



A Report for Government
and British Columbians

Addressing the New Normal: 21st Century Disaster Management in British Columbia

EXECUTIVE SUMMARY

*Report and findings of the BC Flood and Wildfire
Review: an independent review examining the
2017 flood and wildfire seasons*

Submitted April 30, 2018



EXECUTIVE SUMMARY

British Columbians experienced unprecedented impacts from the 2017 flood and wildfire seasons. The events were among the worst in the province's history, prompting a 10-week provincial state of emergency. More than 65,000 residents were displaced, with flood response costs estimated at more than \$73 million and direct fire suppression costs estimated at more than \$568 million.





On December 4, 2017, the Government of British Columbia commissioned a strategic review of flood and wildfire practices in the province with a specific focus on the 2017 flood and wildfire seasons. The work of this independent team, including this report and its recommendations, has been driven by co-chairs Maureen Chapman, Hereditary Chief of the Skawahlook First Nation, and former provincial cabinet minister and Member of the Legislative Assembly (MLA) George Abbott.

The work of the BC Flood and Wildfire Review unfolded between December 2017 and April 2018, with public engagement sessions taking place between January and March 2018 when the Review team had the opportunity to meet with community members, regional and local stakeholders, government and First Nations leaders and officials. The Review included eight sessions in or near affected communities. Local residents also had the opportunity to submit written feedback, as did all British Columbians — so we could gather the widest possible range of perspectives, knowledge and experience.

Scope of this review

The BC Flood and Wildfire Review was tasked with examining provincial and local government emergency management systems, statutes, regulations, policy and leadership practices relating to British Columbia's emergency management system, with a specific focus on four areas of operations: planning and preparedness; prevention and mitigation; response; and recovery.

In addition to examining and assessing the provincial and local government response to the flooding and wildfire events of 2017 under this umbrella, the Review team was also mandated to thoroughly examine the results of the independent report previously commissioned by the

Government of British Columbia in the aftermath of the devastating fires of 2003 in the Okanagan. In mandating a review of *Firestorm 2003: Provincial Review*, the report authored by and stemming from the review process led by the Honourable Gary Filmon, former premier of Manitoba, a key objective was to assess recommendations made in that review against the events of 2017. In our view, the principal recommendation not addressed by successive

governments since the Filmon report was published has been the treatment of the high-risk areas of our province — namely the wildland urban interface areas (areas where communities meet the wildlands). Our findings also align with those of the Auditor General of British Columbia in her report of early 2018, *Managing Climate Change Risks: An Independent Audit*, where she suggests that “... a reported total of 11,248 hectares have been treated or are planned for

Timeline of key milestones in the 2017 wildfire season

Date	Event	Date	Event
July 6–8	A major spike in new wildfires starts in the Cariboo and Kamloops Fire Centre areas, ¹ largely due to widespread lightning strikes that resulted in more than 160 new fires beginning on the same day.	August 1	Near Clinton, the controlled burn of a fire on Elephant Hill escapes.
July 7	A provincial state of emergency is declared. On this day, campfire bans go into effect in the Cariboo, Coastal, Kamloops and Southeast Fire Centre areas. In/near Harrison Lake, a State of Emergency is declared on July 6.	August 2	To help prevent human-caused wildfires, off-road vehicles (ORVs) are banned in the Kamloops, Southeast and Coastal Fire Centre areas.
July 10	Campfires are banned province-wide, with the exception of Haida Gwaii and the Fog Zone (a swath of land two kilometres wide running from Owen Point near Port Renfrew to the district boundary of Port Hardy).	August 11	In the Cariboo Fire Centre area, a full backcountry closure is implemented. It is lifted August 23, downgraded to fire-specific area restrictions.
July 15	An evacuation order is issued for the city of Williams Lake (population 12,400). ² It is lifted July 27.	September 2	A backcountry closure is implemented for the Rocky Mountain Natural Resource District. It is lifted September 15.
		September 15	The provincial state of emergency is lifted.
		September 20	ORV bans are lifted provincewide.
		September 22	Campfire bans are lifted provincewide.

¹ British Columbia is divided into six fire centre areas. Each centre coordinates wildfire management and response services within its geographic boundaries. The six Fire Centres are: Northwest, Prince George, Cariboo, Kamloops, Southeast and Coastal. For more information see the *British Columbia Provincial Coordination Plan for Wildland Urban Interface Fires*. Page 15. https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/provincial-emergency-planning/bc-provincial-coord-plan-for-wuifire_revised_july_2016.pdf.

² Statistics Canada. Census profile. See <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/details/page.cfm?Code1=1028&Geo2=PR&Geo1=POPC&Code2=59&SearchPR=01&Lang=E&Data=Count&Custom=&SearchType=Begins&SearchText=williams%20lake&TABID=1&B1=All>.

treatment. This is less than 1 per cent of the total hectares that are considered high-risk in the province.”³

Key themes in brief

Through various communications channels, we heard from as many British Columbians as possible. Meetings with local and First Nations governments, as well as stakeholders began January 15, 2018, community open houses began February 5, and the online engagement survey launched February 26. All engagement closed on March 29, 2018. The Review team heard several consistent themes throughout our engagement. We heard that effective emergency management in the 21st century requires four essential partners: First Nations governments, local governments, and the governments of British Columbia and Canada.

Through successive hours of consultations, briefs and recommendations, we also determined there are four interrelated themes. They helped frame our recommendations and include:

- Partnerships and participation
- Knowledge and tools
- Communication and awareness
- Investment

These themes are woven throughout the fabric of this report and expanded upon in greater detail in Section 6.0 (Our Recommendations).

A snapshot of what we heard

The engagement program offered British Columbians numerous opportunities to provide feedback on emergency management and 2017 flood and wildfire events. Open houses were hosted in eight communities, and areas of the province, most severely impacted last year. Meetings and interviews were conducted with First Nations and local governments, as well as stakeholders from various sectors. An online engagement survey and written submission process gave British Columbians another outlet to provide valuable input.

For each component of emergency management, feedback was gathered under the umbrellas of both flood and wildfires. In addition to input collected from open houses and written submissions, comments from government and stakeholder meetings and the online engagement survey were analyzed and incorporated into our findings, with similar comments grouped together under the common themes we heard across communities.

When asked about planning and preparedness, flood feedback focused largely on infrastructure and tool considerations. Education, jurisdictional issues and knowledge were also notable themes. In contrast, feedback related to wildfires focused largely on education and awareness. Knowledge, tools and infrastructure were also major themes.



³ British Columbia. Office of the Auditor General. *Managing Climate Change Risks: An Independent Audit* (Report; February 2018). Page 74.

For prevention and mitigation, flood feedback predominantly focused on infrastructure and tools, with jurisdictional issues and knowledge being other major themes. Wildfire-related feedback primarily centred on fuel management, with a significant number of comments advocating for prescribed burning. Many other comments focused on jurisdictional issues.

Under the umbrella of response, flood-related feedback tended to focus on communication, evacuation and jurisdictional considerations. For wildfires, public feedback centred strongly on communication and evacuation, with participation and knowledge also emerging as key areas.

For recovery, flood-related feedback focused predominantly on funding, with infrastructure and tools also being major themes. Finally, wildfire feedback primarily focused on funding with communications-related considerations also being a major theme. For greater clarity and additional detail on these themes areas, please see Section 6.0 of this report as well as Appendix D.

A summary of our recommendations

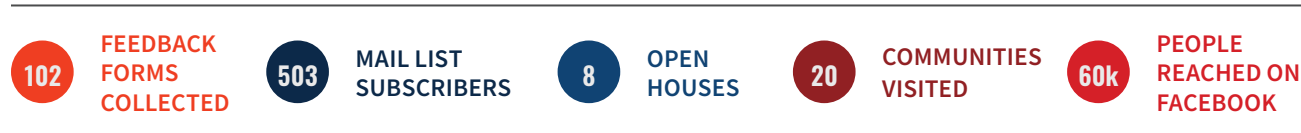
Through over 8 community open houses, 12 weeks of government and stakeholder meetings, 31 days of online feedback, hundreds of hours of conversation and meaningful dialogue, and many hundreds of thoughtful written submissions, we heard a broad range of constructive ideas. Those views greatly informed our thinking on perhaps the most critical piece of the work of this Review: our recommendations to government. Section 6 includes 108

recommendations, captured under the four themes we have developed throughout the report:

- Partnerships and participation
- Knowledge and tools
- Communication and awareness
- Investment

Under each theme, we have further subdivided the recommendations. Under ‘partnerships and participation,’ we have identified working with Indigenous communities, jurisdiction, coordination and integration as major sub-themes to our work. Under ‘knowledge and tools’ we have identified Indigenous, community and professional knowledge, as well as local resources, land stewardship and technology as sub-themes. For ‘communication and awareness’ we have identified education, awareness, tools and engagement as major sub-themes. Finally, under ‘investment,’ we identified training and capacity-building and funding as major sub-themes. The sub-themes provided organizational structure to the ordering of the 108 recommendations.

Estimated cost of fighting wildfires in 2017: \$568 million



Our recommendations

The recommendations we are making are as follows:

Preparedness and planning

1. Partnerships and participation

Working with Indigenous governments and communities

1. Establish Indigenous Peoples as true partners and leaders in emergency management by including First Nations from the beginning and at all levels of planning, decision making and implementation.
2. Provide support to First Nations governments and communities to enhance their role and capacity through the development and, where necessary, adaptation of emergency plans which consider the impacts of potential changes in their internal governments.
3. Ensure emergency services available to First Nations are provided in a way that is comparable to other communities of similar size and location.
4. Governments recognize First Nations jurisdiction in their traditional territories and support capacity development through training and accreditation.
5. Renegotiate existing Canada-BC bilateral agreements, including the 10-year Canada-BC Emergency Management Services Funding Agreement, to ensure inclusion of seamless and integrated support for First Nations communities, and determine a suitable timeframe to transition to a tripartite agreement, including provisions for communities to self-determine how they will establish Emergency Operations Centres.
6. Governments should commit the time and resources to finalizing and exercising the provisions of the Canada-BC Emergency Management Services Funding Agreement by spending the time required, with communities in their communities, to develop and sustain relationships.
7. Develop an emergency management First Nations youth leadership program to foster leadership skills in emergency management for First Nations youth.
8. Establish a First Nations Health Authority senior executive role at the Health Emergency Management BC (HEMBC) table to ensure First Nations interests are represented.
9. Governments build cultural sensitivity training and awareness of racism and discrimination into emergency management plans.
10. Develop an online system with text and audio of names of all First Nations communities in BC, both in English and Indigenous languages.
11. Develop a toolkit for Indigenous communities and rural and remote communities to assist during emergencies.
12. All Indigenous and non-Indigenous governments should ensure they have common understanding of roles, responsibilities and procedures in the event of an emergency.
13. Strengthen and support the mandate of the First Nations' Emergency Services Society (FNESS) to advise and guide provincial emergency services policy and delivery.

14. First Nations Health Authority and regional health authorities work collaboratively towards a seamless emergency response system that defines roles, responsibilities and procedures.
15. Create a volunteer training requirement, as part of Emergency Social Services, to participate in cultural awareness.

Jurisdiction

16. Review and assess the decision-making process related to the establishment of evacuation alerts and orders. Ensure the process considers whether highway corridors should be exempt from the order, has provisions to recognize ranching or farming operations located within an evacuation area, and other local considerations as required.
17. Review and assess the decision-making process related to lifting evacuation orders. Ensure the process includes coordination with the First Nations Health Authority (FNHA), regional health authorities, Ministry of Transportation and Infrastructure, and the RCMP.

Coordination

18. **(Strategic Shift #1)** Develop strategic partnerships and operational agreements with key community members, forest professionals, First Nations, tenure holders (forest, range, guide outfitters and others), as suitable to provide increased response capacity and promote resilience across the land base. As part of this arrangement, BC should consider training and registering partners.



19. Provide support to local and First Nations governments in self-assessing their emergency plans (for completeness and effectiveness) and each community's ability to implement those plans fully and effectively.
20. BC, First Nations, local governments and emergency responders develop jurisdictional protocols, agreements and undertake annual tabletop exercises to ensure roles and procedures are fully understood.
21. BC Wildfire Service design a preferred contractor procurement model to be offered as an option to standing offer participants.
22. Develop a partners' program where, prior to wildfires, local resources are assigned to containment line teams consisting of heavy equipment, forest professionals, technicians and workers who use their local knowledge and expertise to establish containment lines as part of tactical operations.
23. Create a roles and responsibility framework with the flexibility to adapt to each unique emergency situation. The framework must clearly define the primary, secondary and tertiary responsibilities for each organization in the event of disaster and be immediately operational. Encourage the integration of local and First Nations knowledge in the framework, and support the opportunity for communities to contribute to fire suppression operations.
24. **(Strategic Shift #2)** Establish emergency centres of excellence in Interior locations to support large-scale disaster response.
25. BC establish annual, intergovernmental preparedness workshops with First Nations and local governments to support consistent understanding of emergency operations, roles and responsibilities.
 - Ensure workshops are held in local communities
 - Consider and plan for the impact of multi-jurisdictional emergency events
 - Provide consistent training
 - Ensure egress (evacuation) routes are established and that the status of alternate roads is known and communicated
26. Deliver annual emergency management forums that:
 - Bring together BC, First Nations and local governments and partners
 - Identify provincial operational and policy gaps
 - Promote shared information and learning, through best practices and success stories
 - Evaluate progress against the BC Flood and Wildfire Review final report, *Addressing the New Normal: 21st Century Disaster Management in British Columbia*
27. Ensure compensation mechanisms exist for residents who support evacuees by providing shelter for people and/or livestock.
28. Indigenous and non-Indigenous communities establish mutual aid agreements to optimize resource-sharing in the areas of operational response and volunteer capacity.

Integration

29. BC enhance integration across government and among governments, particularly in the natural resource sector and within Emergency Management BC, to:
 - Foster better collaboration among land-based decision makers
 - Promote joint forest/grassland management and wildfire preparedness
30. The Ministry of Health, in partnership with the First Nations Health Authority and regional health authorities, create a provincial primary health care response team that works in crisis zones and evacuation areas.

2. Knowledge and tools

Indigenous, community and professional knowledge

31. Establish pathways for collaboration with First Nations to enable the integration of traditional ecological knowledge with Western science. Ensure risk modelling is built upon a greater understanding of the land base, values and practices of First Nations.

Local resources

32. Canada and/or BC equip First Nations communities and rural and remote communities so they can respond to wildfires through training and development of equipment caches.
33. Through BC Bid, BC leverage economies of scale

to provide a lower-cost opportunity for residents and communities to purchase external sprinkler systems for their homes.

34. Canada provide ongoing funding to on-reserve volunteer fire departments to cover annual operating costs associated with the purchase and maintenance of capital infrastructure and equipment. Canada to establish an ongoing program to fund administration and training for volunteer fire departments to assist with wildland urban interface response.
35. BC provide ongoing funding to volunteer fire departments to assist with wildland urban interface response. Funding provided to cover annual operating costs associated with the purchase and maintenance of capital infrastructure and equipment, as well as training for that purpose. BC to consider the Insurance Premium Tax as a funding source.

Land stewardship

36. **(Strategic Shift #3)** BC review and clarify roles and responsibilities for flood management, specifically the transfer of responsibility from provincial to local governments, including through the amendment of the Emergency Program Act, The BC Flood Response Plan, and other applicable statutes and regulations.
37. Review operating plans for the Okanagan Lake Regulation System and Nicola Lake, and any other provincially owned and managed water management infrastructure, and adapt these plans



to explicitly include consideration of uncertainty in streamflow forecasts.

38. Re-evaluate all 200-year return-period flood elevations in BC, as well as all associated flood construction levels and horizontal setbacks.

Technology

39. Ensure streamflow forecast data provides sufficient accuracy and precision to manage flooding in BC. Assess and evaluate the adequacy of data networks, including snow, weather, streamflow, groundwater level and lake level, used to provide information to run provincial streamflow forecasting models.
40. Evaluate and upgrade the models used by the BC River Forecast Centre for forecasting streamflow and flooding:
 - Develop backup models for use when any of the required model input data is missing
 - Increase the frequency at which models are run
 - Investigate the utility of including weather forecasts in models
 - Regularly review and update models
41. Build and provide sustained funding for a coordinated environmental data hub that organizes and disseminates information from the many data networks currently operating in BC. Provide equal access to information for Indigenous and non-Indigenous communities.
42. Develop values and risk modelling tools to support decision making and advance planning:
 - Invest in generating quality data to support

modelling, through the use of LiDAR, inclusion of Indigenous knowledge and recognition of cumulative effects

- Invest in ongoing training for users
- Ensure common data collection and provide access to the system for all users
- Effective monitoring of snowpack

43. Identify and assess new equipment, machinery and their configurations that might strengthen ongoing land-based resource management, including emergency planning, prevention, response and recovery.

Infrastructure

44. Evaluate the capacity of provincially owned water management infrastructure to pass flows and modify the infrastructure as needed to keep it functioning as intended.
45. Governments at all levels annually review and monitor drainage infrastructure to ensure its adequacy in an extreme weather event, such as high-intensity rain.

3. Communications and awareness

Education

46. Strengthen public understanding of the risks and personal responsibilities associated with living in a fire-dependent ecosystem. Provide a summary of incentives to encourage public participation in

emergency preparedness behaviour and provide information on government responses during emergency situations.

Tools

47. **(Strategic Shift #4)** Build a central hub or 'one-stop shop' emergency communications website to provide the public with reliable, responsive, adaptive, real-time and customer-focused information. This hub should collect information from provincial departments and agencies, First Nations and local governments and relevant stakeholder agencies, including media. It should also provide emergency updates for evacuees and include citizen information on how to assist, volunteer or donate.
48. Create a communicators' toolkit for use during emergencies with specific resources such as wording for alerts and orders, and clarity for the roles and responsibilities of communication leads.

Engagement

49. BC, First Nations and local governments, either individually or jointly, host readiness and post-freshet (flood) and wildfire season open houses to share information, knowledge and experiences, as well as develop best practices.

*Estimated cost of total flood response
in 2017: more than \$73 million*

4. Investment

Training and capacity-building

50. Improve succession planning within emergency response organizations by developing a knowledge management system that includes formal and experiential training provided by subject matter specialists, including individuals from within and outside government.
51. Expand the provision of prescribed fire training and extend the provincial certification program to non-agency personnel:
 - Training and certification must include all support positions within agencies
 - Evaluate the applicability of Parks Canada burn planning course and the US RX-310 Fire Effects course
52. Increase the number of basic firefighters by providing open access to S-100 training for all natural resource sector staff, industry, First Nations, communities, ranchers and other tenure holders.
53. Increase the competency and effectiveness of containment teams by creating a training course, mentoring program and assessment system that emphasizes the role of professional forestry, the need for fire behaviour knowledge and the value and capacity of heavy equipment teams. Ensure courses are available to equipment operators, line locators, strike team leads and others involved in fire containment and fireguard construction.

Funding

54. Mandate the insurance industry to create an incentive program to encourage a proactive approach to emergency preparedness, such as insurance-saving for building structures with fire-resistant materials.
55. Increase and sustain funding for wildland fire research and applied research in the fields of ecology, fire science, social science and economics to provide up-to-date, BC-focused information as the basis for land management decisions and strategies.
56. Canada be encouraged, during its 2019 review of gas tax criteria, to permit the use of gas taxes for fire service infrastructure and equipment.

Prevention and mitigation

1. Partnerships and participation

Working with Indigenous communities

57. BC and Indigenous governments review traditional First Nations burning practices for their applicability and suitability for future forest and fuel management.
58. Canada, BC and Indigenous governments collaborate to ensure reserve lands qualify for funding for forest fuel management and flood mitigation activities. Ensure a shared understanding of opportunities is built among eligible communities.

Jurisdiction

59. As part of the broader shift to a more coordinated, portfolio approach to risk reduction, identify the Forest Enhancement Society of BC (FESCB) as the primary public agency for the delivery of publicly subsidized fuel management initiatives and, through Union of BC Municipalities' representation on the FESBC board, draw on Strategic Wildfire Prevention Initiative experience.

Coordination

60. Canada, BC, and First Nations and local governments collaborate to reduce vulnerability and incentivize the building of more resilient structures by adjusting building codes, regulations, bylaws and development permit requirements to encourage the use of fire-resistant building materials.
61. The Ministry of Forest, Lands, Natural Resource Operations and Rural Development, Ministry of Environment and Climate Change, Ministry of Health and other applicable ministries reconcile existing statutes limiting more extensive use of traditional and prescribed burning.
62. BC Wildfire Service eliminate the rotation of Incident Management Teams (IMTs) to various fires prior to containment. Support IMTs by creating specialized respite teams to transition and backfill IMTs or develop an alternate respite strategy.

Integration

63. BC Wildfire Service (BCWS) to be operationally reintegrated into regional operations of the Ministry of Forest, Lands, Natural Resource Operations and Rural Development (FLNRORD). Ensure land management in the areas of prevention and preparedness are achieved by maximizing the collective focus on initiatives and results.

2. Knowledge and tools

Land stewardship

64. **(Strategic Shift #5)** Undertake a portfolio approach to prevention where all possible partners are identified, collaborate to reduce risk, and assess performance and success at the portfolio level, including:
 - Forest licensees
 - Partnerships between BC Wildfire Service and First Nations communities
 - Private land owners
 - Federal, First Nations and local governments
 - Ministry of Environment and Climate Change, including BC Parks
 - Ministry of Forest, Lands, Natural Resource Operations & Rural Development
 - Funding partners (current examples include: Forest Enhancement Society of BC and Strategic Wildfire Prevention Initiative)
65. **(Strategic Shift #6)** Encourage the establishment of area-based tenures adjacent to Indigenous reserves and non-Indigenous communities, where not already established as community forests,

woodlots, tree farm licences, or First Nation woodland licences.

66. **(Strategic Shift #7)** Fire be established as a management objective in the *Forest and Range Practices Act* and other applicable legislation and regulation to encourage fire as a part of land management.
67. Create mechanisms to encourage fire prevention activities such as thinning, bio-mass utilization, targeted grazing and alternate species and densities.
68. **(Strategic Shift #8)** Expand FireSmart community objectives to become broad-based objectives for all of British Columbia. Establish a governance structure to support implementation, monitoring and continuous improvement of FireSmart objectives.
69. Review existing land use plans to ensure that the location of Old Growth Management Areas, ungulate winter ranges, visual corridors and other land-use designations do not preclude the reduction of wildfire risk adjacent to communities.
70. BC review the effectiveness and utility of existing fire management plans and adjust accordingly to meet the needs for use during emergencies.
71. Encourage existing licensees to participate in risk reduction and treatment of interface areas by addressing existing disincentives and creating opportunities through statute, regulation or other mechanisms.
72. Support Ministry of Forest, Lands, Natural Resource Operations and Rural Development initiatives related to bioenergy. Encourage and accelerate their implementation with a strong consideration to promoting fuel management.
73. BC expeditiously determine the condition, vulnerability and effectiveness of the Province's 500 kilometres of dikes through use of leading-edge technologies and expertise. In collaboration with Indigenous governments, Canada and BC assess and reconcile the absence of dikes in First Nations communities.
74. As part of overall emergency management, BC undertake hazard risk mapping exercises and educational campaigns in communities vulnerable to crisis situations along major transport routes, such as pipelines, railways and highways.
75. **(Strategic Shift #9)** BC increase the use of traditional and prescribed burning as a tool to reduce the risk associated with landscape and local-level hazards, and to regenerate ecosystems.
76. BC investigate and assess the possibility of a prescribed burn statute that would offer protection for responsible and permitted burners.
77. BC re-evaluate the position of carbon-loading counts, specifically the exemption of carbon released by wildfires and the inclusion of carbon released from prescribed burning.

3. Communications and awareness

Awareness

78. BC Ministry of Transportation and Infrastructure incorporate additional fire prevention messaging into digital message signage, particularly during times of extreme fire danger.
79. Increase disaster awareness among British Columbians by leveraging existing resources, such as PreparedBC and expanding its reach to be more prominent, interactive, and dynamic.

4. Investment

Funding

80. **(Strategic Shift #10)** To increase the resiliency of BC's ecosystems and communities against climate change, BC establish a predictable and stable revenue stream to provide enhanced investment in prevention and preparedness. BC consider a new carbon tax revenue stream as a source of funds.
81. BC develop integrated wildfire risk management strategies to guide and prioritize the expenditure of funds through a single source and ensure that expenditures reflect community risk rather than a community's ability to participate financially.



Response

1. Partnerships and participation

Working with Indigenous communities

82. Collaborate with local Indigenous and non-Indigenous communities in response efforts. Local support could include additional capacity of forest professionals on containment teams, local knowledge liaisons, equipment operators and firefighters.
83. When circumstances allow, emergency managers and responders should consider having First Nations stay in their traditional territories, or with nearby Indigenous communities that can provide culturally appropriate assistance and support, with specific attention paid to Elders and those with special needs.

Jurisdiction

84. The Office of the Fire Commissioner, in conjunction with the BC Wildfire Service, be encouraged to develop a strategy that supports First Nations communities and rural and remote communities that lack capacity for fully resourced fire departments, but seek emergency training and response capacity.

Coordination

85. **(Strategic Shift #11)** BC improve interagency operations by developing a single, integrated system for identification and access permits at roadblocks. Ensure corridor routes during states of

emergency remain open for as long as possible and reopen as quickly as possible following emergency events.

86. BC assess and evaluate the provincial Flood Response Plan for its use during emergencies. Assess and plan for gaps, with specific attention paid to supporting Plan implementation during floods.
87. BC Wildfire Service adjust policies and procedures to enable the earliest possible commencement of fire suppression activities without compromising worker safety.
88. BC Wildfire Service, in partnership with other ministries, create a stronger linkage during emergencies between Incident Management Teams and local sector agency managers to support the transfer of local information to the Incident Commander.

Integration

89. **(Strategic Shift #12)** Support a 'BC first' model for employment during emergencies where, as additional resources are required, qualified Indigenous and non-Indigenous companies, contractors and consultants from BC are selected first. Resources from other provinces and countries to be deployed after readily available BC employees have been deployed.

2. Knowledge and tools

Technology

90. Increase use of technology by frontline workers during response by incorporating the use of drones, real-time mapping and synchronization and the use of LiDAR technology to assess and assist with planning in all phases of emergency management.

3. Investment

Funding

91. Develop a basic disaster response financing fund for communities to immediately access once an Emergency Operations Centre has been activated.

Recovery

1. Partnerships and participation

Working with Indigenous communities

92. BC Ministry of Health, in collaboration with regional health authorities and the First Nations Health Authority, develop stable and sustainable mental health recovery programs that acknowledge cultural linkages to the land and the compounding challenge of historical trauma.

Jurisdiction

93. In partnership with First Nations and local governments, BC review the legislative framework supporting recovery, identify gaps and ensure they are addressed.

Coordination

94. Canada, BC, regional health authorities, First Nations Health Authority and other agencies collaborate to identify and implement mental health resources and support for residents both during and after disasters.
95. BC host post-emergency debriefing exercises at local, regional and provincial levels to support proactive planning and recovery.
96. BC, through Emergency Management BC, Indigenous Services Canada, the First Nations' Emergency Services Society, and First Nations and local governments develop an online system for registration of evacuees, and for the management and reimbursement of appropriate expenses incurred through emergency response and recovery.

2. Knowledge and tools

Local resources

97. BC provide a clear point of contact for evacuees and those facing relocation during recovery, restoration or rebuilding of homes or other infrastructure within Indigenous and non-Indigenous communities.

Land stewardship

98. Salvage fire-damaged timber in a manner that maximizes economic, ecological and other values, and is well-coordinated and communicated with licenced resource users on the land base.



99. BC remove disincentives for property owners to remove burned timber from their properties and support efforts to reduce the risk of reburn.
100. BC develop a protocol following wildfires to monitor negative impacts on natural regeneration of trees, native plant species and traditional food sources.
101. BC develop and apply innovative post-fire management strategies for ecosystems in the driest climates (such as Ponderosa Pine and Interior Douglas-Fir biogeoclimatic zones) where contemporary and future climate, combined with fire damage to soils, may render sites unable to support coniferous trees.
102. BC develop and apply post-fire replanting strategies for dry forests that enhance resilience rather than optimize timber production, for example adjust preferred species and reduce stocking standards.
103. **(Strategic Shift #13)** BC co-develop timber salvage harvest plans with all forest tenure holders, including the joint planning and allocation of available timber for harvest.
104. Following wildfire events, promptly undertake timber supply reviews to enable industry response and adaptation to a new annual allowable cut, and to allow BC to better understand and respond to impacts on habitat, fibre availability and community stability.

Infrastructure

105. **(Strategic Shift #14)** Consistent with the Sendai principle of Build Back Better, the Disaster Financial Assistance (DFA) and Disaster Financial Assistance Arrangements (DFAA) programs provide greater flexibility to restore damaged sites in ways that reduce the likelihood of repeat events. BC create a fund for the acquisition of lands and properties which, while legally created and/or constructed, are no longer viable given disaster or climate-related events.

3. Communication and awareness

Engagement

106. Following an evacuation, provide support and resources to Indigenous and non-Indigenous communities to host meetings to discuss the evacuation as part of the recovery and healing process.

4. Investment

Training and capacity-building

107. Provide an open source training opportunity for Indigenous and non-Indigenous communities to learn how to navigate the financial recovery system.

Funding

108. Create a bridging program to aid people during recovery in meeting their needs from the land,

such as traditional food gathering, haying and grazing for livestock, and access to guiding areas while restoration is underway.

This list of recommendations, and accompanying rationale for each recommendation, can be found in the full version of this report.

CLOSING THOUGHTS

As in other parts of the world, climate change is having a profound effect on British Columbia. In 2017, extreme weather events prompted floods, debris flow and wildfires in several corners of our province, causing severe damage in their wake.

With this report and our recommendations, we are proposing a substantial departure from existing practices around the handling of flood, debris flows and wildfires in our province. We are advocating for a partnership of First Nations governments, as well as local, provincial and federal governments in better preparing for emergencies. It is also imperative that we move to a multi-year, multi-pronged approach to community safety — one that involves concerted, proactive investment *before* emergencies happen.

The experience of 2017 demonstrated the consequences of ignoring the growing gap between spending in the areas of response versus planning/preparedness and prevention/mitigation. If we are to limit the vulnerability of our homes, our properties and our communities to such extreme weather events and the new normal, the time to reinvest is now.





