Climate Change Risk and Planning Response in Dawson City, Yukon – A Look into How Wildfire Features in Local Decision-Making

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Introduction

As global temperatures continue to rise, climate change is featuring more prominently on government agendas (e.g. Bulkeley and Betsill, 2013). Risk is perhaps most pressing for local government decision-makers, as they represent the level of government nearest to the impacts, and importantly the communities being influenced by the changing climate (e.g. Forino et al., 2017). With consistently hot and dry weather, wildfire is becoming a persistent threat in areas surrounding Dawson City (e.g. Joannou, 2018). The 2018 wildfire season has demonstrated the community’s vulnerability and prompted questions around preparedness and resilience to climate change in general and wildfire specifically.

Research Objectives

The objective of this research was to discuss with local decision-makers (e.g. elected officials, city planners and engineers, emergency management) their views on wildfire risk, lessons learned from the recent wildfire seasons, and how this knowledge will be incorporated into strategic adaptation policy and planning for the 2019 wildfire season.

Methods

The researcher used an inductive approach to complete this qualitative study. This included semi-structured, in-person interviews with key informants connected to Dawson’s climate change agenda. The study participants included a range of senior managers and elected officials. Senior managers were interviewed to speak to governance around climate risk assessment and adaptation plan conception and development and how implementation is incorporated into community planning. The senior managers included the Chief Administrative Officer, Community Development and Planning Officer, Bylaw Enforcement and Emergency Management, Superintendent of Public Works and the Recreation Manager. An elected official (the Mayor) was also interviewed to address the importance of climate change thinking and community vision.

Preliminary Findings

The participants in this study reported that Dawson City is experiencing warming temperatures resulting in a number of seasonal impacts. In the winter, snow is falling in heavier events, and is wetter and heavier than in previous years. Rain on snow events are also occurring more frequently. In addition, the winter ice bridge, which connects the town with a small segment of the population on the other side of the river, has not been sufficiently frozen to allow use. In the summer, conditions have become drier.
For decision-makers in Dawson City, permafrost melt, flood and wildfire are the three primary environmental risks to the municipality. Wildfire is a particular concern for Dawson City, given that its building stock is primarily wood, and buildings, while low in density, are not sufficiently spaced to mitigate the spread of fire. Dry summer conditions, with hot temperatures, and long days, can create ideal conditions for wildfire. Dawson City is also an isolated community with one road that serves as the primary conduit to Whitehorse (the nearest city). The community is surrounded by forest, including areas where wildfire has occurred in the recent past.

What Dawson City is doing to adapt and reduce risk of climate change impacts:

*Permafrost thaw and snow accumulation:* While most roads in Dawson City are made of gravel which absorbs less heat, and thus transfers less heat to the permafrost below, ongoing maintenance is required. Further, the roads are built to allow for some movement, such that manhole heights can be dropped as the road loses height. Another example of innovation includes the use of clear bitumen (designed to absorb less heat) on paved surfaces. While warmer summers mean greater permafrost activity, warmer winters mean greater accumulation of snow. The increase in heavy snow has resulted in a greater need to plough the roads in the winter. In both examples, Dawson City is experiencing increased costs associated with operations and maintenance.

*Ice bridge:* The ice bridge is the only conduit to the other side of the Yukon river during winter months. A population of about 200 residents live on the other side of the river. Without the ice bridge it is difficult and very expensive to supply the small community. Emergency services are severely limited. Another outcome of the severed connection, some living on the other side of the river will try to find accommodation in town for the winter months. This stresses the housing supply in town during the winter.

*FireSmart® program:* With respect to wildfire prevention and adaptation, Dawson City is reliant on the Yukon Government’s FireSmart® program. The town does work with the territory to educate the community on how to reduce the risk of wildfire but acknowledges that efforts are indeed driven by the territory, and that the town could be more proactive and independent on this issue. A related action, the town regularly conducts emergency scenario planning activities, which include a variety of different stakeholders.

**Conclusion**

According to the study participants, Dawson City has a council that is environmentally aware, and accepting of the need for climate change adaptation. However, while climate change thinking is moving in the right direction, interviewees believe that greater priority is necessary. Climate change is a high-level priority, but as an agenda it becomes peripheral, given other more immediate issues. Further, within the community itself, according to the interviewees, climate change remains a polarizing topic. With respect wildfire specifically, the more immediate needs associated with permafrost thaw are taking priority. The town is also working to improve local food security. Self-sufficiency is a necessity in such an isolated community.