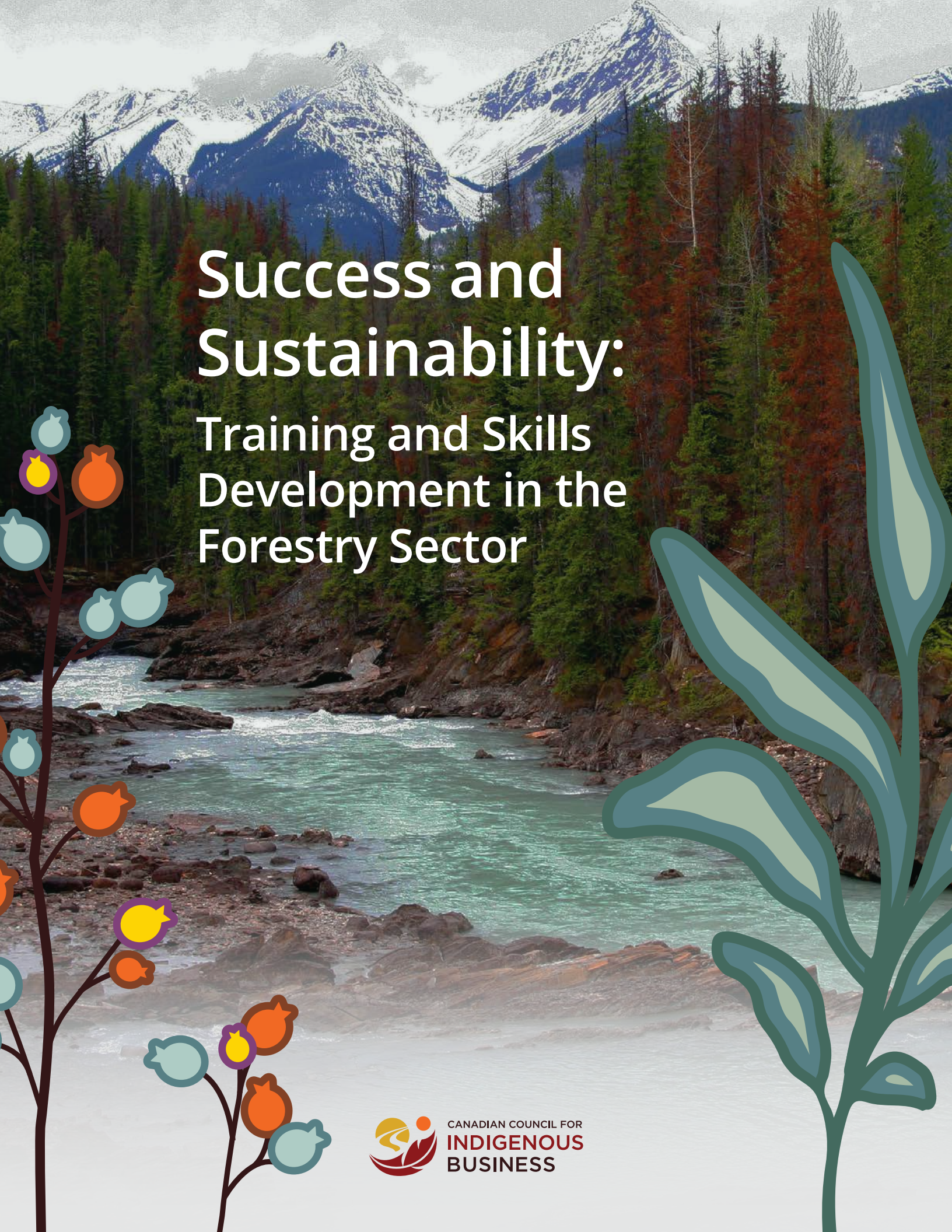

Success and Sustainability:

Training and Skills Development in the Forestry Sector

CANADIAN COUNCIL FOR INDIGENOUS BUSINESS

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About CCIB

Canadian Council for Indigenous Businesses (CCIB) is an Indigenous-led non-profit based in Toronto, Ontario, committed to advancing economic opportunities for Indigenous businesses and communities across Canada. We have a membership base of over 2,300 current and pending members nationwide, of which more than half are Indigenous owned. CCIB builds bridges between Indigenous and non-Indigenous peoples, businesses, and communities through diverse programming, providing tools, training, network building, major business awards, and national events.

For more information about CCIB, please click the following link: CCIB Home Page

About the Funder and the Indigenous Forestry Initiative

Natural Resources Canada develops policies and programs that enhance the contribution of the natural resources sector to the economy, improve the quality of life for all Canadians, and conducts innovative science in facilities across Canada to generate ideas and transfer technologies.

They are an established leader in the fields of:

- energy sources and distribution
- forests and forestry
- minerals and mining
- earth sciences
- energy efficiency
- science and data

They also represent Canada at the international level to meet the country's global commitments related to the sustainable development of natural resources, improving the quality of life of Canadians by creating a sustainable resource advantage. They have generously provided the funding for this research under their Indigenous Forestry Initiative stream (IFI).

For more information on Natural Resources Canada, please visit their homepage by clicking the following link: Natural Resources Canada.

In June 2017, the Government of Canada announced the IFI as a featured component of the Softwood Lumber Action Plan, expanding its $1 million/year ongoing budget by an additional $10 million in funding over three years (2017 to 2020).

In Budget 2019, the Government of Canada announced a three-year, $15.6 million expansion of the program, enabling a greater number of Indigenous projects, as well as larger Indigenous-led economic development projects, starting in 2020.

In September 2023, the Government of Canada announced a three-year $16.6 million renewal of the IFI ($13 million in total investments to communities), in addition to a re-focused mandate to advance reconciliation in the forest sector by supporting Indigenous-identified priorities to accelerate awareness, influence, inclusion, and leadership.

The IFI provides financial support to inclusive, Indigenous-led activities in the forest sector, such as:

- gathering, developing, using, and protecting Indigenous Knowledge and science
- Indigenous leadership and participation in forest stewardship
- the identification, consideration, and pursuit of economic development opportunities

For more information on the Indigenous Forestry Initiative, please click the following link: Indigenous Forestry Initiative (canada.ca).

Executive Summary

Executive Summary

Indigenous participation in the forestry industry is critical for economic growth, environmental stewardship, and community sustainability. However, several challenges hinder full engagement, including skills shortages, limited access to training, procurement barriers, and a lack of integration between Indigenous Knowledge and Western forestry practices. This paper examines these issues and provides recommendations to strengthen Indigenous involvement in forestry.

This report expands on the initial installation of CCIB's forestry-specific research titled ***Success and Sustainability: An Introduction to Indigenous Participation in the Forestry Sector***. It explores the current landscape of professional skills development in the forestry sector. By pairing secondary research with firsthand insights from Indigenous forestry firms and other key non-Indigenous stakeholders, the report aims to identify shortcomings, successes, and requirements for ensuring the success of Indigenous employees and businesses. This includes identifying the opportunities and challenges Indigenous firms experience in forestry related to skills development.

Key Findings

Insights from interviews reveal several critical themes related to skills development, procurement processes, and Indigenous participation in the forestry industry.

Skills Shortages and Workforce Gaps

- The forestry industry is experiencing acute shortages in key roles such as heavy equipment operators, loggers, and forestry technicians.
- There is a strong need for entry-level training programs to attract new workers and youth into the sector.

Barriers to Skills Development and Training

- **Access and Affordability:** Indigenous and rural communities face limited access to training opportunities, compounded by financial constraints that hinder participation.
- **High Cost of Training:** The financial burden of training programs remains a significant barrier for Indigenous individuals and potential employees, limiting their ability to gain necessary expertise.
- **Systemic Challenges:** Rigid employment criteria and Western-centric education models create barriers for Indigenous Peoples seeking careers in forestry.
- **Cultural Relevance:** Training programs often lack integration of Indigenous Knowledge (IK) and Traditional Knowledge (TK), reducing their relevance and effectiveness for Indigenous learners.

Brain Drain in Indigenous Communities

Skilled workers are leaving Indigenous and rural communities due to the absence of local training and career advancement opportunities.

This brain drain contributes to stagnation in both Indigenous communities and the broader forestry industry.

Opportunities for Career Mobility and Upskilling

- Advanced upskilling programs can help retain experienced workers and revitalize the forestry workforce.
- Clear career pathways in forestry roles can support upward mobility for Indigenous employees.
- Indigenous businesses face barriers in accessing procurement opportunities due to limited training and awareness of procurement processes.

Promising Approaches to Training and Skills Development

- Successful examples include simulator-based training by private companies and hands-on equipment training in Good Hope Lake, B.C. These models require broader implementation and sustained funding.
- Expanding mentorships, apprenticeships, and on-the-job training can help build a more resilient and skilled workforce.
- Blending Western and Indigenous practices can make training more accessible and culturally relevant.

These findings underscore the urgent need for investment in inclusive skills development, procurement capacity, and knowledge-sharing initiatives to support a sustainable and equitable forestry industry.

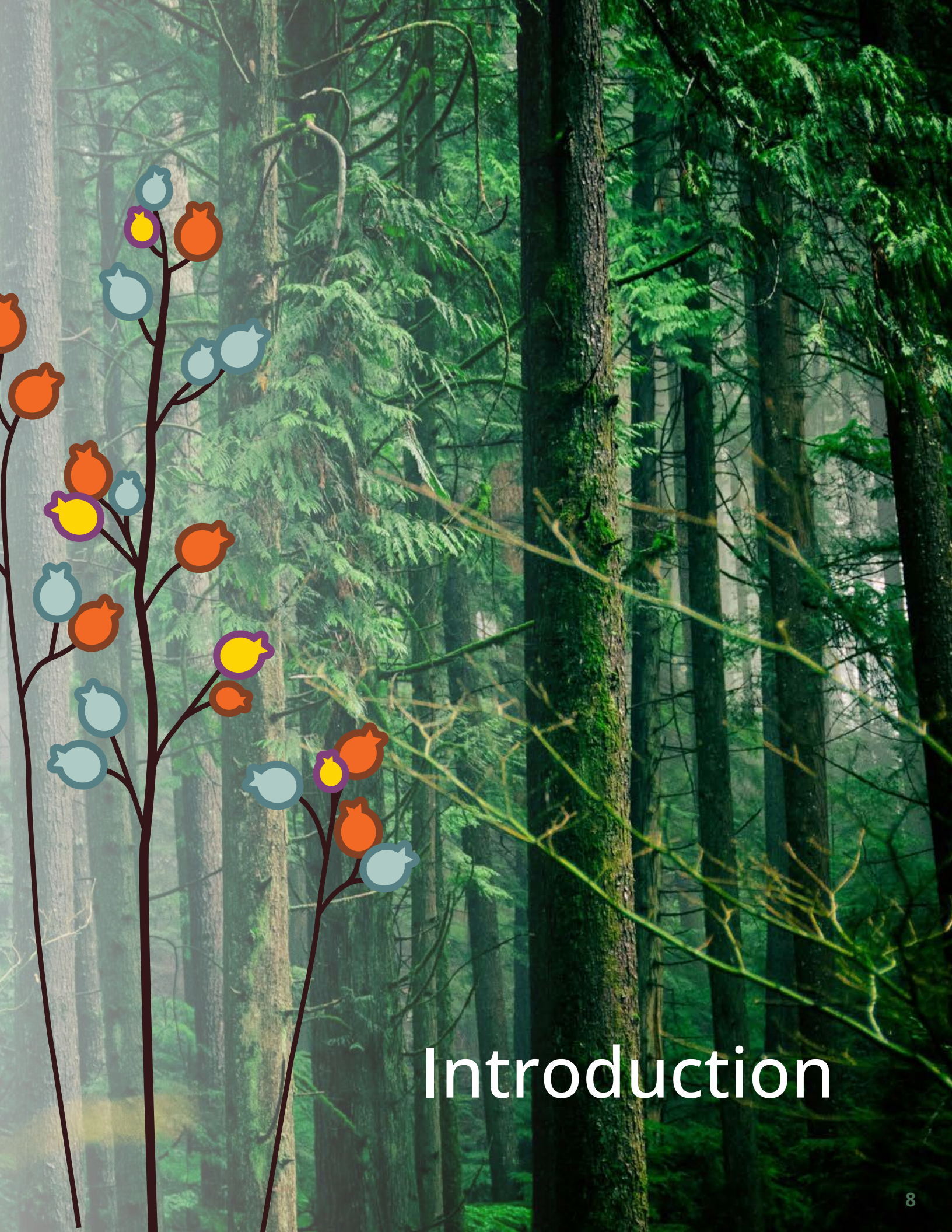
Recommendations

To enhance Indigenous participation in forestry, stakeholders must address training deficiencies, procurement barriers, and the underutilization of IK.

Key recommendations include:

1. Expanding entry-level and advanced skills training programs, particularly in remote communities.
2. Increasing financial support for Indigenous-led training initiatives.
3. Developing career paths and professional development training in key roles like procurement, IT/TK, sustainability, management, and technological roles.
4. Strengthening capacity-sharing and procurement training for Indigenous businesses.
5. Promoting cultural sensitivity training and the integration of IK into forestry practices.
6. Investing in technological innovation and mentorship programs to ensure long-term workforce sustainability.

By implementing these strategies, the forestry industry can create a more inclusive, skilled, and sustainable Indigenous workforce while fostering economic reconciliation and environmental stewardship.



Introduction

Introduction

This report expands on the first installation of CCIB's forestry-specific research, titled Success and Sustainability: An Introduction to Indigenous Participation in the Forestry Sector by scoping out the current landscape of professional skills development in the forestry sector. By pairing secondary research with insights from Indigenous forestry firms and other non-Indigenous stakeholders, the report aims to identify opportunities for Indigenous employees and businesses, with a focus on employment and skills development.

Building on key findings from the earlier report, we explore evolving dynamics in the forestry sector, including:

- Shifts in forestry practices, such as new management approaches, emerging technologies, and the integration of Indigenous Knowledge (IK)
- A growing industry-wide emphasis on sustainability
- Persistent challenges in hiring, retention, and procurement

This report examines these issues through the lens of skills development and career-building, identifying new opportunities to enhance Indigenous participation in the forestry industry.

Profile of the Forestry Industry in Canada

In this paper, we aim to answer the question of how Indigenous participation in the forestry sector can be increased. To do this, we first examine the forestry industry and its place in Canada's history.

Legacy of Marginalization

Canada's forestry industry is predicated on a legacy of marginalization of Indigenous rights holders, communities, and businesses. This exclusion extends to the skills development and professional training required to operate successfully in the forestry sector. Under-resourcing, lack of funding, and an attitude of exclusion have all hindered the ability of Indigenous companies, communities, and employees in forestry to upskill or break into the industry.

Indigenous participation in the forestry industry

Now more than ever, this stratification in skills development opportunities and outcomes is impeding the potential of Canada's forestry sector. Over 70 per cent of Indigenous communities are in forested areas, and Indigenous rights holders own or control approximately 17 million hectares of forests in Canada[1] out of a total of 367 million hectares (about 4.6 per cent).[2] Indigenous Peoples represent over 11,000 active employees in the sector.[3] As these communities increasingly reclaim stewardship of the forests in their traditional territories and take ownership of the economic development within them, there has never been a better time to engage Indigenous communities and businesses in meeting the needs of Canada's forestry industry.

[1] "Conservation Forestry - Careful Use of Canada's Forest Resources."
[2] Canada, "How Much Forest Does Canada Have?"
[3] "The State of Canada's Forests: Annual Report 2023."

The shortage of skilled labour affects industries across Canada, including the forestry sector. The federal government acknowledges that there will be at least 30,000 job openings in the forestry sector over the next decade (2021–2031).[4]

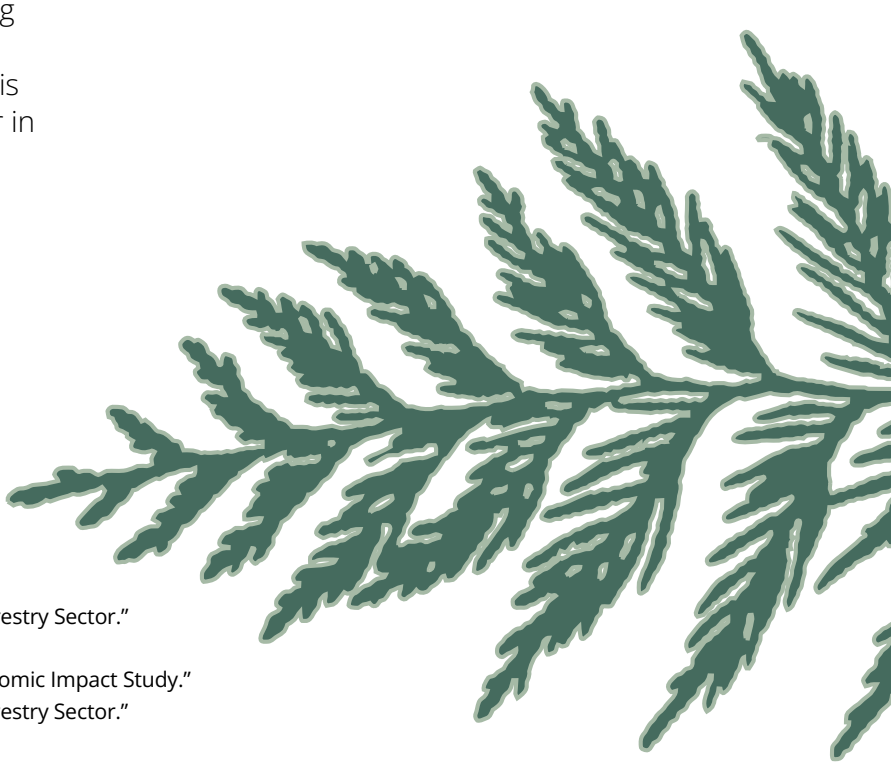
Indigenous communities are working to secure not only jobs but also ownership of large infrastructure, such as mills, in preparation for long-term business activities in forestry. An example of this occurred in 2023, when four First Nations from the Campbell River area in B.C — Tlowitsis, We Wai Kai, Wei Wai Kum, and K'ómoks First Nations — acquired a 34 per cent stake in a new limited partnership with Western Forest Products for $35.9 million. Part of the funding came from treaty agreements with the province.[5]

British Columbia stands out as a provincial leader in hiring, retaining, and training Indigenous employees and businesses in the forestry sector. One factor influencing this is the significantly higher salaries compared to other provinces in Canada. In 2022, forestry professionals in British Columbia earned an average annual salary of over $106,000, compared to the provincial average of $73,000.[6] Additionally, there are 5,315 Indigenous workers directly employed in the forest industry in B.C., accounting for approximately nine per cent of the workforce, or one in 10 direct jobs. The number of jobs in this sector is higher than in any other resource sector in B.C.[7]

Impacts of Indigenous Business Success in the Forestry Sector

As Canada seeks to address skilled labour shortages in natural resource sectors such as forestry, it is crucial to support the upward mobility of Indigenous employees and Indigenous businesses. CCIB research has previously shown that a third of Indigenous businesses (30%) employ staff and that most of those employers (83%) hire at least one Indigenous person. The same CCIB study found that on average, Indigenous employees comprise over half (54%) of the staff of Indigenous companies.[8] However, our recent forestry report showed that 85% of Indigenous businesses in agriculture, forestry, fishing, and hunting employ staff,[9] so the impacts on employment may be greater in the forestry industry.

According to recent data from Statistics Canada, over 9,500 Indigenous businesses operate in the agriculture, forestry, fishing, and hunting sectors.[10] This presents a clear opportunity to leverage the expertise of these Indigenous businesses to mitigate challenges related to the skilled labour shortage.



4 Canada, "Government of Canada Supports Indigenous Jobs in Forestry Sector."
5 Desjarlais, "Tall Trees, Strong Roots."
6 "Contributing to a Better BC: BC Council of Forest Industries Economic Impact Study."
7 Canada, "Government of Canada Supports Indigenous Jobs in Forestry Sector."
8 "Promise and Prosperity: The 2016 Aboriginal Business Survey."
9 "Success and Sustainability: An Introduction to Indigenous Participation in the Forestry Sector."
10 "Business Ownership Diversity Dashboard."

Research Methodology

Research Methodology

The research methodology utilized for this report involved a combination of desk research and in-depth interviews with important forestry stakeholder groups.

We scheduled and conducted 14 in-depth interviews, 10 of which were with Indigenous businesses or forestry organizations. The others were non-Indigenous stakeholders active in the forestry sector, many of whom work directly with Indigenous communities or firms. These interviews were recorded, transcribed, anonymized, and reported in aggregate throughout the subsequent sections of this report.

Desk Research

We began with desk research from a variety of sources to help identify themes and topics for our interviews. This included a review of the following:

- Quantitative data from the first report in this research series, *Success and Sustainability: An Introduction to Indigenous Participation in the Forestry Sector*
- Themes from interviews in the Success and Sustainability report
- Existing literature on Indigenous participation in forestry

Interview Design and Coordination

Once key themes from CCIB's previous research and other existing literature had been identified, we used them to develop two interview guides for distinct participant samples. One was tailored to Indigenous businesses operating in forestry. The other was geared towards non-Indigenous corporations or governments with activities or interests in their respective spheres of influence (see Appendix A for the full questionnaires). The interview guides were designed for use in semi-structured interviews.

We then leveraged various channels including CCIB's membership database, our internal list of Indigenous businesses, and professional networks to develop an outreach list. Our list of potential interview representatives included:

- Indigenous forestry businesses
- Non-Indigenous forestry businesses
- Government departments
- Other organizations, including industry associations, Indigenous associations, and related organizations

From this list, we scheduled and completed a total of 14 interviews.

Data Collection and Sample Demographics

We conducted a total of 14 semi-structured, in-depth interviews. The interviews were conducted remotely over video and were recorded and transcribed.

The interview participants in this project represent the diversity of Indigenous businesses and the Indigenous economy, even within a single specific sector. CCIB researchers spoke to 10 Indigenous enterprises, all operating in forestry but serving the industry in their own unique and sometimes niche ways. Professional, scientific, and technical services are most prominent within our sample, with numerous Indigenous firms offering a range of services, including drone surveying, thermal diagnostic imaging, consultation, forestry management, TK services, and other specialized services related to forest management. Many of these firms are capitalizing on industry trends, such as sustainable and innovative forestry practices, which will help secure the industry's longevity. Some of the firms from our sample are engaged in wholesale trade with countries such as the United States, Europe, China, and other South American markets.

Industry Breakdown of Interviewees		
	Indigenous	**Non-Indigenous**
Professional Technical or Scientific Services	6	3
Management	2	1
Educational	1	0
Administration, Waste, Redemption	1	0
Total	**10**	**4**

Profile of Participating Indigenous Companies

Participating Indigenous businesses covered a range of characteristics:

- Years in operation ranged from less than one year to 40 years
- Annual revenues ranged from 250K–90M
- Employment ranged from firms with teams as small as four full-time employees to companies that employ over 400 people
- Procurement experience ranged from contracts valued at $10,000 to $400,000

Indigenous entrepreneurs from our sample also had diverse backgrounds and experiences that informed their journey in the forestry sector. Some individuals have formal education from universities or vocational institutions, often in the form of degrees in conservation and forestry. Some entered the forestry industry with experience as engineers, environmental scientists, members of Tribal Councils, and post-secondary lecturers. Many interviewees from this sample have maintained a long career in forestry, starting as land guardians or junior foresters, or entering the industry through government-sponsored programs related to activities such as tree planting, reseeding, and forest firefighting. A few interviewees are Knowledge Keepers in their community, which provided a unique perspective on the incorporation of IK and practices into forestry operations or businesses.

Other noteworthy findings related to the background and skills of our interviewee sample include:

- **Intellectual Property:** Two patents filed, with many others pending
- **Trade and Export:** Experience exporting finished and raw forestry products to international markets such as the United States, South America, and Asia
- **Employment:** Most Indigenous firms that we spoke to indicated that their staff are over 50 per cent Indigenous, with one company citing 70 per cent Indigenous employment and another with 100 per cent Indigenous staff
- **Procurement:** Two Indigenous companies that we interviewed have scaled to a point where they can create and facilitate procurement opportunities related to forestry, promoting vertical integration of community-owned businesses within forestry opportunities
- **TK:** Multiple Indigenous forestry companies that we spoke to engage or incorporate the teachings of Elders into their activities

Indigenous business owners and non-Indigenous forestry stakeholders from our sample were able to speak to numerous aspects of skills development and training in the forestry sector. The experiences they shared build on previous reporting, providing more granular insight into the skills needed to be successful in the forestry sector and some of the challenges related to the professional development journey. The information they shared is explored further in subsequent sections of this report.

Data Analysis

We analyzed the transcripts, coding the main topics discussed in the interviews. We then collated and grouped the coded data into broader themes. We identified trends and common perspectives within each theme. We developed a key-findings report to summarize the insights from each theme.

This report expands on some of the key themes, trends, and quotations from the interviews.

Interview Findings

Interview Findings

1. Challenges and Obstacles Related to Skills Development and Training

Indigenous businesses and employees in Canada face gaps in professional development and training opportunities across various industries. Data from Statistics Canada showed that in 2017 that there were 37,760 Indigenous Peoples in Canada citing a lack of work experience and 37,640 citing a lack of education or training as the reason why they were having difficulty finding work.[11] This workforce vacancy contributes to decreased productivity and can hinder the socioeconomic outcomes of the communities where these individuals reside, as well as Canada's economy at large.

Throughout our in-depth interviews with Indigenous forestry professionals, many cited challenges related to skills development and its impact on outcomes for Indigenous Peoples in forestry. Much of this was attributed to gaps in available training, competition for talented employees, access to financing or capital to support engagement in professional development offerings, and a lack of cultural relevance currently reflected in offerings geared towards Indigenous businesses, communities, and Peoples in forestry.

A LACK OF INDIGENOUS-FOCUSED PROFESSIONAL DEVELOPMENT OPPORTUNITIES

Beyond a lack of programming available to Indigenous Peoples and businesses looking to upskill in forestry, the programming that does exist does not adequately support Indigenous participation due to ineffective program frameworks. Throughout the interview process it was mentioned that the current landscape of programming and professional development supports available to Indigenous Peoples, businesses, and communities engaged in the forestry sector inadequately recognizes the unique needs of this group and fails to provide the wraparound support needed to ensure success.

Previous CCIB research highlights the importance of developing tailored, culturally sensitive training programs that intentionally prioritize Indigenous recruitment and provide an inclusive, supportive environment to retain and nurture Indigenous talent. Skills development programs that incorporate strategies specifically dedicated to this purpose enhance the professional attributes of Indigenous employees and position them for progressive career roles.[12]

[11] Government of Canada, "Reasons for Difficulty in Finding Work by Aboriginal Identity, Unemployed."
[12] "Skills for Inclusive Workplaces and the Advancement of Indigenous Peoples."

Research from York University and the United Nations Educational, Scientific, and Cultural Organization has affirmed the impact of tailored, Indigenous-specific training programs on Indigenous engagement, retention, and positive outcomes. For every Indigenous group that they connected with cross-continentally, there was high value associated with the inclusion of cultural heritage in learnings, training modules, and programming. This includes incorporating Indigenous heritage, traditions, arts, and languages as a means of preserving and building pride.[13] The study further notes that changes in curriculum and pedagogy, combined with co-led, community-based initiatives, produce better learning outcomes related to the career-based goals of individuals.[14]

The importance of taking a whole-person approach to Indigenous training and skills development is valuable for Indigenous employee outcomes because it allows for considerations that are not normally captured in generic skills programming. The Indigenous historical context and current lived experience can influence the educational, training, and eventual employment experience for some individuals, and finding training and skills development opportunities that consider these impacts is nearly impossible.

One participant described some of the challenges relating to gaps in skills development training:

> *"[Taking on new opportunities and ventures in the forestry sector] is something that I want to do, but I do have a bit of a fear there. In that, a lot of the people, including myself, working in logging industries they have not had as much formal education as the people that come from university. So that's why I'm kind of staying in areas or activities I feel comfortable in. So, the work does need to be done there to ensure that Indigenous Peoples have the same access to educational tools in forestry relevant to their needs."*

[13] "Reorienting Education and Training Systems to Improve the Education Outcomes of Indigenous Youth (#IndigenousESD)."
[14] Christian, Quressette, and Ned, "The Importance of a Whole-Person Approach in Indigenous Career Development."

RIGID PROCESSES AND REQUIREMENTS

Interviewees describe current programming and training as clinical, rigid, and unreflective of socioeconomic challenges that Indigenous community members may face in their day-to-day lives that make skills development training participation difficult to maintain.

> *"You want people to get into the technical roles, the trades, and specialized skills, but at the same time, many of these work readiness programs do not consider people coming from not the greatest of social situations. Sometimes dealing with intergenerational trauma. So when we're trying to build them into a 9 to 5 production worker or trades person, it can be a difficult transition."*

> *"We try to build up our employees slow and do it through culturally sensitive onboarding and coaching which has worked for us. However, if there were more outside supports focused on this that would make a huge difference."*

The lack of tailored skills development programming for Indigenous Peoples or those offered by Indigenous organizations hinders the likelihood that a potential employee would pursue a career in the forestry sector. Participants often see forestry workforce candidates turning away from the sector in favour of industries that may be more accessible or offer better opportunities. Some of the participants in our research highlighted this challenge by detailing training and criteria that are devoid of understanding some of the capacity-related challenges faced by Indigenous Peoples:

> *"Higher safety standards means more training requirements. For example, all of our truck drivers, if they come out of school with a 1A class license, actually can't go haul loads or be a log truck driver. Even though we have found someone that says 'I'm ready to go to work for you,' I have to say I'm sorry, but you can't come to work for us until you have 50,000 kilometres of experience. So, you've immediately set them up for failure because where would they have had the opportunity to gain that experience in the community?"*

> *"It is challenging training and preparing people for moving into forestry jobs, or positions in mills. I don't think we do much thinking about it and the thing is, it's getting harder and harder with new industry regulations and requirements like now like in Saskatchewan, you've got to have 50,000 kilometers driving a truck before you can go and drive on a heavy haul as a log truck driver."*

> *"It's complicated because we don't have any support. I know there were some grants [for training] through NRCan that were of interest to me and then I was reading through some of the criteria, and I'm thinking this is just too much. The red tape was too hard."*

WESTERN-CENTRIC EDUCATION AND TRAINING

Many of the non-Indigenous firms and organizations we engaged with were education providers themselves, offering either in-house corporate training programs or support services administered by provincial and federal government departments.

Similar to the Indigenous participants, they critiqued the available training for Indigenous Peoples and noted it is not robust enough to meet their needs. Many of the non-Indigenous participants recognize shortcomings in current programming related to things like success metrics, instructor competency regarding training Indigenous Peoples, and the difficulties of imposing Western approaches to skills development on Indigenous Peoples or communities.

> *"We tend to measure success from a Western perspective, and that's not always the same goals or success factors that communities are looking for. Often, assumptions are made that are just not valid. And I think that you might have more sensitivity to that if you were travelling to another country and dealing with another society, but sometimes there's a lack of understanding around the nuances within our own country that we are still dealing with as a society."*

> *"The Canadian education system has not given us a really great background on what Indigenous society is about. I received a very poor overview, mostly from the settler perspective."*

> *"We are dealing with communities that have had substantial social damage over the years because of the policies and programs of our government and institutions. You know, unfortunately our society, and our government, did come in and essentially take their land and put [Indigenous Peoples and communities] through some horrendous programs like the residential school system. Although, there's also a lot more to it than that, like ownership of land, engagement with businesses, these are, you know, impositions of patriarchal systems and priorities over matriarchal systems and priorities."*

> *"There are massive differences in how we look at things and I think that kind of thinking, that 'one-size-fits-all, you have to adapt to Western ways' has been a huge failure in terms of engaging with Indigenous Peoples and communities meaningfully."*

> *"One of the things we're doing is trying to push out training that is culturally aware more actively because we recognize that that's a gap. You can't expect it to happen naturally, you know, you need to bring it out. You need to have a manager that understands the kind of training and background required to promote successful Indigenous employee experiences."*

> *"It is important to try and focus on understanding Indigenous history and current conditions because regardless of what you're doing in business, particularly if you're in the resource business in Canada, you're going to be working with First Nations in some capacity. We have a lack of the key knowledge that we need for individuals and programs who are intended to work successfully with the community."*

> *"The way Canada relates to bands and Nations individually is important. Of course, you know that there are literally hundreds if not thousands of different Indigenous communities across Canada. So, I think it's tricky to try to always create homogeneous programs and approaches. You must realize that you're dealing with a lot of different bands, a lot of different communities and therefore lots of different needs."*

CULTURAL SENSITIVITY TRAINING FOR NON-INDIGENOUS FORESTRY ACTORS

Training for Indigenous skills development is not the only piece of the puzzle; participants noted the need for cultural sensitivity training for non-Indigenous industry actors. For those who engage with Indigenous rights holders in the industry, employees can be lost to negative encounters or situations that could have been avoided.

Cultural sensitivity training promotes a culture of inclusivity and respect; it can foster an environment where all employees feel valued and respected, and encourages appreciation and understanding of diverse backgrounds, cultures, and perspectives. It can shed light on the contributions of Indigenous Peoples and cultures.[15] It also improves workplace culture, as a culturally sensitive work environment is more harmonious and collaborative. Training helps reduce misunderstandings and conflicts that can arise from cultural differences, leading to a more productive and positive work environment.[16]

> *"If you have a suffocating environment, you're not going to retain any of your Indigenous people. You can't policy them with rules to death. It's just browbeating and an authoritarian environment that they're trying to avoid."*

> *"There's some people who, you know, the last time someone told them whether or not they had time to go to the bathroom was in a residential school, so you have to be careful of those triggers."*

> *"That type of cultural sensitivity and respect needs to be reflected in training and programming otherwise it only takes one or two bad incidents to sour a relationship, and then you've lost an employee that you could have had for their whole career."*

FINANCIAL BARRIERS TO ACCESSING TRAINING PROGRAMS

Forestry and forestry-related training courses are cost-intensive, and their applicability is usually limited; therefore, from an economic perspective, many forestry training courses pose a critical issue for individuals looking to enroll or businesses seeking to train their staff.[17] This negatively impacts the forestry sector's ability to attract enough new workforce entries and creates a cycle of job vacancies or career plateauing. Some of our participants identified the ups and downs associated with training in the industry.

Participants cited that training in forestry related skills can be a challenge due to lack of funding, lack of relevant programming, and challenging application processes that limit accessibility.

> *"Historically, it's been kind of up and down. I mentioned the forest liaison … We were able to access some of those dollars to be able to do some training in forestry or water in [First Nation]. So that was one really good example. We have some really good successes there. Lately, we're working with the Provincial government … they were able to provide us with $500,000."*

> *"But what we're lacking is that overall training and there are some programs out there that the Forestry Safety Council, B.C. offers such as how to properly be on a line machine. It may not be the use of the line machine but where to stand, where to make cuts, how to hook things up. That kind of thing is very, very expensive."*

[15] "Enhancing Indigenous Relations."
[16] Stegen, "Cultural Awareness Training."
[17] "Professions and Training in Forestry: Summary of the Results of an Inquiry in Europe and North America."

"I'm one person in the office and I kind of do a range of things. I do the books and the payroll and help with getting contracts and negotiations and that kind of thing. And I did reach out and try and get that Northern Sector Council support. Because one of the things I said was our training, you know, the small businesses in Manitoba are taking the brunt of the training costs."

"So when we train one person, the difference in revenue between a trainee and an experienced operator is $2,800 a shift. We have two 12-hour shifts in the day. So that's a lot of money that we're spending training people."

"Trying to find the opportunities, and then some of the funding programs, it's not necessarily easy to navigate and I'm having trouble. So somebody in the community, if they don't know what they're doing, I can't see it being any easier. And trying to get into some of the government stuff, it"s just ridiculous, it's barrier after barrier."

"You know, for training dollars, there's very little that comes to the forestry."

Due to challenges accessing funding for training, businesses are paying out-of-pocket and thinking strategically about how to adapt and fill positions.

"For training for forestry staff, I haven't really accessed a lot of resources, I just didn't pay myself or my business for like a year and a half. That's how we collected money at the beginning to have money for employee upskilling."

"For all the training, I just paid out of pocket to get people their certificates. There is government support available to achieve training, but what we are finding is that the government bureaucracy itself is slowing down the process."

"The idea is that we have to try and think about how we're hiring, how we're staffing, and how we're filling those positions. Its tough to do because we don't have the money to job shadow and mentor people into those positions because we can't hire two people to do the same job. We just can't afford to do that in a commodity market."

2. Addressing Industry Stagnation and Brain Drain

STAGNATION AND LACK OF UPWARD MOBILITY IN FORESTRY

Interview participants mentioned how forestry is a stagnant and dying industry. A significant portion of the forestry workforce in Ontario is nearing retirement, and the sector is currently unprepared to replace them.[18] This shortage could prevent the sector from realizing its full economic potential and may lead to an industry and local socioeconomic downturn if production stagnates.

While Indigenous Peoples are well represented in the forestry industry, they are often concentrated in labour-intensive or "blue-collar" roles. Many have unwillingly plateaued in these positions, as noted by Indigenous business participants.

> *"100%, certain levels of jobs are plentiful. The biggest thing that we do [in the forestry sector] is we create those entry-level jobs going 'yay us.' That is shallow because what you're doing is you are bringing people into still space, with no place at the table for decision-making to drive upward mobility."*

> *"In the areas of equipment operators, truck drivers, general labour, and middle positions at mills, those are positions that are taken by Indigenous people. I think we could do a much better job."*

> *"[It is] the really large-scale, non-Indigenous owned companies that are doing the harvesting and hauling. They may have the odd person working in their mill that's Indigenous and they may have the odd person driving a truck that's Indigenous, but they're not doing things deliberately to ensure that [employment opportunities] are happening."*

> *"You know, when you don't get that secondary education, [large non-Indigenous forestry corporations] don't follow through to offer any other trade school. They just want labourers of some sort and then the pool of these kind of roles just builds."*

BRAIN DRAIN IN FORESTRY AND INDIGENOUS COMMUNITIES

Many participants from our interviews noted that young Indigenous talent who might have been well-positioned to pursue a career in forestry or serve the forestry sector with their skills are drawn to other industries that are perceived as more viable. This is known as "brain drain," which refers to the effects of government policies, taxes, or other events that cause highly skilled workers to leave their homes (cities, provinces, or countries) and relocate elsewhere in search of work.[19]

Since most Indigenous communities are located in remote and rural areas, there is limited access to job opportunities, social services, and other essential factors (e.g., accessible public transportation or affordable housing) that would typically retain an individual in a city, region, or area. Skilled Indigenous workers from the community move to urban areas in pursuit of employment. This causes the economy to stagnate or shrink, which in turn creates rising poverty rates, a growing detachment from culture and the land, and a lack of motivation for Indigenous entrepreneurs to launch businesses in their communities, further contributing to community brain drain.

One participant shared that "you have kids or young adults going to start working off-community, even if they would prefer to stay in-community. They get trained, find work, and have a better life off-community. They have more opportunities off-community. So you know that's what it comes down to is that really that's what I see is that you know the individuals that do stay in-community do not have the same opportunities, forcing them to consider leaving."

[18] "Forestry Education & Career Pathways | Forests Canada."

[19] Jacknife, "Opinion: How to Stop the Indigenous Brain Drain | Calgary Herald."

Indigenous businesses are struggling with the challenge of finding skilled workers. CCIB research has shown that nearly two-thirds (61.8 per cent) of Indigenous businesses cite attracting and retaining skilled employees as a key hindrance to business growth, while over a third (35.2%) of the same sample identify competition as a key factor impacting business growth.[20]

It is important to note that the brain drain phenomenon and lack of meaningful opportunities within Indigenous communities did not happen by accident. These are calculated colonial policies developed with the assimilation of Indigenous Peoples into broader Canadian society in mind. For example, the 1889 Peasant Farmer Policy placed restrictions on what First Nations farmers could cultivate and sell.[21] This created a competitive disadvantage for First Nations farmers, who then had to decide whether to stay in their community or relocate to find viable employment.[22]

Today, the digital divide is a factor in perpetuating brain drain within Indigenous communities. As business, training, and education are increasingly conducted via online platforms, Indigenous Peoples in regions lacking this connectivity are at an inherent disadvantage, resulting in them being forced to look outside their community for meaningful opportunities. A recent study by the Canadian Radio-television and Telecommunications Commission (CRTC) revealed that approximately two-thirds (65.2%) of households on First Nations reserves did not meet the federal government's universal service objectives.

This obstacle is even more pronounced in certain regions, such as Alberta, where, according to Alberta's 2022 Broadband Strategy, 80 per cent of Indigenous communities lack internet access at the target speeds.[23] In Manitoba, the provincial Internet Society chapter reports that less than 31 per cent of First Nations reserves get 50/10 Mbps speeds, and in British Columbia, Network BC found that only 35 per cent do. The digital divide for Indigenous communities persists, despite Ottawa's goal to connect 98 per cent of Canadians to high-speed Internet by 2026 and all Canadians by 2030.[24]

Indigenous business participants from our interview sample noted this issue in their communities and the forestry industry, as well as its impact on community development and socioeconomic well-being.

> *"What members of our community end up doing is they go get a job in a different industry and immediately adjacent to [the community] is this huge thing called Alberta and the oil and gas industry. And that's an endless vacuum for talent. So people go there and they don't come back."*

[20] "Atāmitowin: Identifying and Overcoming Challenges Facing Indigenous Exporters."
[21] Cuthand, "Peasant Farm Policy."
[22] Jacknife, "Opinion: How to Stop the Indigenous Brain Drain | Calgary Herald."
[23] Mundie, "Many Indigenous Communities Lack Internet Infrastructure. Some Are Building It Themselves."
[24] Schrumm, Bell, and Smith, "Building Bandwidth: Preparing Indigenous Youth for a Digital Future - RBC Thought Leadership."

"That's kind of the crux of the issue, too, right? You see a bit of a brain drain on these red seal trades oftentimes, like leaving to go work in Winnipeg, leaving to go work in Saskatoon, obviously for top dollar. But then that hinders the capacity in some of these more remote rural regions."

"It comes down to opportunity like what happens with doctors and nurses. Why are they not staying in the province? Because the U.S. is paying a better dollar. It's kind of the same thing in Indigenous communities. Many of our youth are going [outside of the community] to school and they typically leave the community and don't come back."

"In a small Indigenous community like ours in Northern Ontario, the opportunity can be there but it's such a small pool to draw from. You know, if things were stable and there were more opportunities, I think you would see quite a difference and you might have more of those individuals sticking around and saying hey, look, I really want to help my community."

This challenge is something that non-Indigenous forestry stakeholders we spoke to also picked up on. Some of the non-Indigenous forestry actors that we engaged with are seeking to hire Indigenous Peoples for various activities within their company purview, although note many of the same challenges cited by Indigenous businesses operating in forestry.

"It's money and in some cases, it's finding the expertise and the people in the communities that want to work. Oftentimes, those who want to work are working. Those who don't want to work aren't. So, we're getting into a situation where we are struggling to identify who are we going to get to work. So, we are running into that situation because I can't compete with the dollars that other industries are paying them."

"I can imagine there's a bit of friction there, you know, we hear from communities that have either mining or forestry and they're kind of in competition for the limited labour pool between those two different industries."

"You know when you're working with smaller contractors from the small communities, often there's not a big talented pool of people, whether it be operators, mechanics, financial professionals, and stuff like that. So, I think that that's probably where our Indigenous contractors are challenged the most."

"I know there's a lot of pressure when you are a First Nation-owned company, of course, to employ people from your Nation, which can be difficult when you are working with such a limited labour pool to meet the needs of your business or industry. Delays in attracting, hiring, and retaining qualified staff have immediate impacts. Without staff, the machines aren't working, which causes a vicious cycle because you have payments to make on the machines. You can't find people from your local talent pool to put onto that machine. So now you're having to draw from outside of your community to keep the business operating."

3. Revitalizing the Forestry Industry: Creating Opportunities for Entry-Level and Skilled Employees

To mitigate the challenges of brain drain and stagnation, the forestry industry must make efforts to attract youth and entry-level employees and create opportunities for upward mobility.

OUTREACH AND ENGAGEMENT WITH INDIGENOUS YOUTH

Participants recommended deliberate outreach to schools and colleges to introduce forestry as a career option for youths. This can be achieved through career fairs and by utilizing simulators to showcase various options. There is a need to attract people into the industry, especially younger individuals, as many workers are aging out and new, younger talent is required to take on these jobs, particularly those that are physically demanding. Mills and harvesting companies are constantly seeking to fill positions, and the focus should be on recruiting individuals for entry-level roles, as well as promoting them into higher-level management positions.

Previous CCIB research has highlighted the need for tailored training programs and professional development tools for Indigenous Peoples, specifically Indigenous youth, to help them enter the workforce and foster prosperous and sustainable futures.[25] Investing in youth-focused educational programs enables younger, inexperienced individuals to enter the industry at a younger age, helping to break down barriers to entry.

Hands-on experience at a young age can help youth either discover their interest in the industry or give them experience in a sector that already interests them. This can be done through summer employment programs for youth. An example would be the junior forest ranger, where mentors provide training for youth while also providing them with employment. Programs like this help raise awareness of the industry at an early age, and help youth know it is a viable career opportunity.

INNOVATIVE APPROACHES TO YOUTH OUTREACH

Youth can be introduced to these career paths as early as high school by using portable simulators that mimic real-life skills and teach them how to use those skills in a safer way. Here, they can learn valuable industry skills, from driving a truck to operating equipment. Early outreach and experience can get youth interested in the industry at a younger age when they are deciding on their career paths. The benefits of using simulators for training extend beyond high school awareness. It can be used for new hires entering the industry to help them train and gain experience in the industry, and it could also be used to log practice/training hours that might be needed for certifications.

> *"Getting these kids in high school, even at elementary. Making them aware of the opportunities that are in their backyard and letting them know that they are owners in the forest industry … You're starting to see a little bit more of that awareness but there's a whole bunch more to do."*

For example, The Outland Youth Employment Program (OYEP), operated by Dexterra, provides Indigenous youth with hands-on experience in forestry and natural resource management through six-week summer programs. These programs combine employment, education, and mentorship in a culturally supportive environment, helping participants gain practical skills such as tree planting and equipment operation while earning high school credits and certifications. By engaging youth from over 180 Indigenous communities across Canada, OYEP creates early pathways into forestry careers and fosters long-term interest in the sector.

[25] "Skills for Inclusive Workplaces and the Advancement of Indigenous Peoples."

> *"I'm a fan of junior forest or Forest Ranger programs; I do a little bit of training there too. So, you know, with youth, making sure that when you are getting summer employment, that we're looking outside of the box at youth-based programs that also are committed to reconciliation."*

> *"The government provided us with some dollars to be able to get portable simulators. So basically, a computer with software and hardware that we can take out in a suitcase or a briefcase to the different schools and say 'hey here, try this on like at a career fair.' We're participating more and more in the career fairs to let kids basically try the trade they are interested in."*

> *"Why can't you have programs in high schools where the kids can get hours on a simulator, operating equipment or driving a truck, and get some credit for that? A lot of these young people never intend to go to university. Why not have them better prepared for the workforce that exists right where they live?"*

ATTRACTING ENTRY-LEVEL EMPLOYEES

It is essential to implement a living and competitive wage for industry workers; for example, salaries that can meet a basic standard of living are essential for entry-level positions in the community. This also makes it possible to reinvest in the community; by purchasing goods and services within the community, workers' money flows back into the community and the pockets of Indigenous businesses. Providing a livable wage also serves as an incentive to people seeking viable work, as it encourages more individuals in the community and youth to consider it. One participant shared that incentives for entry-level forestry positions in the community "help us small businesses — starting wage for a lot of our employees is $25.00 an hour to try meet a basic standard of living."

TRAINING FOR ENTRY-LEVEL EMPLOYEES

Proper training for forestry employees improves their ability to perform job responsibilities effectively and can lead to increased productivity and reduced turnover. Without proper training, new employees may struggle to meet job expectations, resulting in mistakes that not only affect the quality of work but also incur additional costs for the business/company.[26] Participants noted the importance and benefits of training for new employees.

> *"All of our mills are constantly looking to fill positions. All of the harvesting companies are constantly looking to fill positions. So, it's good to focus on those higher-level management positions, but we also need to focus on moving people much faster into the industry at an entry level."*

> *"[Our organization], with the support of Council, got a simulator and the money to operate it. So, the simulator will do training for buncher operators and processor operators and skidders, but it is a great way to get people engaged in forestry as a new hire or trainee."*

[26] Hall, "The Importance of Training for Entry-Level Success."

4. Creating Career Mobility Through Upskilling and Training

Shifting priorities and technological advancements in the forestry industry are opening up new pathways for career growth. Interview insights highlighted several key areas of opportunity:

- **Rising Importance of Indigenous Engagement and Sustainability:** There is growing recognition of the value of Indigenous Knowledge (IK) and Traditional Knowledge (TK) in shaping sustainable forestry practices.
- **Technology-Driven Expertise:** Innovations such as drones, AI, and advanced monitoring systems are transforming operations, creating demand for new skill sets and technical training.
- **Procurement and Project Access:** As Indigenous businesses expand, they require greater support to access procurement opportunities and participate in larger-scale forestry projects.

Indigenous interviewees expressed frustrations with career mobility and skill development in the forestry sector. While governments and corporations use metrics like "provides a good living" or "allows employees to support their families," which are helpful, they do not address the career progression opportunities for Indigenous forestry employees. There is a lack of skills development and training opportunities for Indigenous forestry workers aspiring to management roles or business development.

Participants mentioned a desire to see more Indigenous Peoples in management and senior-level roles. One shared that this desire comes from both their board and a Tribal Council: "My board, they want us to grow the Indigenous content within our organization and our contractor workforce. But there is also a desire within the Tribal Council to see Tribal Council members within the management positions. Certainly, there's a desire to grow the content within the management companies so that the future managers and the managers of tomorrow are from the community."

Challenges related to upskilling and engaging in upward mobility within the forestry sector are captured in responses from both Indigenous and non-Indigenous businesses. Participants noted that:

> *"So, if in the past most of the people in management or higher roles are non-Indigenous, you've got to slowly work to replace those people through attrition with Indigenous employees. We have great difficulty moving Indigenous employees and Peoples into those higher-level positions."*

> *"Aspects of provincial legislation wants to ensure that the forests are going to be properly managed and so it's really challenging when you don't have a lot of experience or skills within the Nation, be it for business or employment opportunities. Like I said, it's 3,000 people in the community, so you can imagine how tough it is to find somebody to come to work for you when you don't have that talent pool to draw from."*

CAREER OPPORTUNITIES AND SKILLS DEVELOPMENT IN FORESTRY PROCUREMENT

As the procurement landscape evolves due to technological advancements, global supply chain disruptions, and the growing importance of sustainability, there is a need for a more skilled and adaptable procurement workforce, and the forestry industry is no exception.[27] As organizations face these realities and evolving challenges, upskilling procurement professionals is becoming a strategic imperative. Current procurement practices and processes are notably challenging for companies in the forestry industry:

> *"Too big of a headache for our company, because we're pretty small. It takes quite a bit of work to get procurement [opportunities] … so then it's very disappointing if we don't get the work because we don't have a team who's just doing that. So, one of us has to step aside and put in the effort to put a bid in."*

> *"I struggle very much with the B.C. bid page. That feels overwhelming to me. I've done a couple of bids on there, but don't like it very much. When a bid goes up there, I'm always like, OK, I'll let somebody else get that. And, maybe I'll contact them and try to get subcontract work, it's not really something I want to deal with."*

Roles related to procurement may be a potential career path for Indigenous professionals in forestry. It involves a wide array of skills, including research, writing, forecasting, negotiation, and analysis. Other skills might include:

- Navigating procurement databases to search for procurement opportunities
- Grant writing skills enable responding to requests for proposals (RFP)
- Technological knowledge and skills to know where and how to locate RFP opportunities
- Communication skills to understand procurement requirements
- Ask clarifying questions and effectively present your bid
- Analytical skills to analyze procurement
- Networking and negotiation skills to maintain relationships with procurement officials and negotiate terms, prices, and conditions with suppliers and contractors

Additional skills might include:

- Data analysis, budgeting, and forecasting
- Supplier management skills[28] [29]

Considering the challenges around procurement, training can enable Indigenous businesses and employees to reach new heights. Roles and training highlighting research, negotiation, and analytical skills can lead to new opportunities, stronger and more reliable partnerships, steady supply chains, data-driven decision-making, and reduced costs.[30]

[27] "Why Upskilling the Procurement Function Is a Strategic Imperative for the Future."
[28] "Top 16 Procurement Skills for Purchasing Managers."
[29] Overvest, "15 Procurement Skills — Key for Success in 2025."
[30] "Why Upskilling the Procurement Function Is a Strategic Imperative for the Future."

EXPLORING CAREER PATHS AND SKILLS DEVELOPMENT WITH INDIGENOUS KNOWLEDGE AND TRADITIONAL KNOWLEDGE

Indigenous employers and communities aim to create senior roles focused on environmental stewardship. Blending Western scientific methods with Indigenous management practices can create opportunities for Indigenous employees and lead to more comprehensive and effective management strategies.[31] In areas such as land management, conservation, and climate change mitigation, traditional knowledge can offer a clearer understanding of forests and their health.[32] This is especially relevant for Indigenous businesses, as 77 per cent of Indigenous forestry businesses report using TK, and 44 per cent utilize Cultural Expressions.[33]

IK and TK are integral to the cultural identity and heritage of Indigenous communities. Training programs help preserve these traditions by passing knowledge from one generation to the next.[34] It is also important to train people in this area because incorporating IK and TK into decision-making processes can lead to more holistic and effective outcomes.

"We need to provide employment opportunities for Indigenous people related to managing the environment. And if Indigenous people, as we know are biologically connected to the land through our blood memory, these blood memory holders need to be involved in the stewardship of the forests."

IK includes sustainable practices that have been refined over centuries, and integrating these techniques with modern ones can enhance sustainability in forestry operations. Additionally, Indigenous practices often prioritize biodiversity, and incorporating some of these practices can help protect diverse species and habitats more effectively. IK also includes traditional methods for managing forests in ways that enhance their resilience to climate change; combining this with Western science can help improve the ability of forests to withstand and adapt to changing climate conditions.[35]

[31] Geller, "The Importance of Indigenous Gathering Practices."

[32] "The Importance of Indigenous Knowledge in Outback Development | Live to Plant."

[33] "Success and Sustainability: An Introduction to Indigenous Participation in the Forestry Sector."

[34] "Indigenous People's Traditional Knowledge Must Be Preserved, Valued Globally, Speakers Stress as Permanent Forum Opens Annual Session | Meetings Coverage and Press Releases."

[35] Eisenberg and Nelson, "Braiding Indigenous Knowledge and Western Science for Climate-Adapted Forests1 Braiding Indigenous and Western Knowledge for Climate-Adapted Forests: An Ecocultural State of Science Report."

Career paths for Indigenous Peoples in forestry could relate to the protection and leveraging of Indigenous IT/TK. They can involve skills related to:

- Forestry management and stewardship
- Fire management[36]
- Ecological knowledge and sustainability[37]
- Data management and ethical research practices[38]
- Legal knowledge and traditional knowledge protection[39]
- Documentation, mapping, and archiving[40]
- Advocacy and policy development[41]
- Education and training[42]

Creating roles and career paths that emphasize these skills will help businesses protect and leverage IT/TK to their advantage and can help create space in the industry for Indigenous Peoples at senior levels. With the discussion of intellectual property and TK becoming more popular and mainstream within business conversations, it is important to know what can fall under IP protections and how IT/TK can be incorporated into forestry practices.

RESKILLING AND UPSKILLING TO ADAPT TO INNOVATION AND TECH

Previous CCIB research highlighted concerns that Indigenous talent pools often lack the necessary skills to remain resilient in the face of future disruptions in sectors such as technology and natural resources.[43]

This includes preparation training for the future of forestry, with industry focuses increasingly shifting towards eco-innovation, sustainable forestry, and leveraging technology in forestry activities. For example, in Saskatchewan, high-priority areas for future skills development in forestry include:

- Managing automation to reduce job displacement
- Utilizing remote sensing technologies such as LiDAR
- Applying artificial intelligence and machine learning to enhance forestry operations
- Overseeing the production and management of emerging high-value products, including biofuels[44]

The Meadow Lake Tribal Council (MLTC) is a leading example of Indigenous innovation in the transition to clean energy. Its bioenergy facility, the largest 100% First Nations-owned renewable energy producer in Canada, generates approximately 55,000 MWh of electricity annually for the SaskPower grid, enough to power over 5,000 homes.[45] By harnessing residual biomass heat energy, the MLTC Bioenergy Centre supports both the Government of Canada and the Government of Saskatchewan's low-carbon transition goals, while also creating dozens of well-paying jobs for members of the First Nations community.

[36] Indigenous Climate Hub, "Traditional Ecological Knowledge."
[37] "Principles and Best Practices for Working with Indigenous Knowledge and Partnering with Tribal Nations and Indigenous Peoples."
[38] Ravindran, "Open With Care: Indigenous Researchers and Communities Are Reshaping How Western Science Thinks about Data Ownership."
[39] "Methodology for the Development of National Intellectual Property Strategies – Second Edition."
[40] ILF "Oceti Sakowin Approaches to Digital Archiving and Website Design" Kaylen James and Dr. Majhor.
[41] "Traditional Knowledge and the Convention on Biological Diversity."
[42] Verma et al., "Integrating Indigenous Knowledge and Western Science into Forestry, Natural Resources, and Environmental Programs."
[43] "Readiness and Resilience."
[44] Macpherson and Cooper, "Saskatchewan's Forest Sector: Future Skills for an Indigenous-Led Revitalization."
[45] "MLTC Bioenergy Centre "Saskatchewan's First Carbon-Neutral Green Energy Centre."

Innovation in the industry can create new opportunities for Indigenous Peoples' careers or businesses. This can be done in different ways, including environmental management, carbon testing, and the use of technology to ensure forest health and growth.

Previous research has shown that 44 per cent of Indigenous agriculture, forestry, fishing, and hunting businesses introduced at least one innovation within the past three years, and 38 per cent were actively considering new technologies.[46] Participants mentioned innovations and technological integrations that could create opportunities for growth. Thermal imagery, renewables, and even training simulators can help bridge gaps and create new skilled and green forestry jobs for Indigenous employees.

> *"We started out as a service company. Our company evolved through research and development. We were trying to do our own research and development to use tech in an unusual manner that number one provided safety, but also to we were very fascinated with agriculture and forestry."*

> *"Australia is actually using thermal imagery now in analyzing their forests. They'll use thermal imagery and drones to look at the emissivity of certain forestry related activities."*

> *"You see the lumber industry being key. But there's some companies starting with power pellets, and heating pellets and stuff like that … we always think that forest industry is either pulp, paper or wood for building and that's not necessarily the case. There's so many other opportunities."*

> *"The big thing about more production is employees … looking for a [forestry training] simulator was one way that we thought we could try and innovate and close that gap in terms of getting skilled employees."*

> *"Communities have to do all the planning that any municipality would do. Drones have been a godsend to them because now they can go see sites of interest. They can fly a drone where, before, they couldn't bring the Elder out there to talk about it. So, AI and drones are really helpful. And, the Indigenous youth are embracing it so we're seeing a lot of benefits from that."*

> *"If you put LIDAR on the drone, you know you get legal survey-level data, so drones have been a really good thing for Indigenous companies and organizations. It's been a really good thing for consultation."*

[46] "Success and Sustainability: An Introduction to Indigenous Participation in the Forestry Sector."

5. Approaches to Education and Skills Development

The forestry industry is facing a significant skills shortage, necessitating targeted training programs to address these gaps. While entry-level training remains essential for new workers, there is also a growing need for advanced upskilling to prepare individuals for roles with greater responsibility. Among the most in-demand skills identified by industry participants are heavy equipment operation, logging, and forestry technician roles.

ESSENTIAL CERTIFICATIONS AND SKILLS DEVELOPMENT PATHWAYS

Key skills have been identified in the literature on professional development in forestry that are cited as being particularly valuable in building a foundation for success and springboarding into progressive career roles. Some of the highly important soft skills needed to be successful in forestry roles include but are not limited to:

- Stress tolerance
- Adaptability
- Independence
- Collaboration
- Analytical thinking[47]

Some of the common job requirements in terms of education and experience qualifications may include:

- Completion of a college or other specialized program for silviculture workers or forestry crew workers
- Formal training in power saw operation and maintenance and several months of on-the-job training
- Completion of secondary school
- A silvicultural worker's licence
- A chemicals application licence
- Workplace hazardous materials information system (WHMIS) and transportation of dangerous goods (TDG) certificates
- Experience as a logging and forestry labourer[48]

FORMAL EDUCATION

Some of these skills can be acquired through formal education institutions, such as vocational and technical colleges, which offer specialized forestry training. Private companies also play a crucial role in workforce development by providing hands-on training using simulators, which has proven to be highly effective in equipping young adults with the necessary expertise and facilitating immediate employment.

ONLINE AND MOBILE TRAINING

Training opportunities that address accessibility barriers are crucial to reaching remote and northern communities. Online programs and having on-site, on-reserve training mean that people do not have to leave their communities to get the education they need. Moving into the city is not a viable option for some people and their families, so training that can be done in the community encourages more Indigenous participation and can help the forestry industry to attract new skilled employees.

Online training is widely utilized, particularly for workplace health and safety certifications such as WHMIS and forklift operation. Universities, including the University of British Columbia and BCIT, offer flexible training programs, either by hosting community-based sessions or accommodating trainees on their campuses. Micro-credential forestry courses, such as those offered by UNBC, provide further learning opportunities, often available online to enhance accessibility.

A notable example of a successful training initiative is the heavy-duty equipment course in Good Hope Lake, where 18 participants will undergo specialized training to secure employment in the forestry sector. These diverse training pathways underscore the importance of continuous learning and skill development in sustaining the forestry industry and ensuring a well-equipped workforce for the future.

[47] "Forestry Worker in Canada | Skills."
[48] "Forestry Worker in Canada | Skills."

INTEGRATING INDIGENOUS KNOWLEDGE

It is important for educators and forestry training providers to consider flexible and more culturally appropriate learning methods. Integrating IK and practices can help preserve cultural heritage and recognize the value of IK systems, and this can help foster respect and collaboration between different cultural groups.

> *"Canada Red Cross has a survival course, and it's a three or four day program. I think that anybody going into forestry should do that because they're out on the land, they're getting their first aid while pairing it with Indigenous Knowledge systems and culture. I think that that's really good because now you've got a skill that is a blend of Western and Indigenous elements."*

> *"So, I think if anybody goes in, take a two-eyed seeing approach program, and that is as basic as you can get."*

> *"I would say for the non-Indigenous people looking to go in to take cultural land and wildlife training, it's called wildlife first aid. But there are a few different outfits right now that are offering an agricultural spin."*

APPRENTICESHIP, MENTORSHIP, AND ON-THE-JOB TRAINING

While formal training might be beneficial, apprenticeship and hands-on, on-the-job training should not be neglected. Well-experienced workers can teach youth and new employees about the job and the realities of doing it every day. One participant stated that "it would be beneficial to have some sort of like job shadowing type arrangement or program. People could get that experience and help bridge onboarding challenges or alternatively lower the barrier to entry for those looking to work in forestry but have little to no previous experience."

Apprenticeship helps prepare individuals for the workforce by combining classroom learning with real-world experience. It also provides skill development by offering hands-on training and knowledge transfer.[49] Apprentices learn valuable tips and skills that are beneficial for working in the industry, which may not be covered during course training or simulator exercises. Having a mentor in the industry helps build mentees' confidence and provides a sense of belonging, which is often needed in a demanding field like forestry.[50]

[49] Consultant, "Apprenticeships."
[50] "Indigenous Mentorship in Forestry: Understanding the Role of Mentorship in Retention and Career Advancement for the Indigenous Forestry Workforce."

CAPACITY SHARING

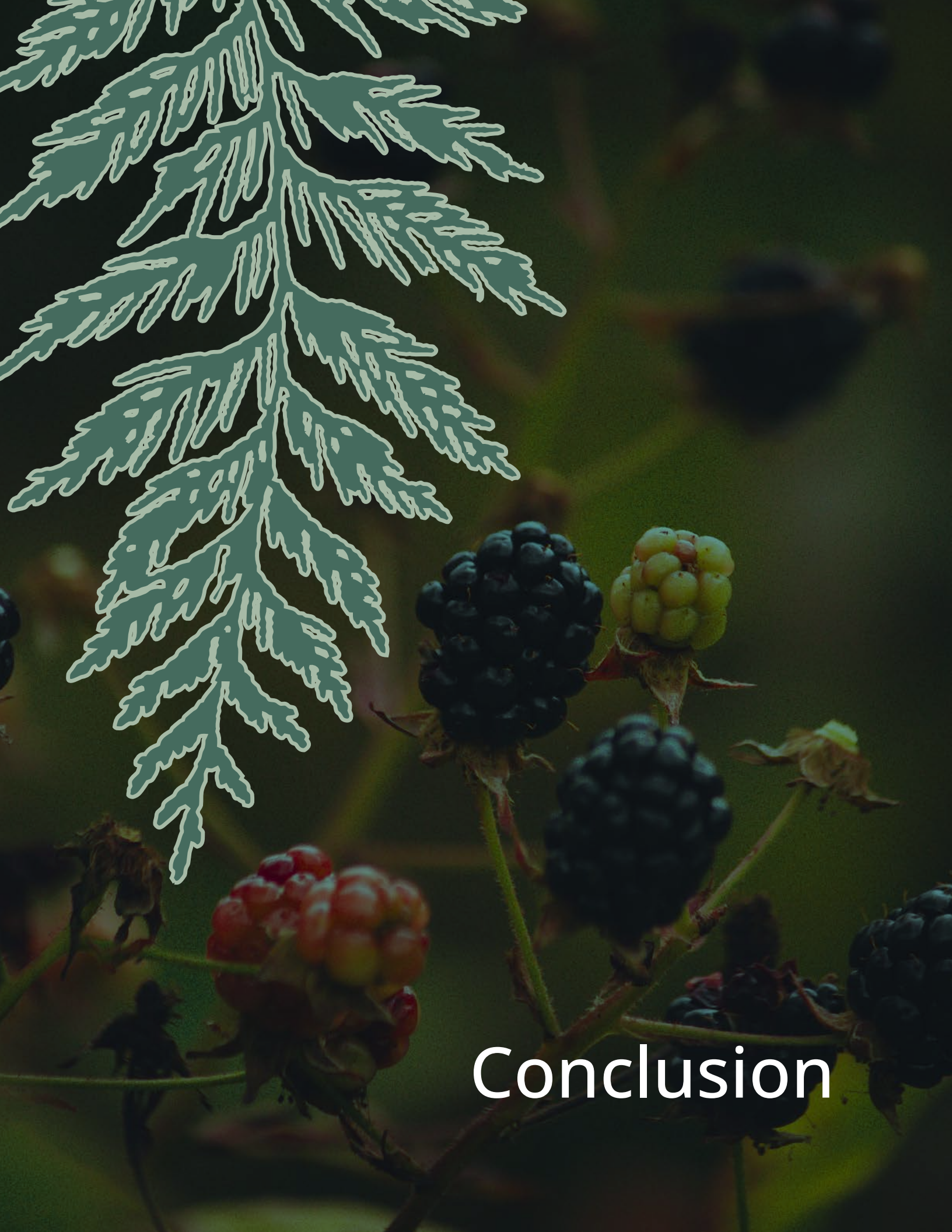
Capacity sharing in forestry is important to fill labour shortages in the industry. This has become a prevalent method for managing the mismatch between supply and demand by optimizing capacity distribution across participating producers.[51] This way, a company with idle capacity can gain additional income by providing capacity-sharing services to other manufacturers.

One participant shared how capacity sharing could be used as a method of skills development, giving the new employees experience within the industry in a supervised setting. In their business partnership, they were able to "establish a truck driver training program where we're going to recruit drivers and partner them with an existing contractor and get them the job experience necessary to be a successful log haul driver."

Capacity sharing would also be beneficial in business development support. This way, companies can share resources that help reduce the cost of business development opportunities like looking for, bidding on, and fulfilling procurement opportunities. By doing this, companies reduce the monetary barrier to engaging in procurement opportunities because that burden is distributed between a few smaller companies, making it more affordable for them than it would have been to seek out these opportunities themselves.

Many SMEs and Indigenous businesses face barriers in competing for large-scale contracts due to limited capacity. Capacity sharing enables businesses to pool their resources and jointly bid on procurement contracts, thereby increasing their chances of success.[52] Furthermore, strategic partnerships and collaborations between businesses will allow them to enter new markets, build credibility, and gain access to supply chains that would otherwise be difficult to penetrate.

[51] Chen et al., "Capacity Sharing between Competing Manufacturers."
[52] "Transformative Indigenous Procurement Strategy: Dialogue with Indigenous Partners."
[53] "Success and Sustainability: An Introduction to Indigenous Participation in the Forestry Sector."



Conclusion

CONCLUSION

Both persistent challenges and emerging opportunities in skills development, procurement, and knowledge integration are shaping the Indigenous forestry landscape. Skills shortages and training deficiencies continue to hinder professional growth, limiting upward mobility and contributing to brain drain in First Nations and rural communities. The lack of entry-level opportunities and pathways to higher-level positions exacerbates workforce retention issues, as individuals often leave their communities in search of better prospects. Financial barriers further constrain access to specialized training, underscoring the urgent need for sustainable funding mechanisms to support local training programs.

Addressing these gaps requires investment in procurement skills and capacity building, with improved incentives and support structures for forestry work, including community-led training programs and stronger collaborations between Indigenous and non-Indigenous stakeholders.

REINVESTING IN COMMUNITIES

Investing in skills development, mentorship, apprenticeship, or employment opportunities can result in lasting impacts on Indigenous communities. This means the money they earn can be used to support their families and maintain their lives, and if they live in a community, the money spent is circulated and reinvested in the local economy.

Forestry companies operating in communities can also engage in similar forms of local reinvestment by purchasing goods and services from local businesses and entering into profit-sharing contracts with the communities in which they operate, to ensure these communities also benefit.[53] There are many benefits to local reinvestments, and some of them include economic development, as reinvesting in local Indigenous communities helps stimulate economic growth. This can lead to the creation of jobs, support for local businesses, and overall economic resilience.

Additionally, local reinvestment also encourages community empowerment because by reinvesting in local projects, Indigenous communities gain greater control over their resources and economic futures.[55] This empowerment can then lead to more effective and culturally relevant management of forestry resources. Finally, it can lead to cultural preservation because local reinvestment can fund programs that integrate TK and practices into modern forestry, helping to preserve and promote Indigenous cultures.[56]

INVESTING IN OPPORTUNITIES FOR SKILLS DEVELOPMENT AND CAREER MOBILITY

Upskilling experienced employees and attracting youth and new employees remains crucial to the sustainability of the forestry sector.

The integration of IK and TK into forestry training remains crucial, ensuring that forestry practices reflect both cultural traditions and modern innovations. This calls for enhanced cultural sensitivity training for non-Indigenous forestry actors, as well as the development of training resources that protect and leverage IK/TK responsibly.

Looking ahead, innovation in forestry skills development, such as environmental management, technological advancements like drones and thermal imaging, and the expansion of apprenticeships, can help revitalize the industry and foster long-term economic sustainability.

A greater emphasis on mentorship, on-the-job training, and essential certifications will also enhance workforce readiness. To drive meaningful change, strategic reinvestment in Indigenous-led training initiatives, policy reforms for equitable procurement, and more substantial commitments to knowledge -sharing partnerships must be prioritized, ensuring a more resilient, skilled, and self-sustaining Indigenous forestry workforce.

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RECOMMENDATIONS

Based on the identified challenges and opportunities in Indigenous forestry, the following recommendations aim to strengthen skills development, procurement processes, and workforce sustainability:

1. Closing gaps in skills development and training opportunities

- Expand entry-level training opportunities in forestry to address skills shortages, particularly in heavy equipment operation, logging, and forestry technician roles.
- Develop advanced upskilling programs to support career progression for experienced workers, ensuring their ability to transition into leadership positions.
- Increase financial support and funding mechanisms for local training programs, including scholarships, grants, and employer-subsidized training.
- Enhance apprenticeship and mentorship programs to provide hands-on learning opportunities and ensure long-term workforce retention.
- Promote on-the-job training initiatives, such as workplace safety certifications (e.g., WHMIS, first aid) and micro-credential forestry courses, which improve employability.

2. Addressing brain drain in First Nations and rural communities

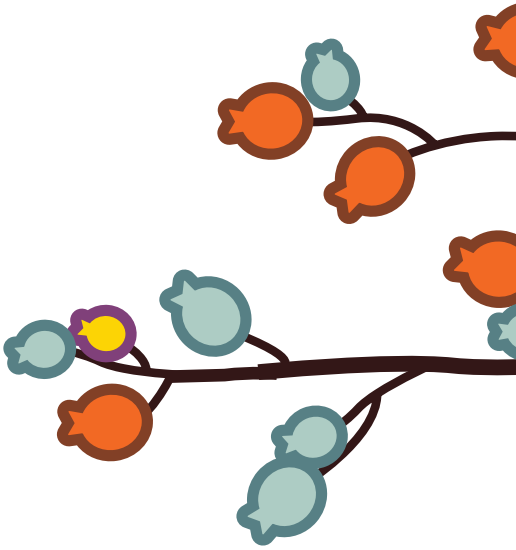
- Establish community-based training hubs to reduce the need for individuals to leave their communities for education and employment.
- Invest in local forestry education partnerships with universities and technical colleges to bring training directly to Indigenous communities.
- Develop career pathways and leadership training to help Indigenous workers transition from entry-level roles to higher-level positions.

3. Enhancing procurement skills and capacity building

- Implement capacity-sharing initiatives that allow Indigenous communities to gain hands-on experience in procurement processes.
- Increase set-aside procurement programs for Indigenous businesses, ensuring they have fair access to forestry contracts.
- Provide business development training to Indigenous entrepreneurs in forestry, helping them navigate procurement systems and secure contracts.
- Introduce government incentives and funding support for companies that invest in Indigenous procurement partnerships and skills development.

4. Integrating Indigenous Knowledge (IK) and Traditional Knowledge (TK)

- Develop training programs that incorporate IK and TK into forestry management and sustainability practices.
- Offer cultural sensitivity training for non-Indigenous forestry professionals to improve collaboration and respect for Indigenous land stewardship.
- Establish knowledge-sharing platforms that enable Indigenous leaders and Knowledge Holders to contribute to forestry policy and training curriculum development.



5. **Promoting innovation and environmental sustainability**
    - Expand the use of technology in forestry training, including the application of drones, thermal imagery, and AI-driven environmental monitoring tools.
    - Invest in local research and development initiatives to explore sustainable forestry practices that balance economic growth with ecological preservation.
    - Strengthen forestry workforce planning to anticipate future skills needs and align training programs with evolving industry demands.

By implementing these recommendations, the forestry industry can build a more inclusive, skilled, and sustainable workforce while supporting Indigenous economic empowerment and environmental stewardship.

AREAS FOR FUTURE RESEARCH

CCIB's future research with NRCan will closely examine how Indigenous communities and Indigenous Economic Development Corporations participate in the forestry industry.

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Appendix A: Interview Guides

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INDIGENOUS INTERVIEW GUIDE

1. Can you please take a moment to describe your business, some of the primary activities, and what industries or sectors you operate in?
    - Ownership: One owner/Partners (how many)/Shareholders?
    - Years in business?
    - Industry/Sector?
    - # Employees?
    - Annual sales?

2. In your opinion, what strategies or business techniques are currently working for you related to supporting Indigenous business engagement in the forestry sector?
    a. Follow-up: What types of supports or best practices have you valued in supporting your engagement in the forestry sector?

3. What would you recommend, or like to see more of, related to best practice for supporting Indigenous businesses in your part of the forestry sector?
    a. Follow-up: Are there any gaps? How should they be addressed?

4. What are some best practices for establishing relationships/partnerships between Indigenous and non-Indigenous forestry companies? (Open communication, co-management, meaningful partnerships)
    a. Follow-up: How can things be improved?

5. What challenges do you face related to engaging in the forestry sector? (E.g., Regulatory compliance, finance, land tenure, systemic barriers, use of technology and innovation, geography, infrastructure, hiring and retention, trade and export, procurement, IP, etc.)
    a. Follow-up: Are there any that are specific to being an Indigenous business?
    b. SKILLS: Have you experienced specific challenges with skills and training?

6. How do government policies, rules, and regulations affect your engagement in the sector? (i.e., Carbon pricing, sustainability incentives/carbon credits, support for Indigenous businesses, grants, FTAs, etc.)
    a. Follow-up: How have movements towards sustainability and ESG impacted your business?

7. Are there opportunities in the forestry industry that you have not yet pursued? Why or why not?
    a. Follow-up: What might need to change to allow you to explore new business or professional development opportunities?
    b. Have you engaged in government or corporate procurement/supply chain opportunities?
    c. Follow-up: If yes, was this direct procurement or as a subcontractor?
    d. Follow-up: If yes, what is the average size of these contracts? What was the largest?
    e. Follow-up: If yes, how has procurement impacted your business?
    f. Follow-up: If no, what factors have prevented you from engaging in procurement or supply chain opportunities?
    g. SKILLS: What supports, training, or skills development-related services do you feel are most valuable for Indigenous businesses seeking to engage with forestry procurement opportunities?

8. How familiar are you with IP protections (Trademarks, copyrights, patents, etc.)?
    a. Very familiar
    b. Somewhat familiar
    c. Not very familiar
    d. Not familiar at all
    e. Follow-up: Depending on familiarity, how has this impacted your business? Follow-up: Do you integrate TK in your business? If so, how do you integrate TK? What steps do you take to protect it?

9. Do you think that the ability of Indigenous companies to innovate and establish new products or services is supported adequately in this sector? If not, why and what needs to change?

10. If you could identify a first priority for changes to improve Indigenous businesses' engagement in the forestry sector, what would that change be, and how do you think it should be implemented?
    a. Prompt question: In your mind, what can government, corporations, or Indigenous organizations do to support this change?

11. What is your opinion on the role Indigenous Peoples and businesses should play in the management of forestry resources in Canada?
    a. Prompt question: How can engagement in the forestry sector impact Indigenous Peoples and communities?
    b. Prompt question: How can Indigenous communities, Indigenous organizations, corporations, and governments (federal or provincial) support these efforts?

12. SKILLS: What tools and supports have been helpful in increasing your engagement with the forestry sector?
    a. SKILLS: What training are you looking for? (general business or forestry-specific?)
    b. SKILLS: Where have you gone to access training and support?
    c. SKILLS: Who has provided you with this support? What Indigenous and non-Indigenous organizations are active in this space?
    d. SKILLS: Was there anything that worked particularly well? Explain.
    e. SKILLS: At what stage of business do Indigenous forestry businesses most require support (start-up, mid, late)?
    f. Are there any skills or training needs specific to each of these stages?
    g. SKILLS: What skills do your employees need? Are there any gaps?
    h. SKILLS: How responsive are programming, training, and skills development opportunities to the needs of Indigenous entrepreneurs working in the forestry sector?
    i. SKILLS: Are there any specific types of programming, resources, tools, or support offerings that are currently missing from the Indigenous forestry landscape that you feel would be valuable to Indigenous entrepreneurs in this sector?

13. What do you envision some of the future trends and realities related to your business in Canada's forestry sector?

NON-INDIGENOUS INTERVIEWEE GUIDE

- Can you describe some of the key activities under the purview of your role?
- How long have you been working in your current role?
- What prior experience or background do you have that helps you in your current role?

1. In your opinion, what strategies or business techniques are currently working related to supporting Indigenous business engagement in the forestry sector?
    a. Follow-up: What types of supports or best practices have you valued in supporting your engagement with Indigenous businesses in the forestry sector?

2. What would you recommend, or like to see more of, related to best practices for supporting Indigenous businesses in your part of the forestry sector?
    a. Follow-up: Are there any gaps? How should they be addressed?

3. What are some best practices that you have utilized or observed for establishing relationships/partnerships between Indigenous and non-Indigenous forestry companies? (Open communication, co-management, meaningful partnerships, equity partnerships)
    a. Follow-up: How can things be improved?
    b. Follow-up: Are there any specific challenges related to relationships and partnership development that you have encountered?

4. What challenges do you face related to engaging Indigenous businesses in the forestry sector?

5. How do government policies, rules, and regulations affect your engagement in the sector? (ie. Carbon pricing, sustainability incentives/carbon credits, support for Indigenous businesses, grants, FTAs, etc.)
    a. Follow-up: How have movements towards sustainability and ESG impacted your business and its engagement strategy with Indigenous businesses and communities?

6. What might need to change to allow you to explore new business opportunities with Indigenous firms and communities?

7. Have you engaged with Indigenous businesses in government or corporate procurement/ supply chain opportunities?
    a. Follow-up: If yes, was this direct procurement or as a subcontractor?
    b. Follow-up: If yes, what is the average size of these contracts? What was the largest?
    c. Follow-up: If yes, can you provide an estimate related to your Indigenous procurement spend (2023)?
    d. Follow-up: If no, what factors have prevented you from engaging with Indigenous businesses in procurement or supply chain opportunities?
    e. SKILLS: What supports, training, or skills development-related services do you feel are most valuable for Indigenous businesses seeking to engage with forestry procurement opportunities?

8. Do you think that the ability of Indigenous companies to innovate and establish new products or services is supported adequately in this sector?
    a. Follow-up: If not, why and what needs to change?
    b. Follow-up: How do you observe Indigenous TK or TCEs manifesting in the forestry sector?
    c. Follow-up: What are some of the potential benefits that including Indigenous TK In forestry operations provides to your activities?

9. If you could identify a priority for changes to improve Indigenous businesses' engagement in the forestry sector, what would that change be, and how do you think it should be implemented?

    a. Prompt question: In your mind, what can government, corporations, or Indigenous organizations do to support this change?

10. What opportunities do you see for increased inclusion for Indigenous Peoples and businesses related to engagement in the forestry industry and forestry management?

11. I would now like to ask some questions related to skills development, support, and resources necessary to ensure Indigenous success in the forestry sector:

    a. SKILLS: At what stage of business do Indigenous forestry businesses most require support (start-up, mid, late)?

    b. Are there any skills or training needs specific to each of these stages?

    c. SKILLS: What skills do your employees need? Are there any gaps?

    d. SKILLS: How responsive are programming, training, and skills development opportunities to the needs of Indigenous entrepreneurs working in the forestry sector?

    e. SKILLS: Are there any specific types of programming, resources, tools, or support offerings that are currently missing from the Indigenous forestry landscape that you feel would be valuable to Indigenous entrepreneurs in this sector?

12. As an industry leader, what do you envision some of the future trends and realities related to your business in Canada's forestry sector?