Yukon University

A Qualitative Overview of Climate Change and Business Risks: An Analysis of Potential Risks for Canadian and Yukon Businesses - Synthesis Summary

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Photo Credit: Climate Change Research, Yukon University

Introduction[i]

Climate change is reshaping economic landscapes by introducing fundamental risks to businesses worldwide. The United Nations Framework Convention on Climate Change (UNFCCC) Adaptation Committee has categorized these risks into five primary types: physical, price, regulation, reputation, and liability. This paper applies these categories to economic activities in the Yukon while introducing an additional category, ancillary risks. Through literature review and analysis of business project proposals submitted to the Yukon Environmental and Socio-economic Assessment Board (YESAB), this study highlights the extent to which Yukon businesses will be impacted by climate risk.

Physical Risks

Physical risks refer to direct damage to assets and workforce disruptions due to extreme climate change-related events. Three primary subcategories of physical risk are identified:

1. **Building Damage**: Climate events such as wildfires, floods, and permafrost thaw pose threats to business properties. Businesses relying on physical locations, such as restaurants, hotels, and retail stores, are particularly vulnerable. An example would be the commercial greenhouse that was damaged in the 2023 Klondike River flood.[ii]
2. **Asset Damage**: Climate-related disruptions may result in the loss of equipment and inventory, particularly in industries relying on perishable goods or heavy machinery. An example would the snowcat that sank to the bottom on the Yukon River while constructing the ice bridge at Dawson City.[iii]
3. **Workforce Risk**: Increased exposure to hazards like extreme temperatures and unstable travel conditions heightens employee risks, affecting productivity and overall business stability. Industries that rely on outdoor labour, such as construction and mining, face elevated risks of heat stress and

other work-related illnesses. For example, prolonged exposure to wildfire smoke for first responders, or simply for outdoor workers downwind of wildfires is a cause for health concern, particularly for those with underlying health conditions.[iv]

YESAB data indicates that while businesses recognize the risks of climate-related events, only a minority have specific mitigation plans. Despite acknowledging risks like flooding and wildfires, businesses have not disclosed comprehensive strategies to address long-term climate change effects.

Price Risks

Price risks emerge as climate change affects material costs, supply chain stability, and market demand. Three key aspects of price risk are examined:

1. **Natural Resource Shortages**: Limited water access and disruptions in material supply due to extreme weather events can pose financial challenges, particularly in energy, mining and agriculture sectors. Water-intensive industries, such as mineral extraction, face increased scrutiny and rising costs in years with water scarcity.
2. **Shortages Disrupting Supply**: Transportation interruptions, particularly in remote areas like the Yukon, can create cost fluctuations and scarcity of essential goods. An example would be the price of lumber futures after forest fire devastations in BC.[v]
3. **Devaluation**: Climate-induced devaluation affects property and asset values, especially in industries reliant on location-based appeal, such as real estate and tourism. Businesses located in high-risk zones may struggle to secure financing or maintain property values. A reduction in snow precipitation may devalue property values in areas known for skiing or other winter activities.[vi]

Regulation Risks

Governments implement new regulations to mitigate climate change impacts, imposing business compliance requirements. Key regulation risks include:

1. **Damage Impact Regulations**: Laws restricting business activities in high-risk areas (e.g., flood zones) may affect long-term business operations. A relevant Canadian example would be Quebec's land planning regarding the construction and repair of buildings in 20-year floodplains.[vii]
2. **Subsidies**: While government subsidies aid disaster recovery, their limitations in scope, eligibility, and funding levels pose financial risks for businesses relying on external support when insurance coverage ends. An example of this would be the DFAA.[viii]

Businesses that fail to comply with evolving regulations may face fines, loss of subsidies, or legal actions, impacting their financial viability. Moreover, shifting regulations regarding environmental responsibility could impose additional operational costs on businesses, particularly in resource-intensive industries.

Reputation Risks

Public perception of corporate climate responsibility significantly influences customer loyalty and investment appeal. Businesses that fail to demonstrate a commitment to sustainability may lose customers, investors, and partnerships.

Key factors influencing reputation risk include:

1. **Consumer Awareness**: Growing public concern about climate change has increased scrutiny of business practices. Companies perceived as negligent or exploitative may face boycotts, negative press, or loss of clientele.
2. **Greenwashing Accusations**: Businesses that falsely claim environmental responsibility without substantive actions may face backlash from environmental groups, media, and consumers. Legal consequences and regulatory penalties can further damage a company's credibility.
3. **Service Reliability**: Companies that fail to provide reliable services due to climate-related disruptions may suffer reputational harm. For instance, telecommunications providers in the Yukon have faced criticism for frequent service outages linked to climate events.

Liability Risks

Businesses are increasingly being held accountable for failing to disclose climate-related risks. Key risks include:

1. **Failure to Report**: Non-disclosure of material climate risks can lead to legal penalties, loss of investor confidence, and regulatory scrutiny. Publicly traded companies are particularly vulnerable to legal action if they fail to disclose potential financial risks linked to climate change. Non-publicly traded companies would do well to participate in voluntary disclosure.
2. **Inactivity Liability**: Poor planning and lack of climate adaptation strategies can result in lawsuits. Businesses that ignore climate risks may be deemed negligent, leading to financial penalties and reputational damage. The Mackenzie Valley Fibre Optic Link is a good example of poor planning and liability in the face of a changing climate.[ix]
3. **Dual Owner Liability**: The complexity of property ownership between landlords and business tenants complicates climate risk, with potential legal consequences if responsibilities are unclear. A lack of proactive planning between property owners and tenants can result in disputes and delays in disaster recovery efforts, particularly where insurance coverage is limited. Larger develop corporations in the Yukon should take extra care to ensure that disaster and response plans are in place and clear between all parties.

Ancillary Risks

Ancillary risks arise when public sector failures indirectly impact businesses. The three primary types of ancillary risks include:

1. **Loss of Natural Capital**: The degradation of environmental resources (e.g., water shortages, deforestation) affects industries reliant on natural capital, such as tourism and agriculture. Businesses that depend on ecosystem services may experience reduced productivity and increased costs due to resource scarcity. Yukon has an abundance of natural capital, but loss of crucial tourist sites could harm businesses that operate on the land.

2. **Public Infrastructure Vulnerabilities**: The Yukon's limited transportation networks, reliance on fragile energy grids, and climate-sensitive communication systems amplify businesses' risks from disruptions. A single extreme weather event can harm local businesses, emphasizing the need for resilient infrastructure. The destruction of the fibre line in Fort Nelson, BC is a good case study of how wildfires and public infrastructure loss can cause risk for businesses.[x]
3. **Health Service Limitations**: A strained healthcare system, exacerbated by climate-related health issues, reduces workforce productivity and business resilience. Increased cases of respiratory illness due to wildfire smoke and new infectious diseases in the Yukon could burden healthcare facilities, leading to workforce absenteeism.

Conclusion

This study underscores the urgent need for businesses to integrate climate risk adaptation into their strategies. Physical risks remain the most widely recognized category for Yukon businesses, though gaps exist in proactive adaptation planning, particularly regarding permafrost risks. Price, regulation, reputation, and liability risks require further attention to mitigate financial and legal vulnerabilities. Additionally, ancillary risks unique to northern economies highlight the dependence of businesses on broader societal and infrastructural stability. Proactive adaptation and sustainable business practices will be essential in ensuring long-term economic resilience in the face of climate change.

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[i] This synthesis document was created with the use of AI: ChatGPT, response to "Create a five-page synthesis document out of Climate Change and Business Risks: An Analysis of Potential Risks for Canadian and Yukon Businesses," OpenAI, February 26, 2025, edited for style and content to ensure consistency and validity.

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