ESG EXPLAINER

REALPAC

Physical Climate Risk

FUNDAMENTALS

OVERVIEW

Climate change has resulted in extreme weather events that cause adverse impacts to individuals, communities, governments and businesses. This explainer provides an overview of physical climate risks for commercial real estate companies and funds.

CORE CONCEPT

The top physical climate risks for commercial real estate assets and portfolios across Canada are outlined below (all asset classes):

Flood

Major or minor flooding can lead to property damage, business disruption, damage to critical equipment, and loss of life.

Flooding types include coastal, river (fluvial) and rain (pluvial).

Flooding has become the most widespread and costly natural disaster across Canada.

Wildfire

Wildfires can lead to property damage, business disruption and loss of life. Some properties are directly vulnerable to wildfire impacts due to their proximity to wildland-urban interfaces, while others may only be at risk of indirect consequences, such as exposure to smoky conditions, which may impact respiratory health and aggravate other pre-existing medical conditions.

Windstorm

High winds can loosen the perimeter flashing of the roofs, leading to roof detachment or "peel off".

Windborne debris can shatter windows.

High winds increase the probability of water entering the building.

Extreme Heat

Extreme heat can cause adverse impacts on tenants of buildings that lack air conditioning or adequately sized cooling systems.

It can also increase the likelihood of HVAC failure, damage heat-sensitive equipment (e.g., servers, freezers), impact water supply, cause business disruption, and lead to loss of life.

Source: Intact Centre for Climate Adaptation (adapted)

DEFINITIONS

Climate Change
A change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer.

Physical Climate Risks
Refers to the potential negative impacts of climate change due to event-driven (acute) extreme weather events or longer-term (chronic) shifts in precipitation and temperature and increased variability in weather patterns.

Extreme Weather Event
Unusual and severe weather occurrence that significantly deviates from typical conditions for a specific location and time period (e.g., flood, wildfire, windstorm).

Adaptation
The process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities.

Resiliency
The capacity of social, economic, and environmental systems to cope with a hazardous event, trend, or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure.

Sources: Adapted from the Intergovernmental Panel on Climate Change (IPCC), Intact Centre on Climate Adaptation, and Task Force on Climate Related Financial Disclosures (TCFD).

RISK MANAGEMENT – REDUCTION MEASURES*

Real estate companies and funds need to assess their physical climate risks in the context of their broader risk appetite.

This should include: (1) identifying which physical climate risks have the highest probability of affecting business operations; and (2) implementing financially prudent measures to mitigate identified physical climate risks.

Flood

Emergency Management Plan, including flood procedures.

Elevators are equipped with water sensors to automatically return to higher floors if water is in the basement or underground parking.

Critical equipment such as HVAC, electrical and communication systems and server rooms are elevated above expected flood levels or wet flood-proofed.

Wildfire

"Wildfire-resistant zone" is established within 10 metre perimeter of property.

Roofs and gutters are kept free of combustible materials, and openings and vents are equipped with non-combustible screen mesh.

HEPA/Activated Carbon filters are installed on HVAC system to cleanse air from wildfire smoke. For new construction, fire resilient materials should be used.

Windstorm

Roof is reinforced and additional fasteners are applied at the perimeter and corners.

Impact-resistant glass is installed to prevent shattering from debris.

Flood resilience measures are in place to mitigate damage that may be caused by windstorms, such as hurricanes.

Extreme Heat

Emergency Management Plan, including extreme heat procedures.

HVAC system is designed to effectively condition air and maintain thermal comfort of occupants under foreseeable extreme heat conditions.

Provisions are made for emergency backup during potential power outages.

***Notes:** (i) Real estate companies and funds may wish to start identifying and assessing physical climate risks by utilizing public resources such as FloodSmart Canada; (ii) CatNat data (catnat.net) can also be a helpful starting point to assess physical climate risks and may be available through a firm's insurance providers.

CANADIAN CITIES & FLOOD PREPAREDNESS

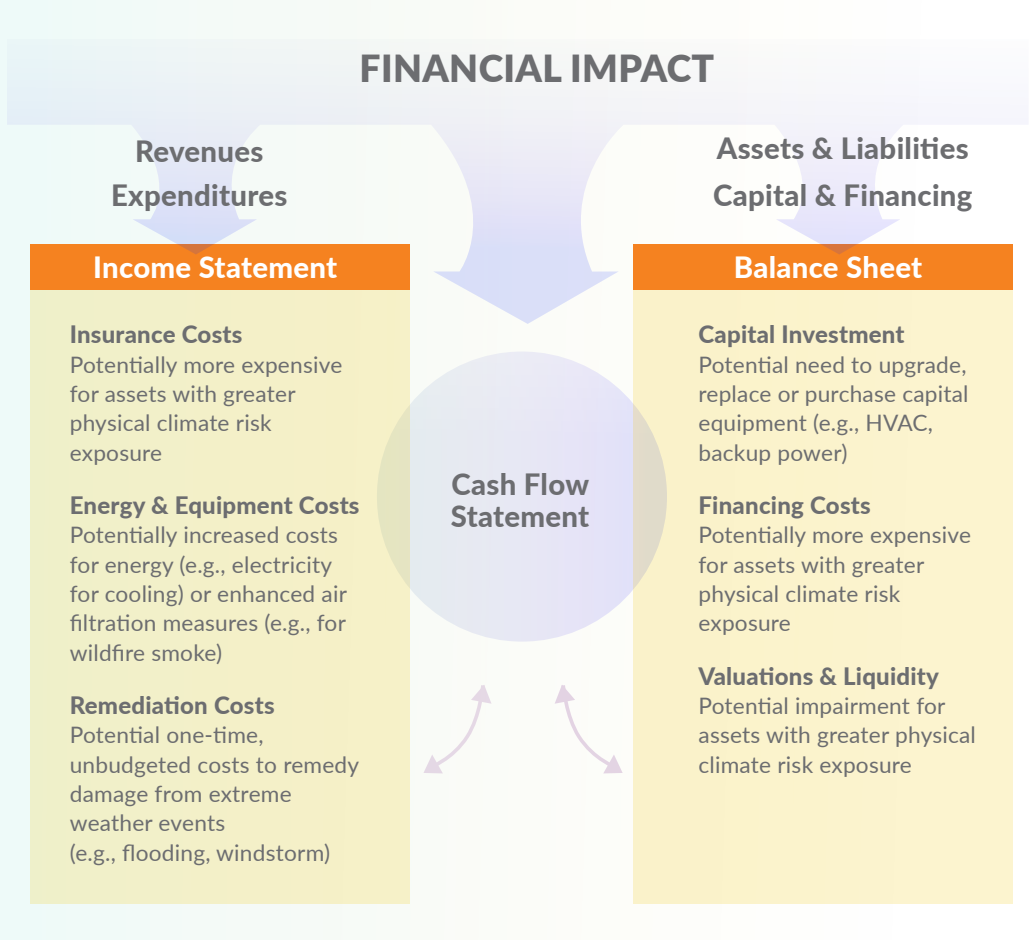
Source: Intact Centre Report: Climate Change and the preparedness of 16 major Canadian cities to limit flood risk (2019/2020).

Understanding what is happening at a city level is important for real estate companies and funds because it directly impacts the resilience of their buildings.

Flood preparedness of cities can be assessed based on a range of criteria, including flood risk assessment, land use planning, urban drainage assessment, critical infrastructure risk mitigation and emergency management capabilities.

FINANCIAL IMPLICATIONS

Real estate companies and funds should consider the financial implications associated with physical climate risks, such as the following:



REPORTING

An array of climate analytics data, software, and consulting services have emerged to help real estate companies and funds identify, measure, and report on physical climate risks.

The following are examples of KPIs that can be used to monitor and report on a portfolio's exposure to physical climate risks[1]:

KPI Examples

- Area of properties located in 100-year flood zones, by property sector (SASB IF-RE-450a.1)
- Area of properties where finished floor elevation is above 100-year flood levels, by property sector
- % of multi-residential portfolio with HVAC cooling capacity
- % of portfolio with completed physical climate risk assessments
- Physical risk score for asset/portfolio[2]
- Climate Value at Risk (CVaR)[2]

Notes: (1) Some KPIs listed are for internal use only (2) These metrics vary across physical climate risk analytics providers based on a range of factors including (i) hazards included or excluded; (ii) data description and source(s); (iii) nature of model; (iv) inclusion of physical and financial property-level information; (v) government, municipal, and asset-level risk mitigation considerations; and (vi) scenario analyses, time, and baseline assumptions.

SPOTLIGHT

Intact Centre on Climate Adaptation Report

Transitioning From Rhetoric to Action: Integrating Physical Climate Change & Extreme Weather Risk Into Institutional Investing

INTACT CENTRE
ON CLIMATE ADAPTATION

This report introduces a risk management protocol aimed at assisting financial market participants, including institutional investors, in integrating physical climate risk into investment decision-making and disclosure practices.

Additionally, it aims to provide guidance for implementing adaptation measures across industry sectors to mitigate potential losses.

The protocol introduced in the report uses Climate Risk Matrices (CRMs) as a key tool. These matrices are designed to identify industry-specific climate perils (including for real estate), assess their impacts, and propose mitigation strategies for consideration in investment decisions.

The CRM for Real Estate offers a practical framework for integrating physical climate risk into portfolio management practices and decision making.

PERFORMANCE SPECTRUM

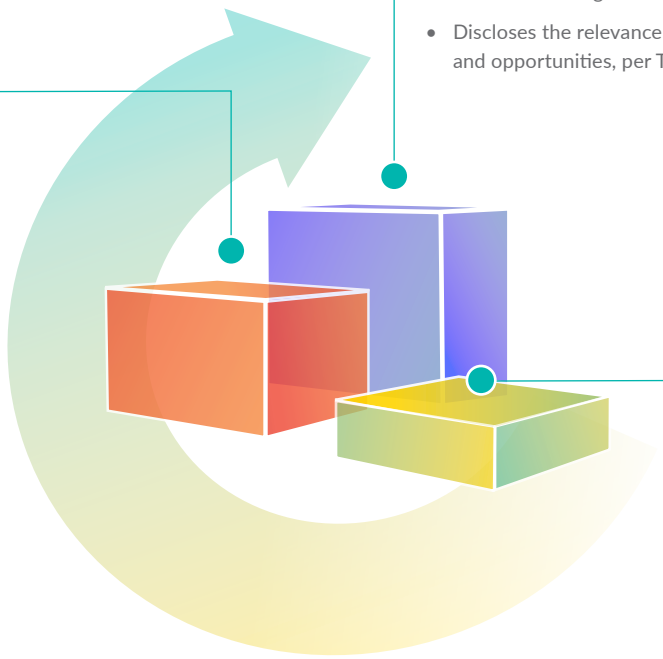
Managing physical climate risks effectively requires a strategic, proactive and sequenced approach. “Beginner”, “Intermediate” and “Advanced” performance levels are summarized below.

Advanced

- Performs location-specific risk analysis
- Establishes short, medium and long-term targets tied to business units
- Utilizes a leading industry tool to track and manage risks
- Discloses the relevance and financial implications of risks and opportunities, per TCFD recommendations

Intermediate

- Performs a scenario analysis
- Sets targets for areas of material risk exposures
- Considers physical risk exposures and has action plan(s) in place
- Embeds physical risk considerations in acquisition/due diligence and underwriting



Beginner

- Performs materiality assessment of risk exposures
- Identifies risks and opportunities that the organization is managing
- Determines risk exposure of assets

KEY REFERENCES

INTACT CENTRE ON CLIMATE ADAPTATION

The Intact Centre on Climate Adaptation is an applied research centre with a national focus, located within the Faculty of Environment at the University of Waterloo. The Intact Centre works with residents, communities, governments, and businesses to identify and reduce risks associated with climate change. They have published numerous papers on physical climate risk.

Government of Canada

The National Adaptation Strategy presents a comprehensive blueprint to reduce the risks that come with climate change impacts. It lays out a shared vision for how all levels of government can focus policy efforts to protect Canadian communities and effectively advance climate adaptation.

ULI Urban Land Institute

The Urban Land Institute (ULI) is a network of cross-disciplinary real estate and land use experts focused on shaping the future of the built environment. ULI has published reports on selecting climate analytics providers, climate risk and real estate investment decision-making, and wildfire resilience strategies for real estate.

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This Explainer was developed in collaboration with REALPAC members and will be periodically reviewed and updated. Contact us for further questions or details.