



Extreme weather and building resilience in First Nation Communities

Manitoba Climate Change Workshop

January 31, 2017

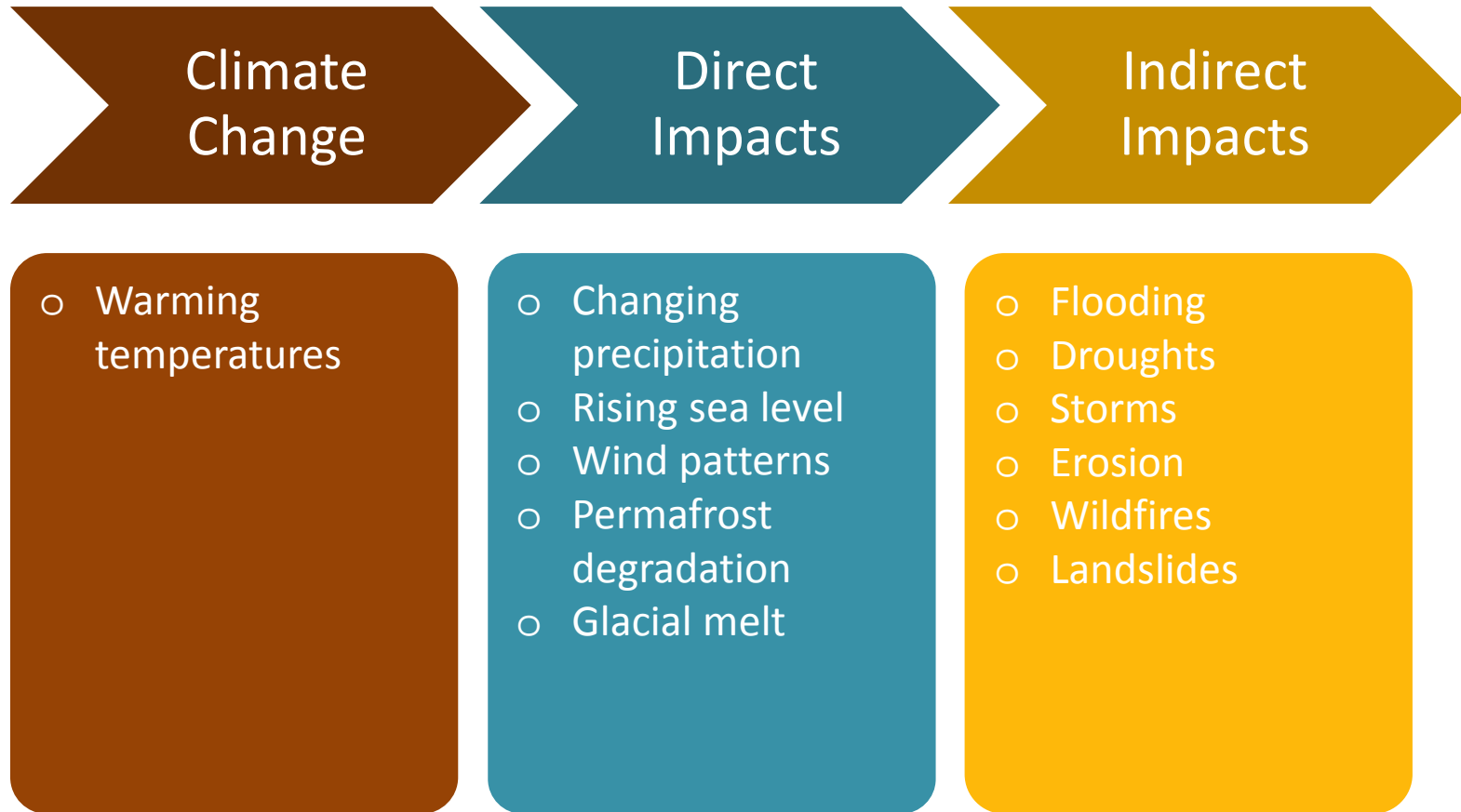


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Climate change is a factor of long-term change and extreme events



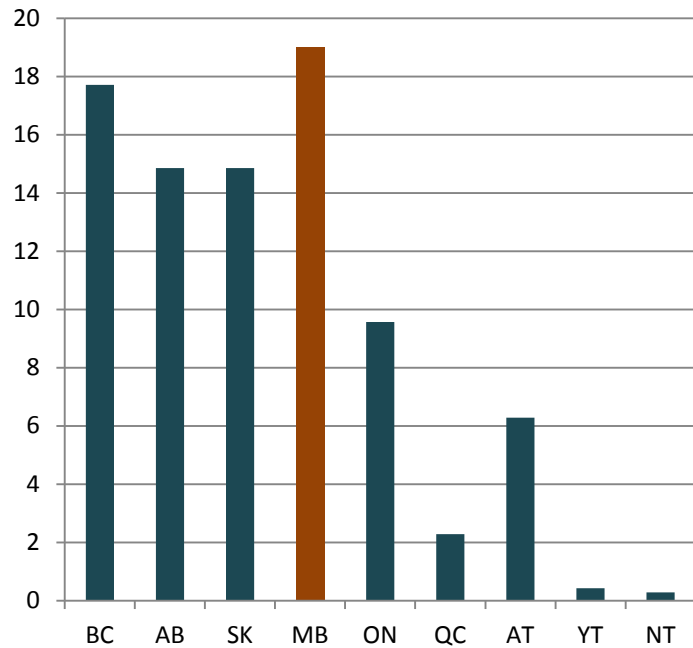
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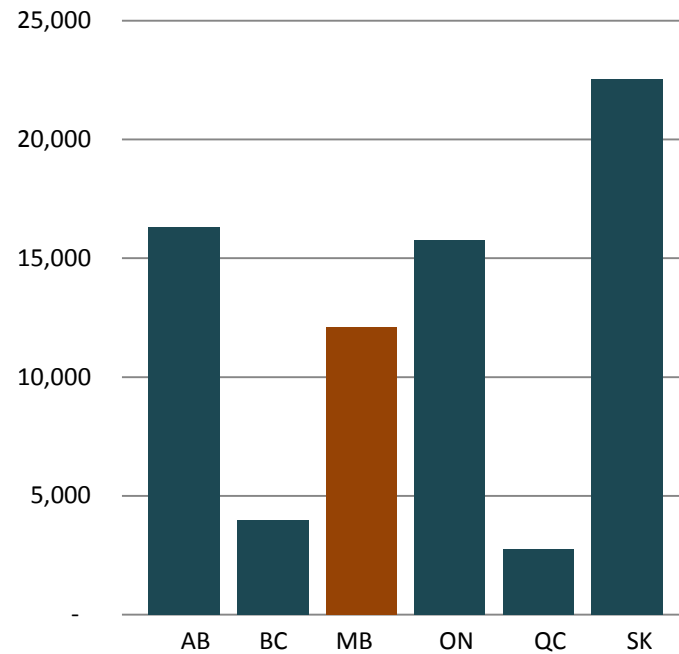


Emergencies in Manitoba First Nations Communities (2009-10 to 2016-17)

Average Number of Natural Hazard Emergencies affecting First Nations On-Reserve Annually



Total Emergency Evacuees Per Province (Top 6)

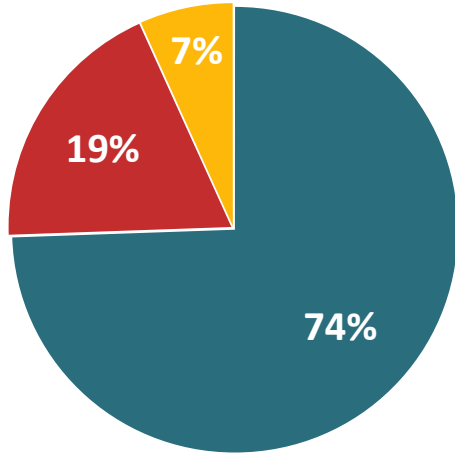


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Natural Hazard Emergencies



The most prominent climate impacts causing emergencies in Manitoba are **flooding** and **wildland fires**

■ Flooding

■ Wildfire

■ Severe Weather



57% of floods require evacuation



76% of fires require evacuation



65% of extreme weather events require evacuation

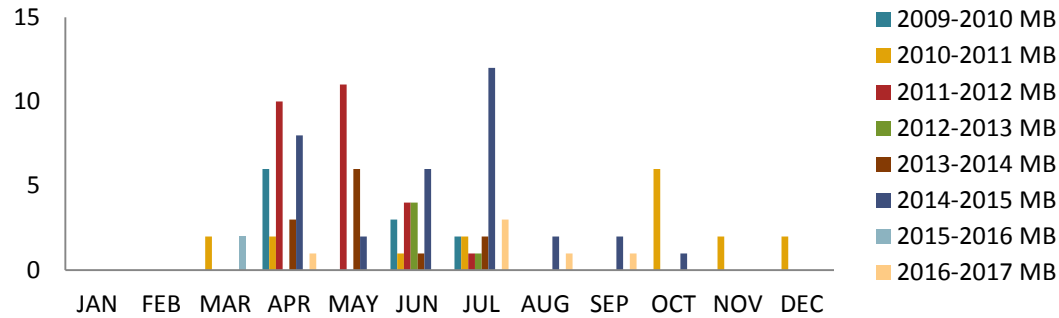
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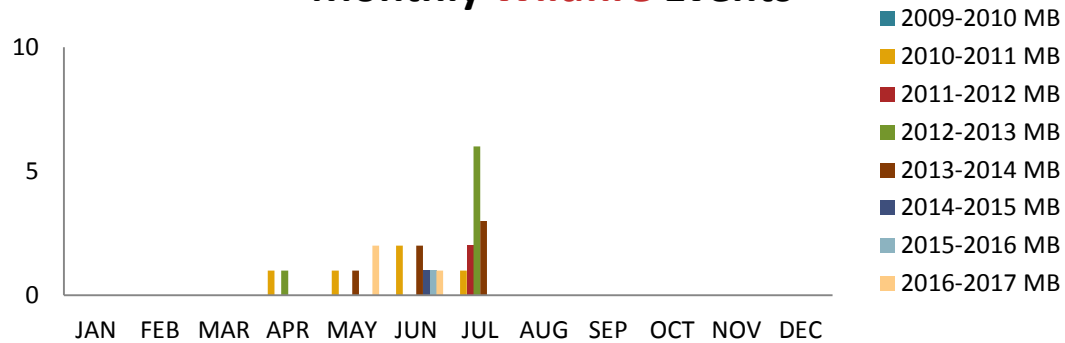


Flooding and Wildland Fire Emergencies (2009-10 to 2016-17)

Monthly Flooding Events



Monthly Wildfire Events



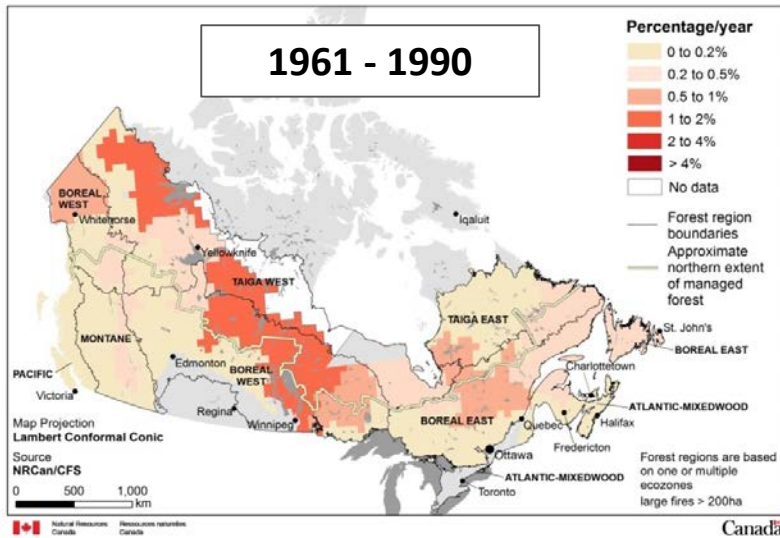
Manitoba is the only province to experience evacuations due to the **loss of essential services**

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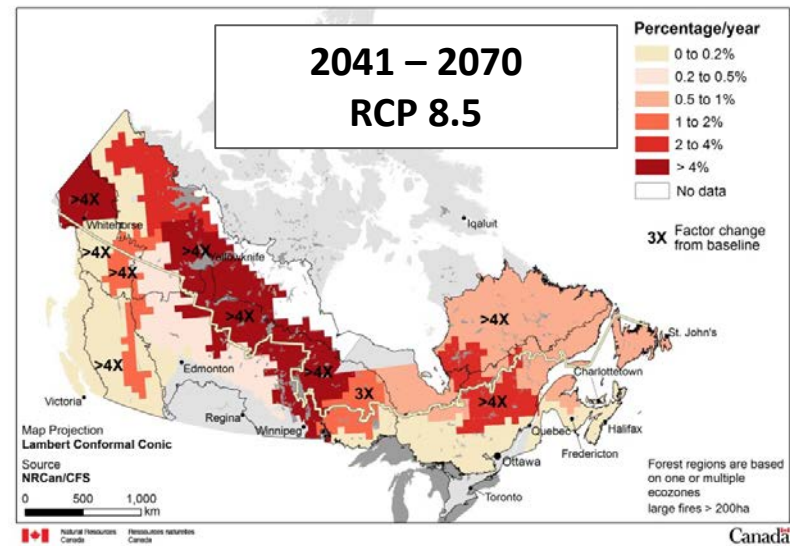




Forest Fires in Manitoba Baseline & 2041-2070 Projection



2041-2070 | Medium-term | RCP 8.5 | Mean annual area burned by large fires



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Winter Roads: Sensitivity to Climate Change



- Winter road seasons “may become shorter by 8 days in the 2020’s, 15 days in the 2050’s, and 21 days in the 2080’s.” (Hori Y. et al., 2016).
- Potential to greatly increase the cost of shipping goods to remote communities and to put communities at greater risk to fuel and other shortages.
- Reduced access to cultural and social activities.



The impact of extreme weather

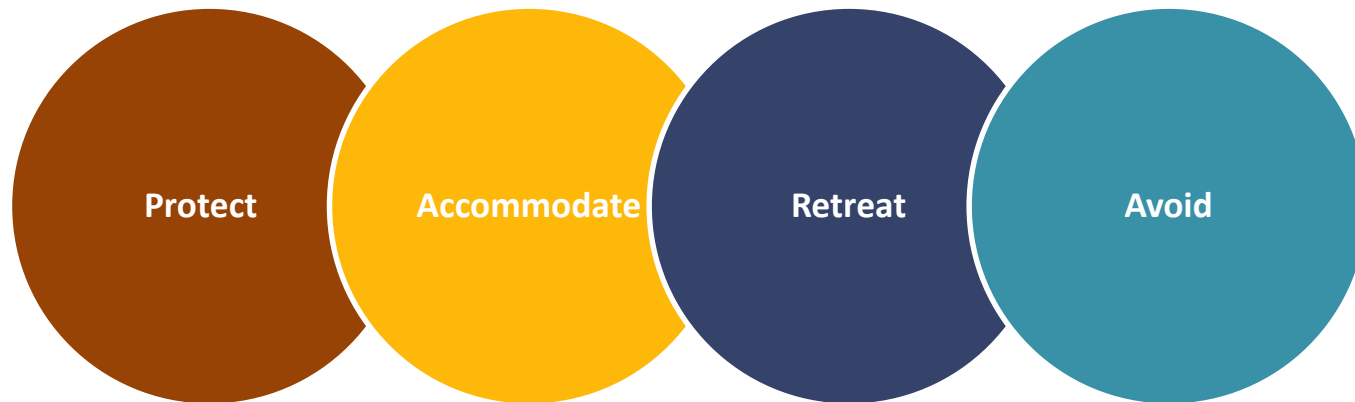
- Extreme weather impacts community **infrastructure**, transportation, emergency management, natural resource use, public safety, health, culture and heritage
- Infrastructure provides shelter, emergency access, clean water, sewage treatment, economic activity, education
- Modern infrastructure has been built to withstand historical events/conditions
- Better to avoid or prevent damage from extreme weather rather than react to it
- Long lifespan and cost of infrastructure investments – need strong technical information about climate vulnerability





Assessing and adapting infrastructure

- **Build a team** – multi-disciplinary, community driven
- **Collect and record traditional knowledge** – experience of impacts, land use, impact on community
- **Assess existing and future risk** – risk to the community, risk to one piece of infrastructure, adaptation tools
- **Assess social assets and value of land**
- **Communicate risk** to the community and assess the suitability of options
- **Avoid maladaptation**





Building resilient communities



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THANK YOU

anita.walker@aadnc-aandc.gc.ca



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