



Nature-based Climate Solutions Scalability Report: Beyond Western Canada

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FSC is a forward-thinking centre for research and collaboration dedicated to preparing Canadians for employment success. We believe Canadians should feel confident about the skills they have to succeed in a changing workforce. As a pan-Canadian community, we are collaborating to rigorously identify, test, measure, and share innovative approaches to assessing and developing the skills Canadians need to thrive in the days and years ahead. The Future Skills Centre was founded by a consortium whose members are Toronto Metropolitan University, Blueprint ADE, and The Conference Board of Canada

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ECO Canada's Nature-based Climate Solutions (NbCS) project was funded by Future Skills Centre from November 2022 to March 2024. The project focused on helping transitioning workers in Western Canada that were leaving natural resource work such as oil and gas, mining, forestry, fisheries, and traditional agriculture. The workers needed timely access to training, labour market knowledge including in-demand skills and transferable skills, and work experience with NbCS employers or environmental employers in order to make a successful transition into nature-based work such as habitat and coastal restoration, watershed restoration, permaculture, remediation, and conservation.

The purpose of this report is to document lessons learned from the pilot project in Western Canada and to make recommendations on the scalability of the project to Central and Eastern Canada or other regions in Canada.

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About the Pilot Project

Sectoral Context

Canada's natural resource sectors, particularly in western Canada, have been negatively impacted over the last several years due to commodity prices, climate change, trade disputes, labour shortages and other structural shifts. The pandemic accelerated the pace of change and disruption, resulting in increased job insecurity.

Nature-based solutions (NBS) and green infrastructure projects are an immediate opportunity for transferable skills from the natural resource sector. Oil and gas industries have been mandated for many years to reclaim and restore natural areas following extraction. Therefore, there is an existing workforce that can diversify and pivot into a range of growing NBS projects in urban, rural, remote and Indigenous communities across Canada.

Project Context

The pilot project supported the rapid upskilling and training of employees from the natural resource sectors in western Canada, including oil and gas, forestry and mining to transition to NBS projects by building on their existing transferable skills.

The growing focus on NBS projects is creating a win-win situation by restoring impacted ecosystems and creating employment opportunities while helping to reduce greenhouse gas emissions and support more resilient communities in the face of climate change.

Project Activities

The Project was proposed as a research and pilot training project with work experience and a plan for scalability to other sectors and regions in the future. All phases of the project applied a gender-based analysis plus (GBA+) approach to ensure and encourage equity, diversity, and inclusion (EDI). It included the following phases:

1. Project Initiation: The project team will finalize the project workplan and undertake outreach to members of a project Advisory Committee.
2. Labour Market Research: The project team, with guidance from the Advisory Committee, will conduct:
 - a) Labour market research and demand-side analysis related to the key occupations, skills, and emerging trends and technologies required for NBS projects in western Canada; and

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- b) Labour market research and supply-side analysis on western Canadian natural resource sectors, communities and workers impacted by COVID-19 as it relates to a transferable set of baseline skills and any pre-qualifications within the impacted workforce.

3. Pilot Training Program and Job Placement:

- a) Working with project partners and other key stakeholders to develop and refine the training program and curriculum with a focus on (i) NBS project skills, (ii) emerging relevant technologies and innovative practices and (iii) carbon sequestration and adaptation knowledge;
- b) Recruiting program participants from Canada's oil and gas sector for three training cohorts, applying an EDI lens to the key participant metrics;
- c) Delivering three training programs using the ECO Canada training program delivery platform

Project Intended Outcomes, Impact, Results

The project has the potential to transition workers and communities impacted by economic downturns and other structural shifts in the natural resource economy. Impacted workers will gain valuable and transferable skills and exposure to a broader range of career opportunities toward future, long-term employment. These new opportunities could lead to greater job security, mobility, higher earning potential and improved job satisfaction/retention.

Employers and project supporters working in NBS will gain access to a wider labour pool with relevant skillsets and knowledge of this emerging field of work. Through the sharing of project outcomes and future scalability of the program, employers will have the opportunity to support their existing workforce in gaining a wider set of skills that can contribute to enhanced environmental responsibility and reduce compliance risk for projects.

Communities could see positive impacts in both reduced unemployment rates among residents as well as reduced carbon and environmental risk from the adoption of NBS projects (e.g., clean-up of abandoned oil and gas wells, forest-based carbon sequestration, watershed and fish habitat restoration).

The project will foster a broader knowledge, understanding and practice of the value of NBS. Sharing research and program outcomes through the network of project partners will contribute to a better understanding of the applications of NBS across sectors and regions.

The project will also support innovation by including training on clean and digital technologies relevant to NBS projects.

Equity, Diversity, and Inclusion

In general, the natural resource and environmental sector has large representative employment equity gaps relative to the Canadian population. The program design and delivery of this project will integrate anti-racism, equity, and inclusion principles throughout. A Gender-Based Analysis Plus lens will be applied to the establishment of the Advisory Committee, research, and pilot training program. Existing relationships with EDI organizations and associations will be leveraged.

One goal of the project is to provide opportunities for underrepresented groups and to assist employers to access a diverse and inclusive labour pool. The initial recruitment of participants will aim for a minimum of 50% women or non-binary, 30% visible minorities, 25% under the age of 30 and 20% Indigenous.

The transition to a low carbon economy and related work in NBS provides an opportunity for change in many traditional resource sectors. This project looks to capitalize on shifts already underway and broaden the employment opportunities to enhance equity, diversity, and inclusion in organizations.

Scaling the Labour Market Information (LMI) Research

Training Works, our consultant on curriculum development had the following feedback on the importance of in-depth Labour Market Information and research for future NbCS projects:

Moving forward, the availability of in-depth Labor Market Information (LMI) will be paramount for adapting the Nature-based Climate Solutions (NbCS) training. A nuanced understanding of regional labor markets, with a focus on peak areas of unemployment and job vacancies, will provide critical insights into the specific needs and opportunities within each locality. Tailoring LMI regionally ensures that any adaptation of the NBCS training will align with the unique economic landscapes, enabling precise adaptation to the challenges and potentials of each area.

Additionally, accurate and relevant LMI becomes especially crucial when training displaced workers for a transition into the NbCS sector. By pinpointing regions with heightened unemployment rates and understanding the specific job vacancies within the NbCS field, the training program can be strategically designed to meet the demands of the local labor market. This approach ensures that displaced workers receive training aligned with available opportunities and have a clear and accurate career pathway. The LMI serves as a compass, guiding the development of the training and ensuring it is responsive to the needs of industry and directly relevant to the individuals undergoing training.

Scaling the Training Curriculum

ECO Canada's consultant and partner on curriculum development for the project was Training Works based in St John's, Nfld. They worked with industry and academic stakeholders to develop a 3-day 6-module training course for transitioning workers looking to gain insight into key occupations and in-demand skills required in Nature-based work.

The 6 modules of the Nature-based Climate Solutions (NbCS) covered the following topics and competencies:

Module 1: Understanding Climate Change in Canada

Module 2: From Economics to Ecology: Ensuring a Sustainable Future

Module 3: NbCS 101: An Introduction to Nature Based Climate Solutions in Canada

Module 4: Effective Teams within Nature Based Climate Solutions

Module 5: Field Safety Essentials for Nature Based Climate Solutions

Module 6: Bridging the Gap: Adapting Transferable Skills for Nature Based Climate Solutions

Training Works felt that going forward, the industry partnership delivery model with regional adaptation would be the most successful and effective way to mobilize knowledge about Nature-based Climate Solutions (NbCS).

Industry Partnership Delivery Model

Leveraging the success of the training program, ECO Canada can partner with industry associations like the Canadian Home Builders Association (CHBA), the Mining Industry Human Resources Council, the Excellence in Manufacturing Consortium etc., to tailor the NbCS curriculum to emerging green occupations and/or skills within various sectors. Using the CHBA as an example, an adapted session could focus on the growing demand for skills related to the construction of net-zero homes. This approach allows ECO Canada to reach professionals already employed in the construction industry, equipping them with the expertise required for sustainable and environmentally conscious building practices. In addition, it could be used to recruit new entrants into the industry.

Partnering with industry associations to deliver the NbCS training offers several advantages that will contribute to the success and effectiveness of the training:

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1. Industry associations would bring a wealth of knowledge and expertise about the specific sector they represent. Their insights into current green trends, emerging technologies, and evolving skill requirements will ensure the training content remains relevant and aligned with industry standards.
 2. Working with industry associations would tailor the curriculum to the sector's needs.
 3. Leveraging Industry associations' extensive networks of professionals within the sector can help training participants secure employment opportunities after completing training.
 4. Valuable insights obtained from close collaboration with industry associations ensures the training program stays responsive to the evolving needs of the sector.
 5. An industry association can play a crucial role in promoting and endorsing both ECO Canada and the training.

Regional Adaptation

ECO Canada can tailor NbCS training program to regional contexts by integrating local labor market information. This ensures customized training modules align with specific regional opportunities. For example, in Newfoundland and Labrador, where alternative energy projects (especially hydrogen projects) are increasing, ECO Canada can include specialized modules on hydrogen technologies. This customization would align the program with regional needs, effectively preparing the workforce for emerging opportunities in the alternative energy sector. By incorporating regional labor market insights, the training becomes a dynamic tool, adapting to unique challenges and prospects nationwide.

Training Works felt that ECO Canada has a unique opportunity to scale and adapt the Nature-Based Climate Solutions (NbCS) training to serve a three-fold purpose:

1. Facilitate the recruitment of new workers to the NBCS sector.
2. Transition displaced workers to the NBCS sector.
3. "Green" workers in traditional industries.

“All three strategies are interconnected, ensuring a holistic approach to workforce development that not only addresses unemployment challenges but also cultivates a skilled workforce capable of leading the charge toward a more sustainable and resilient future.” – Training Works

BEAHR Integration Model

Kaitlyn Petrin, who was contracted by ECO Canada to facilitate the online delivery of the NbCS curriculum, suggested that there is a good opportunity to include the curriculum in ECO Canada's Building Environmental Aboriginal Human Resources (BEAHR) program.

Since its launch in 2006, BEAHR has delivered over 270 customized Training Programs in partnership with over 315 First Nations, Métis, and Inuit communities. Courses range from 1 – 12 weeks in length and over 6,400 Indigenous learners have graduated from courses such as:

- Environmental Core Skills
- Environmental Monitoring Coordinator Regulatory Specialization
- Environmental Monitoring Coordinator Research Specialization
- Environmental Site Assessment Assistant
- Marine Ecology and Conservation
- Aquaculture Technician Training
- Contaminated Sites Remediation Coordinator
- Reclamation Specialization
- Local Environmental Coordinator
- Solid Waste Coordinator
- Climate Change Adaptation
- Leadership in Energy Management
- Land Use Planning

BEAHR Indigenous training programs offer locally customized learning that provide accessible and meaningful career development to First Nation, Métis and Inuit members to overcome barriers to employment and develop competencies needed to actively contribute to Canada's growing environmental sector.

The courses offered provide introductory training to those who want to work in the environmental sector in Canada.

Kaitlyn Petrin offered the following feedback on how the NbCS curriculum could be integrated into the BEAHR offerings and used in the BEAHR licensed model of curriculum delivery.

The NbCS Workshop provides content which would be a valuable addition to the existing BEAHR Program(s). The following list summarizes suggestions on how this could be accomplished:

The BEAHR course 'Core Skills' contains a single one-day module (Core Skills 1) on foundational, personal and professional skills needed in the environmental industry. It covers the basics of communication, teamwork, and problem-solving skills. There is a lot of content in the NBCS workshop on communication, listening, leadership and teamwork - particularly in

Modules 4 and 6 - that could be incorporated into this module to make it stronger and provide a better foundation for BEAHR students.

BEAHR courses are highly technical and give students the opportunity to learn large amounts of western science terminology and concepts; this is very valuable. However, my personal feedback on the programs, gained from over six years of teaching, is that they fall short on preparing students for the labour market and job search at the end of the course. The Core Skills, ESAA (Environmental Site Assessment Assistant), and CSRC (Contaminated Site Assessment Assistant) BEAHR courses provide small introductions into resume-writing and searching for an environmental career, however this isn't comprehensive enough and doesn't reflect the changing nature of the environmental career sector. The NbCS workshop provides an excellent resource to the adult student on how to accomplish a career change and BEAHR students would greatly benefit from the inclusion of this content (whole or in part) after their BEAHR course is completed. In particular, NbCS content on transferrable skills, career planning, and personality assessments would be fantastic resource for the recent BEAHR graduate.

Learner-Focused Training

Olga Tsui, a facilitator from Triton Environmental was contracted by ECO Canada to deliver a NbCS training to Pikwakanagan First Nation in Ontario. This particular delivery, while using the NbCS curriculum, was not in scope for the NbCS project funded by Future Skills Center because the focus was not within Western Canada. However, the Pikwakanagan Nation partnered with ECO Canada for a BEAHR delivery and requested that we add 3 days of NbCS curriculum for their band members.

Along with learners from Zak Wulf Gillrie who facilitated the Calgary, Vancouver, and Maskwacis deliveries of the NbCS curriculum, Triton Environmental suggested the following curriculum revisions in order to help scale the project to different local contexts across Canada and to ensure that the learning is meeting the needs and goals of very diverse groups of learners from Indigenous communities to natural resource workers to newcomers to Canada.

Engage participants:

Triton instructors adapted NbCS course content to align with each class's profile, emphasizing relevant experiences and factors from the Facilitator's Guide and drawing on our own environmental career experiences. We foster dynamic learning through open discussions, moving away from traditional lectures.

- Encouraging communication and story-sharing among the class members enhances topic/concept accessibility. Triton instructors facilitate discussions ranging from complex scientific concepts to the ecosystem-based mindset to the philosophical nuances of the personal growth mindset and how this impacts our journeys/careers, which allow discussions to be more relatable and participatory.

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- Facilitating the course in a nuanced manner, tailored to participants, and based on getting to know them and their backgrounds, is recommended to NbCS instructors. This suggestion is opposed to abiding to a rigid and static framework and following the curriculum verbatim via lecturing. The nuanced/relational approach brought more life to the class and contributed to increasing the energy and interests of lessons.
 - Speaking with the staff/community members responsible for hosting the course and the pre-assessment forms filled out by participants is incredibly helpful in understanding the needs and interests of the participants.
 - The need to tailor curriculum content became apparent as we noticed varying levels of prior knowledge and different industry experience among the participants. A one-size-fits-all approach simply is not optimal for achieving the desired learning outcomes. Everyone comes in with their own life experiences. For example, some NBCS students were new immigrants to Canada and were unfamiliar with some practices such as prescribed burns while other NBCS students are Indigenous and may have a long history of conducting prescribed burns for generations.
 - As another example, some students have studied/interest in the environmental field with a strong grasp on climate change for example, while other students are exposed to these concepts for the first time in the NBCS course; therefore, it is vital for instructors to understand the background and capacity of their students. This includes student goals/motives for the course.
 - Some participants are looking to transition into the environmental industry while others are seeking to simply bolster their current career, or meet personal interests, by attending NBCS.
 - We recommend adjusting the emphasis on certain NBCS topics based on the participants' expressed interests and background. Student information is ascertained via the introductory exercise on the first day of class based on answers to reflective questions and group discussions but can also occur through discussions prior to the course with the staff/facilitator/host.

Tailoring curriculum based on relevance and interest:

- Strategically remove or altered certain sections of the original course, including class activities. By doing so, the courses become more valuable and directly applicable to the participants' professional contexts, career interests, and/or community needs.

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- An example of this is from Lesson 3 slide 36 – Wrap Up Activity. We removed the Lego activity and instead replaced it with a communication activity from the real world of environmental field work. Utilizing a real-world example prompted the engagement of the learners and made the activity far more rewarding to those looking to get into the environmental field. We split the class into small groups and had them go through a real-world scenario where in they are a team of environmental consultants that are tasked with completing a fish salvage as mitigation for bridge construction spanning watercourse.
 - This exercise ties in all the communication skills discussed throughout the module while allowing students a further opportunity to engage with practical environmental industry knowledge.
 - Oftentimes, the reflective questions at the end of a section are already naturally/spontaneously discussed while moving through the slides. In that case, an open floor discussion can be facilitated instead where participants are able to ask their own questions outside of the prescribed discussion prompts. For example, in the career focused modules, a participant asked how the facilitator would manage a situation where the client disagreed with the environmental advice provided or were engaging in activities that were not environmentally sound. We discussed different strategies such as open communication, cooperative language, and always coming to the discussion with solutions rather than blame. One participant noted that this discussion was particularly helpful and that they would employ the strategies in their next workplace or throughout their career.
 - Some activities are also removed due to timing constraints to create more class time; however, participants are encouraged to check out provided links on their own time and return to class with any questions or comments the next day.

Customized learning materials:

- Developing personalized learning materials for each class to address specific interests/needs of the Nation/industry/community.
- For example, when delivering for different Indigenous bands, instructors of NBCS should consider additional time/budget to reach out to elders/community leaders ahead of time to discuss ways to make the course as effective as possible for their particular community (e.g., tailoring material towards the development of a Guardianship Program).
- Prior to a delivery to an Indigenous community, discussion with the appropriate community member should occur prior to delivery regarding protocol (e.g. offering tobacco for a prayer/blessing prior to the start of the class or asking a Knowledge Holder to speak about their Nation's traditional perspectives on land stewardship/relationships and how that can tie into NBCS [e.g. fire keepers]).

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- A Gift could be offered for this type of request typically (e.g. asking for a Knowledge Holder or elder to come to class to bless or speak on their perspectives on NBCS). At the Louis Bull Tribe delivery more examples of solar power were utilized due to the band's development of their own solar power systems, however, had we reached out to community leaders ahead of time there are additional educational points we could have prepared and worked on together to present to the community.
 - Community leaders from Louis Bull Tribe expressed interest in developing additional educational materials though collaboration with ECO Canada to not only provide a more tailored course for their community but increase the value for students at course deliveries in various treaty territories. Collaboration with other communities, facilitators or industry experts would bring diverse perspectives into the course. Instructor Self Evaluation Report: Facilitation of ECO Canada Course (Nature Based Climate Solutions)
 - One of the items on the post-assessment feedback mentioned how enjoyable the videos linked in the NBCS course were. They were interesting and helped tie together themes and ideas from the slides, while providing a different method of delivery. Adding more variety through videos or hands-on activities would help keep engagement and interest throughout the day as some of the modules are heavy to work through. For example, the Pikwàkanagàn participants had mentioned that on previous jobs, they had felt like their technical knowledge of biology was not sufficient, so we spent a bit of time running through some handy sites and public resources that would help them with projects in the future. These tools were selected because they were reliable sources of information, user friendly, and free to use. This gained a lot of interest/engagement and added a nice break to the modules. Some of the additional resources that were discussed included:
 - The Ontario GeoHub. We explored various forestry and wildlife datasets that were relevant to their territory and demonstrated how to navigate the geospatial layers.
 - The Cornell Lab of Ornithology website and associated *Merlin* app. We went through some bird ID examples and were able to demonstrate how to use the app while in the field. We also discussed the use of exploring different field guides or apps to help brush up on identification knowledge.
 - The Species at Risk Public Registry. We spent some time discussing species at risk, regulations, and status reports.
 - The Government of Canada Migratory Bird Nest Period website. Continuing with birds as an example, we discussed how to look up nesting windows for migratory birds as they relate to restricted access periods for work activities, and using credible sources of information, such as government sites.

Scaling the Wage Subsidy and Internship Program

ECO Canada has deep experience in facilitating wage subsidies for environmental host employers who place eligible Canadian participants in internships or work placements for between 3 – 12 months. Many of these programs are focused on youth or newcomers to Canada who are eligible to work in Canada but experience barriers to entry. The NbCS

program offered us a unique opportunity to set up a wage subsidy and 3-month work placement for career transitioners that were leaving other sectors particularly natural resources and entering nature-based work. It was a challenge finding eligible participants because of the doubly narrow definition of “transitioning natural resource worker” and the focus on Alberta and British Columbia. To fill the 51 placements with transitioning workers ECO Canada’s project team made the decision to accept some placements in Saskatchewan, Manitoba, Northwest Territories, and the Yukon on a case-by-case basis.

There was high interest in the program however many applicants were ineligible (970) due to being located outside of Canada or not being able to work in Canada. There were also a high number of declined applications (1,147) from people who did not meet the definition of a transitioning worker, people located outside of Western Canada, or people who applied after the program closed.

Greater flexibility on the participant requirements is recommended going forward for the wage subsidy and internship program in order to scale successfully to Central and Eastern Canada or other regions across Canada.

On the employer side, streamlining paperwork requirements may also help increase participation. Many small and medium-sized enterprises, environmental consulting agencies, and Indigenous Nations do not have the capacity or full-time human resource (HR) staff to fill out paperwork and submit reports to ECO Canada whilst also in the middle of field season. Due to the seasonality of nature-based work many environmental SMEs are in high need of workers during field season. With a longer project timeline it would be ideal to engage career transitioners early in the process for completing necessary training and connect them to employers as early as possible so that paperwork can be filled out for the wage subsidy and to address any barriers, close skills gaps, and ensure a seamless transition to the internship program.

The final results of the first project were promising in terms of creating long-term employment for career transitioners in nature-based climate solutions work. 33 of the 51 (65%) internship placements led to long-term part-time or full-time work with the host employer. Just under 10% of the internship placements led to part-time or full-time organization with a different employer. Almost 22% or 11 of the interns went back to school. Only 2 interns representing 4% of the participants in the wage subsidy program were not hired in a part-time or full-time capacity by their host employer or another employer and were unemployed by the end of the NbCS project.

Conclusion

The future of the Nature-based Climate Solutions (NbCS) project is promising. ECO Canada and our industry partners are positioned to provide relevant and timely training to workers leaving other sectors such as natural resources and linking them to employment opportunities through our wage subsidy programs.

There is a growing need and interest in environmental work including work that falls under the umbrella of “nature-based solutions or nature-based climate solutions” including habitat, watershed and coastal restoration, remediation, reclamation, and conservation.

Workers will need access to entry-level training that helps them discover transferable skills that they can bring to the table and puts technical content into an accessible format. There needs to be an emphasis on communication skills for leadership, team safety, cross-cultural interactions, and stakeholder relations. The training curriculum must be entry-level and use accessible language that works for career transitioners, Indigenous learners, and newcomers to Canada who are new to the environmental sector or have English as a second language. Furthermore, the curriculum needs to be flexible enough that it can be tailored to the local context by the facilitator or instructor to use relevant examples of projects, reference the relevant treaties, laws, and other legislation in the area, and to bring in the appropriate Indigenous traditional knowledge and land acknowledgements.

Early intervention is the key to success for both career transitioners and host employers in the environmental sector. Connecting with employers early allows organizations like ECO Canada to ensure that employers are ready to take advantage of wage subsidies to host trained workers. Employers might also be willing to participate in the training sessions and provide workers with field experience or practical hands-on training before the work placements or internships begin. Early intervention also enables service providers like ECO Canada to help workers and career transitioners get relevant labour market information, in-demand skills, and training to help them pivot into a new sector.