed in a green economy while Canadian businesses will have a qualified workforce.

A 2022 study by RBC found that an estimated 3.1 million jobs – or 15% of the labour force – will face a green-skills transformation as employers and entrepreneurs seize on the energy transition⁹. RBC also projects between 235,000 and 400,000 new jobs will be added in fields where green skills are critical, while Canada will need to retrain 100,000 workers with new green skills and add up to 200,000 more like them to the labour force by 2030.

To future proof Canada's economy, we need more skilled workers, and we need them quickly.

Recommendation 3: Re-align federal training and learning programs, such as the Canada Training Benefit and Canada Student Financial Aid Program, to support employment transitions through learning assessments and retraining of up to a year in length.

Budget 2023 did not renew the Skills Boost Program creating a funding gap for mid-career learners. The government should **create a new assistance program called Career Jump to support in-career upskilling**, based on the Canada Student Financial Aid Program's infrastructure. Career Jump would be for mid-career learners, would incorporate a new Canada Student Grant and remove earnings assessments and the expectation of spousal contribution when assessing learner need. Additionally, eligibility for work-integrated

⁶ Colleges & Institutes Canada. (2023). [CIGan ImpAct-Climate Report](#).

⁷ [ImpAct-Climate – Colleges and Institutes Canada \(collegesinstitutes.ca\)](#)

⁸ Environment and Climate Change Canada. (2022). The federal role on knowledge and understanding, in [Government of Canada Adaptation Action Plan](#) (Section 3.6.3). Government of Canada.

⁹ Green Collar Jobs: The Skills Revolution Canada Needs to Reach Net Zero. Royal Bank of Canada. 2022. Available: [Green Collar Jobs: The skills revolution Canada needs to reach Net Zero \(rbc.com\)](#)

learning and experiential learning programs should be extended to students of all ages. This will facilitate re-training and ease the pathway back into the workforce for Canadians.

4. College Sustainability Centres to Drive Canada's Climate Actions

Achieving Canada's vision to have climate-resilient communities and infrastructure is a complex challenge that needs to be met with new and bold approaches such as building on what exists and using college and institute infrastructure as a catalyst.

Recommendation 4: Accelerate net zero and climate resilience initiatives at colleges and in communities by investing \$125M over 5 years in a new network of 50 College Sustainability Centres across Canada to leverage college assets including campus infrastructure, industry, and community partnerships to meet Canada's climate goals.

Across the country, colleges have launched dozens of high impact sustainability centres that are helping local communities' future proof themselves. College campus sustainability centres serve as living labs that support many components of Canada's climate-resilience effort, including alternative and renewable energy and clean building technologies.

With the support of the federal government, colleges can help their communities rapidly fast-track actions needed to support Canada's climate-resiliency efforts. A network of 50 designated regional College Sustainability Centres will:

- Mobilize and practically equip Canadians – students, SMEs, and communities – to act;
- Leverage college assets and link sustainability centres in related sectors;
- Scale up rapid reskilling and upskilling for the net zero economy;
- Support the college system in sharing expertise, tools and resources to enable knowledge transfer; and,
- Seize business opportunities and drive innovation with a climate lens through college applied research.

5. Capitalizing on college-led R&D

The college applied research ecosystem is ready to support Canada's objective of mobilizing knowledge and science to enhance climate change resiliency and adaptation. In contrast to basic research, applied research seeks to solve a problem facing a partner – a firm or a non-profit organization. This makes colleges ideally suited to support Canada's transition to a climate-resilient building sector.

Recommendation 5: Federal investments in research related to infrastructure adaptation and resilience should ensure that college applied research centres and laboratories are eligible to submit proposals and participate in research calls.

Colleges play an important role in Canada's research & development ecosystem and are involved in a wide variety of initiatives supporting climate resilience and carbon emission reduction efforts. In fact, over 15% of applied research projects led by colleges in 2021-2022 were focused on green initiatives¹⁰.

Unfortunately, college participation in federal research calls is often limited by eligibility criteria. For example, the call for proposals under the Sustainable Agriculture Research Initiative is limited to university faculty, with colleges able to participate only as partners in a university-led application.

¹⁰ [Canadian Applied Research Continues to Grow at Colleges and Institutes Despite Pandemic, According to Latest Survey Results – Colleges and Institutes Canada \(collegesinstitutes.ca\)](https://collegesinstitutes.ca)

Ensuring college eligibility to participate in research calls is critical to ensuring that the federal government's investments have tangible impacts, helping us move the needle on resilience and adaptation.

6. Conclusion

CICan supports the government's efforts to ensure Canada has a climate-resilient infrastructure system and the skilled and adaptable workforce needed to support the country's labor needs in a changing climate. Colleges are willing to leverage their networks and facilities to help Canada adapt and build resilience to climate change.

To achieve this objective, Canada will need to ensure college infrastructure itself is up to date and climate resilient to provide the training space required to train the next generation of workers.

Colleges and Institutes Canada looks forward to continued engagement with the government to support climate resilience efforts.