CCME

Canadian Council of Ministers of the Environment

Le Conseil canadien des ministres de l'environnement

GOOD PRACTICES IN CLIMATE CHANGE RISK ASSESSMENT

A Summary

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For the full document, see *Guidance on Good Practices in Climate Change Risk Assessment* (CCME 2021).

PREPARING FOR A FUTURE CLIMATE

Federal, provincial and territorial governments in Canada have an opportunity to lead by example by addressing climate change risks and building institutional resilience. Climate change risk assessments lay the foundation for adaptation strategies by providing a localized understanding of climate impacts and the risks they pose.

This document provides a snapshot of the Canadian Council of Ministers of the Environment's (CCME) *Guidance on Good Practices in Climate Change Risk Assessment (2021).*

An integral part of adaptation efforts, risk assessments offer a framework for systematically identifying, understanding and prioritizing climate change risks. The results of these assessments ultimately help inform responses to reduce the identified risks.

A risk assessment can be undertaken using a variety of good practices. To choose a framework that best suits a user's needs, it is important to define and scope the goals, parameters and available resources before beginning data collection and analysis. While no single framework is best for assessing all climate change risks, this document is intended to help users understand key considerations before undertaking a risk assessment. The full guidance document provides additional information on the types of frameworks available and how to select an appropriate framework based on the user's objectives, resources and capacity.

USING RISK ASSESSMENTS 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 can serve as a strong foundation for the development of adaptation strategies in response to the identified and prioritized climate risks.

EDUCATION AND INFORMATION

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 assessment results can be used to inform the allocation of funding toward resilient infrastructure, such as flood controls, ecological restoration, and mechanical and passive cooling systems in buildings.

OUTREACH AND ENGAGEMENT

The results of risk assessments can be used to inform internal or external outreach and behaviour-change efforts, including emergency and disaster preparation, economic diversification and water conservation.

POLICY AND PROGRAM DEVELOPMENT

Risk assessments can inform updates to bylaws, regulations and other government policies or programs, including building standards, land-use and zoning bylaws, and hunting quotas.

TRANSITIONAL RISK AVOIDANCE

Risk assessment findings can help organizations stay ahead of policy or regulatory changes, including transitional risks such as changes in government policy, legal requirements, technological advancements and market shifts that occur to mitigate climate change risks.

SIX QUESTIONS TO CONSIDER

BEFORE STARTING A CLIMATE CHANGE RISK ASSESSMENT

1 WHAT IS THE GOAL OF THE RISK ASSESSMENT?

Stakeholders could have a variety of reasons for pursuing a risk assessment. Knowing what is motivating the risk assessment and what information users are keen to uncover can help determine which framework is best suited to achieve the users' goals.

2 WHAT CAPACITIES AND CONSTRAINTS EXIST?

Any risk assessment will likely need to be completed within certain constraints. The most common constraints include budget, personnel, expertise, timelines and data accessibility. Identifying these constraints in advance will help set the scope of the assessment.

3 WHAT ARE THE SCALE AND FOCUS AREA?

It is important to define the scale and focus for a risk assessment before beginning data collection. For example, does it intend to analyze a single piece of infrastructure or all infrastructure assets? Will it assess risks across a city, region, territory or province? Will it focus on a specific sector or system (e.g., health, infrastructure assets, etc.)? Determining the scale and focus will help users select the appropriate methodology.

4 WHAT DATA WILL BE USED?

A variety of data and information can be used and applied in a risk assessment. Most risk assessment approaches are flexible and allow for a combination of qualitative data (e.g., lived experiences and Indigenous Knowledge) and quantitative data (e.g., climate projections, data collection and hazard mapping).

5 HOW INCLUSIVE WILL THE RISK ASSESSMENT BE?

Almost all risk assessment methodologies recommend partner and stakeholder engagement, but some frameworks are more collaborative and inclusive than others. The types of partners and stakeholders engaged, and the scope of that engagement, will vary between methodologies.

6 HOW WILL RISKS 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 these risks at a specific time. In order to be meaningful in the long term, risk assessments need to be repeated following a regular review and update process.

GOOD PRACTICES AND CASE STUDIES INCLUDED IN THE GUIDANCE DOCUMENT

Six established frameworks are presented in *Guidance on Good Practices in Climate Change Risk Assessment*. Each explanation includes a supporting case study to illustrate how that framework has been applied at a given scale or jurisdiction. The case studies demonstrate how the frameworks were applied and offer an opportunity to learn how they can be replicated elsewhere. The six frameworks are:

1. ONTARIO CLIMATE CHANGE AND HEALTH TOOLKIT
2. BUILDING ADAPTIVE AND RESILIENT COMMUNITIES (BARC) MILESTONE 2: VULNERABILITY AND RISK ASSESSMENT
3. PUBLIC INFRASTRUCTURE ENGINEERING VULNERABILITY COMMITTEE (PIEVC) ENGINEERING PROTOCOL
4. INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO) 31000:2018 RISK MANAGEMENT GUIDELINES
5. CLIMATE CHANGE PLANNING TOOLS FOR FIRST NATIONS
6. MIXED-METHOD APPROACH TO CLIMATE CHANGE RISK ASSESSMENT

These frameworks all adhere to a set of guiding principles that have been identified as foundational to an effective climate change risk assessment. The six guiding principles assess the degree to which the framework is or can be:

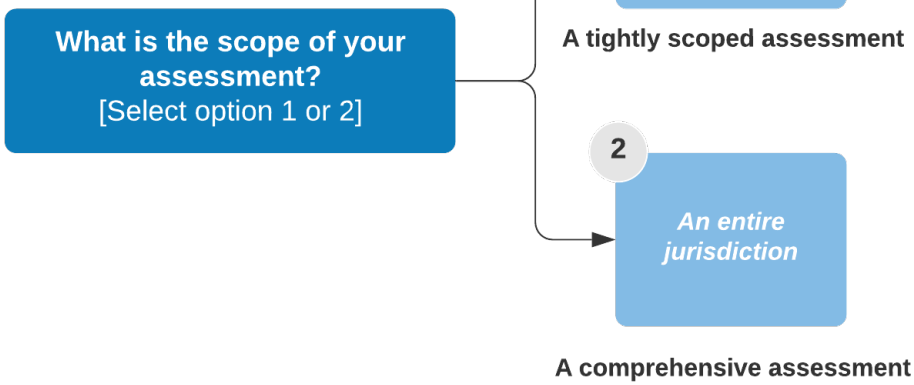
- participatory and integrative
- clear and easy to use
- contextual and localized
- scalable and transferable
- replicable
- based on the best available information.

These guiding principles should be considered when selecting a climate change risk assessment framework or approach.

SELF-QUESTIONNAIRE: NAVIGATING GOOD PRACTICES IN CLIMATE CHANGE RISK ASSESSMENT

While no single framework is ideal for assessing all climate change risks, the following questions are designed to help users choose a risk assessment scope and approach based on their needs, objectives and capacities.

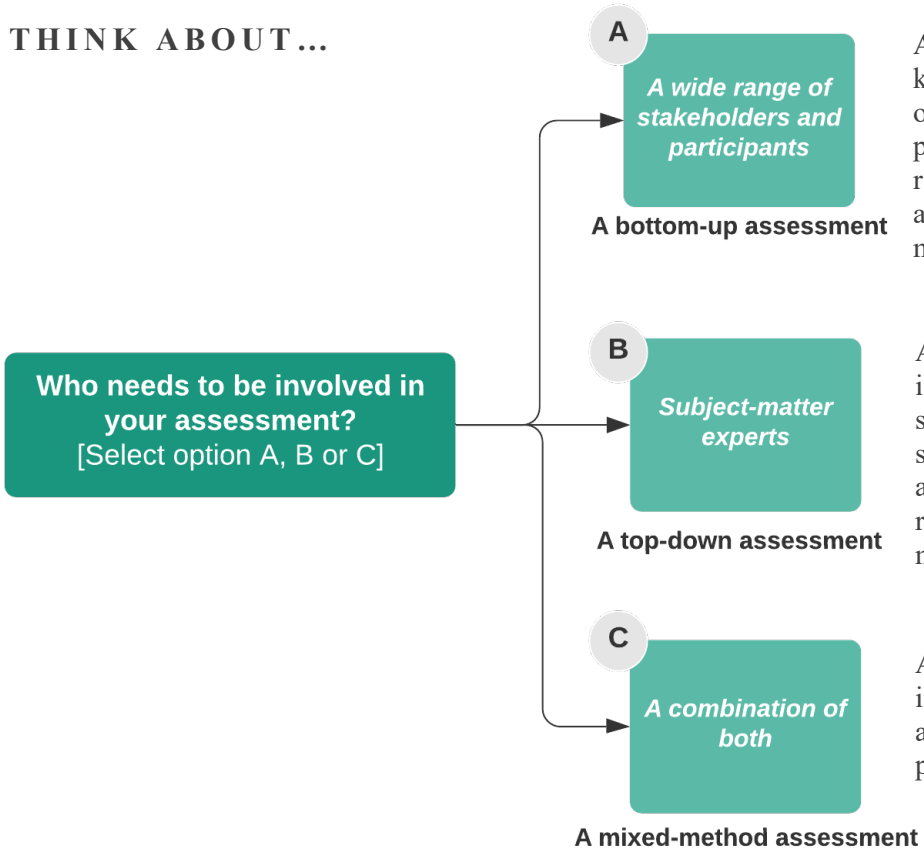
FIRST, THINK ABOUT…



Examples include:
- Health system
- Transportation system
- Individual infrastructure asset class (e.g., roads, bridges)

Examples include:
- Regional
- Provincial
- Territorial

NEXT, THINK ABOUT…



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 the 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 people with both sets of expertise.

ANSWER KEY

THE RESULTS OF THE SELF-QUESTIONNAIRE CAN HELP USERS DETERMINE WHICH GOOD PRACTICES BEST ADDRESS THEIR NEEDS.

1-A A **mixed-method approach** is a good starting point for such an assessment. For more information regarding this approach and its application, please refer to Section 4.6 in the guidance document.

1-B The **Ontario Climate Change and Health Toolkit, ISO 31000:2018** and the **PIEVC Engineering Protocol** are all good starting points for such an assessment. For more information regarding these approaches and their applications, please refer to Sections 4.1, 4.2 and 4.5 (respectively) in the guidance document.

1-C A **mixed-method approach** is a good starting point for such an assessment. For more information regarding this approach and its application, please refer to Section 4.6 in the guidance document.

2-A **BARC Milestone 2** and the **Climate Change Planning Tools for First Nations** are good starting points for such an assessment. For more information regarding these approaches and their applications, please refer to Sections 4.3 and 4.4 (respectively) in the guidance document.

2-B **ISO 31000:2018** is a good starting point for such an assessment. For more information regarding this approach and its application, please refer to Section 4.2 in the guidance document.

2-C **ISO 31000:2018, BARC Milestone 2** and a **mixed-method approach** are all good starting points for such an assessment. For more information regarding these approaches and their applications, please refer to Sections 4.2, 4.3 and 4.6 (respectively) in the guidance document.