GOOD PRACTICES IN CLIMATE CHANGE RISK ASSESSMENT

SUPPORTING DOCUMENT
Federal, provincial and territorial governments in Canada have an opportunity and obligation to lead by example through addressing climate change risks and building their institutional resilience to it. Climate change risk assessments can form the basis of and inform adaptation strategies by providing a location-specific understanding of climate impacts and the risks they pose. This document was produced for the Canadian Council of Ministers of the Environment as a guidance document to inform good practices in conducting climate risk assessments across jurisdictions by all orders of government.

Climate change risk assessments are an integral part of any climate change adaptation effort as they offer a framework to identify, understand, and prioritize climate change risks; to ultimately support the selection of adaptation responses to reduce the identified risks.

There are a variety of good practices available to undertake a climate change risk assessment. In order to find a framework that suits a user’s needs, it is important to define and scope any risk assessment based upon goals, parameters, and available resources, before beginning data collection and analysis. While there may not be a single, ideal framework for assessing climate change risk, the following questions may help a user towards a given framework based upon their needs, objectives, and capacities related to understanding climate risks.

**THIS SUPPORTING DOCUMENT AND THE COMPLETE GUIDANCE DOCUMENT ON CLIMATE CHANGE RISK ASSESSMENT WERE PREPARED FOR THE CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT BY ICLEI CANADA.**
USING RISK ASSESSMENT TO INFORM DECISION-MAKING

Climate change risk assessments can support a variety of decisions or organizational processes.

ADAPTATION STRATEGY DEVELOPMENT
Risk assessments provide crucial information that acts as the building blocks or foundation for the development of adaptation strategies in response to the identified and prioritized climate risks.

EDUCATION AND INFORMATION PROVISION
Integrating risk assessment findings into awareness raising and educational campaigns can be particularly valuable especially when centred around the impacts of a changing climate such as early warning and response systems, hazard and vulnerability mapping, and participatory action research.

CAPITAL INVESTMENTS
Prioritized risk results can be used to inform the allocation of funding towards resilient infrastructure investments (e.g. flood levees, ecological restoration, mechanical and passive cooling in buildings, etc.).

OUTREACH AND ENGAGEMENT
The results of climate change risk assessments can be used to inform internal or external outreach and behaviour change efforts (e.g. emergency and disaster preparation, livelihood diversification, water conservation, etc.).

POLICY AND PROGRAM DEVELOPMENT
Completed climate change risk assessments can form a foundation for updating bylaws, regulations and other government policies or programs (e.g. building standards, land-use and zoning bylaws, hunting quotas, etc.).

TRANSITIONAL RISK AVOIDANCE
Transitional risks are related to changes in government policy, legal requirements, technological advancements, and market shifts that occur in order to mitigate climate change risks. Risk assessment findings can help an organization stay ahead of these types of policy or regulatory changes.
SIX QUESTIONS TO CONSIDER BEFORE STARTING A CLIMATE CHANGE RISK ASSESSMENT

1. WHAT IS THE GOAL OF THE RISK ASSESSMENT?
There may be one or several reasons for pursuing a climate change risk assessment. Knowing what drivers are motivating the risk assessment, or what information is sought through the assessment, can help to determine a path forward.

2. WHAT CAPACITIES AND CONSTRAINTS EXIST?
There will likely be constraints when it comes to conducting a climate change risk assessment. The most common include budget, personnel, expertise, timeline, and data accessibility. Knowing constraints in advance will help scope the assessment.

3. WHAT IS THE SCALE AND FOCUS AREA?
Is a risk assessment intended to analyze a single piece of infrastructure or all infrastructure assets? Scale can also refer to geographic scale of assessment – is this a measurement across a region, a territory, or a province? Determining the scale of the risk assessment will help in selecting an appropriate methodology.

4. WHAT DATA WILL BE USED?
Various data and information can be used and applied in the risk assessment. Most risk assessment processes are flexible and allow for a combination of qualitative data (e.g. lived experiences and Indigenous Knowledge) as well as quantitative data (e.g. climate projections, data collection and hazard mapping).

5. HOW INCLUSIVE WILL THE RISK ASSESSMENT BE?
Almost all methodologies recommend partner and stakeholder engagement, but some are more collaborative and inclusive than others. The types of partners and stakeholders engaged, scope of that engagement, and degree of engagement will vary between methodologies.

6. HOW WILL RISK BE MEASURED OVER TIME?
Climate change is not a linear process, and risks will evolve and change over time. Risk assessments provide a snapshot of risk(s) in time. In order to be meaningful in the long-term, risk assessments need to be repeated, following an iterative process.
Within the Guidance Document, six frameworks are presented as demonstrating good practices in climate change risk assessment. For each good practice a supporting case study is presented to illustrate how that framework has been applied. The case studies offer an opportunity to learn lessons from how the frameworks were applied and how they can be replicated elsewhere. The six frameworks included are:

1. **ISO 31000:2018 RISK MANAGEMENT GUIDELINES**
2. **ONTARIO CLIMATE CHANGE AND HEALTH TOOLKIT**
3. **BARC MILESTONE TWO: VULNERABILITY AND RISK ASSESSMENT**
4. **CLIMATE CHANGE PLANNING TOOLS FOR FIRST NATIONS**
5. **PIEVC ENGINEERING PROTOCOL**
6. **MIXED-METHOD APPROACH TO RISK ASSESSMENT**

These good practices were selected for the degree to which they adhered to a set of guiding principles developed to provide a foundation for selecting a framework that can effectively assess climate change risk. The guiding principles were divided into the following six categories that assess the degree to which:

- The framework is participatory or integrative.
- The framework is clear and easy to use.
- The framework can be localized.
- The framework is scalable and transferable.
- The framework can be replicated.
- The framework uses best available information.

The guiding principles should be considered when selecting an organization’s climate change risk assessment framework and/or process.
Examples include:
- Health system
- Transportation sector
- Individual infrastructure asset class (e.g. roads, bridges)

Examples include:
- Regional district
- Province
- Territory

Assessment includes the knowledge, skills, and experiences of multiple partners and perspectives. This may include relevant departments, local groups and organizations, community members, and more.

Assessment includes involvement of individuals with a strong understanding of the subject matter, climate change, and technical considerations related to data and risk management.

Assessment recognizes the importance of both parameters and includes involvement of both sets of expertise.
Use the following answer key to determine where to focus your review of good practices in climate change risk assessment. If you selected:

1-A  A Mixed-method approach is a good starting point for such an assessment. For more information regarding what this entails and its application, please refer to Section 4.6 in the Guidance Document.

2-A  BARC Milestone Two and the Climate Change Planning Tools for First Nations are good starting points for such an assessment. For more information regarding what these entail and their application, please refer to Section 4.3 and 4.4 (respectively) in the Guidance Document.

1-B  The Ontario Climate Change and Health Toolkit, ISO 31000:2018, and the PIEVC Engineering Protocol are good starting points for such an assessment. For more information regarding what these entail and their application, please refer to Section 4.1, 4.2, and 4.5 (respectively) in the Guidance Document.

2-B  ISO 31000:2018 is a good starting point for such an assessment. For more information regarding what this methodology entails and its application, please refer to Section 4.2 in the Guidance Document.

1-C  A Mixed-method approach is a good starting point for such an assessment. For more information regarding what this entails and its application, please refer to Section 4.6 in the Guidance Document.

2-C  ISO 31000:2018, BARC Milestone Two, or a Mixed-method approach are good starting points for such an assessment. For more information regarding what these entail and their application, please refer to Section 4.2, 4.3, and 4.6 (respectively) in the Guidance Document.