

OFFICE OF THE CHIEF FORESTER

# 2021–22

INNOVATION, BIOECONOMY AND INDIGENOUS OPPORTUNITIES BRANCH



Ministry of  
Forests, Lands, Natural  
Resource Operations  
and Rural Development



# INDIGENOUS FOREST BIOECONOMY PROGRAM *and* INDIGENOUS FORESTRY PROGRAM

ANNUAL REPORT

# Table of Contents

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<b>1. Executive Summary</b>	<b>4</b>
<b>2. Introduction</b>	<b>5</b>
2.1 Indigenous Forest Bioeconomy Framework	5
2.2 Policy Context	7
2.3 Report Format	8
<hr/>	
<b>3. Summary of Projects</b>	<b>9</b>
3.1 Geographic Distribution	9
3.2 Community Engagement	9
3.3 IFP: Project Categories	10
3.4 IFBP: Range of Bioproducts	10
3.5 IFBP: Project Development Scale	10
3.6 Employment	11
<hr/>	
<b>4. Coast Projects</b>	<b>12</b>
<b>4.1 Indigenous Forest Bioeconomy Program - Coast</b>	<b>12</b>
4.1.1 D-Log Pressed Wood, FPIInnovations, Vancouver, BC.....	12
4.1.2 Fire-Retardant Insulation Board, Yinka Dene Economic Development LP, and UBC Department of Wood Science, Vancouver, BC.....	13
4.1.3 Firewood Facility Business Plan, Huu-Ay-Aht First Nation, Bamfield, BC .....	14
4.1.4 Kleekhoot Gold Expansion, Hupacasath First Nation, Port Alberni, BC .....	15
4.1.5 Subway Timber Tiles, Lhtako Dene Nation and Timber Tiles, Port Alberni, BC .....	15
4.1.6 Salvage Chipping Operations Feasibility, We Wai Kum First Nation, Campbell River, BC .....	16
4.1.7 Study on Tannin Extract from Hemlock Bark, Atli Chip LP, Namgis First Nation, Port McNeil, BC .....	17
<b>4.2 Indigenous Forestry Program - Coast</b>	<b>18</b>
4.2.1 Developing a Squamish biomass Business, Squamish Nation, Vancouver, BC .....	18
4.2.2 Klahoose Sawmill Expansion Project, Klahoose First Nation, Corets, BC.....	18
4.2.3 Micro-Sawmill Business Plan, Bamfield HUU-ay-aht Community Forest Society, Bamfield, BC.....	19
4.2.4 Value-Add Forestry Business, Lilwat Forestry Ventures and Lilwat Nation, Mount Currie, BC .....	20

4.2.5 Wood Processing and Firewood Production Business Plan, Toquaht Nation, Ucluelet, BC .....	21
---	----

---

<b>5. South Projects</b>	<b>22</b>
--------------------------	-----------

<b>5.1 Indigenous Forest Bioeconomy Program - South</b>	<b>22</b>
---	-----------

5.1.1 Biochar 101 and Economic Feasibility, Alkali Resource Management and Esk'etemc First Nation, Alkali Lake, BC.....	22
5.1.2 Bioeconomy Roadmap, Xení Gwet'in First Nation, Williams Lake, BC.....	23
5.1.3 Centralized Yard Expansion, West Chilcotin Forest Products, Ulkatcho First Nation Anahim Lake, BC .....	24
5.1.4 Heat Hookup, Nupqu Native Plant Nursery, Cranbrook, BC.....	24
5.1.5 Mushroom Cultivation, Splatsin First Nation, Enderby, BC .....	25

<b>5.2 Indigenous Forestry Program - South</b>	<b>25</b>
--	-----------

5.2.1 Characterizing Fuel Environments, Alkali Resource Management, Esketemc First Nation, Alkali Lake, BC .....	25
5.2.2 CHP Implementation and Bioenergy Roadmap, Lhoosk'uz Dene Nation, Quesnel, BC.....	26
5.2.3 Tiny Homes Demonstration, Lhoosk'uz Dene Nation, Quesnel, BC.....	27
5.2.4 Combined Heat and Power Implementation and Bioeconomy Roadmap, Lhoosk'uz Dene, Kluskus, BC.....	28

---

<b>6. North Projects</b>	<b>29</b>
--------------------------	-----------

<b>6.1 Indigenous Forest Bioeconomy Program – North</b>	<b>29</b>
---	-----------

6.1.1 Birch Water Business Strategy, Skeena Watershed Conservation Coalition, Hazelton, BC.....	29
6.1.2 Git Lax Mo'On Services, Gitxaala Territories, Nass Valley, BC .....	30
6.1.3 GWES Laser Engraving, Gitxsan Wet'suwet'en Education Soc, Hazelton, BC.....	31
6.1.4 Deadwood Pilot Plant at Tl'Oh Forest Products, Nak'azdli Development Corp, Fort St James, BC .....	31

<b>6.2 Indigenous Forestry Program - North</b>	<b>32</b>
--	-----------

6.2.1 Commercial Thinning Criteria, Burns Lake Community Forest, Burns Lake, BC .....	32
6.2.2 Fibre Supply for Torrefaction, Gitsxsan Development Corp, Hazelton, BC.....	33
6.2.3 Thermal Wood Facility, Lax Kw'alaams Nation, Port Simpson, BC .....	34

# 1. Executive Summary

Through the Office of the Chief Forester, the Innovation, Bioeconomy and Indigenous Opportunities branch (IBIO) delivered two programs in 2021-22 that enabled Indigenous partners to develop their economies and participate in the forest sector. The Indigenous Forestry Program (IFP) has provided support to Indigenous partners for over a decade, funding projects related to the production of conventional forest products. In parallel, the Indigenous Forest Bioeconomy Program (IFBP) provides targeted support for Indigenous partners to pursue bioproducts that can provide carbon benefits, increase fibre utilization, and fuel the revitalization of BC's forest sector.

Together, the IFBP and IFP support Indigenous participation in the forest sector through specific project support across British Columbia. Today, the forest sector in BC faces growing challenges such as high operating costs, significant forest disturbances, and an increasingly competitive global forest products market. These challenges make both the IFBP and IFP essential to ensuring that Indigenous communities are supported to navigate and thrive in this sector.

In the 2021-22 project cycle, the IFBP and the IFP:

- Delivered 28 projects: 15 through the IFBP, and 13 through the IFP
- Collaborated on these projects with 30 First Nations and 18 Indigenous-owned businesses
- Created 36 new jobs: 29 through the IFBP, and 7 through the IFP
- Maintained 248 jobs: 152 through the IFBP, and 96 through the IFP
- Supported the potential to create jobs, over 79 through the IFBP, and 131 through the IFP

These numbers capture a snapshot of the impacts of these programs but do not provide the full story. To give an insight into the impacts on less easily quantifiable benefits such as supporting cultural values and self-determination, project descriptions are provided in the following report, organized by geographic location.

The foundational funding for the IFBP is provided through the *Coast Forest Sector Revitalization* initiative, and most of the program's projects this year are in coastal BC. The IFBP is guided by the goals, principles and objectives of the [Indigenous Forest Bioeconomy Framework](#), which was developed through collaboration and engagement with numerous First Nations and Indigenous organizations. The IFP also follows these principles and shares some of the objectives. As part of implementing the *BC Declaration on the Rights of Indigenous Peoples Act* and the Truth and Reconciliation Commission's *Calls to Action*, the Indigenous Forest Bioeconomy team takes a collaborative approach to identifying and pursuing project opportunities that reflect Indigenous interests. As the programs focus on specific on-the-ground projects, they are an embodiment of reconciliation in action. The IFBP and IFP aim to remove as many barriers to participation as possible by engaging with potential participants early, and breaking down larger projects into distinct phases to fit within the constraints of a fiscal year. The novel projects supported by the IFBP fall within the project development scale that moves from scoping to commercialization and scale-up. The focus of these projects also covers a range of bioproducts.

## 2. Introduction

First Nations in BC are increasingly active participants in forestry activities that provide both economic opportunity and community sustainability. BC's Indigenous Forestry Program (IFP) has supported this development for over a decade, through partnerships with over 100 Indigenous communities and/or organizations in forest sector economic development. The IFP has supported projects in the areas of forest management, workforce training, and production of conventional forest products such as sawn lumber. This funding is being expanded through the development of a new Indigenous Forest Bioeconomy Program (IFBP) which targets support for Indigenous partners to create new bioproducts and fosters the revitalization of BC's forest sector. As part of implementing the *BC Declaration on the Rights of Indigenous Peoples Act* and the Truth and Reconciliation Commission's *Calls to Action*, the Ministry's Indigenous Forest Bioeconomy team takes a collaborative approach to identifying and pursuing opportunities that reflect Indigenous interests.

Forest bioeconomy development uses forest biomass as the key input for producing consumer goods and/or industrial products or bioproducts while displacing petrochemical-based products throughout our economy. A forest bioeconomy approach uses a broader lens than conventional forestry to consider a wide range of product and resource development opportunities beyond conventional products such as lumber, or pulp and paper products. Within the context of a forest bioeconomy, the overarching goal is to maximize the value of forest biomass. Value is viewed holistically, and encompasses environmental values including sustainable forest management and the production of environmentally friendly forest bioproducts, economic values such as profitable revenue streams from the manufacture and marketing of these bioproducts, and social values such as community infrastructures and job opportunities around the province in manufacturing, artisanal applications, forest operations, and high-tech design and production applications.

The foundational funding for the IFBP is provided through the *Coast Forest Sector Revitalization* (CFSR) initiative, with the result that many projects delivered through the program this fiscal year are in coastal BC. IBIO's Annual Reports aim to describe the key activities, outcomes and impacts of the IFBP and the IFP programs, and are expected to evolve in the coming years.

### 2.1 Indigenous Forest Bioeconomy Framework

The Indigenous Forest Bioeconomy Framework guides project development within the IFBP and aims to provide another platform for Indigenous-centric opportunities in the natural resource sector by responding to a community's interests and needs through collaboration and partnerships. The principles, goals, objectives and economic development pathway reflected in this Framework are the result of engagement and collaboration with numerous First Nations across the province over the last couple years, and guide the work of the IFP. As we continue to work with First Nations on Indigenous forest bioeconomy opportunities, we will continue to improve and refine this Framework.

## Goal, Principles and Objectives

The Framework has one overarching **goal**: To promote the development of forest bioeconomy opportunities that respect and support Indigenous community culture, values, and traditional territories.

To achieve this goal, the Framework adopts the following **principles**:

- i. Support is provided in addition to and independent of negotiated treaty or non-treaty agreements (i.e. a collaborative approach not directly tied to government to government agreement processes);
- ii. Supports reconciliation objectives, constitutional and historic obligations but is not an alternative to land claim negotiations;
- iii. Recognizes and prioritizes Indigenous values, traditions, and knowledge;
- iv. Supports Indigenous community and/ or Indigenous business driven projects designed to meet community needs while also supporting regional economic development opportunities;
- v. Supports collaboration with industry and business, as well as across ministries and agencies to meet common objectives; and
- vi. Considers and supports Indigenous community capacity development.

The goal is supported by three objectives:

### **Objective 1:** Identify and prioritize bioeconomy opportunities

- a. Engage with Indigenous communities to identify opportunities and priorities
- b. Develop action plans to realize priorities with relevant partners

### **Objective 2:** Develop bioeconomy opportunities

- a. Generate community-based employment and businesses
- b. Build capacity for diversification and scalability

### **Objective 3:** Increase participation in the natural resource sector

- a. Prioritize clean tech and innovative projects that contribute to sustainability in natural resource management
- b. Foster Indigenous entrepreneurship and participation in the natural resource sector

## Economic Development Pathway

The Framework uses a community/ culture-centric and strength-based approach through an economic development engagement pathway. The model can be described as a holistic view of interconnectedness and a collective process of inquiry and decision-making to encourage harmony and empowerment within natural resource economic development opportunities. The Framework supports Indigenous communities' governing their own economic activities to build a self-sustainable communities.



## 2.2 Policy Context

The assistance provided by the IFBP and IFP fosters Indigenous economic development in targeted areas. The IFBP supports the development of a forest bioeconomy that creates new opportunities for using residual fibre in manufacturing cutting-edge products and it helps drive forest sector revitalization. As with previous years, *Coast Forest Sector Revitalization* provided funding for the IFBP and IFP programs. Both programs focus on specific on-the-ground projects, and as such embody reconciliation in action furthering the implementation of the *BC Declaration on the Rights of Indigenous Peoples Act*.

Increasing the use of forest biomass is the highest priority in the *Canadian Council of Forest Ministers Forest Bioeconomy Framework for Canada*. This priority is excellently suited to, for example, the Fire-Retardant Insulation Board project. This IFBP project takes place at the University of British Columbia in partnership with the Yinka Dene Economic Development LP, and follows the circular economy principle of turning residual wood fibre from waste to resource. This innovative solution values Indigenous peoples as key partners in the forest bioeconomy, which supports the first pillar of the *Canadian Council of Forest Ministers Forest Bioeconomy Framework for Canada*.

The *Clean-Tech Innovation Strategy for the BC Forest Sector 2016-24* identifies the need for the viability of new products and clean technologies to be demonstrated to enhance the value chain and advance the BC forest sector. Bioeconomy development and expansion through the IFBP promote the fight against climate change by increasing the utilization of carbon stored in forest biomass and by displacing carbon intensive alternatives. The CleanBC priority of helping communities reduce dependence on diesel and switch to bioenergy is facilitated, for example, through the community combined heat and power projects. Both the IFBP and the IFP also support the goal of the *Coast Forest Sector Revitalization* strategy to create resilient and prosperous forest-based communities in partnership with First Nations.

## 2.3 Report Format

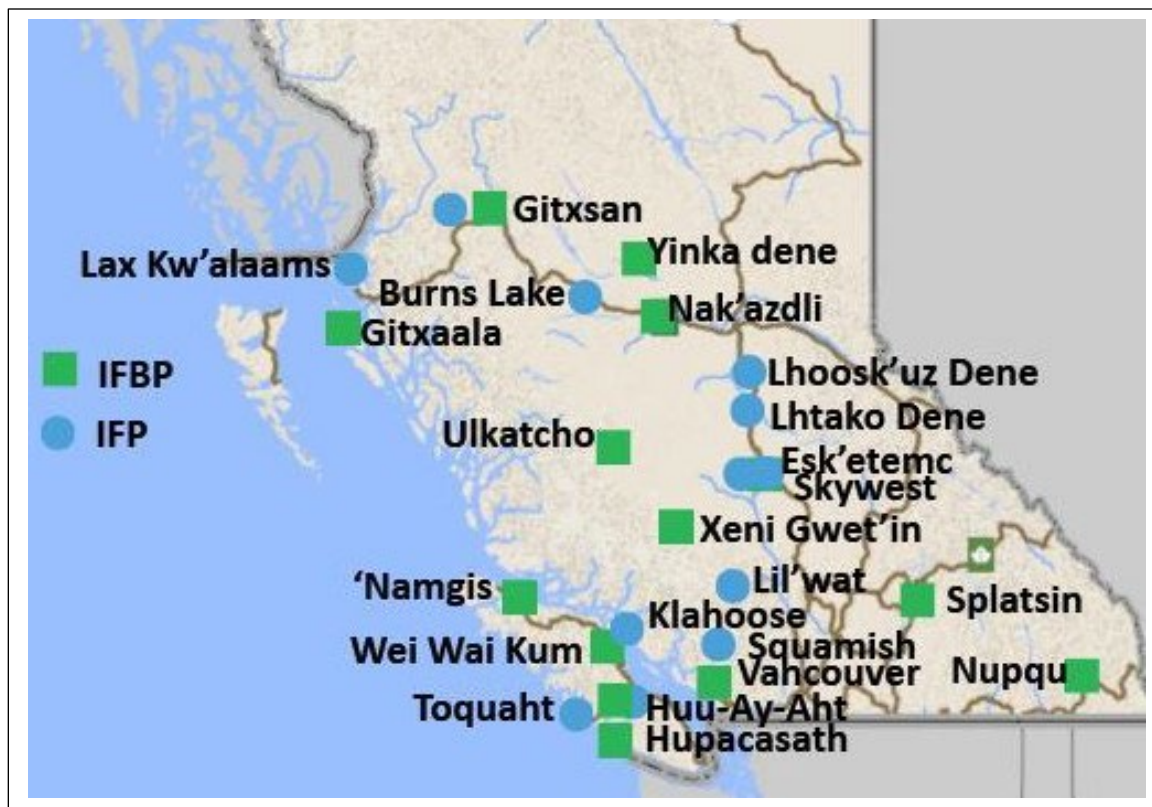
Following the executive summary in Chapter 1 and a description of the IFBP and IFP in Chapter 2, this report describes the projects completed in fiscal year 2021-22. In Chapter 3, a summary of our aggregated project statistics provides an overall picture of the impacts of both programs this fiscal year. Chapters 4-6 describe each project in detail, based on where they are located. Chapter 4 details projects on the Coast, Chapter 5 in the South, and Chapter 6 in the North. Each project summary provides a description of the project, gives community context, and discusses the project outcomes.



## 3. Summary of Projects

This section provides a summary of all activities supported through both the Indigenous Forest Bioeconomy Program (IFBP) and the Indigenous Forestry Program (IFP). Individual projects are described in Chapters 4 to 6.

### 3.1 Geographic Distribution



All IBIO projects are based in British Columbia, in these three regions:

- Coast region: seven through the IFBP; and five projects through the IFP
- South region: five through the IFBP; and four projects through the IFP
- North region: four through the IFBP; and three projects through the IFP






### 3.2 Community Engagement

As the COVID-19 pandemic impacted on the 2021-22 fiscal year, the IBIO team was unable to meet its target of in-person engagement with Indigenous communities. However, the IFBP and IFP programs engaged with many different Indigenous communities and organizations across BC over the course of the 2021-22 project cycle, and successfully delivered thirty-one projects through the two programs. While the program staff normally prioritize face-to-face meetings in the community to establish and build strong relationships with project partners, this year most engagement with communities was done using phone calls, e-mails, and web meetings.

In January 2022, the Innovation, Bioeconomy and Indigenous Opportunities (IBIO) branch hosted its second two-part Indigenous Forest Bioeconomy webinar. These webinars both began with members of the Indigenous Forest Bioeconomy team describing the opportunities available with IFBP, and included project partners and a project delivery specialist as guest speakers. The two events were well attended with around 50 attendees, including both District and Regional Ministry staff, and representatives from Indigenous communities across BC. New connections resulting from the webinar are expected to lead to several new projects through both the IFBP and IFP in the coming fiscal years.

### 3.3 IFBP: Range of Bioproducts

This includes projects both within the Indigenous Forest Bioeconomy Program which supports the development of bioproducts, and in the Indigenous Forestry Program which supported several bioeconomy projects after the IFBP funds were fully subscribed for 2020-21. The table below provides a summary of where all the projects fall within the bioproduct categories. Generally, bioproducts on the right of the table are higher value compared to bioproducts on the left.

4	8	8	8	0	1
Bioenergy	Biomass Supply Transformation	Conventional Bioproducts	Non-Timber Forest Products	Biochemicals	Advanced Biomaterials
					

Note that some projects spanned several bioproduct categories and therefore are counted in multiple categories.

### 3.4 IFP: Project Categories

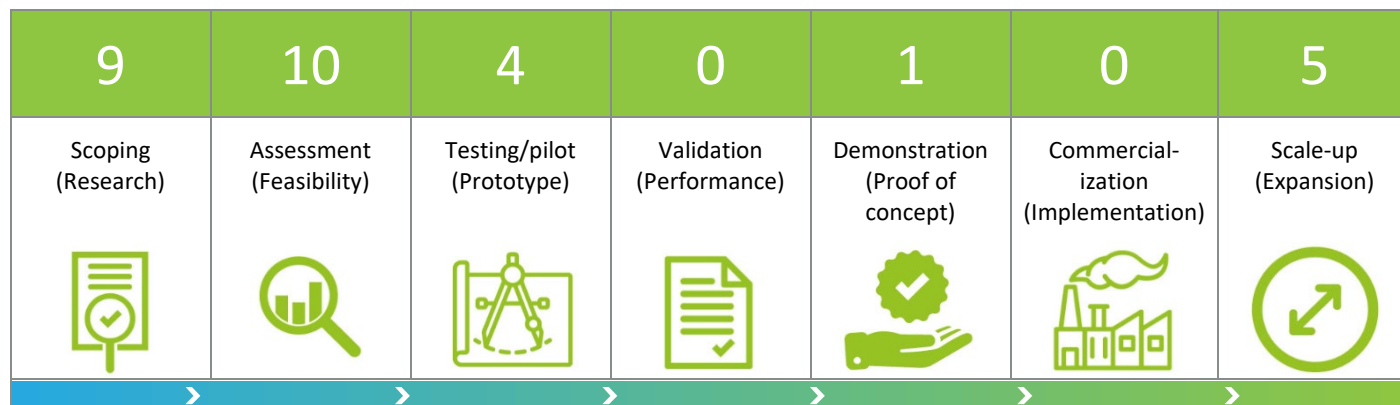
This shows only projects within the Indigenous Forestry Program, which supports projects in the following categories.

3	7	2	17
Foundational Forest Products	Training / Capacity	Forest Management	Forest Operations
			

### 3.5 IFBP: Project Development Scale

The table below highlights, generally, where on the project development scale the bioeconomy projects supported by IFBP and IFP (used once the IFBP was fully subscribed) fall this year. To be able to support initiatives that develop new products over several program cycles, projects are generally broken down into phases. Usually, projects move one or two phases up the scale over a project cycle.

However, it can also be positive when projects move down the development scale and back up as they add new manufacturing capabilities or expand the range of bioproducts they produce.



### 3.6 Employment

Indigenous Forest Bioeconomy Program	29 Jobs Created	152 Potential Jobs in Development	161 Jobs Maintained
Indigenous Forestry Program	7 Jobs Created	131 Potential Jobs in Development	96 Jobs Maintained

## 4. Coast Projects



### 4.1 Indigenous Forest Bioeconomy Program - Coast

#### 4.1.1 D-Log Pressed Wood, FPInnovations, Vancouver, BC

##### Project Purpose

The IFBP supports research conducted by First Nation and industry partners to reduce slash piles and other forestry waste. IBIO funded FPInnovations to develop one such opportunity, known as a D-Log press, which forms a pressed tongue and groove brick from compressed wood shavings, and can be used in industrial buildings. FPInnovations applied for IFBP funding to improve manufacturing consistency and address current limitations of the technology.

## Community Context

FPIInnovations is a private not-for-profit research and development organization specialized in developing solutions to grow Canada's forest sector, with expertise in the paper industry, forest operations, wood products, and bio-sourced products. FPIInnovations worked as IBIO's delivery agent for the past four years on forest bioeconomy and conventional forest products.

## Project Outcomes

IBIO funding enabled the modification of FPIInnovations's D-Log machine, to allow D-Logs to flow through the manufacturing plant without jamming or disruption. Further research and development was required to ensure long-term moisture resistance prior to a commercial product launch. However, an improved manufacturing process brings the technology closer to mass adoption by First Nation owned sawmills with the potential to create a value-added building block from wood that might have previously been burned in slash piles. The IFBP will continue to seek long term solutions to wood waste and looks forward to supporting such product enhancements that show promise to First Nations around BC.

### 4.1.2 Fire Retardant Insulation Board, Yinka Dene Economic Development LP and UBC Department of Wood Science, Vancouver, BC

## Project Purpose

This project is focused on utilizing lower-grade fibre as found in slash piles, to produce wood-based insulation. Wood-fibre insulation presents a wealth of improvements over traditional fibreglass insulation, has fewer chemicals, is biodegradable, and can make value-added use of residual materials that may otherwise be relegated to burn piles.

The Wet'suwet'en First Nation recognized the potential of wood-fibre to create fire-retardant insulation board. In using low-grade forestry waste as feedstock for this product, the project team foresaw four main benefits: (1) a high-value product using BC forestry resources; (2) producing a sustainable building material; (3) reducing the amount of wood waste disposed in burn piles and other means; and (4) removing the post-harvest slash wood from forests to reduce fire hazards.

## Community Context

The Yinka Dene Economic Development Limited Partnership (YLP) is the business arm of the Wet'suwet'en First Nation (WFN) whose traditional territory is based in the Bulkley, Nadina and Morice Forest Districts. In 2012, YLP was formed to strengthen the WFN's Community Pillars: culture and language, health, housing, and education and training. In 2013, YLP designed the Wet'suwet'en First Nation Forest Bioeconomy concept. Its primary objective is to recover more value per tree harvested and to create innovative ways to use forestry waste. YLP works with companies, government, and other organizations to create business partnerships that benefit the WFN

community economically and ensure that the forests, water, all living things, ecosystems and environment are healthy and resilient while projects do not negatively impact WFN's heritage and cultural and traditional resources.

## **Project Outcomes**

To address the goals of the Yinka Dene Economic Development Limited Partnership (YLP), the Indigenous Forest Bioeconomy Program paired Wet'suwet'en staff with an acclaimed research team at UBC's Department of Wood Science to develop a sustainable thermo-insulating product for housing, using residual wood fibre. The residual wood-fibre was made up of wood-shavings, discarded slash wood and bark collected from the Wet'suwet'en First Nation community. Next steps for this project include collaboration with the Wet'suwet'en First Nation to examine the feasibility of a pilot-plant on their territory. The partnership between UBC and Yinka Dene Economic Development Limited Partnership (YLP) is a tremendous opportunity for real world collaborations between a remote BC Nation and a world class research team. A partnership resulting in a percentage of product ownership could also pay long term dividends for Wet'suwet'en First Nation and its citizens.

### **4.1.3 Firewood Facility Business Plan, Huu-Ay-Aht First Nation, Bamfield, BC**

#### **Project Purpose**

Huu-ay-aht First Nation (HFN) applied to the Indigenous Forest Bioeconomy Program for funding to establish a firewood production facility at an existing log sort in Port Alberni. HFN selected this location as it is accessible to existing forestry equipment and infrastructure. Their short-term goal was to produce firewood to satisfy the needs of local and regional markets. Over the long term, HFN plans to utilize lower valued wood species, selling bundled, split firewood further afield.

#### **Community Context**

Huu-ay-aht First Nation's traditional territory is the Barkley Sound region on the west coast of Vancouver Island. HFN aims to practice forestry through the Huu-ay-aht Development Corporation in an ecologically and culturally sensitive manner, and is pursuing business opportunities in line with these values.

#### **Project Outcomes**

Huu-ay-aht First Nation was funded to develop a business plan for the firewood production facility. A comprehensive analysis performed on behalf of the Nation determined that the facility can be financially viable on a stand-alone basis, and could employ three staff members in full-scale operations. Strategically, the facility could potentially help support the future development of an eco-industrial park that includes a sawmill, value-added activities, bioenergy, etc.

#### 4.1.4 Kleekhoot Gold Expansion, Hupacasath First Nation, Port Alberni, BC

##### **Project Purpose**

In 2015, Hupacasath First Nation launched Kleekhoot Gold, an innovative Broad Leaf Maple syrup company created by locals who saw untapped potential in the abundance of bigleaf maple groves unique to the West Coast. Kleekhoot Gold is a special example of both a successful business venture and a way for the Hupacasath Nation to harvest the cycles of nature in a manner that preserves the local ecology and abundance of bigleaf maples.

In the 2021/22 fiscal year, the Hupacasath First Nation applied for scale-up funding to increase the production capacity of Kleekhoot Gold Maple Syrup by optimizing collection and storage capacity, refining methods to concentrate sap, and enhancing bottling and production efficiency.

##### **Community Context**

The Broad Leaf Maple trees used in the production of this syrup are found in a variety of locations on Hupacasath First Nation (HFN) Reserves. Since the inception of Kleekhoot Gold, HFN has invested over \$300,000 into its operations, and their unique and flavourful cooking syrup has been showcased in the media as a success story and an example of innovation and vision.

##### **Project Outcomes**

Funding for Kleekhoot Gold from the Indigenous Forest Bioeconomy Program was invested toward the purchase of production equipment necessary to expand their operation. This included materials for a bulk maple sap processing unit, sugar bush expansion equipment, commercialization supplies, and other components. This expansion created additional jobs and increased the profitability and own-source revenue for the Nation.

#### 4.1.5 Subway Timber Tiles, Lhtako Dene Nation and Timber Tiles Co, Port Alberni, BC

##### **Project Purpose**

The Timber Tiles company was interested in exploring sourcing options from different wood species to expand their product line. Key to this expansion was sustainably sourced wood in keeping with Timber Tiles's commitments to carbon accounting, habitat protection, and local economic resilience. Timber Tiles sought funding to secure a variety of wood species from Lhtako Dene First Nation and West Fraser Mills, Quesnel. The species examined were Douglas Fir, Spruce, Aspen, Poplar, and Birch. Tiles were made from each species and assessed for their appropriateness for future manufacturing.

## Community Context

Lhtako Dene Nation is part of the Dakehl (or Southern Carrier) Nation in the Athapaskan language group. Lhtako Dene Nation's main community is based south of Quesnel, while the Dakehl Nation's traditional territory is found in the central BC interior.

Timber Tiles originally made their tiles out of Hemlock sustainably harvested from Vancouver Island. Through over five years of innovation, the resulting tiles are durable, light-weight and eco-friendly for use in residential, commercial or industrial purposes.

## Project Outcomes

During this project, Timber Tiles made tiles using the Douglas Fir, Spruce, Aspen, Poplar, and Birch wood sourced from Lhtako Dene Nation and from West Fraser Mills. The trial identified Douglas Fir, Spruce and Birch to be the most promising species. The project pointed to future trials for Western White Pine, Western Red Cedar and Red Alder.

### 4.1.6 Salvage Chipping Operation Feasibility, Wei Wai Kum First Nation and Paper Excellence, Campbell River, B.C.

## Project Purpose

Wei Wai Kum First Nation has access to residual fibre derived from forestry operations that is currently being burned in slash piles. To avoid slash pile burning, the community is interested in using this waste fibre to create employment and economic benefit for the community. The community sought to explore the business viability of using these wood residues in a salvage chipping operation in the Campbell River area.

## Community Context

Wei Wai Kum First Nation can be found in Campbell River, BC, with its territory extending northwards of the city to the headwaters of Loughborough Inlet, southward to the Tsable River, westward to the mountains and eastward to the Georgia Strait. They currently have 788 members, with 368 living on four different reserves.

Wei Wai Kum has owned and operated CRIBCO Forest Products for over ten years, an operation that acquires replaceable forest licenses to add to the community's annual allowable cut. CRIBCO Forest Product's actions are overseen by five Directors, four of whom are Wei Wai Kum First Nation. Their role is to ensure CRIBCO Forest Products operates in a way that meets the interests of the community.



## **Project Outcome**

The result of this project is a detailed description produced by Paper Excellence of the feasibility of a salvage chipping operation in Campbell River, BC. The report identified the capital needed, the business model risks, and the next steps. It allowed Wei Wai Kum to decide how they could proceed with the plant, as well as other important considerations.

### **4.1.7 Study on Tannin Extract from Hemlock Wood and Bark Chips, Atli Chip LP and ‘Namgis First Nation, Port McNeill, BC**

#### **Project Purpose**

The project sought to investigate opportunities for tannin extraction from hemlock bark and wood in coastal BC for uses in leather manufacturing, adhesives, and other processes. This study aimed to assess the economic and technical feasibility of building a tannin extraction facility in Port McNeill, BC, at Atli Chip LP’s chipping plant, which currently processes wood salvaged from harvesting.

#### **Community Context**

The ‘Namgis First Nation traditional territory spreads from the Nimpkish and Kokish River watersheds on northern Vancouver Island, along islands around Johnstone Strait and Queen Charlotte Strait. Currently, there are over 500 members living in the ‘Namgis territory, and even more living abroad. The Nation holds a variety of companies and joint ventures, one of those being Atli Resources LP since 2005. The forestry company’s main business is to manage the forest licenses held by the ‘Namgis.

In 2021, ‘Namgis First Nation acquired a chipping plant on their territory in Beaver Cove, BC. With Wahkash Contracting and Paper Excellence, Atli Resources LP formed a new business, Atli Chip Limited Partnership. The chipping facility produces wood chips for the pulp and paper industry and employs approximately ten local workers.

#### **Project Outcomes**

A study was done to evaluate the economic and technical feasibility of tannin manufacturing at Atli Chip LP and to assess potential markets for the tannins. The study overviewed a tannin plant technical design, including process approach and equipment requirements. The feedstock for the tannin plant was a mixture of bark and whitewood received directly from the existing chip plant’s de-barker. Material from other wood processing facilities and log sort yards would also be processed when available. The study concluded that tannins can be extracted from the bark and wood, but it determined that there is not a viable business at the Atli Chip site due to a large investment requirement for additional heating. Other locations with available waste heat however, present a potentially viable opportunity.

## 4.2 Indigenous Forestry Program – Coast

### 4.2.1 Developing a Squamish Biomass Business, Squamish Nation, Squamish, BC

#### Project Purpose

Squamish Nation utilized funds from the Indigenous Forest Bioeconomy Program to actively reduce the local carbon footprint. Witnessing an increase in wood waste being landfilled, and residual piles being burned after harvesting, Squamish Nation hoped to strategize solutions. Their scoping project evaluated the source, volume and quality of local wood waste in order to determine how to utilize these residuals in a more effective and meaningful manner.

#### Community Context

Squamish Nation (*Skw̓xwú7mesh Úxwumixw*) resides within the Sea to Sky Corridor, with their territory including the watersheds around Burrard Inlet, English Bay, False Creek, and Howe Sound. In 1923, the Squamish People requested that the Federal Department of Indian Affairs amalgamate several different Indian Bands residing on twenty-six different Indian Reserves into one nation: the Squamish Nation. Today, Squamish territory is facing logging, firewood harvesting, and an increasing population, all of which are contributing to a substantial increase in wood waste.

#### Project Outcomes

Squamish Nation collaborated with the District of Squamish in early 2022 to initiate plans to address the accumulation of wood waste in municipal landfills. This project funded analytic research on this wood waste and trained Squamish Nation on the effective use of their newly designed BIOS app to estimate cut block waste percentages. The project produced a list of nine protentional project ideas ranging in start-up costs and scale, with the goal of addressing local carbon issues and supporting future development.

### 4.2.2 Klahoose Sawmill Expansion Project, Klahoose First Nation, Cortes Island, BC

#### Project Purpose

Klahoose First Nation identified an opportunity to develop a small sawmill on Cortes Island to produce lumber and timber products for the Klahoose Nation and local residents in the Cortes Island/Powell River area. Locally produced timber products owned and operated by Klahoose First Nation would offer clear benefits from a both an economic and carbon perspective, and the Nation hoped to evaluate costs, fibre supply and other criteria to ensure the highest likelihood of success prior to investment.

## Community Context

The territory of the Klahoose First Nation encompasses Squirrel Cove, their primary village site, and the surrounding areas. The Klahoose First Nation is looking to increase the value of their forestry resource as well as provide employment for local Klahoose members with a local sawmill. The Klahoose sawmill would be designed to produce lumber and timber products for these projects as well as supply local home builders on Cortes Island and the Powell River area.

## Project Outcome

The bottom-line results indicated that the sawmill could be a viable business venture and a worthwhile addition to Cortes Island, and estimated that the mill would employ three full-time staff. It was also determined that a recreational cabin business could be facilitated by the sawmill project.

This project was a good reflection of the objectives of Indigenous Forest Bioeconomy Program: working directly with First Nations to learn of their unique goals and objectives and offer funding for the evaluation or delivery of projects designed to create more value from less timber, create meaningful employment opportunities, increase the sustainability of remote First Nation communities, and, over time, reduce of the local carbon footprint.

### 4.2.3 Micro-Sawmill Business Plan, Bamfield Huu-ay-aht Community Forest Society, Bamfield, BC

## Project Purpose

The Bamfield Huu-ay-aht Community Forest Society (BHCFS) expressed an interest in starting a micro-sawmill to use the high-value cedar harvested from their land for direct local benefit. The facility would add value to their current timber supply by selling cedar products in the community and adjacent markets in Port Alberni. The micro-sawmill would employ two staff members in full-scale operations. This project was to develop a business plan to provide further guidance on next steps for the development of the mill.

## Community Context

Huu-ay-aht First Nation's traditional territory encompasses the Barkley Sound region at the entrance of the Alberni Inlet. Huu-ay-aht is a member of the Nuuchah-nulth Tribal council and is one of five First Nations who have signed the Maa-nulth Final Agreement – the first modern-day treaty on Vancouver Island and the first multi-nation treaty under the British Columbia Treaty commission process.

The BHCFS is a non-profit organization that manages harvest in 354 hectares of forest located on the southwest coast of Vancouver Island. The Community Forest is one of four initial Community Forest Pilot Projects awarded in June 1999 and is an area-based agreement. The initial Tenure Agreement was signed in September 2001.

## **Project Outcomes**

The scoping project for Bamfield Huu-ay-aht Community Forest Society (BHCFS) sawmill project culminated in a business plan that details market and product information and risk factors, an action plan with a timetable, and other information needed for the BHCFS to plan their next steps. During the project, it was determined that the sawmill is economically viable, and could even be scaled up to a wood processing business. The sawmill could process logs into high value lumber and will use mobile equipment to maximize flexibility. Ultimately, the BHCFS's goal is to serve both local lumber needs in upcoming community projects in Bamfield and for the HUU-ay-aht community.

### **4.2.4 Value-Added Forestry Business, Lil'wat Forestry Ventures and Lil'wat Nation, Mount Currie, BC**

#### **Project Purpose**

Lil'wat Forestry Ventures (LFV) wanted to explore opportunities to diversify their involvement in forestry and to add value to their existing forest products. Specifically, LFV wanted to explore value-added wood products with cultural significance and was willing to form a business partnership with a local mill. The project identified potential business opportunities in the Sea to Sky Corridor that could deliver long-term economic and community benefits for the Lil'wat Nation.

#### **Community Priorities**

Lil'wat Nation's traditional territory encompasses a broad area including Mount Currie, BC, with 1,450 of the Nation's over 2,200 members residing in the community. LFV manages an Annual Allowable Cut of 100,000 cubic metres of timber and 1/3 of Lil'wat Traditional territory. Nearly 75% of Lil'wat territory is not in the harvest land base. LFV primarily focuses on contracting and harvesting, but also forestry and contractor training, tree planting, spacing, brushing, slashing, falling, and road rehabilitation and construction.

#### **Project Outcomes**

Possible primary and secondary manufacturing sites were inventoried in locations along the Sea to Sky Corridor. The project found that Lil'wat could pursue a range of initiatives, from artistic work for retail sale to the construction business. The report also included business opportunities that can be started on a small scale and can then be expanded. These opportunities included custom cutting Red Cedar logs and processing the lumber for sale for the North American market, and a live-edge furniture business.

## 4.2.5 Wood Processing and Firewood Production Business Plan, Toquaht Nation, Ucluelet, BC

### Project Purpose

This project was a continuation of a 2020 study that examined potential business opportunities that could be derived from Toquaht’s existing operations. From that study, it was found that a business case could be made to expand an existing sawmill to create a firewood business. The project completed a business plan so that the community could assess the viability of this economic opportunity.

### Community Context

The Toquaht (“people of the narrow beach”) are a Nuu-chah-nulth Nation residing in eastern Barkley Sound, near the town of Ucluelet, on the west coast of Vancouver Island. Most Toquaht members live in various urban centres, but the community of Macoah, located along Kennedy Lake, is still home to many Toquaht families. Along with several other Nuu-chah-nulth nations, Toquaht signed the Maa-nulth treaty on April 1, 2011, which affirmed their self-governance. They have since been working to create value-driven approaches to economic development on their territories.

### Project Outcomes

The outcome of this project was a detailed business plan focusing on maximizing the fiber usage of the existing dry land sort for firewood as well as custom-cut sawmilling for value-added products. It was found that the facility expansion would be financially viable, and the Nation may even consider scaling up the operation to a larger wood-processing business. Since completing this project, Toquaht is in the process of working with the Province to remediate adjacent contaminated sites and to create a contiguous industrial site with the potential for further diversification.

## 5. South Projects



### 5.1 Indigenous Forest Bioeconomy Program - South

#### 5.1.1 Biochar 101 and Economic Feasibility, Alkali Resource Management and Esk'etmc First Nation, Alkali Lake, BC

##### Project Purpose

Esk'etmc First Nation prioritizes wildfire mitigation in their community, which they mitigate through fuel removal. With the biomass collected, Alkali Resource Management (ARM) and Esk'etmc First Nation are seeking an economic strategy to generate income for the community. In searching for an economic use for the biomass, biochar was noted to be suitable for a potential product as it does not have many feedstock requirements. However, moving forward, ARM hopes to utilize the generated resources from these treatments for new bioeconomy products.

##### Community Context

Esk'etmc First Nation is located 50 km from Williams Lake with a total reserve area amounting to approximately 3,800 ha. ARM is the forest management company that Esk'etmc designates to manage the community's forest resource. As fire becomes a greater and more severe threat to BC communities, ARM has been hoping to extend their tradition of stewardship on the land to include

the mitigation of catastrophic wildfire events. In recent years, such actions have included controlled burning, and removing biomass to fuel the local boiler system.

## **Project Outcome**

To outline the economic potential of biochar, FPInnovations developed Biochar 101, to aid in the understanding of how char products are made and differentiated from each other. Presently, biochar is primarily an experimental product which has yet to be commercialized on a larger scale. However, because of the recent shift in values towards effective stewardship and wildfire mitigation, the production of biochar provides a unique opportunity to effectively turn any and all types of biomass into a marketable and versatile product. The report supplemented ARM's decision-making process regarding machinery and products. Future steps would include an economic feasibility and a trial. Further work on biochar could lead to a commercial market study of biochar products and then reaching out to potential clients to ensure marketability.

## **5.1.2 Bioeconomy Roadmap, Xeni Gwet'in First Nation, Williams Lake, BC**

### **Project Purpose**

Xeni Gwet'in First Nation sought IBIO funding to identify a path towards their economic goals in relation to forest resources currently available. The project created a bioeconomy roadmap to identify and quantify the potential to create a forest economy on the Xeni Gwet'in territory, and to guide the community through the steps of developing and managing their inventory.

### **Community Context**

Xeni Gwet'in First Nation is one of the six Nations that form the T̓silhqot'in Nation located in Traditional T̓silhqot'in territory approximately 200 km west of Williams Lake, BC. The community of Xeni Gwet'in is made up of approximately 400 descendants of ancestors who have been there since time immemorial. Roughly 250 of these descendants live in other territories and landscapes across North America, and 150 reside within the Territories.

### **Project Outcome**

The project resulted in a Bioeconomy Roadmap that identified five different potential economic opportunities. With each opportunity, the Roadmap outlined some of the potential challenges and costs.

### 5.1.3 Centralized Yard Expansion for 9-Axle Trucks, Ulkatcho First Nation, and West Chilcotin Forest Products, Anahim Lake, BC

#### Project Purpose

West Chilcotin Forest Products (WCFP) wanted to strategize a business around the fibre that does not meet saw log grade, and to reduce the hauling cost for sawlogs. If successful, creating a product with this fibre would generate income for the business, and create employment within the community.

#### Community Context

WCFP is an Indigenous-owned forest company owned one hundred percent by Ulkatcho First Nations. Ulkatcho First Nation and WCFP are based in Anahim Lake, BC, which is three hundred kilometres west of Williams Lake. Currently WCFP holds three forest licences and is mainly involved in logging, log sales and silviculture activities associated with those licences. However, WCFP has faced challenges such as distance to market (a high freight cost to transport their fibre), and a changing market (their pulp program was hit when the pulp market collapsed in 2020).

#### Project Outcome

This project funded replacement of WCFP's weigh scale that had become out of date. This upgrade allows WCFP to weigh the new King Train that would ultimately reduce the hauling costs of any product that is produced by approximately 18%. This amount of production savings could make a forest industry by-product idea viable. In the future, WCFP is interested in a study investigating the benefits of whole tree logging and processing at the centralized sort yard.

### 5.1.4 Biomass Heat Hookup, Nupqu Native Plant Nursery, Cranbrook, BC

#### Project Purpose

Nupqu Native Plant Nursery sought funding for a capital purchase to install heating for a shop and greenhouse attached to their new wood boiler system that IBIO had previously supported. The Nupqu Forestry Division generates waste wood that is used for the boiler system or for firewood that is produced as part of a community program. These residues would otherwise be burned on the harvest site and would not be utilized. Nupqu also anticipates using scrap lumber from a log construction company and other local sawmills.

#### Community Context

When they are first hired, many of the individuals employed by the Nupqu Native Plant Nursery lack relevant Native plants industry skills. However, Nupqu Native Plant Nursery arranges for subsequent skills training which improves their staff's employability in the native plant industry anywhere in Canada or United States. Training includes learning about all stages of native plant growing (seed



collection, seed cleaning, seed storage, plant sowing and growing), as well as other relevant training, through intentional, hands-on learning methods.

### **Project Outcome**

The project funded the purchase of the needed items so that the biomass boiler could be connected to Greenhouse 3 and the shop.

## **5.1.5 Mushroom Cultivation, Splatsin First Nation, Enderby, BC**

### **Project Purpose**

The goal was to use wood substrate to grow mushrooms locally and create economic opportunities for members of the Splatsin First Nation. Mushrooms were identified because they can be grown relatively simply and with a low capital investment requirement. The project funded a scoping assessment of the different pathways that Splatsin could pursue to grow mushrooms using woody substrates and to understand their associated strengths and weaknesses as well as overall economic potential.

### **Community Context**

The Splatsin First Nation is adjacent to the City of Enderby, BC. It is the largest Interior Salish-speaking First Nation in Canada, with their historical territory stretching from the BC-Alberta border to the Columbia River. The Splatsin are the most southern member of the seventeen communities that comprise the Secwépemc Nation.

### **Project Outcome**

The study identified specific mushroom varieties with the most potential for Splastin First Nation along with their uses, marketability, and necessary growing conditions. The report also detailed the types of logs and wood fibre best used as substrate for growing mushrooms. Suggested future learnings and courses were also included in the report, to further equip the Nation with the knowledge for growing mushrooms.

## 5.2 Indigenous Forestry Program - South

### 5.2.1 Characterizing Fuel Environments, Alkali Resource Management and Esk'etmc First Nation, Alkali Lake, BC

#### **Project Purpose**

In the forest area managed by Alkali Resource Management (ARM), there is a broad diversity of fuel environments, and these are not well represented by existing fuel types developed in the Fire Behaviour Prediction system. It was believed that a more detailed classification of these fuel environments would aid in understanding and predicting potential fire behaviour in these fuel types. Appropriate fire behaviour targets are prescribed in a burn plan. Fuel modifications in the prescribed burn (PB) area are often necessary to limit fire behaviour, preventing escaped fire yet ensuring the prescribed fuel consumption. Fuel managers require better tools that can provide guidance in pre-burn fuel modifications to achieve fire behaviour targets and PB objectives.

#### **Community Context**

The project categorized variants (natural and treated areas) of the Interior Douglas Fir (IDF) fuel environment that are managed by ARM in the Alkali Lake (Esk'etmc) area. Four variants were identified: two lightly managed, one highly managed, and one old growth Douglas Fir forest stands. Based on fuel inventory data for these variants, the Fuel Characteristic Classification System (FCCS) was used to simulate fuel beds for each variant. The FCCS Ponderosa Pine / Douglas Fir reference fuel bed was used as a building block for the variant fuel beds and the C-7 FBP fuel type to compare the fuel attributes for these fuel beds. FCCS fire behaviour outputs for these created fuel beds were also compared.

#### **Project Outcomes**

The challenges to participating in forestry in this region may be approached from different angles with an expanded operation and increased capacity. Ultimately, the FCCS outputs helped to reinforce assertions regarding fuel attributes and potential fire behaviour for each variant.

### 5.2.2 CHP Implementation and Bioenergy Roadmap, Lhoosk'uz Dene Nation, Quesnel, BC

#### **Project Purpose**

Lhoosk'uz Dene Nation first received IBIO support three years ago to develop an energy source that would provide an alternative to the community's diesel power. The result of that project was a biomass combined heat and power (CHP) source. Since then, the Nation had a front-end engineering study done, which supported the findings from the original feasibility study. Funding also led to

training for Lhoosk'uz Dene Nation and the installation of a CHP, the latter of which is awaiting additional equipment to gear up for operations. Given this broadened scope of work, the purpose of this project was to continue to support the implementation of the CHP in the community.

## **Community Context**

The Lhoosk'uz Dene Nation, or Kluskus First Nation, is a southern Dakelh Nation with a close and longstanding relationship with the neighbouring Tsilhqot'in Nation who work together to advance the interests of their collective memberships. As an off-grid community, Lhoosk'uz Dene Nation has long relied on fossil fuels for heat and electricity, which has limited their ability to participate economically. With the recent challenges in forestry, including mountain pine beetle and catastrophic wildfires, the community has chosen to pursue projects that support the use of forest residuals and create immediate employment options for local workers.

## **Project Outcomes**

The project funded FPInnovations's project management and technical support for the CHP installation, project communication, management of project funds, and the scoping and directing of future developments with industry partners. It also explored CHP feedstocks from different chipping machinery and determined that wood chips would be a viable feedstock for the community.

### **5.2.3 Tiny Homes Demonstration, Lhoosk'uz Dene Nation, Quesnel, BC**

#### **Project Purpose**

Following the Combined Heat and Power project (above), Lhoosk'uz Dene Nation was interested in combining the bioeconomy path with addressing the community's housing needs. This project explored building tiny homes using bio-based materials at an affordable cost for Lhoosk'uz Dene members.

#### **Community Context**

The Lhoosk'uz Dene Nation, or Kluskus First Nation, is a southern Dakelh Nation with a close and longstanding relationship with the neighbouring Tsilhqot'in Nation who work together to advance the interests of their collective memberships. As an off-grid community, Lhoosk'uz Dene Nation has long relied on fossil fuels for heat and electricity, which has limited their ability to participate economically. With the recent challenges in forestry, including mountain pine beetle and catastrophic wildfires, the community has chosen to pursue projects that support the use of forest residuals and create immediate employment options for local workers.

## **Project Outcomes**

The result of this project was a prototype of a tiny house that uses passive energy through solar energy for heating. The combined heat and power system developed in previous projects, along with solar panels, could be used for heating the home and for hot water. The tiny home was to be constructed at FPInnovations's location in Vancouver, BC, using only sustainably harvested wood fibre, and to minimize the cost of construction, only mass timber would be used for the foundation. This approach was expected to provide a low-cost, flexible, energy-efficient, and readily available solution for affordable housing for the community.

## **5.2.4 Recommendations for Proposed Self-Loading Configuration for Specialized Services, Skywest Environmental, Williams Lake, BC**

### **Project Purpose**

SkyWest Environmental Inc. (SWE) was facing some unique challenges. Due to the specialized nature of SWE's forestry services as well as the timber supply and terrain in the Williams Lake area, SWE needed solutions for its small-volume yields, and for safety measures for transporting merchantable timber. SWE sought funding from IBIO to address these issues.

### **Community Context**

SWE is a 100% First Nations owned and operated service company based in Williams Lake, BC. SWE provides specialized services such as Fire Smart Treatments and hauling from their commercial thinning operations. A 2020 study funded by IBIO conducted a preliminary investigation that identified the best truck/trailer combination for this application and identified potential self-loader options. However, some engineering was required to make it work in the self-loader application.

### **Project Outcomes**

Currently, SWE's Fire Smart and commercial thinning operations both yield small volumes that do not justify having a log loader on site. SWE also hoped to implement Virtual Reality controls for the loader to keep the operator out of the danger zone and the elements. The final report found that a self-loading logging truck could be a solution.

## 6. North Projects



### 6.1 Indigenous Forest Bioeconomy Program – North

#### 6.1.1 Birch Water Business Strategy, Gitxsaan and Skeena Watershed Conservation Coalition, Hazelton, BC

##### Project Purpose

Building on an initial scoping project done last fiscal year, the project supported a scoping report for the Skeena Watershed Conservation Coalition (SWCC) to identify the feasibility of a birch water business. The report found that the Kispiox and Bulkley Timber Supply Area provide sufficient area and density of birch stands for a multi-million-dollar industry to be developed. Initial scoping data was encouraging, and it suggested that advancing this initiative would be both economically feasible and socio-culturally impactful. As next steps, IBIO also funded a business strategy.

##### Community Context

SWCC is based in Hazelton and has been working closely with the Indigenous and settler communities along the Skeena for many years. They conducted the initial engagement with the Gitxsaan Wilps (House Groups) and local stakeholders to discuss the opportunity and pathways to establishing a birch water project in the area. Birch water, or *Haawak*, has the potential to provide a considerable bioeconomic opportunity for the area. There have been initial discussions with existing companies

including a birch water company in the Lower Mainland, as well as a local brewery, that suggest that the next steps would be met with positively. As a non-timber forest product that would allow for community-led collaboration without considerable environmental impact, participants were enthusiastic and supportive of continuing to engage and guide the project forward as a collective.

## **Project Outcomes**

The business strategy outlined the next steps for SWCC, which include the decision-making processes and structure(s), and identifying the gaps in the business plan in preparation for launch. The report suggested a six-phase approach to the business structure and model, finding partnerships, and attracting talent. The kickstarting of Birchwater Co Imaginal Ventures gave the company access to Imaginal's online learning platform, which supports business growth and aims to help new companies sustainably grow. Currently, SWCC is working with two Gitxsan *wilps* on business planning and structure so that more *wilps* will be included as the birch water business grows.

### **6.1.2 Case Study on Biochar, by Git Lax Mo'oon Services Ltd, for the Nass Valley, BC**

#### **Project Purpose**

In order to decrease slash pile burning, create jobs and increase utilization of wood in the local area, Git Lax Mo'oon Services Ltd was interested in having a case study done on the viability of establishing a wood waste processing facility in the Nass/Nisga'a Territories. The facility would be called Northern Biochar Systems (NBS) and would use residual wood waste from the Nisga'a Forestry cut blocks. The facility would process residual wood waste and low-grade timber to ultimately manufacture a cross section of biochar products that would be packaged on site.

#### **Community Context**

The interest in biochar derived from the fact that the Nass area is home to a thriving mining community. Biochar was pursued because of its natural filtration properties, in light of concerns about wastewater treatment.

#### **Project Outcome**

The result of this case study was a report looking deeply at the potential of a biochar enterprise. The study identified challenges in the biochar industry, but also noted that opportunities are increasing along with a growing biochar consumer base. The study pointed to the industry's lack of understanding as a primary reason for biochar not currently being used in wastewater treatment. Consequently, Git Lax Mo'oon Services Ltd will use this case study to demonstrate the market feasibility and to potentially develop the business further.

### 6.1.3 GWES Laser Engraving Capacity-Building, Gitksan Wet'suwet'en Education Society, Hazelton, BC

#### Project Purpose

To support capacity building in advanced wood manufacturing, the Gitksan Wet'suwet'en Education Society (GWES) aimed to acquire a Trotec Laser Engraving and Cutting machine. This engraver would be used for two primary purposes:

1. To support the artistic expressions of adult high-school and post-secondary students in their Fine Arts classes. Students will be able to draw and develop Gitksan art with a Master Artist, and then use the software and engraver to create unique art.
2. To support the Grease Trail Arts division's youth mentorship program. In this program, young Gitksan artists work with a master to develop designs and products that are turned into kits and marketed to schools and other organizations.

#### Community Context

Formed in 1982, GWES is a non-profit that provides education programs to six local communities: Hazelton, Gitanyow, South Hazelton, Kitwanga, Kispiox, and Moricetown. GWES operates art programs focusing on value-added wood products such as wood kits. Each wood kit comes with a design that was created by a master artist that is traced on the wood for the person to then paint. The organization also creates drum kits, rattle kits, cedar mini-paddle kits, and others.

#### Project Outcomes

The capital support for this project allowed GWES to purchase the Trotec Laser machine, the accompanying software, a cutting table and more, so the organization could be sufficiently equipped for their future art projects. With this technology and engraver, the designs can now be engraved directly onto the wood for an individual to then paint. GWES envisions using this to create more Gitksan art kits such as animal puzzles for children, ornaments, and other new products. These products will boost the Grease Trail Arts program and thereby build capacity for hiring youth who want to be mentored, as well as grow this division to a profitable, independent business.

### 6.1.4 Pilot Plant at Tl'Oh Forest Products, Nak'azdli Development Corporation with Deadwood Innovations, Fort St James, BC

#### Project Purpose

Nak'azdli Development Corporation (NDC) is interested in finding an alternative use for underutilized, dead, and damaged wood fibre within their territory. Currently, this waste wood is managed through slash burning, which releases GHG emissions and is a wildfire risk. Consequently, NDC partnered with

Deadwood to build a pilot-scale facility in Nak’azdli Whut’en’s Tl’Oh Forest Products’s building to manufacture value-added engineered wood products using this underutilized wood-fibre.

## **Community Context**

Nak’azdli Whut’en community is a member of the Carrier Nation of the Dene and is located adjacent to Fort St. James. The population of Nak’azdli Whut’en is around 2,000 members, with 700 of those living “on-reserve”. The community is based on a Clan System, with currently four clans: Lhts’umusyoo (Beaver); Lusilyoo (Frog); Kwun Ba Whuten (Caribou); Lohjabou (Bear).

## **Project Outcomes**

Deadwood designed machines and systems in shops in Fort St. James, Vanderhoof, and Prince George that could use this underutilized, dead and damaged wood fibre. Deadwood then moved these machines to the former Tl’Oh Forest Products building on the Nak’azdli Whut’en reserve. At this site, Deadwood partnered with NDC to design, build, and operate a pilot scale facility. Unforeseen costs to this project were the onset of the pandemic, however there were savings on equipment costs because the project used refurbished equipment from shuttered sawmills.

Depending on the success of the project, Deadwood and NDC will continue with commercial development and production. This would enhance the competitive position of the local forest sector as well as provide economic development and employment benefits to Nak’azdli Whut’en.

## **6.2 Indigenous Forestry Program - North**

### **6.2.1 Criteria for Stands Selection for Commercial Thinning and Application, Burns Lake Community Forest, Burns Lake, BC**

#### **Project Purpose**

Burns Lake Community Forest (BLCF) sought to evaluate the opportunity for commercial thinning applications to increase fibre utilization while maintaining other important factors such as wildlife habitat.

#### **Community Context**

BLCF was incorporated in the year 2000, with the authority to manage the forest near the community of Burns Lake in northern BC. Since BLCF’s inception, the area of managed forest has tripled to over 92,000 ha with an annual allowable cut of 23,677 m<sup>3</sup>. In 2004, the BCLF was the first organization in BC to be offered a 25-year renewable forest tenure, which replaced the original agreement.



BLCF engages with multiple partners in the surrounding area, including the Village of Burns Lake, the Wet'suwet'en First Nation, the Office of the Wet'suwet'en, the Ts'il Kaz Koh First Nation, and representatives from recreation groups, the natural resource and energy sector, governments, community groups and more.

## **Project Outcomes**

The project collected the necessary land base information, created a preliminary analysis, and used a Partial Cutting Simulator to illustrate commercial thinning results for individual blocks, which will allow BLCF to make decisions about next steps.

## **6.2.2 Fibre Supply Analysis for Torrefied Pellet Plan, Gitxsan Development Corporation, Hazelton, BC**

### **Project Purpose**

Over the past four years, the Gitxsan Development Corporation (GDC) has been working to develop a torrefied pellet plant in South Hazelton, BC, with partner and technology provider Airex Energy. To make an informed decision on the future of the plant, GDC requested an analysis of where to source its feedstock, and the transportation costs of the plant.

### **Community Context**

The Gitxsan is a large Nation comprised of over 6,000 members, with its traditional territory stretching over the Skeena region. The Nation follows a matrilineal hereditary system broken into four clans: Eagle, Fireweed, Wolf and Frog. Each clan consists of an independent House or *wilp*, and there are over fifty traditional *wilps*, each led by a Hereditary Chief and consisting of one to several families ranging from twenty to more than 200 individuals.

The GDC is the economic arm of the Gitxsan Nation which conducts business on behalf of the Gitxsan people, ensuring the community's interests are protected and their economy is improved. It was created after the landmark ruling in the Delgamuukw Supreme Court Judgement (1997) affirmed the Gitxsan's rights to their lands, and follows a unique structure that combines traditional values with contemporary business needs.

### **Project Outcomes**

The project supported a study on the feasibility of the proposed torrefied pellet facility. This included a biomass assessment and fibre inventory, as well as communication with local forestry stakeholders and collaborators, to produce costing solutions and mapping.

## 6.2.3 Thermal Wood Facility, Lax Kw'alaams, Port Simpson, BC

### **Project Purpose**

The Lax Kw'alaams Nation leadership is looking to establish a new, sustainable, and strategically targeted business that adds value and sustainability to their forestry operation. The biomass available to the Nation is predominantly small diameter balsam and Western hemlock which is currently underutilized. The primary purpose of this project is to assess the viability of a Thermally Modifying Wood Treatment Plant to facilitate better use of these species, while also developing skills and providing employment opportunities for the Lax Kw'alaams community members.

### **Community Context**

Lax Kw'alaams Nation are the descendants of the Nine Tribes of the Tsmishian, one of the largest First Nations peoples in northwest BC. Lax Kw'alaams' traditional territory is found in the Pacific Northwest, from the coast of Prince Rupert at the Alaska Border, to beyond Kitimat, BC. Traditionally, the Lax Kw'alaams' first industry developed was boat construction, and today this has diversified into the fishing industry, aquaculture, forestry, and finance.

### **Project Outcomes**

This project supported a technical and economic study of a potential Thermally Modifying Wood Treatment Plant operation. The study concluded that the Nation should start with a small-scale chamber, and that advancements could be undertaken cautiously while the market for these products is being established.