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# WILDFIRE CRISIS IN BRITISH COLUMBIA

A system analysis of the economic,  
environmental and socio-cultural impacts of  
wildfires

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# TABLE OF CONTENTS

Executive Summary	3
Why Research Wildfires in BC	3
Climate Change	4
Research Methods	4
Problem Landscape	5
Recent Wildfire Impacts of BC	5
Contributing Factors	7
Solution Landscape	10
Community Planning	10
Fuel Management Tools	12
Recovery Efforts	12
Gaps and Levers of Change	14
Key Insights and Lessons Learned	17



# EXECUTIVE SUMMARY

Wildfires are becoming the "new normal" across the world. Many fire regimes across the globe are seeing an increase in devastation due to wildfires.[1] In Canada alone, wildfires are increasing with an average of 8000 fires and 2 million hectares of land burned annually, while in northern European countries, 20 to 200 times the normal area have burned.[2]

We are a team of SFU and UBC students working to better understand the factors and constraints influencing wildfire management in our province, British Columbia (BC). Through extensive research, we've explored the challenges within the wildfire landscape in BC, mapped the existing solutions effort, identified gaps and levers of change and learned key lessons on the complexity of this growing challenge.

## Why Research Wildfires in BC

Wildfires were not a significant crisis for BC until 2003 when the province faced its worst wildfire in over a century.[3] In 2003, more than 265,000 hectares of land were burnt.[4] Barriere, BC was also uprooted, devastating the local community.[5] Despite the destruction, the BC Government did not improve the prevention, response or recovery systems of fire management. Fourteen years later, the 2017 wildfire season confirmed how unprepared BC was; prompting the longest Provincial State of Emergency.[6] BC's 2018 wildfire season surpassed its own record from the year before, when more than 1.35 million hectares of land were burnt.[7]

[1] Lui, Y. , John Stanturf, & Scott Goodrick. "Trends in global wildfire potential in a changing climate." Elsevier, September 1, 2019. [https://www.srs.fs.fed.us/pubs/ja/2010/ja\\_2010\\_liu\\_001.pdf](https://www.srs.fs.fed.us/pubs/ja/2010/ja_2010_liu_001.pdf).

[2] B.J. Stocks Wildfire Investigations Ltd. "Evaluating Past, Current and Future Forest Fire Load Trends in Canada." B.J. Stocks Wildfire Investigations Ltd., January, 2013. <https://www.ccfm.org/pdf/2%20Fire%20Load%20Trends.pdf>.

[3] Interviewee 0001, Ministry of FLNRORD representative. Interviewed by Vanessa Sun, March 15, 2019.

[4] Government of BC. "BC Wildfire Service." Government of BC, (Accessed March 11, 2019) <https://www2.gov.bc.ca/gov/content/safety/wildfire-status>.

[5] The University of Lethbridge. "The McLure Fire 2003." UoL, The Faculty of Health Science, August 2010.

[6] Government of B.C. "Wildfire Season Summary." Government of B.C., (Accessed February 25, 2019). <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/wildfire-history>.

[7] Bethany Lindsay. "2018 now worst fire season on record as BC extends state of emergency." CBC News, August 29, 2018. <https://www.cbc.ca/news/canada/british-columbia/state-emergency-bc-wildfires-1.4803546>.

# Climate Change

Global average temperatures are expected to rise between 2 °C and 6 °C by the end of the 21st century.[8] The average mean temperature in Canada has increased by 1.7 °C from 1948 to 2016, double the global rate.[9] Scientists have predicted that Eastern Canada will see a 200% - 300% increase in fires.[10] Canada's west coast, will expect a 50% increase of more extreme wildfires as temperatures continue to rise.[11] Consequently, the change in temperature and precipitation alters habitable environments that create perfect dry conditions for fires to spread. For example, pest infestations have worsened with warmer and drier conditions, creating vulnerable forests. The results of the changing climate forges wildfires that have economical, environmental and socio-cultural impacts.

## Research Methods

Our research was compiled through:

- 26 in-depth interviews with forest professionals, forest industry, government organizations, fire fighters, Office of Fire Commissioner, volunteers of non-government organizations, victims of the wildfires, and an UBC environmental law professor
- Government publications, academic journals, and a variety of news articles
- Surveying 100 people across BC

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[8] Nasa Earth Observatory. "How much more would will Earth Warm?" Nasa Earth Observatory. June 3, 2010. <https://earthobservatory.nasa.gov/features/GlobalWarming/page5.php>.

[9] Government of Canada. "Changes in Temperature." Government of Canada, (Accessed April 16, 2019) <https://www.canada.ca/en/environment-climate-change/services/climate-change/canadian-centre-climate-services/basics/trends-projections/changes-temperature.html>

[10] Climate Atlas of Canada, "Forest Fires and Climate Change," Climate Atlas of Canada, (Accessed April 20, 2019). <https://climateatlas.ca/forest-fires-and-climate-change>.

[11] Ibid.



# PROBLEM LANDSCAPE

## RECENT IMPACTS OF BC

### Economic

The BC wildfires costed \$568 million for fire suppression and caused over \$127 million in insured damages.[12] Local businesses closed due to little insurance coverage.[13] Many of BC's core industries were negatively impacted. The forest industry faced a tremendous loss of economic value for their resources and operations were forced to shut down.[14] The tourism industry struggled due to air quality concerns affecting outdoor activity. Affected hydroelectric dams had difficulty producing sufficient hydroelectricity.[15] For the transportation industry, The Canadian National Railway and Dan Chambers Trucking were forced to halt or reroute, costing jobs and millions of dollars.[16] Lost jobs during and after the wildfires pushed people to leave their community.[17]

### Environmental

1.2 million hectares of land were burnt in 2017.[18] Wildfires scorch soil layers, producing a hydrophobic layer that makes areas susceptible to erosion and flooding.[19] Additionally, smoke from fires increase the concentration of particles in the atmosphere for weeks to months, weakening human health.[20]

[12] Insurance Bureau Canada. "British Columbia wildfires cause more than \$127 million in insured damage." September 27, 2017. <http://www.ibc.ca/bc/resources/media-centre/media-releases/british-columbia-wildfires-cause-more-than-127-million-in-insured-damage>.

[13] Interviewee 0014, Restaurant Owner in Fort McMurray. Interviewed by Devan Parmar, March 28, 2019.

[14] 0009, Export Market Sales. Weyerhaeuser. Interviewed by Joanne Nellas, March 12, 2019.

[15] 0001, Ministry of FLNRORD representative. Interviewed by Vanessa Sun, March 15, 2019.

[16] Liz Brown. "How B.C.'s wildfires are impacting transportation lines." July 13, 2017.

[https://www.kelownanow.com/watercooler/news/news/Provincial/How\\_B\\_C\\_s\\_wildfires\\_are\\_impacting\\_the\\_transporting\\_of\\_goods\\_and\\_services/#fs\\_73507](https://www.kelownanow.com/watercooler/news/news/Provincial/How_B_C_s_wildfires_are_impacting_the_transporting_of_goods_and_services/#fs_73507).

[17] Interviewee 0001, Ministry of FLNRORD representative. Interviewed by Vanessa Sun, March 15, 2019.

[18] Government of BC. "Wildfire History." Government of BC: BC Wildfire Service, (Accessed February 25, 2019) <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/wildfire-history/remembering-2017>.

[19] Keller et al., Natural Hazards: Earth's Processes as Hazards, Disasters and Catastrophes.

[20] Jesse Ferreras. "BC wildfire smoke isn't just floating across Canada." August 25, 2018.

<https://globalnews.ca/news/4406758/bc-wildfire-smoke-canada-ireland/>.

## Socio-cultural

The wildfires displaced over 65,000 people and prompted the longest Provincial State of Emergency since 2003.[21] Wildfires impacted the mental health of communities. Evacuations are “one of the most stressful events that people can experience.”[22] Affected communities are still “struggling to rebuild their homes, restore the environment and revive local economies.”[23] Other residents face long periods of poor air quality which increases anxiety. [24]

Wildfires affect First Nations (FN) communities who have a 33 times greater chance of facing evacuation due to their location in remote areas surrounded by forests.[25] Evacuations force FN to relocate to urban areas for school and employment, making it hard to rebuild and retain cultural activities.[26] Long term displacement has negative consequences for community cohesion, mental health and psychosocial well-being[27]

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[21] Government of BC. “Wildfire Season Summary.” Government of B.C., (Accessed February 25, 2019). <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/wildfire-history>.

[22] Clare Henning. “Stressed and tired? It may be lingering mental health impacts from 2017 wildfires.” July 28, 2018.

<https://www.cbc.ca/news/canada/british-columbia/wildfires-2017-mental-health-impacts-1.4764269>.

[23] Globe and Mail. “Communities still recovering one year after worst wildfire season on record in B.C.,” The Globe and Mail, Published July 8, 2018. <https://www.theglobeandmail.com/canada/british-columbia/article-communities-still-recovering-one-year-after-worst-wildfire-season-on/>.

[24] Tiffany Crawford. “BC Wildfires 2018: Mental health a concern as smoke chokes province.” August 23, 2018. <https://vancouversun.com/news/local-news/mental-health-a-concern-as-wildfire-smoke-continues-to-choke-province> (accessed February 03, 2019).

[25] Indigenous Corporate Training Inc. “Forest Fires and Indigenous Communities” Indigenous Corporate Training Inc. Published September 27, 2018. <https://www.ictinc.ca/blog/forest-fires-and-indigenous-communities>

[26] Indigenous Corporate Training Inc. “Forest Fires and Indigenous Communities” Indigenous Corporate Training Inc. Published September 27, 2018. <https://www.ictinc.ca/blog/forest-fires-and-indigenous-communities>

[27] Ibid.



## Restrictive Policies and Legal Structure

Since 1945, policies have emphasized suppression instead of mitigation with limited understanding of fuel management.[28] BC's four-year electoral based government prolongs the rate at which policy and legislation are passed. This stagnation restrains fire prevention programs like FireSmart, who provide education and resources, from being widely enforced throughout vulnerable communities.[29]

BC has one of the strictest forest regulations in the world due to strong concerns from communities about extensive logging. This leads to firm reforestation procedures and dense forests with excess fuel for fires to spread rapidly.[30] Thus, government organizations involved in wildfire management like the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) have to work within a restrictive legislative framework to create a fire resilient landscape.[31]

## Perspectives on Wildfires and Prescribed Burning

Media campaigns from the 1940s such as "Smokey the Bear," villainized fire and created a public perception that all fire is detrimental to forest health. This resulted in a cultural belief that fails to recognize that forests are dynamic and that fire is a natural regenerative tool for forests.[32] Due to this anti-fire culture, prescribed burning, an Indigenous fuel management solution, has become contentious despite its past successes. Although BC Wildfire Services (BCWS) attempts to let benevolent fires extinguish themselves, communities pressure them to enhance fire suppression because of air quality concerns. Forest professionals are urging FLNRORD to adopt more prescribed burning to manage the level of fuel available for the fires.[33] Two core thoughts have emerged regarding wildfire suppression and prescribed burning. One

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[28] Lori Daniels, Robert Gray and David Bowman. "We created BC's wildfire problem and we can fix it." *The Globe and Mail*, Published July 13, 2018. <https://www.theglobeandmail.com/opinion/we-created-bcs-wildfire-problem-and-we-can-fix-it/article35686104/>.

[29] FireSmart. "FireSmart Communities: British Columbia." FireSmart. (Accessed February 28, 2019 <https://www.firesmartcanada.ca/firesmart-communities/british-columbia/>

[30] Interviewee 0005, General Manager of Forestry for the Council of Forestry Industry. Interviewed by Joanne Nellis, March 26, 2019.

[31] Interviewee 0003, Land and Resource Coordinator Okanagan Shuswap Natural Resources District. Interviewed by Vanessa Sun, March 14, 2019.

[32] Ibid.

[33] Brend, Yvette. "Forget Smokey the Bear: How First Nation fire wisdom is key to megafire prevention." *CBC News*, Published July 15, 2017. <https://www.cbc.ca/news/canada/british-columbia/fire-fighting-first-nations-firekeepers-annie-kruger-penticton-bc-wildfire-mega-fire-1.4205506>.

argument is to protect the community through fire suppression with minimal prescribed burning. The second argument is that fuel management procedures like prescribed burning, should be enhanced to prevent fires from occurring in the first place. The divide affects all stakeholders: forest professionals, government agencies (FLNRORD, fire departments, Emergency Management BC (EMBC)), FireSmart, communities, FN reserves, and industries.

Our team surveyed 100 people in BC's urban lower mainland area, located southwest of most fires, to understand how these cities perceive the wildfires. 87.9% of people felt affected by air quality related issues: smoke and health. A problem that arises with the electoral system of BC is the fact that people in the lower mainland, who are most removed from the wildfires, have the largest influence in electing politicians that can pass wildfire legislations.

## Lack of Funding and Resources

In 2017, BC budgeted \$63 million to fire management, but spent more than \$649.5 million.[34] Premier Horgan recently upgraded the budget to \$101 million for 2019 wildfire response. Many critics argue this is still not sufficient. [35]

A vicious cycle begins when most of the budget is spent on firefighting instead of forest management to prevent the fires in the first place.[36] Furthermore, municipalities have to compete against each other to win grants for their forest management projects or compete for funding programs such as the Forest Enhancement Society and the Forest Carbon Initiative.

## Inefficient Emergency Response

As wildfire seasons become longer, there is an increased need for more volunteers to assist in Emergency Social Services (ESS). Elongated evacuation orders induce volunteer burnout and there is trouble incentivizing people to replace them. Over 4,700 personnel were engaged in fighting wildfires across BC in 2017 and around 800 troops from the Canadian Forces were involved.[37] The 2017 wildfire season revealed a lack of well-trained leaders on task forces and demonstrated how a firefighter's performance decreases when responding to disasters outside of their typical urban environment.[38]

[34] Government of BC, "Budget and Fiscal Plan 2016/17 - 2018/19." Government of BC, (Accessed March 23, 2019) [https://bcbudget.gov.bc.ca/2016/bfp/2016\\_budget\\_and\\_fiscal\\_plan.pdf](https://bcbudget.gov.bc.ca/2016/bfp/2016_budget_and_fiscal_plan.pdf).

[35] Thom, Shelby. "More money in BC budget for wildfire response as natural disaster costs soar." Global News, Published February 20, 2019. <https://globalnews.ca/news/4981568/bc-budget-wildfire-costs/>.

[36] Interviewee 0016, Forest Professional, Forestry Ltd. Interviewed by Devan Parmar, March 25, 2019.

[37] Laura Kane. "225 Canadian Armed Forces members headed to B.C." Global News, July 20, 2017. <https://globalnews.ca/news/3613115/225-canadian-armed-forces-members-headed-to-b-c/>

[38] Interviewee 0017, Office of the Fire Commissioner. Interviewed by Michael Simoes, March 13, 2019.



A new structure was created to resolve these issues, but it uncovered jurisdictional challenges in coordinating response efforts between the separate entities of BCWS and municipal fire departments. If one party requires support from the other, there are lengthy procedures that involve writing up transactions, tracking time, and filling out proposals—delaying response time. [39] In addition, the “after action report” produced by the military revealed a lack of resources and equipment,[40] such as military ambulances and communication devices that were ‘unreliable’ or not serviceable.[41]

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[39] Interviewee 0018 interviewed by Michael Simoes, March 17, 2019.

[40] Patrick Cain. “‘Unusable’ radios plagued troops fighting 2017 B.C. Wildfires.” Global News, August 8, 2018. <https://globalnews.ca/news/4364688/bc-wildfire-2017-radios-military/>

[41] Patrick Cain. “‘Unusable’ radios plagued troops fighting 2017 B.C. Wildfires.” Global News, August 8, 2018. <https://globalnews.ca/news/4364688/bc-wildfire-2017-radios-military/>

# SOLUTION LANDSCAPE

After the 2017 wildfires, communities were able to voice their judgements and requests for the future in community open house events, outlined in the comprehensive Government Action Plan: Responding to Wildfire and Flood Risks (2017) by Abbott and Chapman.[42] The main concerns were: greater information sharing from the government, efficient fuel management practices and greater evacuation resources during and after an order is lifted. [43] The BC Government took these requests into consideration when planning for the following year.[44]

## COMMUNITY PLANNING

### Wildfire Education and Awareness

Communities are provided with education and awareness programs like FireSmart, to aid in household emergency preparedness. EMBC is establishing a “Master of Disaster” Grade 6 program across BC.[45] With communities more educated and knowledgeable about their personal risks and potential fire-caused damages, they are more willing to plan, prepare and minimize the amount of fuels around their yards.

### First Nations (FN)

The recent collaborative emergency management agreement between Canada, BC, and the Tsilhqot’in National Government strengthened the relationship with FN. FLNRORD is employing FN liaison contractors to provide traditional knowledge and advice.

[42] Government of BC. Emergency Management British Columbia and Ministry of Forests, Land, Natural Resource Operations and Rural Development, “Government’s Action Plan: Responding to wildfire and flood risks” Government of BC, October 31, 2018.

[https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action\\_plan.pdf](https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action_plan.pdf).

[43] Abbott and Chapman, “Addressing the New Normal: 21st Century Disaster Management in British Columbia.”

[44] Ibid.

[45] Government of BC. Emergency Management British Columbia and Ministry of Forests, Land, Natural Resource Operations and Rural Development. “Government’s Action Plan: Responding to wildfire and flood risks.” Government of B.C., EMBC, FLNRORD, October 31, 2018.

[https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action\\_plan.pdf](https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action_plan.pdf).



A First Nations Health Authority senior executive role was established at the Health Emergency Management BC to represent FN interests.[46] BCWS is also presently training and employing FN emergency firefighter crews.[47] BC can look to Australia's West Arnhem Land Fire Abatement Project as a guide on how to effectively incorporate the First Nations. The project works collaboratively with Indigenous fire managers who earn carbon credits by engaging in fuel management projects. With fuel management, they reduce widespread intense fires and reduce carbon emissions while employing Indigenous people.[48]

## Funding

The BC Government is dedicating \$72 million in funding for three years of wildlife recovery and reinforcing communities' resilience to wildfires.[49] The funding is two-fold, in which \$50 million is provided for the new Community Resiliency Investment Program (CRI) that aims to minimize risks of wildfires around FN and other communities. The remaining \$22 million is set aside to support land-based recovery in heavily impacted areas, such as rehabilitating rangelands and initiating reforestation.[50]

The Strategic Wildfire Prevention Initiative, managed by First Nations' Emergency Services Society, FLNRORD and Union of BC Municipalities, is funded by the provincial government to support communities in mitigating risks from wildfires.[51] The Community Wildfire Protection Plan Program will assist local governments and FN in identifying the levels of wildfire risk to their communities and providing resources for reducing those risks.[52]

Additionally, EMBC has partnered with the Canadian supermarket chain, Save-On-Foods, and retail store chain, London Drugs, to develop a complete yet affordable emergency preparedness kit.[53]

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[46] Government of BC. Emergency Management British Columbia and Ministry of Forests, Land, Natural Resource Operations and Rural Development. "Government's Action Plan: Responding to wildfire and flood risks." Government of B.C., EMBC, FLNRORD, October 31, 2018. [https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action\\_plan.pdf](https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action_plan.pdf).

[47] *ibid.*

[48] Gerster, Jane. "Forest Fires Forest Management." Global News, Published August 26, 2018. <https://globalnews.ca/news/4406900/forest-fires-forest-management/>.

[49] Government of BC. Emergency Management British Columbia and Ministry of Forests, Land, Natural Resource Operations and Rural Development. "Government's Action Plan: Responding to wildfire and flood risks." Government of B.C., EMBC, FLNRORD, October 31, 2018. [https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action\\_plan.pdf](https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action_plan.pdf).

[50] Government of BC. Emergency Management British Columbia and Ministry of Forests, Land, Natural Resource Operations and Rural Development. "Government's Action Plan: Responding to wildfire and flood risks." Government of B.C., EMBC, FLNRORD, October 31, 2018. [https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action\\_plan.pdf](https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action_plan.pdf).

[51] Union of B.C. Municipalities. "Community Wildfire Protection Plan & CWPP Update Program." Strategic Wildfire Prevention Initiative: UNBC, FNES, January 2018. <https://www.ubcm.ca/assets/Funding-Programs/LGPS/SWPI/Applications2017/swpi-2017-update-cwpp-program-guide.pdf>.

[52] *Ibid.*

[53] *Ibid.*

## Prescribed Burning

Prescribed burning is a tool that restores fire maintained ecosystems through an application of controlled fires within a contained area.[54] In previous decades, inexperienced forest rangers were hired to prescribe burn. Presently, prescribed burning is a respected fuel management tool, and BCWS is in charge of ensuring professionalism when utilizing it.[55]

## Strategic Fuel Breaks

Strategic fuel breaks are techniques that remove trees and create gaps in the forests to minimize the spread of wildfires and reduce the property damage that may impact communities, businesses, and commercial industries. In doing so, the BC Government administers and encourages forest tenures to harvest or salvage dead, dry trees, especially those near communities. However, this solution has a recruitment challenge because implementing strategic fuel breaks is both mentally and physically exhausting.[56] Another challenge is that harvesting is not always effective in reducing the intensity or severity for subsequent fires, as salvage harvesting adds fine fuels to the forest floor.[57]

## RECOVERY EFFORTS

### Recovery Services

EMBC updated ESS' policy framework for hosting displaced communities and providing additional human resources during peak disaster periods.[58] ESS is a temporary public aid to support evacuees with 72 hours of lodging, food, clothing, basic toiletries, prescriptions and emotional support.[59] In addition, homeowners or tenant insurance may provide evacuees with greater support than public aid, such as private accommodations.[60] New resources such as

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[54] Government of BC. "Prescribed Burning." Government of B.C., (Accessed March 11, 2019). <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/prevention/prescribed-burning>.

[55] Interviewee 0003, Land and Resource Coordinator Okanagan Shuswap Natural Resources District. Interviewed by Vanessa Sun, March 14, 2019.

[56] Interviewee 0003, Land and Resource Coordinator Okanagan Shuswap Natural Resources District. Interviewed by Vanessa Sun, March 14, 2019.

[57] Carter Stone, Andrew Hudak and Penelope Morgan. "Forest Harvest Can Increase Subsequent Forest Fire Severity." Proceedings of the Second International Symposium on Fire Economics, Planning, and Policy: A Global View. (2004), 531.

[58] Government of BC, Emergency Management British Columbia and Ministry of Forests, Land, Natural Resource Operations and Rural Development, "Government's Action Plan: Responding to wildfire and flood risks." Government of BC, EMBC, FLNROD. October 31, 2018. [https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action\\_plan.pdf](https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action_plan.pdf)

[59] Government of BC, Emergency Management BC. "Emergency Social Services." Government of BC., EMBC. (Accessed February 26, 2019) <https://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/volunteers/emergency-social-services>.

[60] Ibid.



interactive maps of evacuations, the locations and hours of ESS centres, safety and preparedness information and advice on returning home were created.

The Canadian Government is offering two main programs for financial assistance and resources to small businesses as they begin to rebuild. The Canada Small Business Financing Program helps make loans easily accessible to smaller businesses.[61] The Employment Insurance Work Sharing Program offers workers income support when business activity is reduced beyond the employer's control. [62]

## Mental Health

In 2017, the federal and provincial governments and regional health authorities developed Wildfire Mental Health and Wellness funding plans to provide mental health resources and support for disaster victims.[63] Talk in Tough Times, was designed by the Canadian Mental Health Association for those experiencing stress and trauma by BC's 2017 wildfires.[64] Additionally, Mental Health and Wellness Working Groups were implemented in several communities in BC such as Williams Lake, Quesnel, 100 Mile House and Ashcroft.

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[61] Government of Canada. "Helping small businesses get loans." Government of Canada. (Accessed March 04, 2019). [http://www.ic.gc.ca/eic/site/csbfp-pfpec.nsf/eng/h\\_la02855.html](http://www.ic.gc.ca/eic/site/csbfp-pfpec.nsf/eng/h_la02855.html)

[62] Small Business BC. "BC Wildfire Resources For Small Business." Small Business BC. August 22, 2017. <https://smallbusinessbc.ca/article/bc-wildfire-resources-for-small-business/#Q2>

[63] Government of BC. Emergency Management British Columbia and Ministry of Forests, Land, Natural Resource Operations and Rural Development. "Government's Action Plan: Responding to wildfire and flood risks." Government of B.C., EMBC, FLNRORD, October 31, 2018. [https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action\\_plan.pdf](https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/action_plan.pdf).

[64] Canadian Mental Health Association. "Talk in Tough Times." CMHA, May 24, 2018. <https://cmha.bc.ca/programs-services/talk-in-tough-times/>.

# GAPS AND LEVERS OF CHANGE

## GAPS

## LEVERS OF CHANGE

1

**Lack of collaboration amongst stakeholders:**

**Stakeholders compete for resources**

1. BCWS and municipal fire departments should work conjointly to fight fires rather than having a transactional relationship. We suggest BCWS and every municipal fire department adopt an agreement similar to the one between BCWS and the Penticton fire department.[65] The two parties combine their resources and delay administrative paperwork until the fire season is over. This allows for a much quicker response to the wildfires.

2. Through our research we learned that BC can benefit from traditional Indigenous fuel management practices. Canada and BC should model themselves after Australia's West Arnhem Land Fire Abatement Project, which is credited with cutting down carbon emissions from forest fires by about 122,000 tonnes/year and providing a source of income for the Indigenous communities.[66]

[65] Interviewee 0013, Penticton Fire Department. Interviewed by Michael Simoes, March 11, 2019..

[66] Jane Gerster. "Forest Fires Forest Management." Global News, August 26, 2018.

<https://globalnews.ca/news/4406900/forest-fires-forest-management/>. (Accessed March 20, 2019).



## GAPS

## LEVERS OF CHANGE

2

### Disjointed communication across stakeholders:

Stakeholders have different values and concerns about how the forest should be managed

#### 1. Communication through Education and Awareness:

- Re-educate people on the properties and harmful nature of excessive fire suppression, through media and events.
- Tailor education programs towards the culture and environmental terrains of the communities, especially amongst FN communities who are also in need of emergency response training.[67]
- We learned that many homeowners are unaware of the risks they face from wildfires, believing fire is an unlikely once-in-a-lifetime event. Thus, there is a need to motivate residents through educating them based on their own perceptions of risk severity, costs and benefits, and influence from their neighbours through programs such as FireSmart.[68]
- People in the urban lower mainland are least affected by the wildfires and have the most power in electing provincial government officials who introduce legislation. Thus, they should be educated about wildfires and their effects.
- Town halls in affected communities can open discussion about each stakeholder's perspectives and feedback on wildfire actions.

2. There is a need to ensure that communication is not separated through various levels of government bureaucracy and their agencies. The government should re-examine policies and legislations that have defined the roles and responsibilities within the different levels of government and clarify jurisdictional power.

[67] Forest Steward Guild. "Increasing Wildfire Awareness and Reducing Human-Caused Ignitions in Northern New Mexico." Forest Steward Guild, March, 2018.

[http://www.forestguild.org/publications/research/2018/Wildfire\\_awareness\\_2018.pdf](http://www.forestguild.org/publications/research/2018/Wildfire_awareness_2018.pdf). [68] Daniels, Lori Robert Gray and David Bowman, "We created BC's wildfire problem and we can fix it." The Globe and Mail, Published July 13, 2018. <https://www.theglobeandmail.com/opinion/we-created-bcs-wildfire-problem-and-we-can-fix-it/article35686104/>.

3

### Lack of capital towards proper funding:

Discrepancy of money spent on responding to wildfires and money invested into prevention, preparedness, and recovery.

1. Governments (Provincial and Federal) should budget realistically for emergency disaster response.

- Need for better allocation of resources and expenses before and after wildfires. For example, helicopters are cost intensive for the minimal support they provide.[69] Therefore, they are an expense that should have low priority.
- Similar to Alberta, BC should allocate funds to hiring full-time year-round fire crews, instead of recruiting firefighters every season. With the trend that the fire season is prolonged each year, this will help with the efficiency of training firefighters, cutting down response time and increasing preparedness.[70]
- Many local businesses in the communities struggle to recover due to a lack of insurance. This drives away a local grown economy, pushing people to find jobs in other communities. Thus, more emphasis on small business disaster funding is needed.

2. There is a market opportunity to provide in-person consulting services for local businesses and large industries (forestry and tourism), in high risk areas, for post wildfire recovery.[71] Along with consulting businesses, there is also a need to find new solutions that can alleviate the extra costs incurred from wildfires such as electricity and transportation.[72]

[69] Gerry Burch (Retired Vice President of Forestry, B.C. Forest Products Ltd.). Interviewed by Devan Parmar, March 24, 2019.

[70] Interviewee 0001, interviewed by Vanessa Sun, March 11, 2019.

[71] Interviewee 0015, Emergency Management BC (Prince George). Interviewed by Michael Simoes, March 4, 2019.

[72] Interviewee 0014, Restaurant Owner in Fort McMurray. Interviewed by Devan Parmar, March 28, 2019.



# KEY INSIGHTS & LESSONS LEARNED

Throughout our research, we learned that our preliminary knowledge was microscopic in comparison to the whole issue. Feedback loops within the contributing factors make it exceptionally difficult to address fuel management, policies, and resource allocation. These feedback loops encompasses many stakeholders such as communities, the provincial government, and municipal governments. Without systematic changes that break-up the feedback loops, contributing factors cannot be permanently addressed.

Many of the current solutions addresses one stakeholder within the system. For instance, strategic fuel breaks are effective if adopted by every community; providing tools is not enough to close the feedback loop of poor fuel management.

We need all stakeholders to collaboratively understand the validity of different perspectives on wildfires, communicate effectively, and push for more capital investments into wildfire preparation.

Our understanding of this problem is limited by our inability to gather sufficient primary research from the isolated communities highly affected by the wildfires. Over the next month, we will reach out to those municipal governments to better understand their wildfire management efforts. Additionally, we will reach out to the Ministry of Environment to gain a better understanding of the relationship between climate change, wildfires and BC's current solutions.

With our research focused on BC, our levers of change is only applicable to BC. Different fire landscapes, political systems, and cultures, are variables that reveal how there is no single solution to address the global wildfire problem and solution landscapes. We can only improve the wildfire situation in BC, and across the world, by cultivating an environment that allows for stakeholders to work together.