Yukon Community Adaptation Program:
A Review of 5 Years of Planning for Climate Change

Authors: Frank Duerden[1], Ryan Hennessey[2] and Lacia Kinnear[2]

Northern Climate ExChange
YUKON RESEARCH CENTRE • Yukon College

BACKGROUND

Northern communities face unprecedented environmental change as a result of climate variability, which will affect decisions about travel, wildlife harvesting, engineering and construction, and risk mitigation. The ***Community Climate Change Adaptation Program*** focused on four communities in Yukon and northern British Columbia – Whitehorse (population 27,000), Dawson City (1,800), Mayo (480), and Atlin (450) – and **assessed the extent to which they are potentially vulnerable to a changing climate**. Results were used to develop local adaptation plans (Figure 1).

APPROACH

Scenarios depicting potential future climate and socio-economic conditions in each community were used to identify stresses that may emerge as a result of a changing climate. Local climate projections were prepared by the Pacific Climate Change Impacts Consortium and the Scenarios Network for Alaska Planning. Socio-economic conditions were projected based on demographic and economic trends. Scenarios were then combined to identify potential stresses under different circumstances – e.g. low growth/high rate of climate change, high growth/high rate of climate change. (See Figure 2 for process diagram)

CONTEMPORARY VULNERABILITY and CAPACITY

Community residents were interviewed at the outset of each plan. **In all communities, participants spoke of their sense that the climate is changing.** Economic stresses (e.g. transport and energy costs, lack of employment) were expressed as more pressing concerns, though **it was largely recognized that climate change would exacerbate existing stresses**. Adaptive capacity was found to reflect demography and local history. As the largest of the communities, Whitehorse has a skilled labour force and access to considerable local resources. Capacity in Dawson City reflects periodic experience dealing with environmental stress (such as flooding), a strong sense of self-reliance, and significant physical resources linked to mining and construction. In Mayo and Atlin, capacity is limited largely because of small populations. As populations age, the human resource base declines and increasing pressure is placed on social agencies.

CHALLENGES of ADAPTATION PLANNING

- **Capacity.** The capacity of the smaller communities is already challenged, and changing climate may bring stresses associated with permafrost degradation, flooding and food security that cannot be addressed without strong partnerships with higher levels of government.
- **Governance complexity.** In most northern communities, decision making involves multiple levels of government (municipal, territorial, federal, and First Nation). Each level of government may have differing priorities, perspectives, and timelines which can complicate coordination. Additionally, employment turnover in northern governments is high, and institutional memory (essential for long-term planning) can be negatively affected.
- **Data availability.** There is a lack of long-term climate data for Yukon. This factor significantly hampers the refinement of broad scale climate models for local application. Physical data and monitoring are also needed in places like Dawson City, where despite more than a century of settlement in the region, data coordination is still required to characterize behaviour.
- **Assessment of risk.** Participating communities expressed considerable concern about climate change, but the nature and implications were not always well understood. At times, this can become a barrier to objective assessments of community risk.

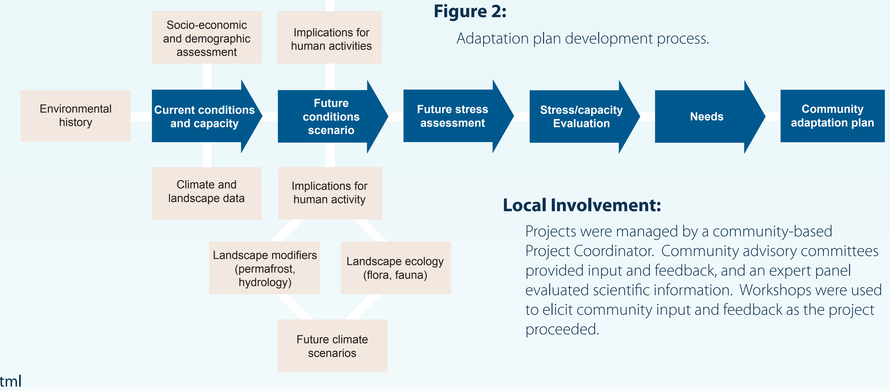


Figure 2:
Adaptation plan development process.

Local Involvement:

Projects were managed by a community-based Project Coordinator. Community advisory committees provided input and feedback, and an expert panel evaluated scientific information. Workshops were used to elicit community input and feedback as the project proceeded.

CLIMATE SCENARIOS

Two climate models (B1 and A1B), which reflect moderate and high emissions scenarios, were downscaled for use in the adaptation plans. The scenarios indicate that **expected trends across all communities include warmer winters, shifts in "shoulder seasons", marked increases in temperature and increases in summer precipitation**. These changes will impact landscapes and will thus be translated into potential impacts for communities.

IMPLICATIONS for COMMUNITIES

Local environmental changes are potentially significant for all communities and may include **permafrost degradation, increased incidence of forest fire, flooding, arrival of invasive species, and shifts in the distribution of wildlife**. First Nations, who are keenly cognisant of changes that are taking place in their territories, may see shifts in the distribution of wildlife that may challenge their coping capacity. The probable incidence of changes varies widely as a reflection of local geography, with Dawson and Mayo exposed to a greater range of stresses than their southern counterparts.

FUTURE CAPACITY

Whitehorse is well-positioned to plan for future climate conditions, largely due to its stable (and growing) population base. In Mayo and Atlin, growth trends suggest it is unlikely that the human resource base will grow, thus challenging coping capacity. Dawson City is the most vulnerable to major climate-related events (e.g. permafrost degradation, forest fires, floods in rapid succession), which could severely impact its capacity. While **"mainstreaming" of adaptive responses is important and feasible at the territorial level**, in smaller communities it is unlikely that capacity can be significantly enhanced without major demographic shifts. **Partnerships between smaller communities and higher levels of government will be needed to meet the challenges associated with a changing climate**.

PRACTICAL PROJECT CONTRIBUTIONS

The ***Community Climate Change Adaptation Program*** has produced four community-based plans outlining adaptive strategies, in anticipation of potential climate change. **The program has served as an educational catalyst by focusing on climate-related issues in a series of community workshops, and yielding immediate adaptive responses.** The *Whitehorse Plan* was adopted by City Council as a resource document for decision making. The ***Atlin Plan*** has been used to update emergency response measures and to support requests by the RCMP for additional emergency response funding. In Dawson City, the emergency response headquarters was relocated in response to recommendations of the adaptation plan. Future integration of the plans into local planning processes is anticipated.

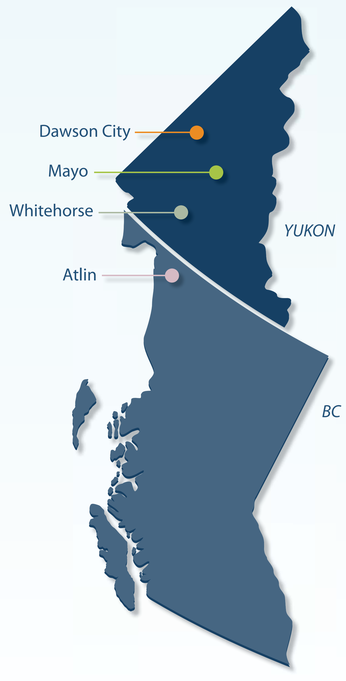
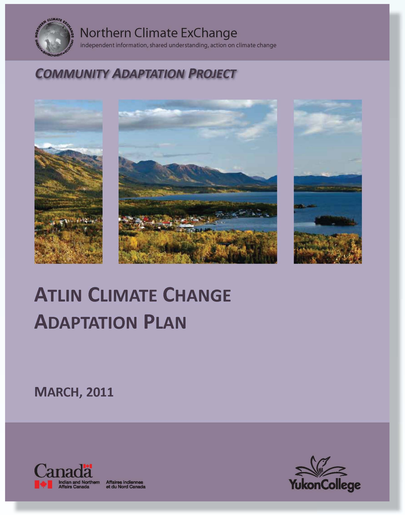
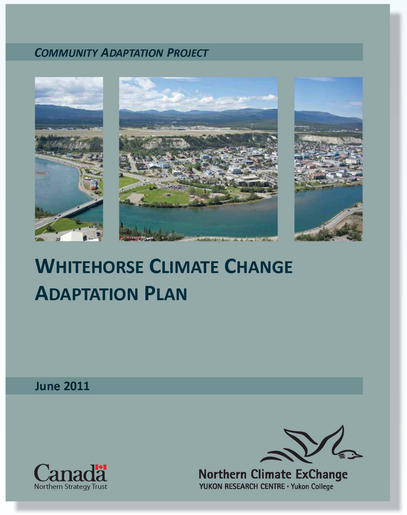
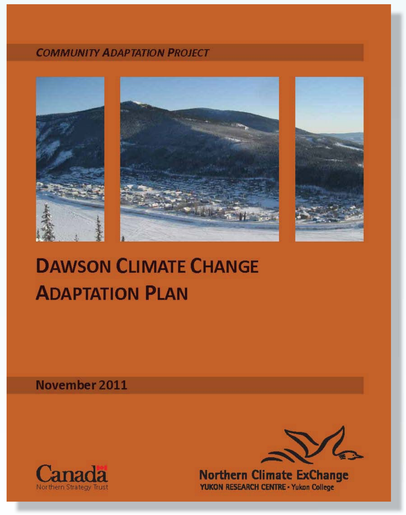
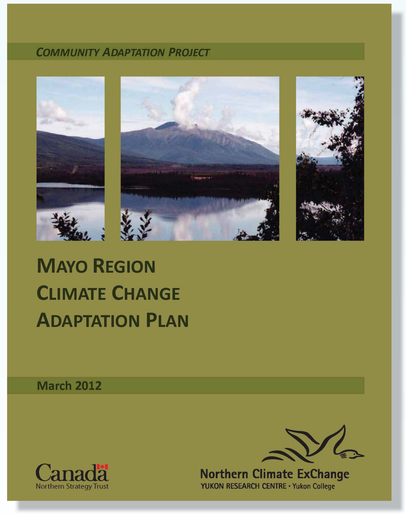


Figure 1:
Community Adaptation Plans.
Available online: **www.taiga.net/nce/adaptation/projects.html**









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Authors:
[1] Department of Geography, University of Victoria
fduerden@uvic.ca

[2] Northern Climate ExChange, Yukon Research Centre