

By Tim Williamson PhD.,
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Adapting to Climate Issues and Challenges for

CURRENTLY THERE ARE 324 COMMUNITIES across Canada (of which 110 are in BC) that are considered to be reliant on the forest industry (see: atlas.nrcan.gc.ca/site/english/index.html). How will these communities be affected by climate change and what are they going to do about it?

Governments around the world have agreed that along with the need to reduce greenhouse gas emissions, adaptation measures are needed to reduce the net impacts of climate change. Adaptation in forestry is particularly complex because of the inherently long-term nature of forest management. Ideally, our choices today regarding harvesting, land use and forest management should consider what the future forest will be (or could be) under what is likely to be significantly different climatic conditions. However, there is a high level of uncertainty about the pace, magnitude and continuity of climate change and about how forests may respond to the various trends. A systematic and structured approach to assessing vulnerability to both current and potential future climates may reduce some of this uncertainty and increase resilience.

Climate impacts on forest-based communities are multi-faceted and dynamic meaning that understanding climate vulnerabilities at local scales requires multi-disciplinary and integrated approaches. A vulnerability assessment begins with having an understanding of how the current climate impacts forests and forest companies and then assessing how it translates into impacts on communities under a changing climate. For example, climate affects ecosystem processes (e.g. growth and disturbance) and ecosystem composition. It also affects the global distribution and productivity of forests. Thus, climate change may have implications for fibre quantity, quality and forest products prices. Impacts on communities, therefore, will be the result of complex interactions between a number of biophysical and economic factors.



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Moreover, impacts will vary depending on how successful a particular community has been at adapting and this, in turn, is partly a function of a community's adaptive capacity (an increased ability to adapt to change and deal with new risks).

A significant challenge associated with assessing the impact of climate change and taking adaptive action is uncertainty. Uncertainty in forest management may, in turn, increase economic uncertainty and various types of risks for communities. Researchers are actively working to improve models that simulate climate and climate-vegetation interactions, but significant challenges must be overcome to achieve a level of certainty that is suitable for operational decision making. Nonetheless, it is possible to promote features or properties that will increase the ability to deal with uncertainty and risk, such as 1) flexibility, 2) having access to diverse portfolios of prescription options, technologies and products, and 3) the promotion of adaptive management.

Another way to deal with heightened uncertainty is to consider enhancement of the inherent adaptive capacities of our forest management systems and communities. Ecologist C.S. Holling suggests that society's best strategy for ensuring sustainability given the existence of pure uncertainty is to encourage and promote adaptive capacity. The current situation with climate

change reinforces this recommendation.

It is not possible to generalize about the adaptive capacity of all forest-based communities; however, there are some issues that raise concerns about the capacity of forest-based communities to adapt to climate change. First, forest-based communities that are located close to, or within, forests, tend to have economies that are often relatively small and undiversified and the local labour force is highly specialized. Second, our current institutions (including forestry institutions) have developed and evolved largely without consideration of various uncertainties, such as climate change. These institutions, therefore, may not be designed to readily promote and/or permit the kinds of adaptive measures that could reduce the impacts of climate change or increase benefits.



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The question now turns to what can we do? Climate change is a global issue with local implications. Its effects will vary dramatically over space and time. There is an emerging interest to initiate specific adaptation measures immediately. Such actions will need to be locally defined and most policies and decision making systems will have to be more flexible and responsive than they are now. Also, planning models will need to shift from relying on deterministic relationships, derived from historical data, to incorporating ranges of possible future

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outcomes (developed through synthesis of existing knowledge, modelling, expert opinion, scenario construction, etc).

The development of methods and data that will allow decision makers to assess the vulnerability of forests and the forest sector to current and future climatic conditions is essential to fostering sustainability. In the meantime, communities may want to consider early actions in the form of no-regrets adaptation measures (ex. creating FireSmart communities) and also intensifying their monitoring of changes in their local climate and its effects (see: www.naturewatch.ca/english/). The resulting indicators can provide very useful early warning signs of change in the surrounding landscape and increase awareness and dialogue about climate change and its potential effects at local levels.

The perception in recent years has been that climate change is an issue that is too

large, too distant, too intangible and too uncertain with which to be concerned today. However, this situation is changing. There are a growing number of forward-looking individuals who recognize the significance of climate variability and climate change and the role for proactive, vulnerability based adaptation strategies in enhancing



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the sustainability of BC's and Canada's forests, forest industries and forest-based communities. At the same time we need to acknowledge the limitations in our understanding of sources of future vulnerability and deal with this before we can make significant progress in adapting to climate change. 🍁

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Tim is a research economist with the Canadian Forest Service. He completed his PhD in Agricultural and Resource Economics from the University of Alberta in the spring of 2006. Tim works from the Northern Forestry Centre in Edmonton. Currently Tim's main study interests involve investigations looking into the vulnerability of Canada's forest sector to climate change.

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Three major consultancies join forces

Merger activities completed in May have brought together the broad experience and capabilities of Timberline Forest Inventory Consultants Ltd., J.S. Thrower & Associates Ltd. and GeoSpatial Consulting Incorporated.

Doug Walker, the new company's Edmonton-based President, says the unified operation is ready to take the stage as Canada's strongest and most geographically diverse full-service forest consultancy. The merger provides access to a group of more than 250 practitioners in eleven offices from Victoria to Thunder Bay, along with overseas operations in Chile. The new company will build upon each firm's reputation for delivering business solutions based on technological leadership, while continuing to improve and expand the level of service available to clients.

A new company name and identity is currently under development and is expected to be unveiled shortly. In the meantime, please visit Timberline's website for updates as the integration process unfolds: www.timberline.ca

