Extreme weather and building resilience in First Nation Communities:

Northern Ontario Climate Change Workshop

December 13, 2016

INAC's Climate Change Adaptation Program (2008-2016)

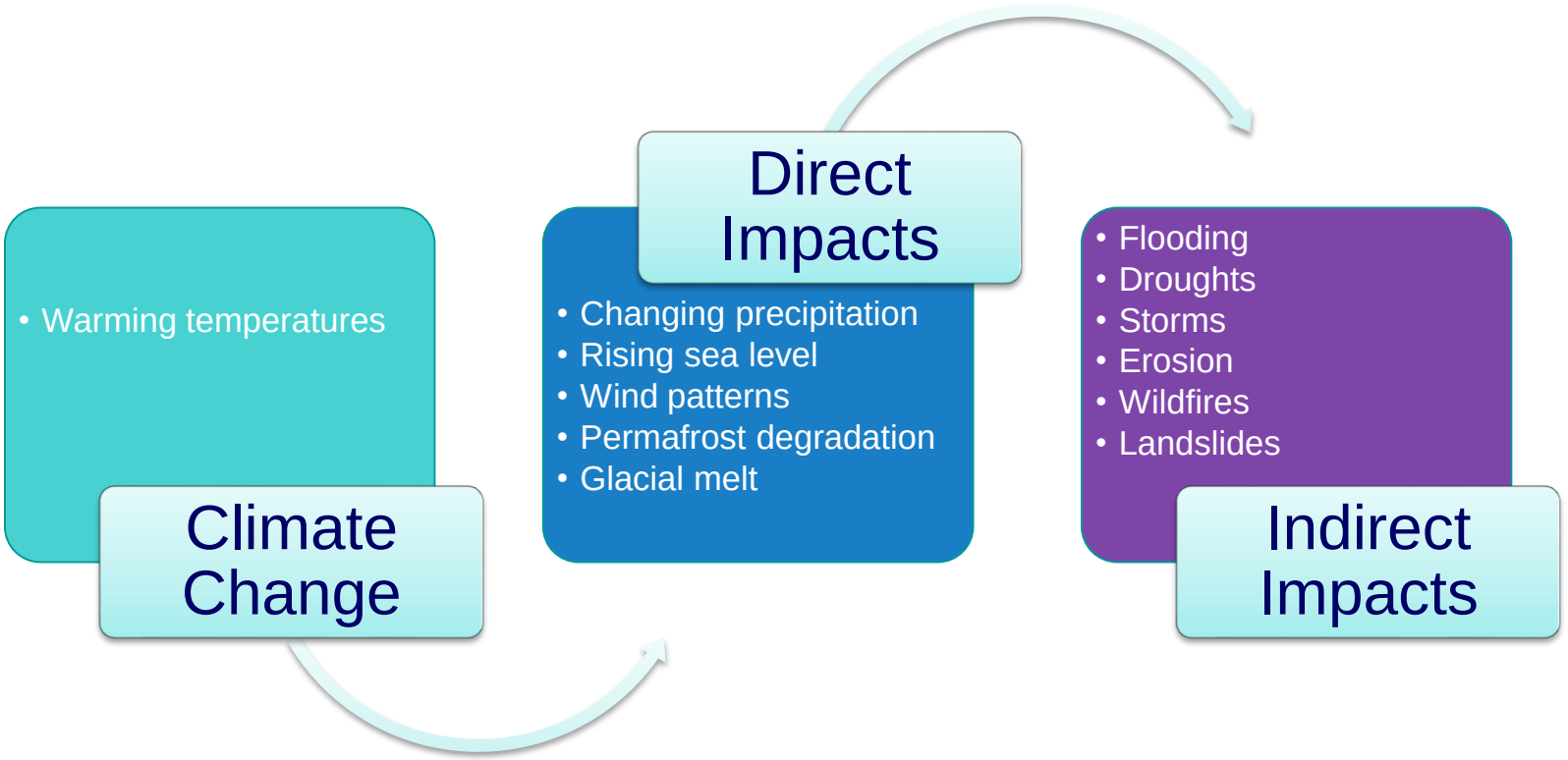
The Climate Change Adaptation Program provided funding support to First Nation, Inuit and northern communities to assess the impacts of climate change and plan for adaptation:

- Total of 82 distinct projects in 100 communities
- South represented 82% of the total amount of projects funded

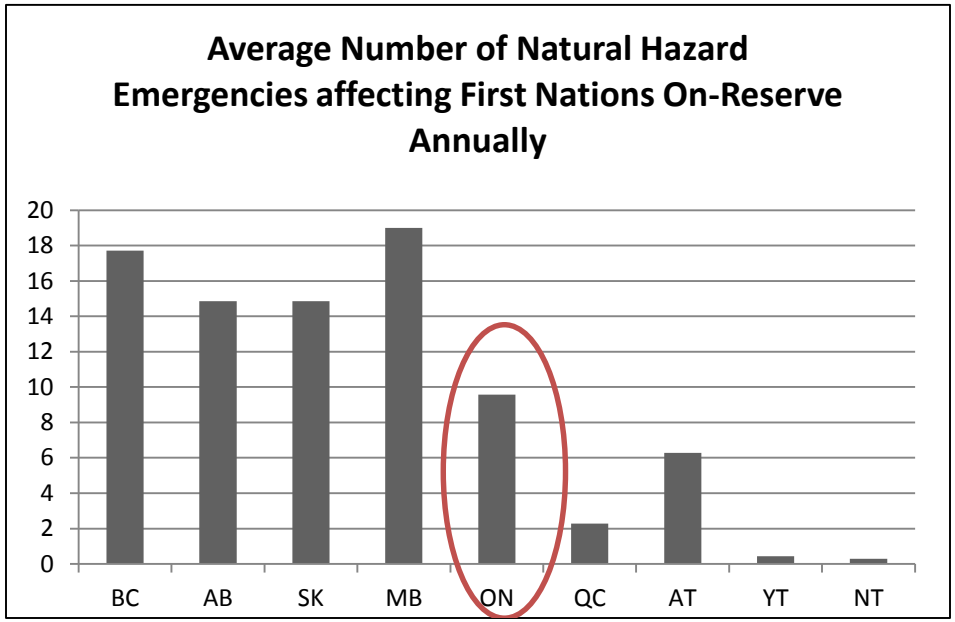
INAC's new First Nation Adapt Program will provide funding support to First Nation communities to address severe climate impacts:

- Equip communities with detailed information on how climate change impacts will affect their infrastructure and support them in identifying cost-effective, appropriate adaptation measures

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



Emergencies in Ontario (2009 to 2016)



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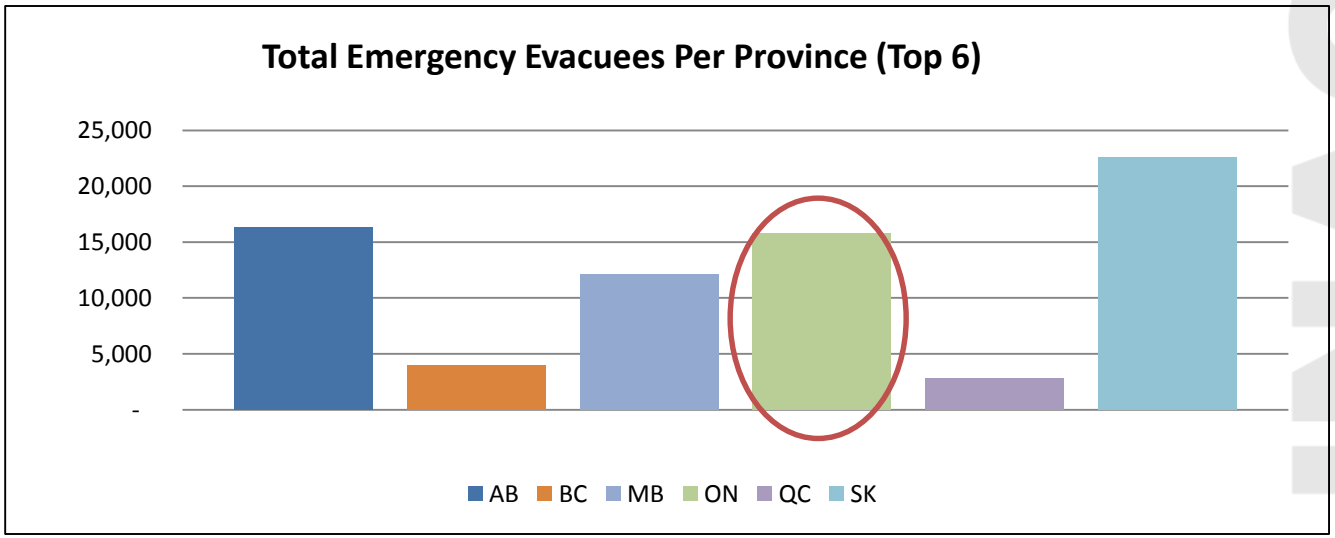
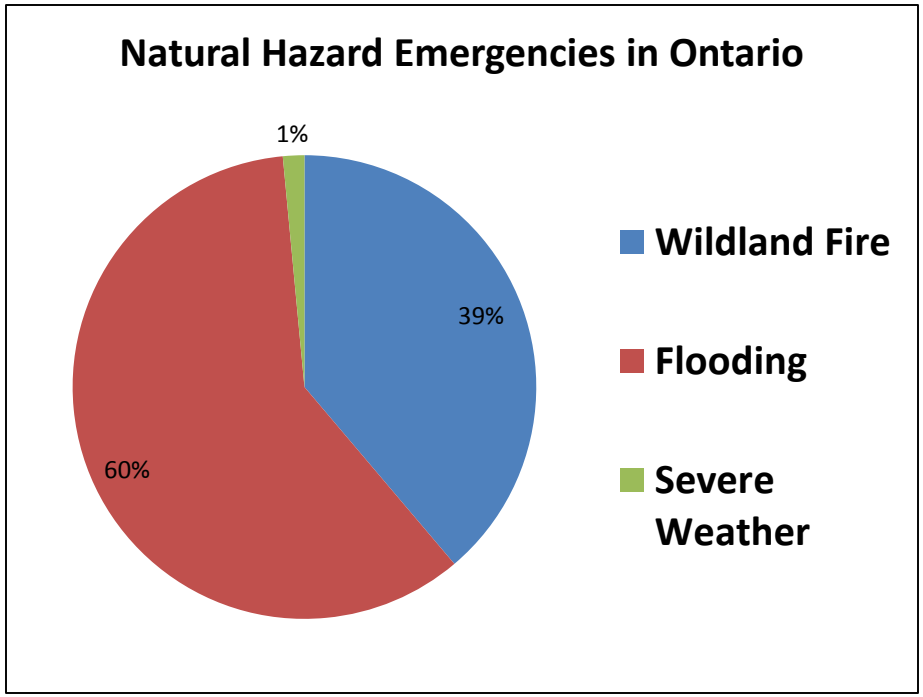


Extreme weather in Northern Ontario



50% of floods require evacuation

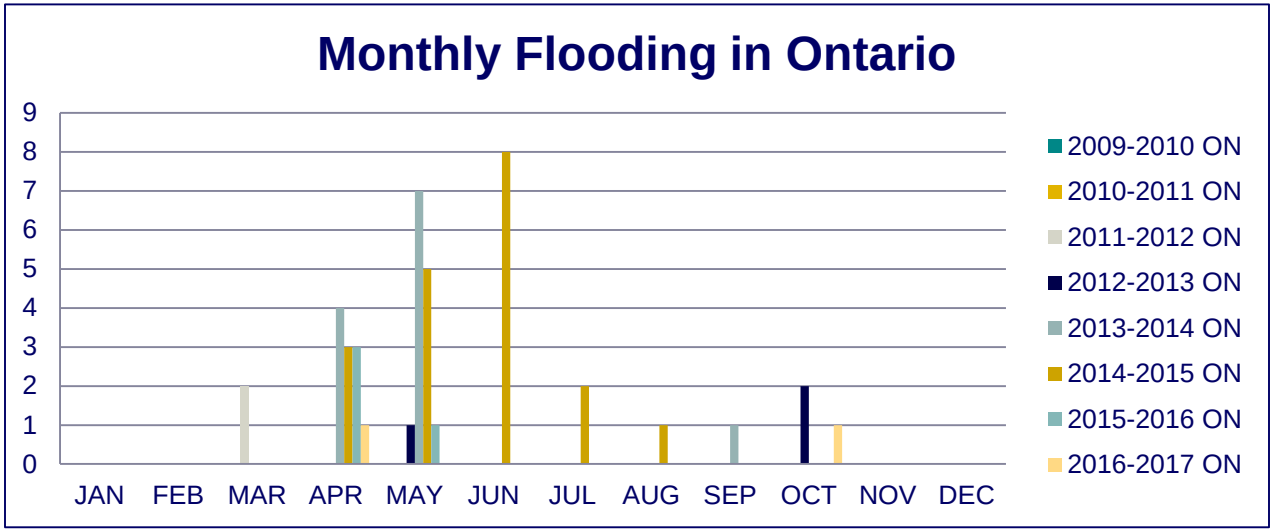
73% of fires require evacuation

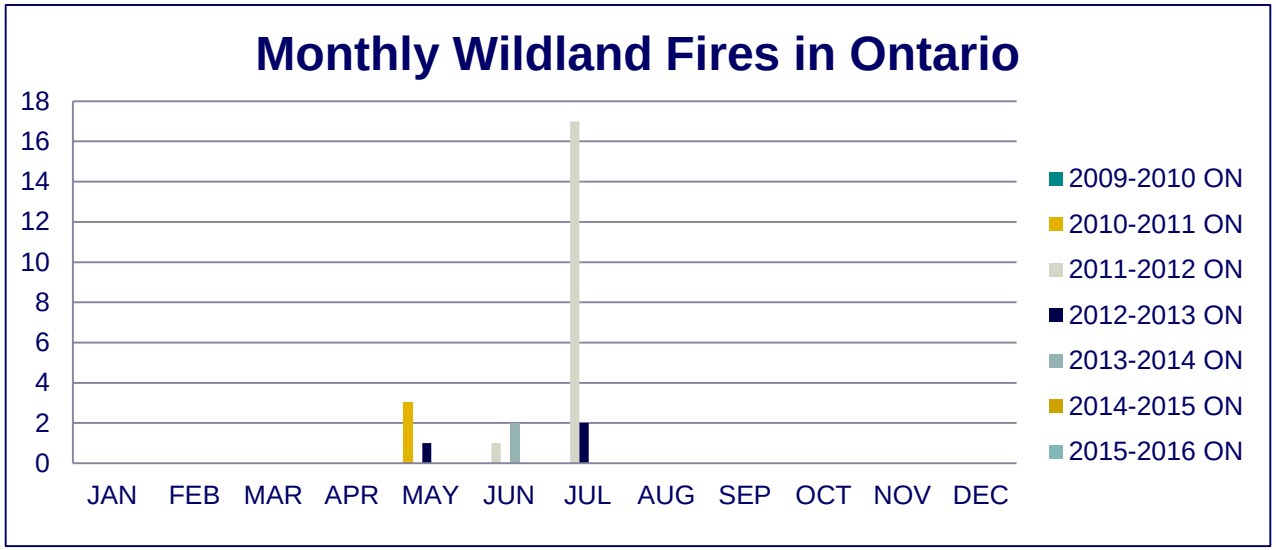
The most prominent climate impacts causing emergencies are flooding and wildland fires

Based on EMAP Data

Pictures from *AANDC National Emergency Management Plan*

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





Based on EMAP Data

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.

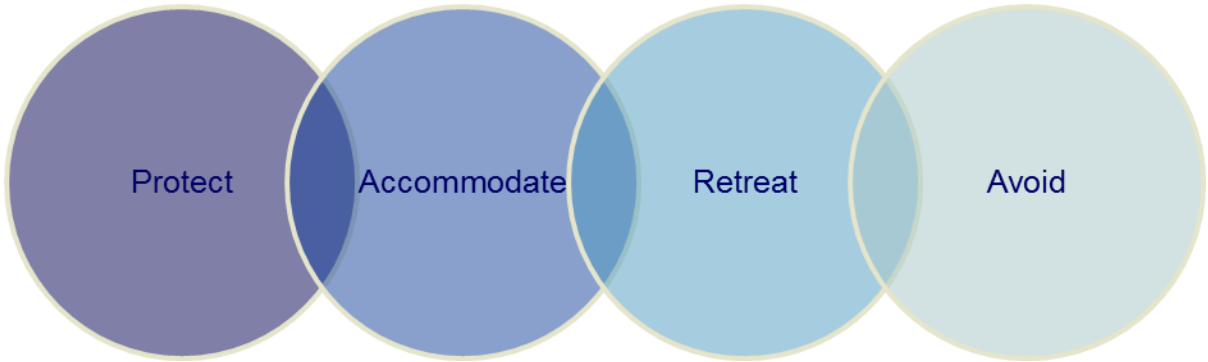
Citations: Hori Y. et al. “Trends in the seasonal length and opening dates of a winter road in the western James Bay region, Ontario, Canada.” Theoretical and Applied Climatology, (July 2016).

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

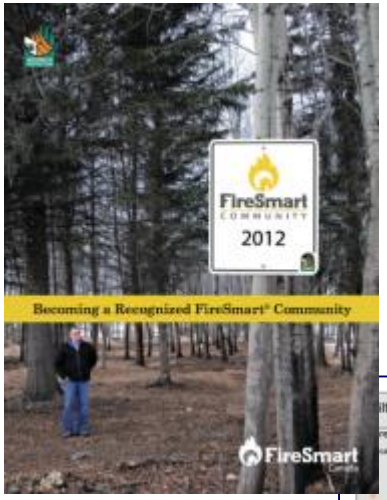
Assessing and adapting infrastructure

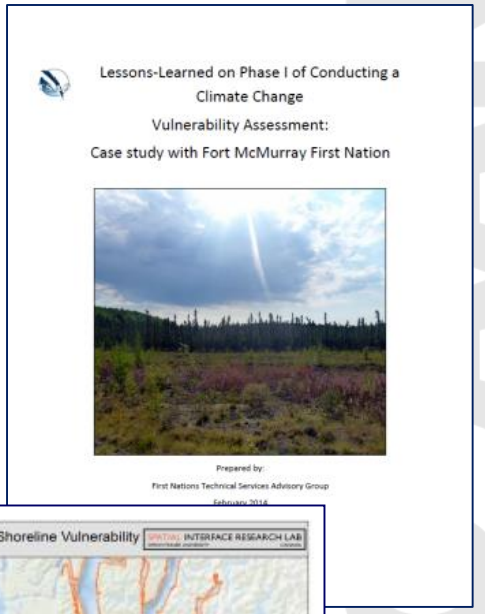
- **Build a team** – multi-disciplinary, community driven
- **Collect and record traditional knowledge** – experience of impacts, land use, impact on community
- **Assess existing and future risk** – risk to the community, risk to one piece of infrastructure, adaptation tools
- **Assess social assets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

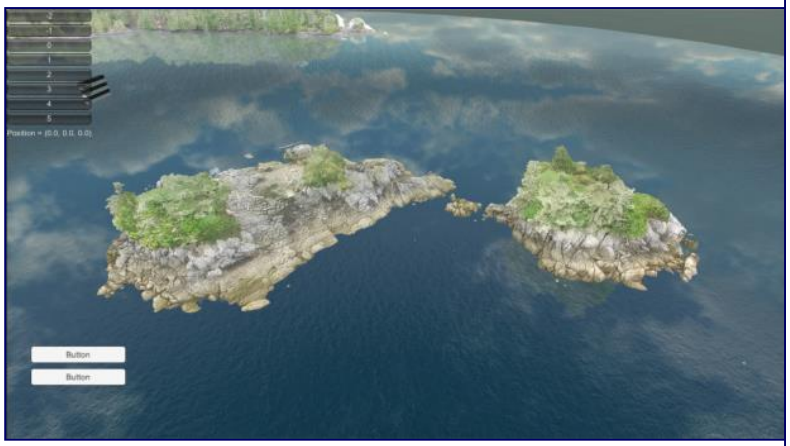


Tools to Assess Risk

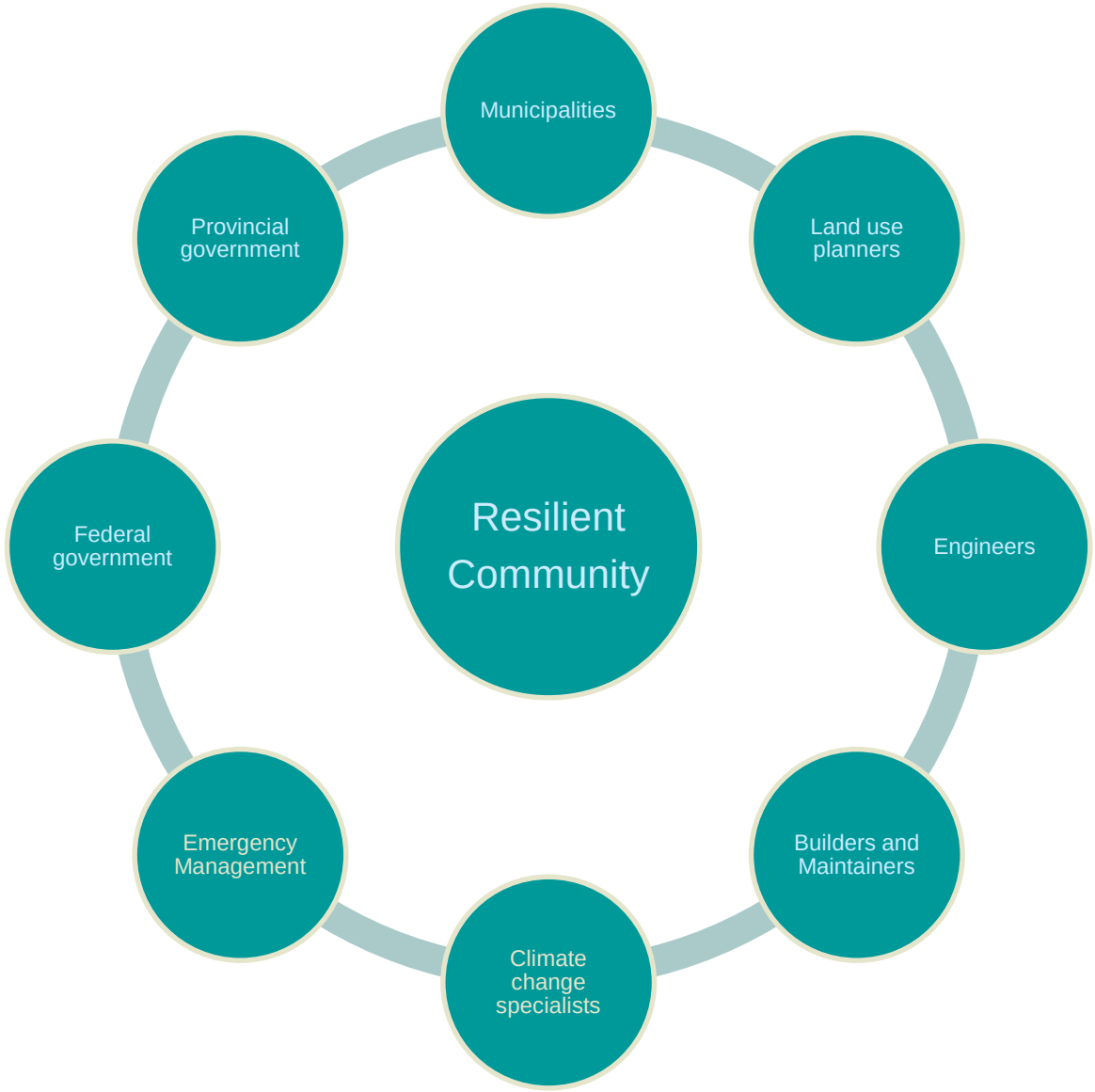
- **Winter Roads** - Ground Penetrating Radar
- **Forest Fire** - Firesmart
- **Flooding and Coastal** - Drones and LiDAR







Building resilient communities



THANK YOU

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