

# Climate Change Impacts & Adaptation in Ontario: Industry

Ontario Centre for Climate Impacts and Adaptation Resources (OCCIAR)

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## Overview of Climate Change Impacts on Ontario's Industries

The insurance, tourism, residential construction, manufacturing and trade industries are critical economic and employment drivers in Ontario. Being highly exposed to climate change impacts, the insurance and tourism industries have growing bodies of Canadian and international climate change research, and are the most advanced on developing adaptive actions. Other industries such as residential construction, manufacturing and trade remain under-analyzed. Manufacturing and residential construction are less exposed to these impacts, and have only recently started to consider climate change adaptation. Trade markets are considered the least vulnerable of these industries and show little evidence that the export sectors are developing adaptive actions.



Studies agree that Ontario will gradually become 'warmer and wetter' (IPCC, 2007), with average annual surface air temperatures expected to increase between 2.5 and 3.7°C by 2050 (from the baseline average 1961-1990) (CCDS, 2009; MOE, 2011). In addition, increases in annual precipitation are also expected, with the largest change to occur in the northeast while the lowest change expected in the western part of the province (CCDS, 2009).



Figure 1: Catastrophic insurance losses in Canada from 2006-2011 (Robinson, 2011).

## Industries that are Vulnerable to Changing Climate Conditions

**Insurance** – Personal and business claims related to extreme weather are at an all-time high and experts suggest that the industry may be vulnerable to a series of high-cost events taking place over short periods of time. In fact, Ontario's insurance industry has been hard hit by a series of high-cost climate events over the last few years. Examples include floods in Toronto (2005, 2013) and Attawapiskat (2013, 2014), and tornadoes in Goderich (2011) and Leamington (2013). As the frequency and intensity of extreme events increases, costs are expected to rise accordingly (see Figure 1).

**Tourism** – In Ontario, winter activities (e.g. ice-fishing, skiing, snowmobiling) have been affected by warming winter temperatures and more variable weather patterns. Increases in invasive species, emerging water quality issues and forest fire activity have affected summer activities such as camping, hiking and fishing. Future warming and weather variability will

continue to affect winter recreation and tourism negatively, and can negatively impact events such as the Tulip festival in Ottawa. Lower water levels in the Great Lakes will likely impact fishing and camping activities.

**Residential construction** –The residential construction industry faces emerging challenges related to climate change impacts. Damage caused by tornadoes, floods and extreme rain events may create an increased demand for resilient housing, regulatory changes (such as changes to the Building Code) and greater liability in connection with post-build damage due to climate-related events. Future increases in the frequency and intensity of extreme weather events is likely to place greater onus on residential construction companies to incorporate climate change adaptation into Ontario building designs.

**Manufacturing** – Climate change could limit key inputs to manufacturing such as water, timber or energy, which could negatively impact production. The industry may face additional challenges due to disruptions in supply chains or impacts to supporting infrastructure and services such as energy or communications. The Thailand floods and Japanese tsunami in 2011 resulted in significant losses for Ontario automobile manufacturers due to part shortages and delivery delays (DFAIT, 2012). Extreme weather may further disrupt operations by creating unsafe work environments for employees. Rapid changes in consumer demand could occur with significant changes in climate (e.g. increases in energy demand during extreme heat events).

**Trade** – Climate change can affect trade in Ontario by altering the region's comparative advantage, or by affecting supply chains. Changes to regional climate can reduce Ontario's ability to produce food, timber and energy, and may impact production rates in the manufacturing industry.

These changes could make Ontario's products less desirable for trade. Damage or disruption to the supply chain can cause delays or result in product shortages.

## Adaptation Opportunities

Adaptation is receiving more attention in each of the five industries highlighted below. Opportunities for additional adaptation are continually emerging.

**Insurance** – Adaptation includes examples of coverage adjustments and price increases. In some Ontario communities, high costs associated with extreme weather events have led insurance companies to remove sewer back-up protection. In recent years, premiums for many individual and business insurance policies have increased. In the future, the insurance industry could price climate change risks into insurance services and develop models that integrate climate change projections.

**Tourism** – Adaptation in the tourism industry is widespread, but primarily focused on addressing current climate risks with very little evidence of long-term climate consideration. However, there are some exceptions. Blue Mountain Ski Resort has diversified their business strategy to accommodate year-round activities and has invested in snow-making equipment to supplement natural snowfall. Ontario Parks has identified and assessed a broad selection of adaptation strategies throughout their operations, most notably for recreation and tourism.

**Residential construction** – Attention to climate change in this industry is still primarily focused on climate change mitigation. However, there are opportunities to promote adaptation through existing policies and processes. The building code can be updated to include prescriptive guidance to address future climate needs, land-use planning can be used to locate new housing developments in areas less vulnerable to climate risks, and existing homes can be retrofitted to reduce climate risk. Programs like the backwater valve subsidy in the Toronto have encouraged action from homeowners as well as builders.

**Manufacturing** – Adaptation in the manufacturing sector is primarily limited to the implementation of systems or strategies to govern environmental management, adaptive management, supply chain management or business continuity. Regulatory support may be needed to further promote adaptation in this industry.

**Trade** – Adaptation in this sector is largely limited to supply chain management at present. Future options could include identifying and promoting growth in select sectors to address climate-induced scarcity in other regions.



Figure 2: Insured losses from extreme weather events in Ontario (adapted from Figure 3, Kovacs and Thistlethwaite, 2011)

## References

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The information presented is based on Chapter 5 of NRCan's 2014 National Climate Assessment titled **Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptation** with additional Ontario-specific information. For more information on the National Assessment, please visit:

[www.nrcan.gc.ca/environment/resources/publications/10766](http://www.nrcan.gc.ca/environment/resources/publications/10766)