Forest Sector Climate Adaptation in Manitoba, Saskatchewan and Alberta:

A Summary of Workshop Results

The University of Winnipeg

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Introduction

Workshop Purpose

Climate change is transforming Canada's northern environments at an alarming rate (Warren and Lulham 2021; IPCC 2014). Bolstering adaptive capacity for climate change adaptation is thus a policy and management priority (Natural Resources Canada 2020; UNFCCC Secretariat 2020). Governments and industries managing renewable resources are increasingly pressed to address long-term plans for adaptation, while continuing to meet short-term business and governance needs (Keskitalo et al. 2011). These pressures are transforming Canada's northern forestry sector; the need for adaptation is creating new synergies and partnerships for adaptation, and new learning is occurring to make adaptation possible (Wyatt et al. 2013; CCFM 2016).

The Climate Learning and Adaptation for Northern Development (C-LAND) project is a multi-year project led by Drs Ryan Bullock and Alan Diduck (see Bullock et al. 2022). As part of this research, a climate adaptation workshop focused on the Prairie Region's northern forestry sector was held on March 14th, 2024 at The University of Winnipeg. Facilitated by Christey Allan and Matt Loxley from the Prairie Climate Centre, the purpose of this workshop was to explore how governments, industries, and communities managing forests are adapting to the ongoing environmental, social and economic changes in the provincial norths of Manitoba, Saskatchewan and Alberta, and to support their adaptive capacity. We aimed to:

1. Understand existing capacity challenges for climate change and how they are being addressed;
2. Understand what decision-support resources are needed to increase adaptive capacity; and
3. Identify concrete actions to help increase future capacity in workshop participants' organizations.

We recruited practitioners, academics, and government representatives from the prairie provinces who have expertise in the forestry sector. Prospective participants were identified through previous research activities and public documents. Ten participants were present – four from industry, three from government, and three from academia, which included Bullock and Diduck as participants and facilitators (Appendix 1). The workshop process and results are described in this document.

Workshop Structure and Methods

The forest sector adaptation workshop involved a mix of group conversations and presentations by the workshop facilitators. The workshop structure was informed by a literature review of climate adaptation workshops completed by our research group,[1] and was co-designed with the Prairie Climate Centre. The participatory workshop used the scenario-based method of backasting to identify adaptation challenges and opportunities in the sector. Three interactive sessions were facilitated to understand:

1. Capacity challenges experienced in the sector when responding to climate change;
2. Ideal future conditions in the sector to ensure sufficient capacity to adapt to climate change, and;
3. Concrete actions that could form a pathway towards a selection of the ideal conditions.

During the sessions, facilitators wrote participant answers on post-it notes and poster boards, and two student notetakers recorded participant conversations in detail. This report presents our workshop findings, and shares key recommendations.

[1]Link to literature review: https://esrguwinnipeg.files.wordpress.com/2023/07/cland-literature-review-2023-update-2.pdf

Key Terms and Guiding Frameworks

Basic definitions of the following four recurring key terms were discussed in Session 1. The definitions were adapted from Bullock et al. (2022).

Climate hazard: A biophysical event that can impact built infrastructure, natural ecosystems, and social systems. Examples include droughts, rain, high winds, tornadoes, wildfires, and hail.

Climate impact: The effects of climate (either existing or projected) on built infrastructure, natural ecosystems, and social systems. The impacts may be negative or positive.

Climate change adaptation: Adjustments in response to actual or expected climate change and its impacts; anticipatory or reactive; incremental or transformative.

Adaptive capacity: The ability of people, organizations, and communities to respond to changing social and environmental conditions, such as climate change and its impacts.

The framework below presents the seven inter-connected determinants of adaptive capacity. Scenari-based activities, such as identifying ideal future conditions of the sector, were written down and categorized within these seven categories. Definitions for each category are provided below. Details on how we operationalized these guiding themes are provided in the following section.

Figure 1: Seven inter-connected determinants of adaptive capacity (adapted from Drennan and Rasheed 2020).

Social Capital	Resources developed and stored by a given social system that enables communities to build trust and work together to address large-scale problems that affect their place of living
Equity	Fairness of access to all resources based on personal, contextual and structural conditions
Institutions	Formal rules: laws; government policies, programs, and practices Informal rules: practices, norms and cultures of a community or their social structures
Technology	Hard and soft technology, such as high-speed internet, weather monitoring systems, advanced farming methods, integration of advanced technology in daily life
Infrastructure	Transportation systems, utility systems, water and sewer systems, road systems, housing systems, farming and forestry systems
Economic Resources	Economic assets and capital resources
Information and Skills	Local knowledge, traditional ecological knowledge and professional expertise, formal education, and/or the diversity of skills within a community

Figure 2: Definitions of determinants of adaptive capacity (adapted from Drennan and Rasheed 2020).

Session 1 Results: Current and Future Climate Impacts

Session 1 created a baseline scenario by identifying current impacts of climate change on the sector. These are outlined in Table 1 below, along with corresponding adaptation actions as identified by participants.

Table 1: Current climate impacts identified by attendees and resulting adaptations

Current Impacts		Responding Adaptations
Changes in tree regeneration	• Aspen die outs • Increased uncertainty about regeneration • Gains in natural spruce regeneration, particularly for white spruce, due to wet and cool spring	• Ongoing work in Alberta for climate adapted seed zones
Changes in distribution of animal species in forests	• Expansion in the range of species (e.g., white-tailed deer) towards the north due to changes in vegetation • Changes in composition of bird species	• Using projected tropical nights (+20°C) to predict moose patterns • Thermal covers left for moose

Changes in winter's operational windows	• Standard operational windows in both winter and summer are shifting and shortening
	  ○ Benchmarks for winter operation start dates are shifting. In northern MB, the November 11 benchmark moved to mid-December this year
	  ○ Clashes with conventional winter holidays
	• Increasing constraints for building winter roads
	• -6° restrictions in Saskatchewan for highway loads means a shortened window for highway transportation
	• Lower allowable weight loads for transportation decreases winter harvesting efficiencies
	• Impacts abilities to employ people over the winter
		• Increases in night shifts for hauling out inventory
		• Using machinery with lower weights to pack roads before moving in heavier machinery
		• Using machinery with wider tires to "float" loads and equipment of soft ground and reduce impacts to soils and ground cover.

Changes in precipitation patterns	• Increased uncertainty in precipitation • Difficulties planning operations • Wet/dry extremes from year to year • Overall a warmer and dryer forest • Impacts on tree growth and renewal	
Changes in pests and pathogens	• Impacts on tree growth and renewal • Do not have the tools to deal with insects and disease in the same way that tools for fire are available • Pest activity (e.g., jack pine budworm) creating salvage timber for harvest • Salvage timber creating fire hazards • Extreme weather events have increased populations and, in some cases (e.g., unexpected freeze) decreased pest populations	• Harvesting of salvage wood during summer to supplement inventory • New products based on characteristics of salvaged, insect-killed wood
More extreme magnitudes and intensities for fires	• Fire seasons are increasing in length due to drier and warmer weather • Active fires now continue over winter due to reduced precipitation, which increases fire magnitudes for the following season • High risk fire zones shifting, increasing in volatility • Fire events can lead to loss of inventory, equipment • Creates higher business costs	• Fire-smarting • Planning equipment placement to avoid 'eggs in one basket' scenario causing mass loss of equipment and danger to human safety

In session 1, participants also identified predicted future impacts on the sector along with potential adaptation actions (Table 2).

Table 2: Future climate impacts and potential adaptation actions discussed by participants

Future Climate Impacts		Suggested Adaptations

Seedling survival decreases	• Ongoing shifting precipitation and warmer weather creates a new risk of loss of artificially planted seedlings due to weather
	• New need to start considering this in their long-term planning
		• Changes in seed sourcing, such as:
		  ○ Seed cloning
		  ○ Breeding, genetically modified organisms
		  ○ Seed sourcing based on adaptive tree qualities instead of based on height
		  ○ Look to naturally occurring hybrids
		• Tree improvement programs
		• Research on new tree species
		• Assisted migration
		• Changes in regulatory seed zone frameworks
		• Integrate climate change predictions into growth models

Changes in key benchmarks and harvesting windows	• Benchmarks for the winter season and other cycles will continue to become less reliable	• Changes in fixed date policies • Reimagining of management regimes to allow for adaptation to emerging conditions • Improved stockpiling • Improved transportation technology
Continuing fire activity at higher magnitude and intensities	• Smoke will impact a wider population, not just forest communities • There will be continued community evacuations	• Forest companies to work with forest-based communities to adapt • Mimicking natural disturbances to replicate fire with more controlled outcomes. • Adopt silvicultural approaches for "cooling the forest" as short-term fire mitigation
Winter droughts	• Will lead to winter carryover fires and more extreme fire seasons	
Decrease in Moose	• Since they are a cold weather animal, their distributions will change	
Challenges in transportation networks for accessing and moving inventory	• Creating seasonal road infrastructure in winter will continue to be challenging • Potential future need for increased infrastructure maintenance if there are more permanent roads • Current transportation networks are based on full loads – this measurement may no longer work • Barriers in supply / distribution chains, especially those reliant on ice roads	• More permanent road infrastructure to be used by more than one industry, with costs shared by all users.[2] • Higher standard of roads and crossings • Standards that allow for variable loads • Enhanced governing of roads • Technology advancements with tire pressure for transport on softer ground • Technology for smaller wood supplies
Challenges in forest management planning	• New data coming out about how climate is changing in ways that were not modeled previously, which poses continued challenges for forest management and planning	• Iterative planning processes • More expertise in how to integrate climate change into forest management

[2] Attendees mentioned that road infrastructure costs could be shared with other industries (e.g., energy companies) and with municipalities and that such infrastructure could be used for evacuations.

Session 2 Results: Pathways to Ideal Conditions

In this session, participants identified current conditions for each determinant of adaptive capacity, the ideal conditions needed in the forestry sector for the sector to have adequate capacity to face current and future climate change impacts, and the existing challenges to reaching those ideal conditions. The ideal conditions and existing challenges for each of the seven determinants of adaptive capacity are presented in the figures below. Of note is that many of the ideal conditions and existing challenges intersect across the determinants. Two boxes are left blank because they were not discussed at the workshop, these areas can be further explored in future workshops.

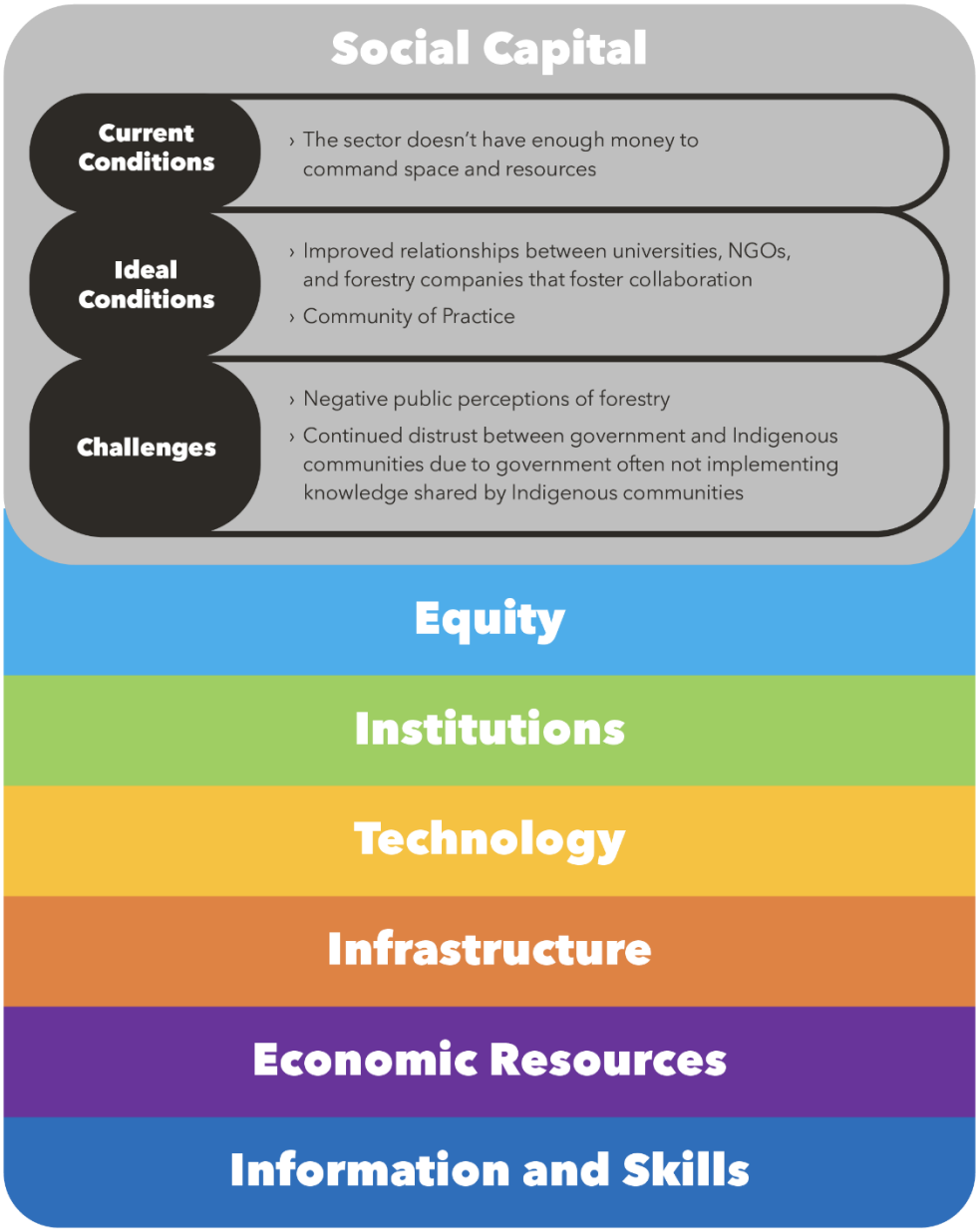


Figure 3.a

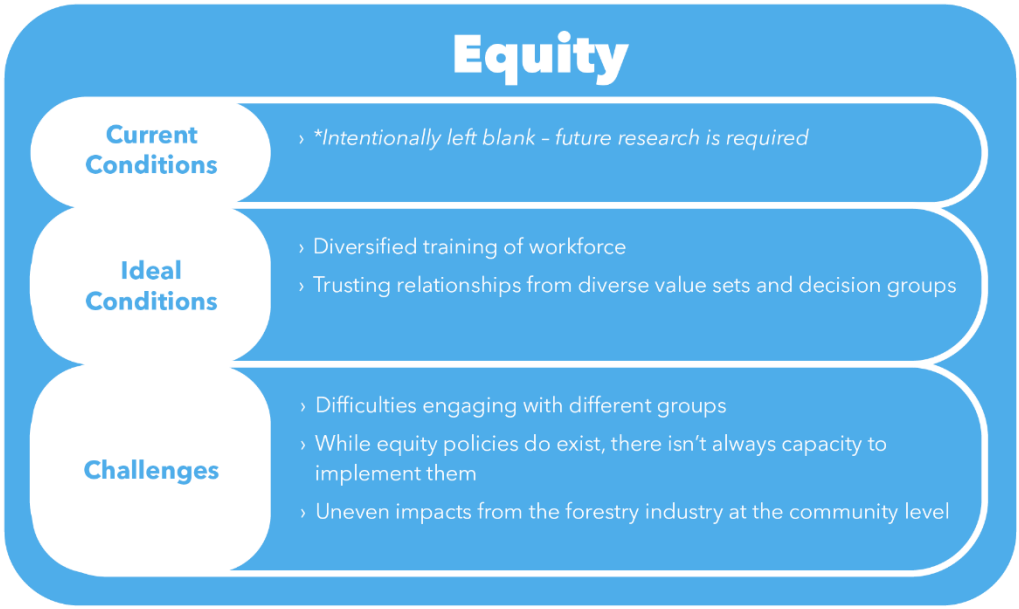


Figure 3.b

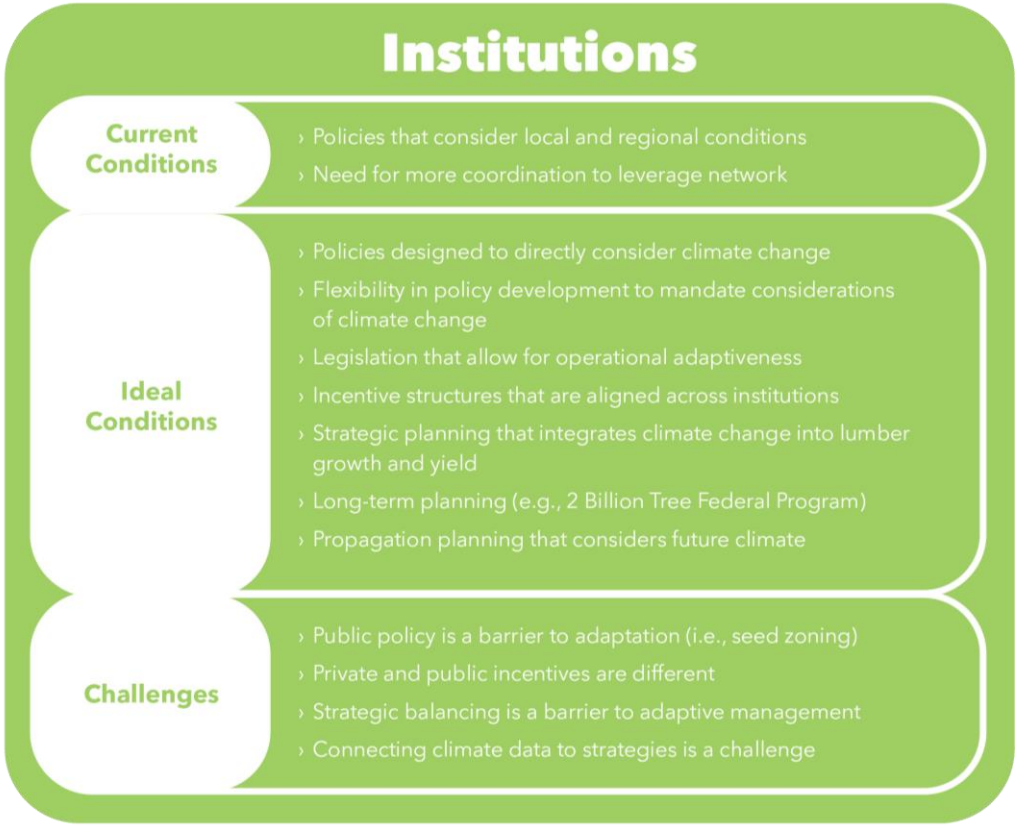
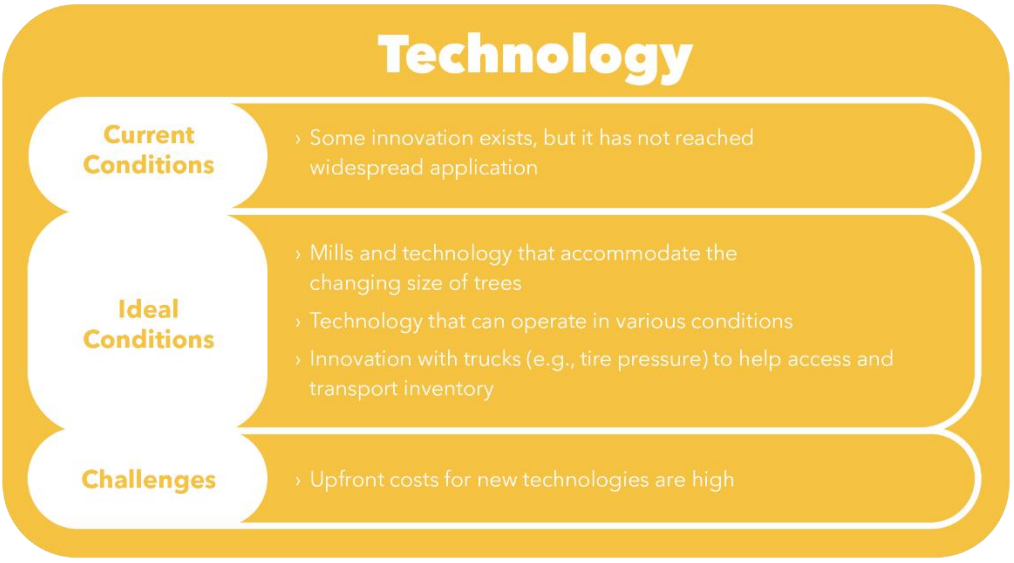


Figure 3.c



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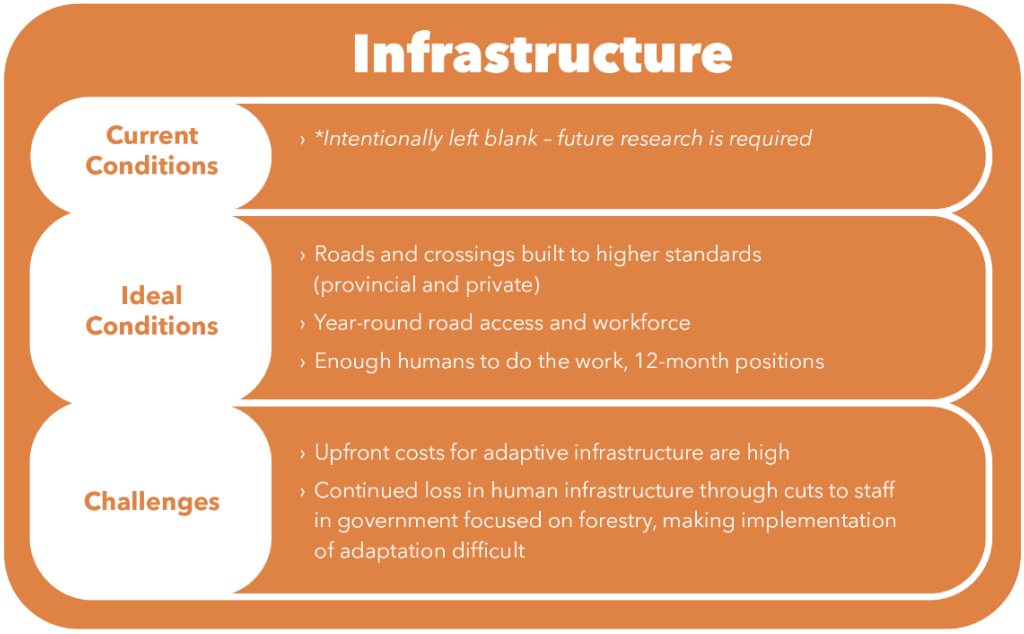

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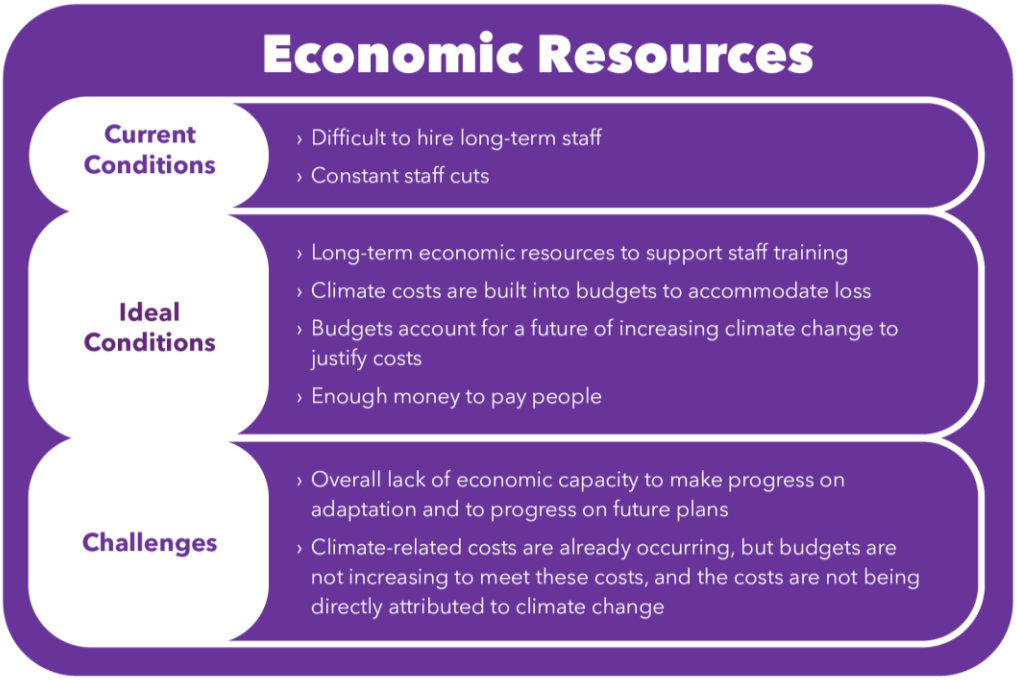

Figure 3.f

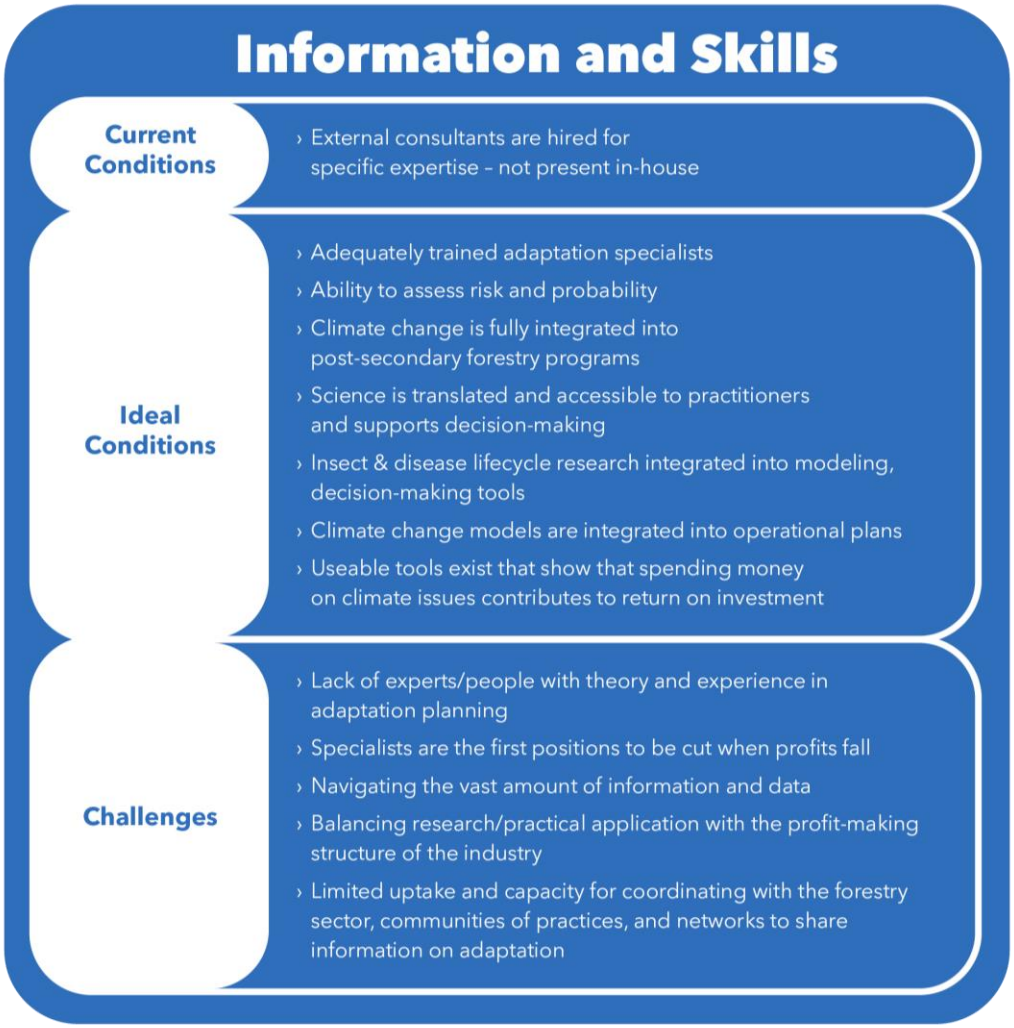

Figure 3.g

Session 3 Results: Identifying Pathways Towards the Ideal Conditions

In session 3, participants identified concrete actions thought to be required to create three of the ideal conditions identified in the previous session. Two of the ideal conditions relate to information and skills and one pertains to economic resources. The ideal conditions the participants discussed were:

1. Science is translated and accessible to practitioners, and supports decisions;
2. Climate change adaptation integrated into post-secondary forest programs;
3. Complete costs are built into the budget to accommodate losses, and budgets account for a future of increasing climate change to justify present costs.

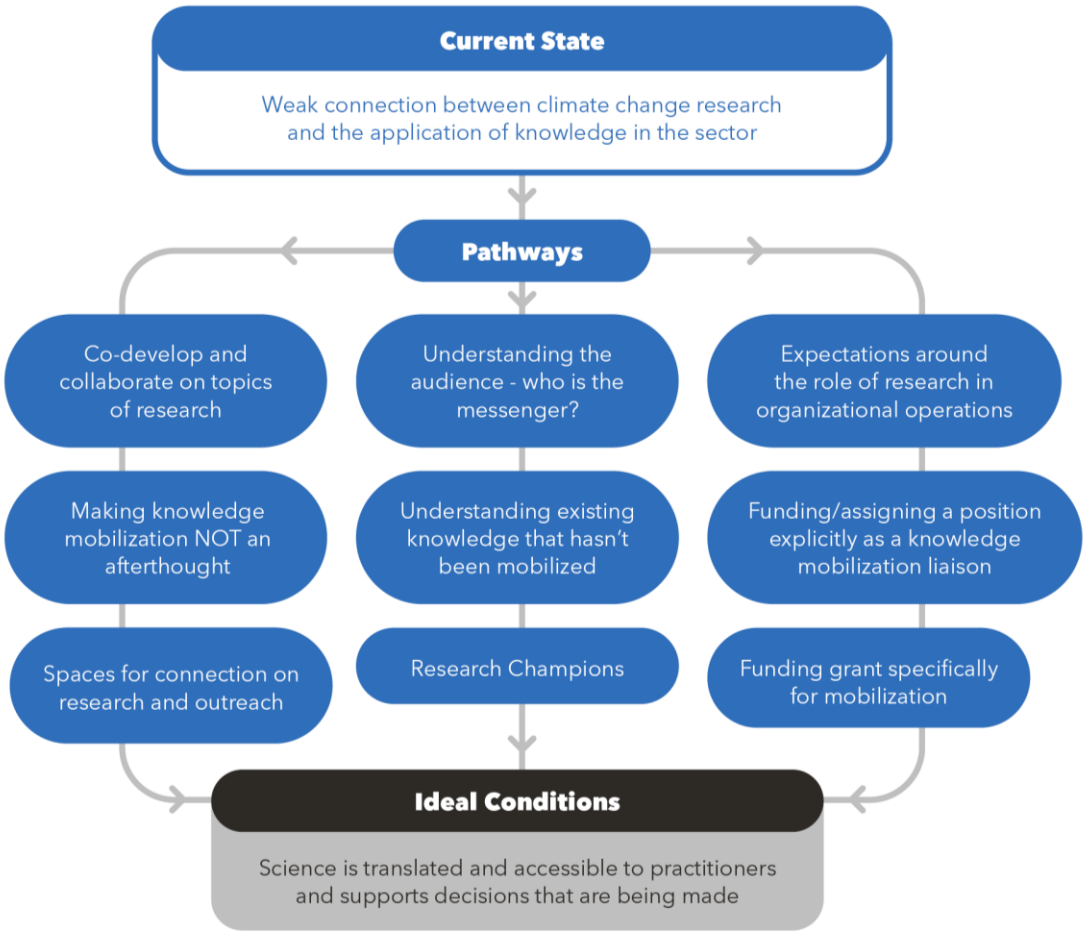

Figure 4.a: Pathways to seeing that climate change research is translated and accessible to practitioners, and supports decisions in the forest sector.

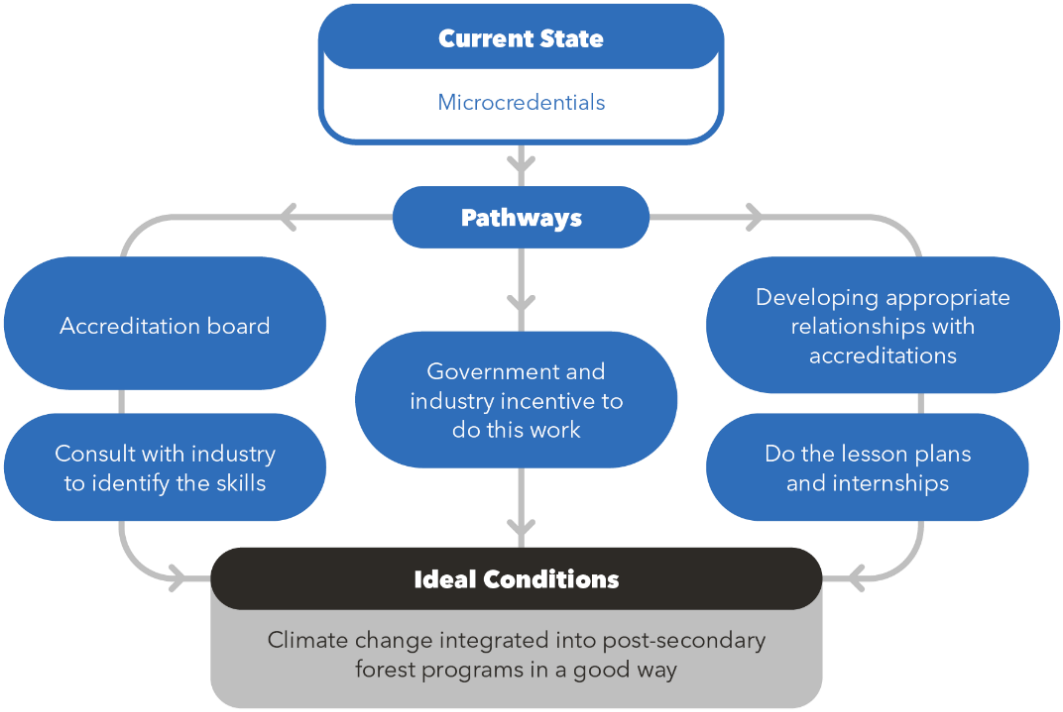

Figure 4.b: Pathways to integrating climate change adaptation into post-secondary forestry programs

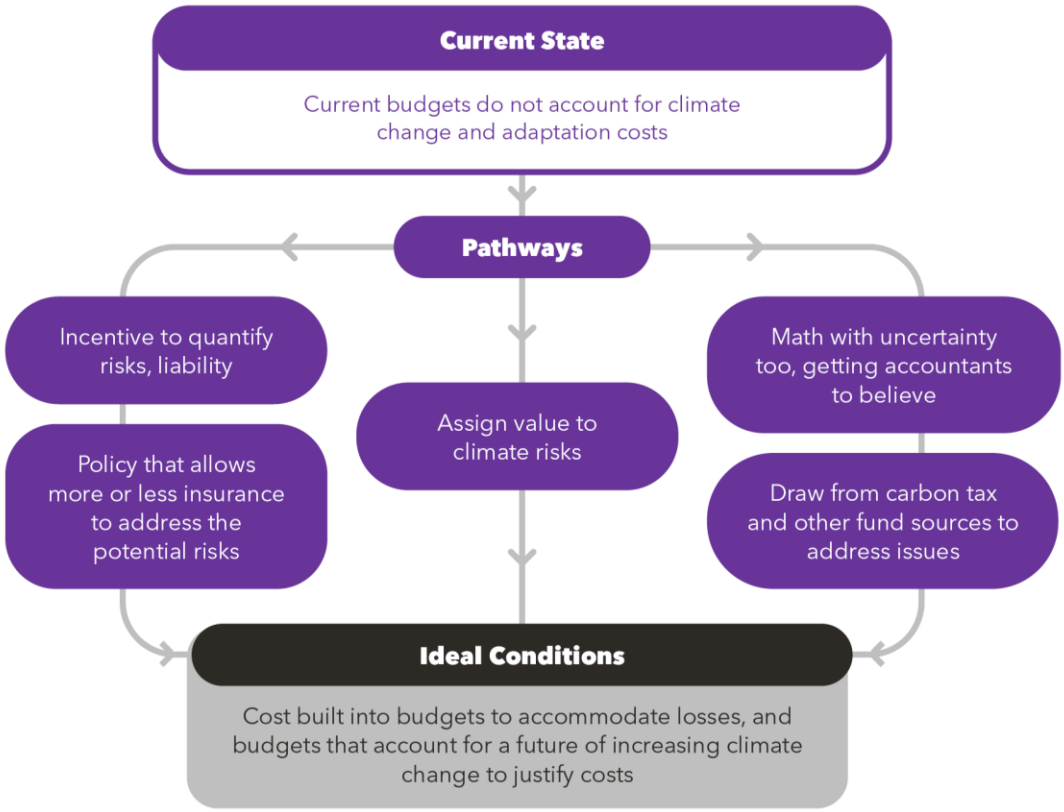

Figure 4.c: Pathways to accounting for costs from climate change impacts and adaptation in budgets.

Discussion & Implications

Industry Implications

Changing climate conditions are requiring forestry practitioners to adapt quickly with limited financial capacity. A majority of actions and recommendations that emerged from this workshop assume business-as-usual, where decision-making systems that govern the sector would remain largely the same.

Contractors in particular – those who are hired to harvest wood from the forest – have very limited funds to spend on adaptation because their incomes are already pressed by mill's business models, and the forest tenure system. While changes in conditions can have positive impacts (e.g., an extreme weather event killing a tent caterpillar outbreak; white spruce regenerating on its own), the overall warming weather, reduced precipitation, and increasing climate hazards are reducing the forestry sector's ability to depend on historical benchmarks and harvesting practices throughout the yearly cycle. As the climatic benchmarks change, so must the assumptions that form the basis of conventional forest management.

Practitioners are experiencing higher operational costs due to changes in climate, though payment for delivered wood is not rising relative to costs. The potential harm caused by more frequent and extreme climate events can create unexpected costs (e.g., seedlings damaged by hail), and the shifting benchmarks create more room for error. There is a need for dedicated funds to accommodate the costs that climate change is already creating in the sector.

Similarly, industry is already spending money adapting to climate change (e.g., road costs). However, these costs are often not recognized or classified as climate adaptation costs. There is a need to understand how much is being spent to adapt reactively to a changing climate now, and how funds could be more strategically spent for climate adaptation for long-term return. For example, road infrastructure is a significant concern in the sector. In the short-term, existing technologies like tire-pressure can provide short-term adaptations for operating on softer ground. Longer-term planning like building more permanent infrastructure with cross-sectoral use (including energy and municipalities) could provide long-term solutions. This requires long-term budgeting plans that consider climate adaptation.

Complementing the two items above, there is a need for increased knowledge and expertise on climate adaptation and planning in forestry. This significant information gap is omnipresent in both government and industry. Key informants like Sheri Andrews-Key of Innovative Climate Strategies have begun to fill this gap with climate vulnerability assessments, however there is a significant need for learning, training, and continued research on this topic.

As we list these needs identified in the workshop, it is crucial to acknowledge ongoing structural shifts that impact the sector. Workshop participants have experienced a reduction of in-house capacity and specialists in the sector in both industry and government. This has been an ongoing trend across the country as provincial governments have reduced their investments in the sector (Parfitt, 2010). This trend has led to increased outsourcing of services completed by generalist consultants, and reduced specialization in areas of need, and counters the current need for more adaptation expertise in the sector, which requires more information for adaptation to take place. Alongside this has been the ongoing reduction of labourers available to work in the sector (Huq, 2007). These ongoing structural shifts, which are explained in more detail in the following section, add significant challenges to shifting to more climate adaptation-informed industry decisions.

Structural Implications

"There isn't enough money to make progress – why? Where has the money gone?"

- *Workshop Participant*

Neoliberalism's impact on the sector has been significant; the externalization of responsibilities onto local communities and the privatization of services has impacted public sector oversight of the forestry sector (Earley, 2023). Cuts to government budgets for the forestry sector have required staff to shift towards being generalists instead of specialists. Government departments are simply trying to stay afloat, leaving little human (and financial) capacity for reviewing new ideas, like integrating adaptation into the sector. As well, forestry companies are increasingly relying on consulting firms for expertise. This creates administrative, financial, and timing challenges in gaining access to adaptation expertise. It also limits development of in-house, institutional knowledge supportive of adaptive capacity. These structural barriers mean that even as new post-secondary education curricula, apprenticeship programs, and professional development initiatives are created to build adaptation expertise in the sector, newly trained experts are as or perhaps more likely to be hired by consulting firms than by the public sector or industry, thereby reinforcing structural barriers and leading publicly funded knowledge into the private sector.

The profit-driven nature of the forestry sector also creates financial barriers to funding adaptation actions. Financial obligations to shareholders can act as a barrier to adaptation because there may not always be an obvious 'business case' for investing in adaptation plans and action. Adaptation approaches that can make a business case, such as vulnerability assessments, experience more success as they are aligned with the forestry sector's current financial structure.

Ongoing efforts such as building communities of practice have been challenging due to low uptake. One participant shared how the volume of information present often makes it difficult to identify and prioritize what is important for adaptation.

The Ongoing Legacy of Colonialism in Forestry

In the prairie region, forestry co-management partnerships between industry and First Nations are emerging (e.g., Nisokapawino in Manitoba, Sakâw Askiy Management Inc. in Saskatchewan). These partnerships create opportunities for resource sharing and integration of Indigenous knowledge into forest management planning.

However, because forestry operations work within a largely profit-driven motivation and with western governance approaches, there continues to be structural obstacles to Indigenous peoples having a meaningful say in decisions made in the sector. For example, the Government of Alberta recently held stakeholder roundtables focused on caribou herds in the province. This led to innovative recommendations being made to the government, however the government decided to not integrate the input from those roundtables, indicating that even when Indigenous peoples are engaged in the planning process, shared knowledge does not always have an impact on decisions made. Such events work against reconciliation between Canadian governments and Indigenous Nations.

Policy Implications

Workshop discussions identified several specific policy areas that require change to improve adaptive capacity:

- Seed Zoning Frameworks: Current seed zoning frameworks limit the ability of foresters to seed trees that are more adapted to future climate conditions. While these frameworks are beginning to be reviewed by provincial governments to account for adaptation, it is clear that they need to be reworked to integrate more flexibility and better consideration of future changes in climate, while also protecting local ecosystems.
- Transportation Benchmarks: Transportation in forestry is regulated by benchmarks based on previous climate conditions, such as lighter load requirements for warmer than -6°C temperatures in Saskatchewan, and a fixed date for studded snow tires in Manitoba. For adaptation to occur, regulated benchmarks must be flexibile to consider ongoing climate changes. They can no longer be based on assumptions that a calendar date will be characterized by certain weather conditions. Alongside this, transportation benchmarks are often created based on full transport loads, but this standard may no longer work. Policy makers should consider creating benchmarks based on transport loads of less than 100%.
- Forest Management Plans: The implementation process of forest management plans (FMPs) contains rigidities that prevent actions needed to adapt to changing conditions. Once a company has a plan, it must be implemented in the way it was written, however this assumes that the amount of wood modelled when creating the plan is an accurate prediction, and that the annual allowable cut (AAC) is appropriate. As climate events change in frequency, planners may want to consider revising AACs on a regular basis to ensure an adequate wood supply while maintaining sustainable harvest levels. Modelers may also need to consider additional inputs when crafting scenarios in support of developing FMPs.
- Equity Policies: Participants noted how equity and diversity can support adaptation actions and contribute to more informed long-term decision making. However, there is currently a lack of capacity to engage in both industry and government, and when engagement does occur, follow-through does not always occur (resistance to change). Meaningful involvement in decision-making requires relationships and a willingness to accept change. Organizations like the Canadian Institute of Forestry (CIF)[3] and the Sustainable Forestry Initiative (SFI)[4] have recently developed diversity, equity and inclusion policies.
- Funding: The mainstream distribution model of financial resources generated by the sector does not provide those working on the ground with sufficient funds to meaningfully adapt. Policy may provide a mechanism to create an adaptation fund for forest managers and contractors.

When making these policy changes, it may be necessary to review and amend forestry legislation to include requirements and incentives to consider and implement climate change adaptation strategies in forestry plans and actions. Along with such changes, policy measures are required to further incentivize and support development or enhancement of adaptive capacity in the sector, giving attention to each of the determinants of capacity discussed earlier. Additionally, as noted by several workshop participants, even without legislative and policy change, practical steps, such as consulting with peers and sharing knowledge in communities of practice, can be taken to advance climate adaptation in the sector.

[3] https://www.cif-ifc.org/wp-content/uploads/2024/02/CIF-IFC-DEI-Declaration-of-Intent_Eng_v01.31.2024.pdf
[4] https://forests.org/wp-content/uploads/SFI_DEI_Policy_Apr2021-1.pdf

References

Bullock, R. C. L., Diduck, A., Luedee, J., & Zurba, M. (2022). Integrating Social Learning, Adaptive Capacity and Climate Adaptation for Regional Scale Analysis: A Conceptual Framework. *Environmental Management, 69*, 1217–1230.

CCFM. (2016). *Kenora Declaration on Forest Innovation*. Retrieved from http://www.ccfm.org/wp-content/uploads/2020/08/Declaration_E.pdf

Drennan, L., & Rasheed, A. (2020). Determinants of adaptive capacity for climate change adaptation: Considerations for regional Victoria. Griffith University, Brisbane. Retrieved from https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0036/489186/Policy-Brief-2-Determinants-of-adaptive-capacity-for-climate-change-adaptation.pdf

Earley, S. K. (2023). Deadwood: People, place, and neoliberal forest policy in British Columbia, Canada. *Environment and Planning E: Nature and Space, 7*(1), https://doi.org/10.1177/2514848623116544

Huq, D. (2007, January 3). *Skills Shortages in Canada's Forest Sector*. Canadian Forest Service – Natural Resources Canada. Retrieved from https://www.w-o-l-f.ca/wp-content/uploads/2015/01/NRCan_Labour_Market_Study.pdf

IPCC. (2014). Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

Keskitalo, E. C. H., Klenk, N., Bullock, R., Smith, A. L., & Bazely, D. R. (2011). Preparing for and Responding to Disturbance: Examples from the Forest Sector in Sweden and Canada. *Forests, 2,* 505–524. DOI: 10.3390/f202050

Natural Resources Canada. (2020). National Wildland Fire Situation Report. *Canadian Wildland Fire Information System* https://cwfis.cfs.nrcan.gc.ca/report

Parfitt, B. (2010, December). *Axed: A Decade of Cuts to BC's Forest Service.* Sierra Club BC, Canadian Centre for Policy Alternatives. Retrieved from https://www.policyalternatives.ca/sites/default/files/uploads/publications/BC%20Office/2010/12/CCPA_BTN_forest_service_web.pdf

UNFCCC Secretariat. (2020). Adaptation and Resilience. Retrieved from https://unfccc.int/topics#:28deb0e5-7301- 4c3f-a21f-8f3df254f2a4

Warren, F. J. & Lulham, N. (2021). Canada in a Changing Climate: National Issues Report. Government of Canada, Ottawa, ON. Retrieved from https://changingclimate.ca/site/assets/uploads/sites/3/2021/05/National-Issues-Report_Final_EN.pdf

Wyatt, S., Fortier, J.-F., Natcher, D. C., Smith, M. A. (Peggy) & Hébert, M. (2013). Collaboration between Aboriginal peoples and the Canadian forest sector: A typology of arrangements for establishing control and determining benefits of forestlands. *Journal of Environmental Management, 115*, 21–31. https://doi.org/10.1016/j.jenvman.2012.10.038

Appendices

Appendix 1: Attendance List

Workshop Participants
Andrew Forward, Nisokapawino Forestry Management Corporation (MB)
Brad Epp, Government of Manitoba (MB)
Erin Fraser-Reid, Northern Forestry Centre, Canadian Forest Service (AB)
John Parkins, University of Alberta (AB)
Matt Conrod, Government of Manitoba (MB)
Niska Hodgson, Mistik Management (SK)
Paul Leblanc, Louisiana Pacific (MB)
Wendy Crosina, Weyerhaeuser (AB)
Ryan Bullock, The University of Winnipeg (MB)
Alan Diduck, The University of Winnipeg (MB)

Facilitators
Christey Allan, Prairie Climate Centre, The University of Winnipeg (MB)
Matt Loxley, Prairie Climate Centre, The University of Winnipeg (MB)

Coordinator
Bryanne Lamoureux, The University of Winnipeg (MB)

Note takers
Shamim Anowar, The University of Winnipeg (MB)
Camille Forbes, The University of Winnipeg (MB)

Appendix 2: Climate Adaptation Workshop Itinerary

Date: March 14, 2024

Location: The Prairie Climate Centre: 599 Portage Ave, Winnipeg

Session 1: Review of Results & Creation of Baseline Scenario

9:00 am	Introductions and description of the workshop rationale
9:20 am	Overview of key definitions – climate change, climate adaptation, and adaptive capacity
9:30 am	Discussion: What are current climate change impacts experienced in the sector?
10:00 am	Discussion: What potential future climate change impacts will the sector experience?
10:30 am	30-minute coffee break

Session 2: Identifying Ideal Conditions

11:00 am	Review predicted changes in the forestry sector using the Climate Atlas and climatedata.ca
11:30 am	Discussion: What are the implications of these predicted changes in day to day lives in the sector?
12:00 am	Discussion: What are the ideal conditions that would exist to support the navigation of these climate impact?
1:00 pm	Lunch

Session 3: Identifying Pathways to Ideal Conditions

2:00 pm	Review ideal conditions identified before lunch
2:15 pm	Selection of three ideal conditions
2:25 pm	Discussion: What are concrete actions to reaching these ideal conditions?
3:30 pm	Sharing of additional resources
4:00 pm	End of workshop

Appendix 3: Resources Identified Throughout the Workshop

The Forestry Adaptation Practitioners' Network

A need that was identified by workshop attendees is the opportunity to have more discussions like these between regulators, academics and practitioners on adaptation in the sector. The Forestry Adaptation Practitioners' Network (FAPN) is a new group

created to continue the work of the former Forestry Adaptation Community of Practice. The FAPN is an online peer-learning network for sharing information, experiences and practices on climate change vulnerability and adaptation in the forestry sector. They offer a newsletter, discussion forums, webinars, and an online library. Membership is free and open to anyone with an interest in adaptation in forestry.

Link to sign up: https://facop.earthnet.org/

The Climate Atlas of Canada

The Climate Atlas of Canada is an interactive and free access tool that combines climate science, mapping, and storytelling with Indigenous Knowledges and community-based research. It provides localized projections on how climate will change in a certain region based on different climate emissions scenarios. It is managed and regularly updated by the Prairie Climate Centre, the same organization that facilitated this workshop.

While this tool does not yet have forestry impacts built directly into its predictors, practitioners can use key indicators like i) projected number of days over +30°C; ii) the projected number of tropical nights (nights above +20°C); and iii) projected frost days, to identify potential impacts on future operations.

Link: https://climateatlas.ca/

Expert's List

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Rasoul Yousefpour – The University of Toronto
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