



Flipping the Script on Residual Fibre: Enhancing Utilization for a Sustainable Forest Industry | Brief No. 2

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BACKGROUND

The practice of burning harvest residuals is deeply embedded in British Columbia’s (BC) forestry sector. While this was a logical practice when first mandated in 1938, global and local circumstances have evolved and so must forestry practices. Years of epidemic beetle attacks, increasingly intense and widespread wildfires, and provincial changes to forestry legislation have led to an anticipated decline in Allowable Annual Cut (AAC). A more complete and [integrated harvest](#), combining conventional harvesting operations with the collection of additional biomass from harvest residues, would compensate for the decrease in available fibre and support a broader range of uses. Additionally, the open-air combustion of forestry residues emits significant fine particles and CO₂, releasing [3.9 megatonnes](#) (Mt), or roughly 6% of BC’s provincial total in 2019 alone. This is in addition to the average [84 Mt of CO₂](#) released annually over the last five recorded wildfire seasons.

More complete use of this material would generate significant economic, social, and environmental gains through job creation, financial contributions, enhanced long-term ecological health of forests, reduced carbon emissions, and improved air quality. As an example, it is estimated that biomass from logging residuals in BC could generate nearly [20% of BC’s energy demand](#) from fossil fuels. These benefits have been secured in other countries with more intensive utilization but have yet to be realized in BC.



Utilization of residual fibre for district heating in rural British Columbia. (Photographs by Gord Chipman)

History of Slash Piles

In 1938 the Province of BC amended the *Forest Act*, requiring the annual burning of harvest residuals to address growing concerns about, and to mitigate, the effects of wildfires. Shortly after, the [Bloedel Fire](#) burned 75,000 acres of forest on Vancouver Island, further underscoring the need to manage the risk of harvest residuals. 2005’s [Wildfire Act](#) required forest licence holders to assess and abate the potential threat of wildfires from post-logging woody debris. This rule overwhelmingly resulted in the burning of residual fibre, as opposed to harvesting and processing for other uses. As concerns about increasingly threatening wildfire seasons mount, there is an opportunity to mitigate fire risk while also reducing emissions and capitalizing on available fibre.

Barriers to Change: Why Do We Continue to Burn?

Forestry in BC has evolved over more than a century, making the untangling and halting of slash burning a

complicated task. Despite attempts by the Government of British Columbia and FPIInnovations (FPI) to enhance residual fibre use, 2.4 million oven-dry tonnes (ODT) of usable fibre go uncollected every year. Research¹ carried out at the University of British Columbia (UBC) in 2021 identified five key constraints which have stymied attempts to halt slash pile burning:

- Lack of a detailed plan for the near elimination of slash pile burning by 2030, as stated in the [CleanBC Roadmap 2030](#).
- Challenging economics and ineffective taxation structures.
- A history of non-integration and under-use.
- Insufficient financial and political support for innovation and local applications.
- Inadequate implementation, utilization, and enforcement of existing policies.

WHAT HAS BEEN DONE?

Policy Reform

The Government of British Columbia and FPI have worked towards developing policy that promotes use of lower-quality fibre. In 2014 the provincial government facilitated the creation of the [Forest Fibre Working Group](#) (FFWG), with representation from primary harvesters (PH), secondary users (SU), FPI, and the Ministry of Forests, Lands and Natural Resource Operations (FLNRO). In 2016 the FFWG issued the [Forestry Fibre Action Plan](#) and the [Residual Fibre Utilization Policy](#). The policy consists of the Fibre Recovery Process, Coast Fibre Recovery Zones, Alternate Methods of Scale, Interior Grade 4 Credit, Waste Benchmarks, and Hazard Abatement. Each component of the policy targets a different aspect of fibre utilization; for example, the Fibre Recovery Process focuses on business-to-business relationships, while the Alternate Methods of Scale aim to reduce costs and administrative barriers to transporting low-quality fibre.

¹ Research consisted of a literature review and interviews with individuals who have extensive experience working directly in or closely with the forest sector in BC. Backgrounds of participants were in forest industry, Indigenous forestry, the environmental sector, municipal government, provincial government, journalism, and academia, and took place over the summer and fall of 2021. A total of 76 individuals were contacted, with 27 interviews completed. Despite attempts to include perspectives from the wood pellet industry, interviews with members of this stakeholder group were not secured. Interviews were informally structured,

Applied Solutions and Technology

Several tools and resources have been developed to support foresters and loggers to enhance the use of fibre.

- FPI's [BiOS app](#) addresses the lack of information on cost and availability of residual biomass in BC. The app allows the harvester or certificate holder to calculate availability of roadside biomass, cost of secondary harvest, and greenhouse gas (GHG) amounts by entering site-specific information such as species type and harvesting system. This information supports harvesters to make decisions informed by data. A series of [video tutorials](#) are publicly available to guide the operator through the set-up and use.
- The Residual Fibre Utilization Training and Workshops took place between 2018 and 2021, facilitated by members of the Ministry of Forests, Lands, Natural Resources Operations and Rural Development (FLNRORD) and FPI. Materials from past sessions are available [online](#) and cover a range of topics from "Biomass Basics" to "Woody Fibre Forest Management".
- FPI's [Best Management Practices for Integrated Harvest Operations in British Columbia](#) is a succinct guide for foresters and loggers to enhance integration of harvesting. As creation of slash piles makes extraction of fibre extremely difficult for secondary users (SUs), this guide offers field-usable alternatives to enhance the integration between PH and SUs so that it is economically viable to recover usable fibre.

What are the Business Constraints to Enhanced Use?

The ongoing burning of residuals indicates that barriers to a shift in practice remain. We identified the following business-related constraints to improving practices.

and each lasted 60-90 minutes. The analysis is arranged by major themes, to understand the policy and operational norms which lead to the burning of slash piles left behind after the logging of coastal temperate rainforests and the various interior forests consisting of spruce, pine, fir, hemlock, and cedar. Research Ethics for this study was approved by UBC's Office of Research Services. ID number is H20-02591.

- Weak networks of business-to-business relationships amongst PHs and SUs, with concerns from PHs about challenges and costs of the associated use of roads, landings, and cut blocks by SUs when removing residual fibre.
- Forestry in BC has a historical and current preference for sawlogs, which present efficient and relatively straight-forward economic opportunity. Pivoting from sawlogs to low-quality fibre will require investment, training, and innovation in what many consider an unpredictable forest sector.
- Due to the low value and high cost of harvesting residual fibre, processing facilities are limited to transport cycle times of roughly 4-6 hours. With processing facilities widely dispersed throughout the province, there are significant amounts of fibre that lie beyond this cycle time and are uneconomic to process, unless subsidised.
- Insufficient data on the volume, quality, and cost of transporting harvest residuals of a cut block, which may inform business-related decisions about what, when, where, and how to harvest residuals.
- Low value, high cost: Are there opportunities for [Forest Enhancement Society of BC](#) funding to support moving fibre beyond currently economic transport times? What alternate management practices or uses are available for residual fibre, such as creating [wildlife habitat](#) or [local district heating](#) systems?
- Insufficient data: How might training and use of the BiOS app support operations and income?

Indications from government are that there is a looming end to slash pile burning. This is demonstrated by Premier John Horgan's 2017 [mandate letter](#) to the Minister of Environment and Climate Change Strategy to extend the carbon tax to slash pile burning, as well as a stated goal in [CleanBC Roadmap 2030](#), and a clear intention in 2021's [Modernizing forest policy in British Columbia](#). There is a current opportunity to capitalize on the many benefits of enhanced utilization in the face of a shrinking fibre basket and urgent calls to address climate change mitigation.

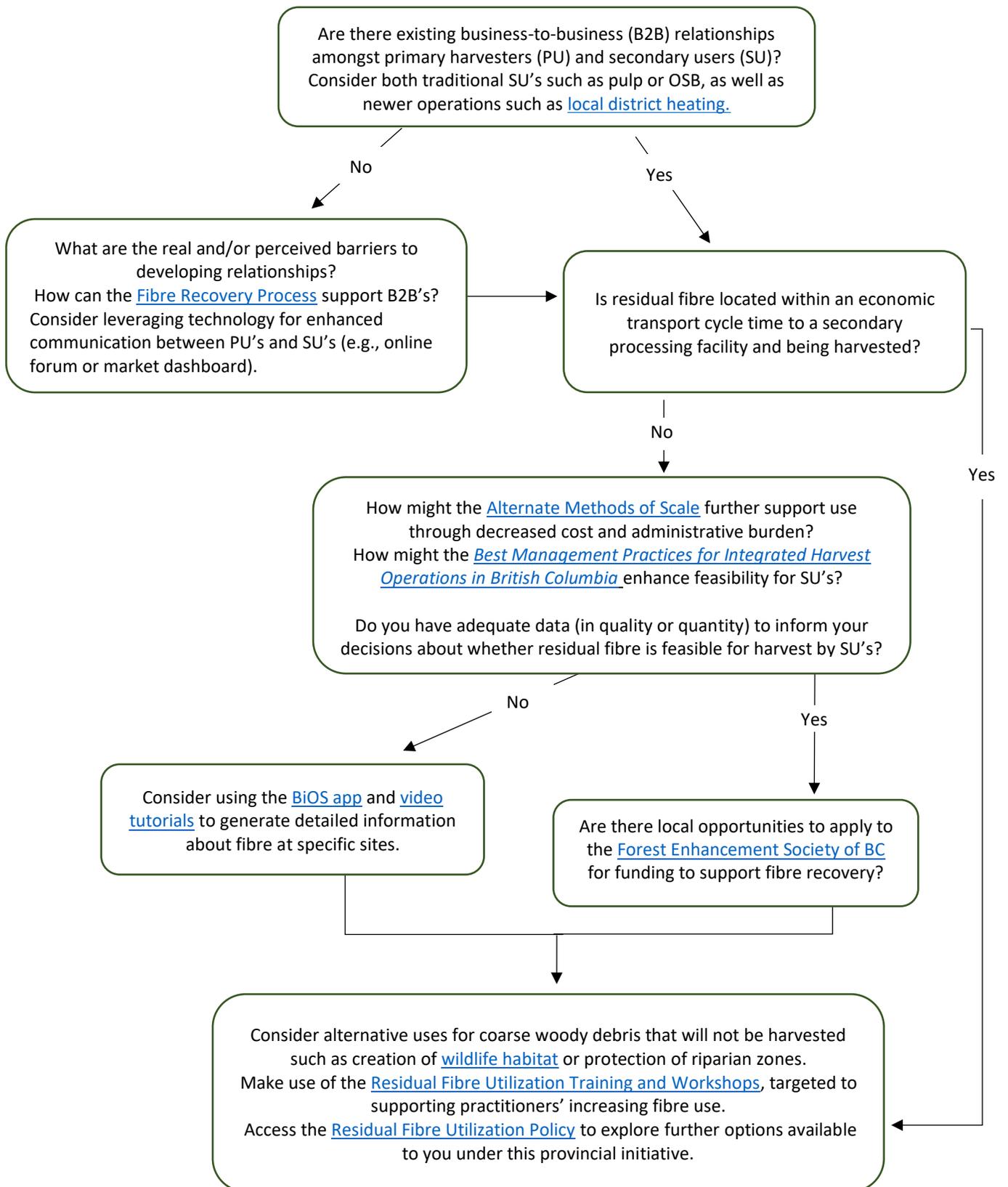
RECOMMENDATIONS

Leveraging Fibre Utilization to Contribute to a Prosperous, Sustainable Forest Industry

Foresters and loggers must be convinced, trained, and assisted to bring about more complete use of fibre. Practitioners in the forest industry may consider the following to support uptake of policy, technology, and applied solutions.

- Business-to-business relationships: What technology is being used to communicate between local PHs and SUs? How would integrated harvesting practices affect income? In what ways might the [Fibre Recovery Process](#) support operations?
- Sawlog preference: What are the opportunities to incorporate more residual fibre within operations? With the anticipated decreasing AAC, how would more complete use of fibre affect operations and income? To what extent do foresters and loggers understand and apply the Residual Fibre Utilization Policy? What is the willingness of companies to invest in training and support for foresters and loggers to enhance utilization? Which components of the policy are relevant to specific contexts, and what benefits might they bring?

Decision Support Tool for Enhancing Utilization of Residual Fibre in British Columbia



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