



Climate Adaptation Competency Framework

2021

by Robin Cox, Susanna Niederer, Vivian Forssman, Lynn Sikorski.
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Acknowledgments

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FEEDBACK

We welcome input and feedback to this document. We anticipate two cycles of integrating feedback and publishing updated versions:

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Please provide your input and feedback on the form found [here](#).

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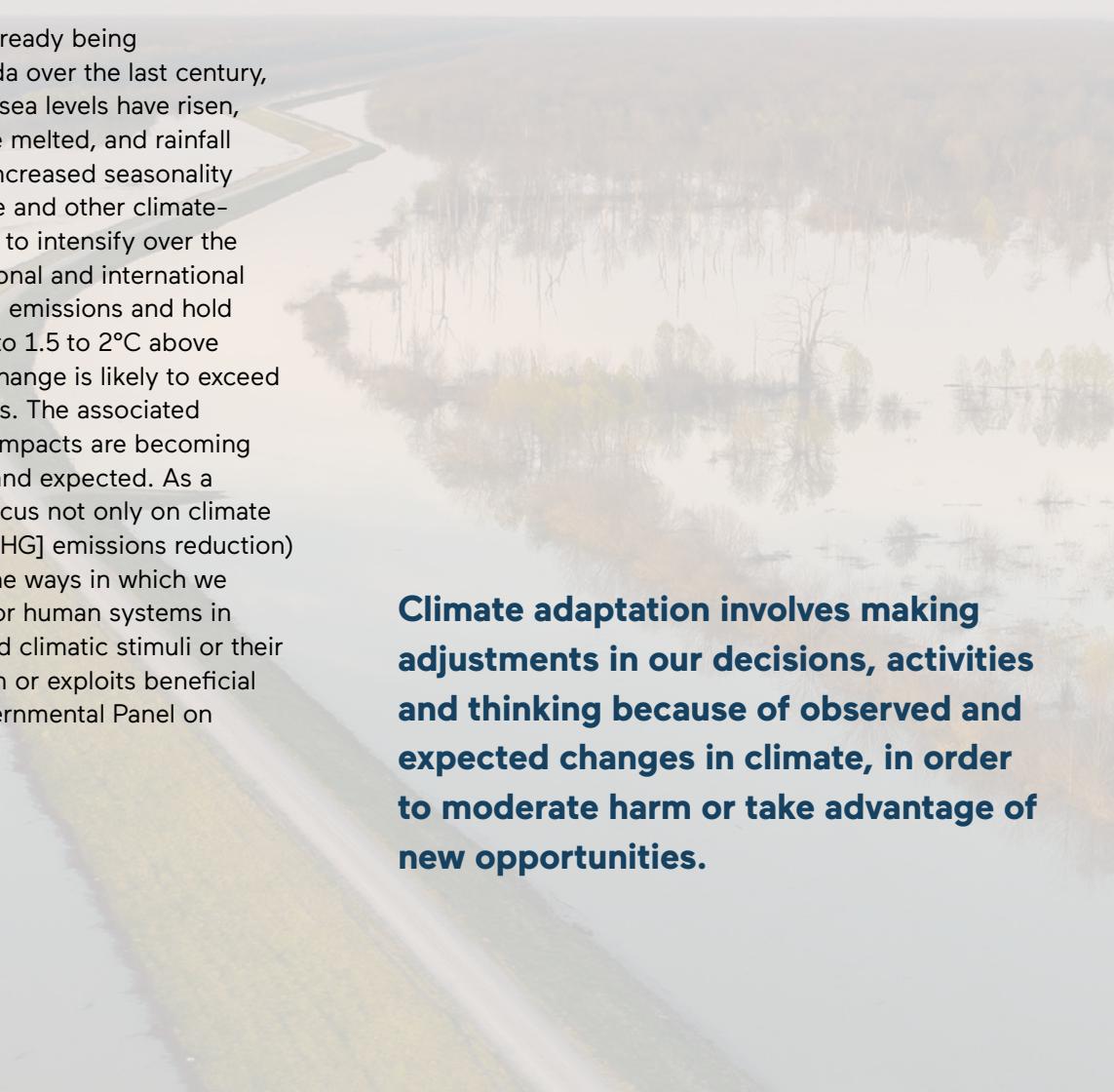
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1.0 Introduction

BACKGROUND

Climate change impacts are already being experienced globally. In Canada over the last century, temperatures have increased, sea levels have risen, Arctic ice and permafrost have melted, and rainfall patterns have changed, with increased seasonality and heavier downpours. These and other climate-related changes are projected to intensify over the coming decades. Despite national and international agreements to work to reduce emissions and hold global temperature increases to 1.5 to 2°C above pre-industrial levels, climate change is likely to exceed these global temperature levels. The associated increase in adverse risks and impacts are becoming progressively more plausible and expected. As a result, there is an increased focus not only on climate mitigation (greenhouse gas [GHG] emissions reduction) but also climate adaptation (the ways in which we make “adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” – The Intergovernmental Panel on Climate Change – IPCC)



Climate adaptation involves making adjustments in our decisions, activities and thinking because of observed and expected changes in climate, in order to moderate harm or take advantage of new opportunities.

1.0 Introduction

WHAT IS CLIMATE ADAPTATION?

The concept of climate adaptation is closely tied to that of resilience. Both concepts refer to the ways in which systems anticipate and adjust to external stresses, disruptions and changes. In the past decade, the concept of resilience has gained currency as a core concept within sustainable development, emergency and disaster management, and more recently, climate adaptation.

Climate adaptation involves making adjustments in our decisions, activities and thinking because of observed and expected changes in climate, in order to moderate harm or take advantage of new opportunities

WHY ADAPT?

As the impacts of anthropogenic or human caused climate change are becoming more visible, unavoidable, and of increasing severity and complexity, the need for climate adaptation has become more recognized. Because climate change affects all aspects of society, so too does climate adaptation require a whole-of-society approach, with engagement and contributions from all levels of government, private and public institutions and organizations, and across multiple sectors. Climate adaptation touches on regional, national and international policy landscapes; reconciliation agendas and the consideration and integration of Indigenous knowledges and rights; health systems and the health and well-being of populations; strategic planning and management; climate change communications; natural resource management; disaster risk management; business; accounting; change management; energy management; insurance; and community engagement.

1.1 Competency Frameworks

CLIMATE CHANGE COMPETENCE

The implications of climate change on workforces and labour markets is still emerging with many unknowns. However, it is certain that climate change and the mitigation and adaptation actions taken in response to climate change will have broad implications for employment including workforce regulations, the growth of new green jobs, and the identification of skills and labour market gaps. The emergent nature of this field also means that there are presently few resources to help guide an understanding of what competencies are needed, and at what level of proficiency or expertise those competencies might be required for any specific role or function. Despite a small but rapidly growing number of jobs focusing on climate adaptation, climate action, climate resilience, and sustainability, there are currently no National Occupational Classifications (NOC; the Canadian system for describing occupations) that specify climate change or climate adaptation, or that provide guidance to businesses, organizations, consultants and educational/training institutions interested in incorporating climate adaptation into their plans and practices.

COMPETENCY FRAMEWORKS

Individual competencies are rarely applied in isolation but are used as an integrated bundle within the business context. Competency models or frameworks are used to organize relevant competencies into related groupings or domains, providing a coherent structure for managing and developing the competencies necessary for a job, role, or discipline. A competency framework provides a defined set of competencies that can help ensure that individuals and/or teams have the necessary expertise and abilities required to perform a function or to identify gaps in competencies that might be addressed by additional education and training, professional development or hiring. A well-grounded competency framework is an effective approach to managing workforce development and performance monitoring and helps those hiring and those applying for jobs and contracts understand what skills, behaviours and attitudes are needed to perform the work effectively. Instructional designers, who work with subject matter experts to build courses for training and educational purposes, may use a competency framework to identify learning outcomes for a course. A competency framework can help all of these different actors take a more cohesive approach to competency development.

1.1 Competency Frameworks

CLIMATE ADAPTATION AND PROFESSIONAL DEVELOPMENT

As a result of the cross-functional nature of climate adaptation, a broad range of professions are being called on to consider the implications of climate change in their work, and where appropriate integrate climate adaptation principles and practices into their work. People on the front lines of planning and implementing climate adaptation include financial analysts and accountants, risk-managers, engineers, biologists, agrologists, foresters, landscape architects, city planners, architects, technicians, and policy and decision makers in all levels of government. Indigenous peoples bring important historical and natural system knowledge into the planning and implementation of climate adaptation solutions.

In this context, therefore, a competency framework can provide the basis for a practical, systematic, and easy-to-use developmental road map for individuals, organizations, and communities who are integrating the practices of climate adaptation.

Snow-covered windbreaks, roads, and fence lines. The thick lines are trees planted to protect fields from dry wind and erosion; these windbreaks retain snow, allowing more moisture to penetrate into the soil.

Volga River, Russia



1.2 Background

ORIGINS

Developing climate adaptation competencies, and the capacity and capability that flow from them, requires a shared understanding of what the specialized competency requirements are, and some standards of competence for those involved in the field. In response to this need, the Adaptation Learning Network Project, led by Dr. Robin Cox and the Resilience by Design (RbD) Lab at Royal Roads University, and funded by Natural Resources Canada and the BC Ministry of Environment and Climate Change Strategy, has undertaken the design and development of a Climate Adaptation Competency Framework. The design and development process of the Climate Adaptation Competency Framework has involved the contributions and insights of many climate adaptation subject matter experts, practitioners, and others with vested interests in the use of such a framework.

PURPOSE

The Climate Adaptation Competency Framework attempts to illustrate the different breadth of competencies necessary to deal with and prepare for a climate change-altered present and future. It details the central competencies required by someone working as an adaptation specialist or working in a profession or field in which climate concerns and climate adaptation are being integrated. It provides individuals, managers, and teams with a shared understanding of what competencies are necessary for leading, participating in, delivering and implementing climate adaptation plans, strategies, policies, programs and projects. As a tool, it helps provide a basis for shaping behaviours that strengthen individual or team capacities and capabilities, and thus enhances performance outcomes relative to the accountabilities of specific roles or jobs. By providing a list of clearly defined competencies and associated behaviours, the Climate Adaptation Competency Framework helps individuals and organizations better understand factors that contribute to performance excellence and helps focus capacity development efforts.

1.2 Background

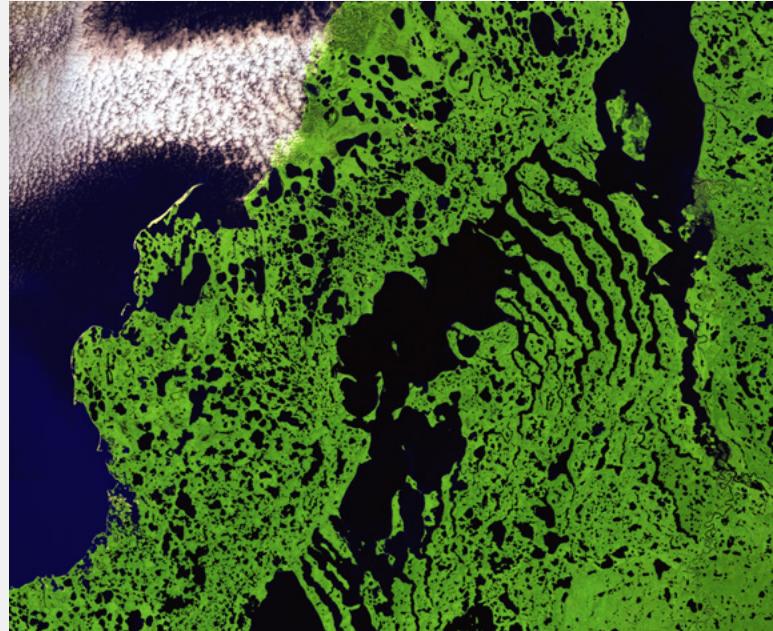
HOW TO USE THE CLIMATE ADAPTATION COMPETENCY FRAMEWORK

Although all the competencies in the Climate Adaptation Competency Framework are deemed to be relevant to the work of climate adaptation, there is no expectation that one needs to be an expert in all the competencies listed. Different roles will require different levels of proficiency in different competencies. It is critical, however, to understand how these competencies interrelate as part of an integrated whole, and to identify how a team, organization or other group might collectively bring expertise in all areas. Whether climate adaptation evolves to become its own specialized field or discipline remains to be seen, and one's professional role will dictate the role-specific competency expectations, i.e., the extent to which they must be able to put each competency into practice. The Climate Adaptation Competency Framework can help support a coherent approach to climate adaptation competency development and management.

1.2 Background

THE CLIMATE ADAPTATION COMPETENCY FRAMEWORK WAS DEVELOPED TO

1. Establish a shared understanding of climate adaptation competencies by detailing the central competencies necessary to climate adaptation, and examples of associated behavioural indicators for those competencies.
2. Offer a practical, systematic road map or tool for individuals, organizations, teams and others to guide capacity and capability development, and to support objective assessments of competency strengths and gaps in the workforce.
3. Enable individuals and businesses to facilitate professional development and training agendas to develop capacity in this field.
4. Support those interested in further developing climate adaptation capacity through recruitment and hiring qualified candidates.
5. Shape behaviours that strengthen the individual's capability and thus enhance performance outcomes relative to accountabilities of specific roles.



Summer lakes in the Arctic lowlands.
These areas are particularly at risk
of climate-related sea-level rise.
Liverpool Bay, Canada

In keeping with the distributed nature of adaptation, across disciplines and types of organization, the Climate Adaptation Competency Framework has a broad scope. It is meant to provide diverse individuals, organizations, industries, and communities with a way of understanding and building the knowledge and skills necessary for designing, planning and implementing adaptation strategies, actions, and plans.

1.3 Audience

The audience for the Climate Adaptation Competency Framework includes those who have an interest in, or accountability for building capability in climate adaptation competencies, including multiple user types from diverse professions, organizations and communities. This may include Indigenous and non-Indigenous community leaders, organizational leaders, educators, practitioners and professionals in all sectors, and human resource professionals working in organizations and institutions whose functions and responsibilities currently include or are evolving to include climate adaptation considerations in planning, strategies and actions.



Wildfire scars on the
Great Sandy Desert,
Western Australia

1.4 Key Terms

Capability

The deployment of organizational strategy through individual competencies and other assets, to accomplish organizational goals.

Climate Action

Climate action is a term that brings together climate mitigation (or the efforts to reduce greenhouse gas emissions) and climate adaptation.

Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods” (UN, 1992, p7; (see [United Nations Framework Convention on Climate Change](#)).

Climate Change Adaptation/ Climate Adaptation

Commonly refers to efforts to strengthen resilience and increase capacities of systems, individuals, communities, and organizations to adjust to actual or expected climate changes and associated effects in ways that moderate harm and/or use beneficial opportunities. It is defined by the UNFCC as “human-driven adjustments in ecological, social or economic systems or policy processes, in response to actual or expected climate stimuli and their effects or impacts (LEG, 2011). Various types of adaptation can be distinguished including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation (IPCC Fourth Assessment Report – AR4, 2007).” (see [United Nations Glossary of Key Terms](#)).

Climate Services

The Intergovernmental Panel on Climate Change (IPCC) defines climate services as “information and products that enhance users’ knowledge and understanding about the impacts of climate change and/or climate variability so as to aid decision-making of individuals and organizations and enable preparedness and early climate change action.” (see [IPCC Glossary](#))

1.4 Key Terms

Climate

Climate mitigation refers to efforts to slow global warming by reducing greenhouse gas emissions.

Competency

A competency integrates related knowledge, skills, and behaviours that contribute to individual and organizational performance. The Government of Canada defines competencies as “the combined utilization of personal abilities and attributes, skills and knowledge to effectively perform a job, role, function, task, or duty.” (see [Skills and Competencies Taxonomy](#))

Competencies in the current framework include both technical or climate adaptation specific competencies, plus enabling competencies which are those that support climate adaptation but are not specific to this discipline. In the Climate Adaptation Competency Framework, the enabling competencies, while generalizable to other disciplines or practice areas, have been modified to focus on dimensions that are specific to or emphasized in climate adaptation.

Competency Management

Competency management is a process whereby key competencies that contribute to organizational performance excellence are identified and intentionally managed and/or developed. The objective is to ensure that an individual or a team has the skills, knowledge and attributes to meet both current and future organizational goals.

Indigenous Knowledge

The term Indigenous knowledge systems refers to the ways of knowing, doing and being. These ways were developed by and within Indigenous societies independent of, and prior to the development of scientific knowledge systems.

Rights-holders and stakeholders

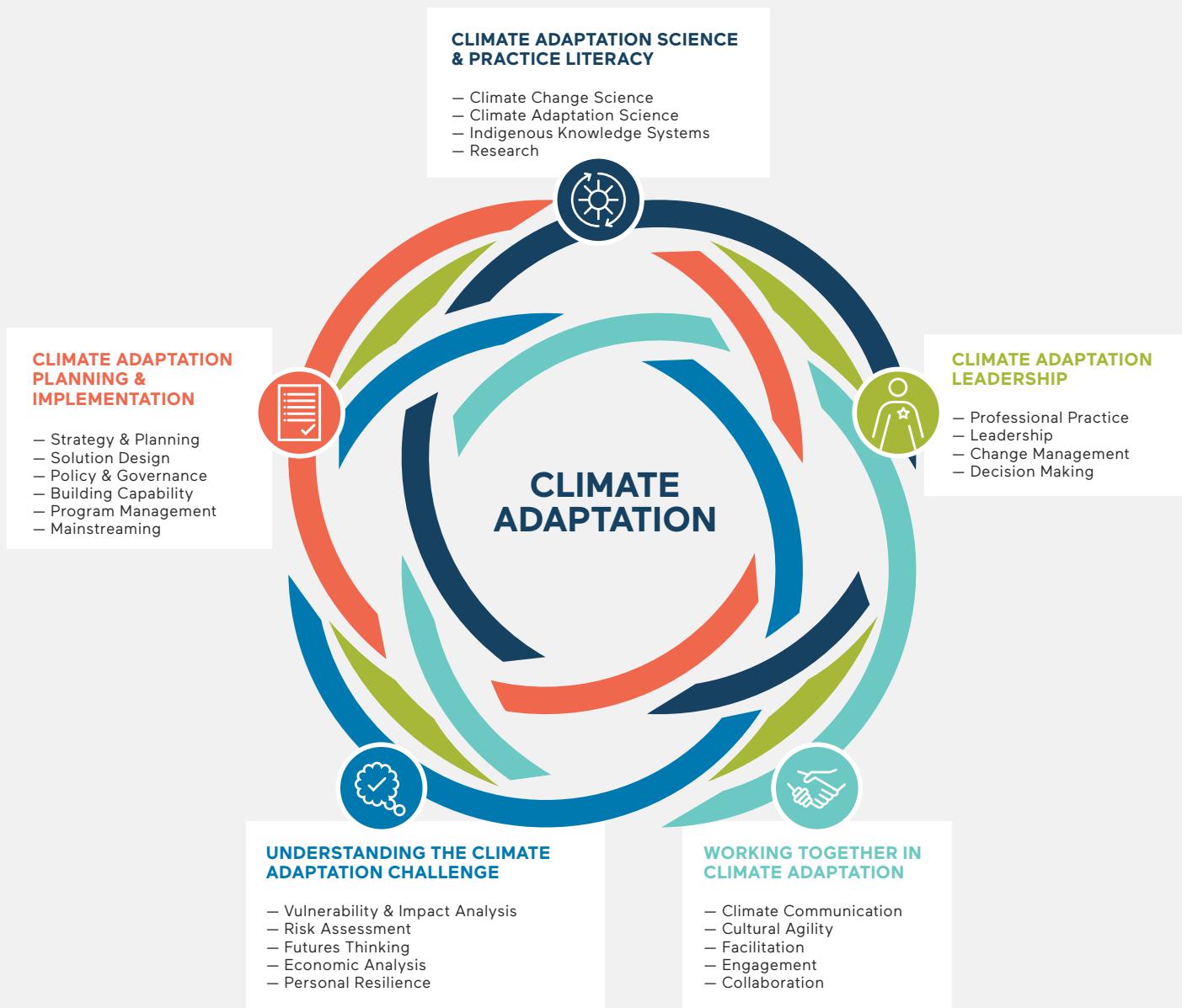
The term rights-holders recognizes the constitutionally protected rights and titles of Indigenous peoples and the need to recognize those in actions, projects, or initiatives; whereas stakeholder describes an individual, organization, or entity that has an interest in or is affected by an action, project, or initiative.

2.0 Climate Adaptation Competency Framework

OVERVIEW

The Climate Adaptation Competency Framework is organized by five competency domains or categories. These are: Climate Adaptation Science and Practice Literacy; Climate Adaptation Leadership; Working Together; Understanding the Challenge; and Planning and Implementation. Each of these domains includes four to six competencies, with each competency defined by descriptive statement, and then further elaborated by a set of behavioural indicators. Combined, these competencies detail the competencies that employees, contractors, and students require to be successful in undertaking climate adaptation actions.

CLIMATE CHANGE ADAPTATION COMPETENCY FRAMEWORK



2.0 Competency Domains

GENERAL GUIDELINES

As previously stated, not all of the specified competencies apply equally to all roles or functions, nor is it expected that each individual will have expertise in all competency areas. However, for an organization or individual to successfully undertake climate adaptation actions, we believe that it is necessary to build skills and practices in all five competency domains.

We have detailed some general guidelines on proficiency levels. In future iterations of the Climate Adaptation Competency Framework these levels will be tailored to each specific competency, however at this stage we have provided a four-level standard scale. The standard scale is meant to contribute to consistency and alignment of an appropriate level of proficiency for different roles or functions. As a standard rather than competency-specific scale, it is not meant to be used as an evaluation tool, but rather to support conversations and general assessments of where and how competencies are present or absent, and the degree or level of understanding, ability or expertise.

2.0 Competency Domains

THE FIVE BROAD COMPETENCY DOMAINS ARE
BRIEFLY DESCRIBED BELOW:

1. Climate Adaptation Science & Practice Literacy

Climate adaptation requires a foundation of knowledge or literacy in a number of scientific areas and from a number of different worldviews and perspectives. These include understanding and being able to consider, bridge, and apply knowledge drawn from Western climate change science and climate models, and Indigenous knowledge systems. It requires understanding and being able to apply systems thinking and climate adaptation science to a range of issues and opportunities.

2. Climate Adaptation Leadership

Effective leadership in the context of climate adaptation is adaptive, flexible, emotionally intelligent and culturally informed. This orientation to leadership recognizes the need for collaboration and cooperation amongst diverse rights-holders and stakeholders and is guided by principles and practices of culturally appropriate engagement, reconciliation, change management and adaptive decision-making processes.

3. Working Together in Climate Adaptation

Problem-solving in the context of complex or wicked problems such as climate change is fundamentally collaborative, relying on the insights and wisdom of multiple rights-holders and stakeholders, and generative, culturally safe dialogue and learning. Working in this space requires strong science-communication skills (Indigenous and Western science); the ability to engage diverse parties; and to foster a sense of commitment and ownership of the problem that translates into shared understanding and action.

2.0 Competency Domains

4. Understanding the Climate Adaptation Challenge

Understanding a climate adaptation challenge requires an orientation to problem-solving that is grounded in an understanding of the uncertainty, unpredictability and complexity of climate change and its impact on human (social, built, economic) and ecological systems. This approach to climate challenges understands that there is no single, definitive solution, rather that there are solutions that are better or worse or more or less adaptive or even maladaptive. Each solution may result in new, sometimes unanticipated consequences. Working with this kind of complexity requires a systematic and holistic analysis of the risks and impacts of both the problem and the solutions; assessing who and what is, or will be, most vulnerable; and iterating and learning from adaptation measures that are implemented. This includes considering the emotional and psychological consequences of climate change on individuals and communities/organizations and finding ways to maintain personal and collective wellbeing and resilience.

5. Climate Adaptation Planning & Implementation

As with unpacking the problem, generating and implementing climate adaptation measures relies on a systematic, holistic, and inclusive approach that is guided by an appreciation of the goal of maximizing long-term social and ecological resilience, biodiversity and economic and financial viability and, finally, mainstreaming adaptation. Climate adaptation planning and implementation requires being responsive to recognized policies, standards, regulations and agreements and applying a collaborative and outcomes-based approach that support iteration, and the ongoing learning and iteration of ideas and strategies that flows from systematic monitoring and evaluation.

3.0 Competencies

Twenty-four competencies have been identified, defined, and described. These competencies are based on data collected and a needs analysis relating to the work that is to be performed by Climate Adaptation practitioners, both Generalists and Specialists. All these competencies have been deemed as critical to the understanding and practice of climate adaptation and they all intersect and are mutually influential.



COMPETENCY DOMAIN —**CLIMATE
ADAPTATION
SCIENCE &
PRACTICE LITERACY**

- Climate Change Science
- Indigenous Knowledge Systems
- Climate Adaptation Science
- Climate Adaptation Research

COMPETENCY DOMAIN

CLIMATE ADAPTATION SCIENCE & PRACTICE LITERACY

**CLIMATE CHANGE SCIENCE**

Draws on climate science and Indigenous knowledge to analyse and interpret the impact of climate change on the built and natural environment, and on the economic, political, cultural, and social systems.

- Applies scientific principles and core concepts of climate change science and climate resilience, distinguishing the relationships between weather and climate, climate change adaptation and mitigation, and climate change and climate impacts.
- Identifies the complex interactions between climate and other systems (environmental, health, social, economic, and political) and integrates facts into climate systems analysis.
- Accesses and uses climate information provided through regional climate service centres (e.g., Pacific Climate Impacts Consortium, Ouranos, etc.) and is able to interpret global and local climate change trends, impacts, challenges and concerns, and use this information to inform policies and practices.
- Maintains a holistic (big picture) perspective that incorporates an understanding of the interdependent and interactive relationships between systems and within systems.
- Describes and discerns appropriate uses for climate models, as well as the limitations.

COMPETENCY DOMAIN —

CLIMATE ADAPTATION SCIENCE & PRACTICE LITERACY

**INDIGENOUS KNOWLEDGE SYSTEMS**

Considers the rights and knowledge of Indigenous peoples, taking into account their unique cultural experiences and perspectives on the environment, climate change and adaptation, governance and ways of being.

- Demonstrates understanding and respect for Indigenous rights and knowledge systems, including the value of collective processes and protocols, and their relationships to and reliance on the natural environment.
- Demonstrates openness and appreciation for local and regional Indigenous history, culture, traditional knowledge and worldviews, and Indigenous scientific methodologies.
- Adopts a relational approach to engaging and working with Indigenous peoples and communities.
- Considers and takes into account evidence from both Indigenous and Western science-based knowledge systems, applying a holistic and systems-based perspective in decisions and practices.
- Critically explores and integrates insights shared by local and Indigenous knowledge and rights holders to apply a holistic, relational lens to adaptation planning and actions.

COMPETENCY DOMAIN

CLIMATE ADAPTATION SCIENCE & PRACTICE LITERACY

**CLIMATE ADAPTATION SCIENCE**

Applies a theoretical and practical grounding in the core concepts of climate adaptation, drawing from both Indigenous and Western science approaches to analyse challenges and facilitate incremental and transformative measures.

- Approaches climate adaptation from a multi-disciplinary and holistic perspective, drawing from both Indigenous and Western science perspectives, concepts, and theories to leverage adaptation's trans-disciplinary nature.
- Defines and identifies different use cases, timeframes, and typologies of climate adaptation actions (e.g., transformative, incremental, proactive, reactive).
- Describes and translates climate scenarios, current climate trends, and regional and global impacts to identify adaptation opportunities and inform adaptation action.
- Identifies and analyses social, political, and cultural impacts and consequences of climate change, with a consideration of populations who experience disproportionate climate impacts.
- Applies systems thinking to identify connections between climate adaptation, disaster risk reduction (DRR) and vulnerability as the basis for building resilience on social, physical, and economic levels.
- Describes and distinguishes the constitutive and behavioural properties of complex adaptive systems.

COMPETENCY DOMAIN —

CLIMATE ADAPTATION SCIENCE & PRACTICE LITERACY



CLIMATE ADAPTATION RESEARCH

Critically reviews and interprets peer-reviewed and grey literature (e.g., government reports) to build linkages between scholarship and practice, contributes to climate adaptation research, and leverages these learnings in practice.

- Assesses the importance, relevance and validity of climate change and climate adaptation research.
- Draws on and applies evidence and lessons learned from Indigenous and Western sciences and knowledge systems, including research generated in diverse disciplines in the natural, social sciences (e.g., climate science, environmental science, disaster management, health, economics, psychology, and business administration).
- Communicates or translates complex or detailed climate and climate adaptation science and information for diverse science and non-science audiences.
- Leads, contributes to, and/or participates in the generation of new knowledge and practices through applied research.
- Understands and applies standard research protocols to ensure qualitative and quantitative rigour, reliability, validity, and ethical standards guide that research.

COMPETENCY DOMAIN —**CLIMATE
ADAPTATION
LEADERSHIP**

- Climate-Informed Professional Practice
- Climate Adaptation Leadership
- Climate-Informed Change Management
- Climate-Informed Decision Making

COMPETENCY DOMAIN —

CLIMATE ADAPTATION LEADERSHIP

**CLIMATE-INFORMED PROFESSIONAL PRACTICE**

Models high standards of integrity, social responsibility, and ethical conduct through commitment to professional expertise, ethics, and adaptation standards.

- Acts as a visible role model, embodying in actions and thinking the values and standards consistent with professional practice guidelines and standards.
- Practices a life-long learning orientation, continuously upgrading knowledge and expertise in ways that respond to evolving climate and climate adaptation knowledge and practice standards.
- Demonstrates a recognition of professional obligations to clients and society to more generally integrate climate change and climate adaptation considerations in all plans, projects, and actions.
- Embodies a scientific mindset (i.e., curiosity, open-mindedness, skepticism, and humility).
- Identifies and is accountable for own actions, behaviour, and decisions in accordance with climate-informed ethical requirements.
- Integrates and communicates climate adaptation concerns and opportunities in ways that support disciplinary bridging and cooperation.

CLIMATE ADAPTATION LEADERSHIP

Sets or supports strategies that drive progress and culture change towards climate adaptation objectives, creating an environment that fosters interaction, collaboration, and cooperation.

- Leads from a foundation of emotional and relational intelligence, fosters a culture of honesty and transparency, and promotes ongoing learning (self and others).
- Adapts personal leadership style to respond to changing contexts, cultures, circumstances, and challenges.
- Fosters collaboration to forge and communicate a shared vision for and understanding of climate adaptation actions and initiatives.
- Applies leadership processes and strategies that motivate, mobilize and empower existing and potential partners and teams to plan, design and implement climate adaptation measures.
- Addresses conflicts of personality, interests, and power imbalances, and acts to support equality, fairness, equity, and inclusion.
- Inspires engagement and optimism in ways that facilitate movement to action and the implementation of adaptation policies and practices.

COMPETENCY DOMAIN —

CLIMATE ADAPTATION LEADERSHIP



CLIMATE-INFORMED CHANGE MANAGEMENT

Uses an organized, systematic application of the knowledge, tools, and resources of change management to support envisioning and implementing the changes necessary for climate action.

- Applies a fundamental understanding of change management principles and models, and the drivers of and barriers to change in complex adaptive systems.
- Demonstrates strategic readiness to initiate, advance and resource initial and iterative adaptive changes, anticipating and resolving barriers, and assessing short – and long-term effects of change across multiple systems.
- Identifies and supports decision-makers and staff/ roles to enable the design and implementation of climate adaptation strategies, initiatives, decisions.
- Acts as a catalyst for change by supporting cultural shifts and communicating alternative futures in a way that motivates, supports, and enables growth at multiple scales (individual, organizational, collective).
- Anticipates and responds to the personal, social, organizational, and contextual factors that could undermine or derail change.

COMPETENCY DOMAIN —

CLIMATE ADAPTATION LEADERSHIP



CLIMATE-INFORMED DECISION MAKING

Applies evidence-based decision processes and synthesizes relevant data and domain knowledge to generate defensible decisions that support sustainable climate adaptation strategies/initiatives.

- Analyses social, economic, cultural, and historical contexts to identify decision-making levers and processes that respond to the specific cultural and place-based context.
- Identifies and questions assumptions and biases on the grounds of transparency, equity, and justice.
- Applies a systematic, iterative approach to inform decisions, monitor, evaluate and learn from their consequences, and apply that learning in order to maximize the potential for co-benefits.
- Engages in dialogue with rights-holders and stakeholders (individuals, communities, organizations and specialists) to inform and ensure decisions undertaken reflect agreed upon values, practices, and policies.
- Draws on decision support processes and scenarios that are grounded in the needs of those affected by the decision, emphasize process over product, and that are responsive to the culture, capacities and capabilities of those directly and indirectly involved.
- Generates decisions that address different planning horizons (short-, long-term), based on the current state of knowledge about climate risks, impacts, and vulnerabilities.

COMPETENCY DOMAIN —

WORKING TOGETHER IN CLIMATE ADAPTATION

- Climate Communication
- Cultural Agility & Safety
- Facilitating Adaptation Conversations
- Engagement in Climate Action
- Cross-Sector Collaboration

COMPETENCY DOMAIN

WORKING TOGETHER IN CLIMATE ADAPTATION

**CLIMATE COMMUNICATION**

Shares information, ideas, and facts in ways that connect, inform, and shape climate adaptation understanding and spark collective climate action.

- Applies effective oral, written, and digital communication strategies and principles using a range of communication styles, tools and media channels.
- Works to develop authentic connections with diverse audiences, clarifying views and values, demonstrating interest in bridging differences, and enhancing individual and collective adaptive capacity and action.
- Facilitates constructive and culturally appropriate dialogues with diverse audiences, using storytelling and other communication strategies to convey and motivate a response to the urgency of climate action.
- Determines the strategic communication needs of diverse communities, partners, and professional groups to influence individual and collective climate action.
- Links ideas, recommendations, and critical insights to specific priorities and strategies to support understanding and engagement.

COMPETENCY DOMAIN

WORKING TOGETHER IN CLIMATE ADAPTATION

**CULTURAL AGILITY & SAFETY**

Works respectfully with diverse cultural worldviews and perspectives, navigating historical and political dimensions of lived experience with sensitivity to create an environment of inclusion and collaboration.

- Demonstrates openness, curiosity and appreciation for others and takes responsibility for own life-long learning even when that learning is uncomfortable.
- Practices self-reflexivity about personal and/or professional cultural biases, assumptions, and worldviews and the ways in which those shape understanding and orientation to climate change and climate adaptation measures.
- Works respectfully, knowledgeably and effectively with diverse and culturally distinct individuals or groups in ways that demonstrate an understanding and respect for differences related to age, genders, socio-economic status, culture and history.
- Puts into practice cultural style-shifting, modifying messages and approaches to create a sense of safety for all, minimizing power imbalances, and applying cultural understanding in climate adaptation measures.
- Incorporates into practice, an understanding of how social and historical contexts, and structural and interpersonal power imbalances shape experience, and contribute to race, class, and gender-based discrimination or disadvantage.

COMPETENCY DOMAIN

WORKING TOGETHER IN CLIMATE ADAPTATION



FACILITATING ADAPTATION CONVERSATIONS

Plans and manages group dynamics to optimize all members' contributions in participatory, transparent, and accountable ways.

- Employs a range of facilitation techniques and strategies appropriate to the stage of the process.
- Champions and facilitates climate adaptation dialogues that maximize the benefits of common/shared purpose, social (shared) learning, and collaborative decision making.
- Applies an understanding of group dynamics, cultural norms, and collaborative decision making to empower rights-holders and stakeholders, including those impacted by climate impacts and adaptation decisions.
- Employs processes designed to build consensus, improve social justice, and increase the legitimacy, fairness and uptake of decisions and actions.
- Holds space for and helps manage contradictory opinions, difficult conversations and conflict.

ENGAGEMENT IN CLIMATE ACTION

Applies intentional engagement strategies with diverse interest groups, professions, and cultural groups, providing opportunities for full participation and the meaningful integration of their input into climate adaptation decisions and actions

- Employs a consultative approach to design engagement strategies that reflect the varied orientations, values, needs, and mandate of relevant rights-holders and stakeholders.
- Builds trust and rapport with diverse constituents (people, organizations, communities) by employing a multi-dimensional and intersectional understanding of their perspectives, needs, rights, capacities and concerns.
- Elicits information in ways that clarify assumptions, concerns, and expectations. Explores views through questions and active listening, creating a greater understanding and commitment to change.
- Engages partners in the design and implementation of decisions, encouraging and supporting the participation of groups typically less engaged and/or empowered in decision making and consultation processes.
- Fosters a sense of commitment and ownership that translates into action.

COMPETENCY DOMAIN

WORKING TOGETHER IN CLIMATE ADAPTATION

**CROSS-SECTOR COLLABORATION**

Engages cross-sector partners to co-develop shared vision and facilitate cooperation in planning and implementing climate adaptation actions.

- Applies an understanding of climate adaptation's interdisciplinary nature to develop alignment within partner networks and teams.
- Leverages the diversity of values, motives, and attitudes and their implications for a group's ability to tackle climate change.
- Employs strategies to create safe, creative spaces that encourage observation, ideation, reflection, building and rebuilding of prototypes throughout the design-thinking process.
- Creates and drives cross-functional interaction opportunities to build alliances that capitalize on collective resources and strengthen the shared commitment to objectives.
- Enables and empowers groups to make joint decisions and manage conflict to achieve common goals and objectives.

COMPETENCY DOMAIN

UNDERSTANDING THE CLIMATE ADAPTATION CHALLENGE

- Climate Vulnerability & Impact Analysis
- Iterative Risk Management
- Futures Thinking
- Climate-Informed Financial Analysis
- Personal Resilience

COMPETENCY DOMAIN

UNDERSTANDING THE CLIMATE ADAPTATION CHALLENGE

**CLIMATE VULNERABILITY & IMPACT ANALYSIS**

Applies evidence-informed frameworks to identify, quantify and describe conditions, exposures, and impacts of hazards that influence a community's susceptibility.

- Applies systematic and accepted methods of vulnerability and impact analysis that support a comprehensive, participatory and iterative process of assessment of current and future vulnerability.
- Identifies and engages relevant partners from different sectors, contexts, and communities to assess vulnerabilities.
- Executes scenario planning and analysis of baseline conditions to provide a comprehensive picture of local, regional, and societal vulnerabilities to the direct or indirect climate-related hazards and impacts.

- Identifies and interprets current patterns and progressions of the physical, social, economic, and environmental factors, root causes, ongoing pressures, and unsafe conditions that contribute to the vulnerabilities and resilience of affected communities and subpopulations.
- Communicates the results of vulnerability and impact assessment to key audiences in ways that recognize what kinds of information they need and in what formats/media, using language that conveys uncertainty and levels of results.

COMPETENCY DOMAIN

UNDERSTANDING THE CLIMATE ADAPTATION CHALLENGE

**ITERATIVE RISK MANAGEMENT**

Applies an iterative and climate-informed approach to risk management, integrating and responding to climate risks, impacts, vulnerabilities and risk-mitigation considerations.

- Implements integrated risk assessments that identify, differentiate, and respond to simple, cumulative, systemic (cross-cutting, cross border, complex) and cascading risks and impacts.
- Develops and uses relevant scenarios (problem-based, solution-based, reflexive-iterative) to explore the problem and generate alternative solutions.
- Applies and can explain a range of climate risk assessment processes, tools, techniques, strategies tailored to the identified risks and the corporate, institutional, and/or regional context.
- Uses and/or develops scenarios to support assessment, inform decisions under uncertainty, and integrate knowledge from multiple sources and domains.

- Interprets and communicates the short-, mid-, and long-term risk implications of downscaled data, climate scenarios and climate models.
- Employs a system and social justice perspective when assessing cause and effect of climate change risk, engaging relevant partners from different sectors, contexts, and communities.
- Implements integrated risk assessments that support prioritization and management of risks by relevant partners from different sectors and communities.

COMPETENCY DOMAIN

UNDERSTANDING THE CLIMATE ADAPTATION CHALLENGE

**FUTURES THINKING**

Analyses emerging patterns and short – and long-term adaptation options to identify and evaluate future risks and opportunities.

- Applies systems thinking that leverages the synergies between disaster risk reduction, climate mitigation and climate adaptation and incorporates feedback loops and tipping points.
- Identifies and differentiates patterns, events, feedback loops, and interconnections between various systems across multiple scales (individual, community, regional, social) and time.
- Analyses patterns of risk and climate change to generate, evaluate and predict potential futures. Focuses on options best suited to identified vision and strategies.
- Uses scenarios to describe possible futures and seed change, working with others to develop new perceptions and mental models.
- Leverages and synthesizes information from existing data models and develops knowledge systems to address evolving corporate, institutional and/or regional information needs.

CLIMATE-INFORMED FINANCIAL ANALYSIS

Evaluates and guides decision-makers on the financial and economic value, efficiency and feasibility of adaptation projects and strategies.

- Applies foundational financial and economic concepts and metrics to the analysis of climate change adaptation initiatives, utilizing internationally accepted climate-related financial standards and principles as required (e.g., Task Force on Climate-related Financial Disclosures).
- Conducts financial and/or economic analysis of a range of adaptation measures, initiatives, and policy decisions, balancing environmental, social, economic, and cultural factors, and addressing short – to long-term planning horizons.
- Applies multi-criteria and/or cost-benefit analysis of options that emphasize proactive rather than reactive adaptation and amplify where possible, co-benefits (adaptation and emissions reduction).
- Identifies and communicates the subtleties and broader implications (local and global) when evaluating alternatives and making recommendations, including non-financial factors.
- Promotes adaptation measures by identifying and leveraging national, regional, and local funding opportunities. Applies transparent mechanisms to prioritize climate adaptation investments.

COMPETENCY DOMAIN

UNDERSTANDING THE CLIMATE ADAPTATION CHALLENGE

**PERSONAL RESILIENCE**

Adopts a flexible, adaptable approach to navigating personal and professional challenges and opportunities to maintain psychological wellness and balance within the space of uncertainty and change.

- Acknowledges the impact on individual and collective resilience of uncertainty, stress, grief, and other emotions in response to the disaster impact of climate-related events, loss of biodiversity and impoverished lives of future generations in the context of climate change.
- Strives to maintain self, staff, and groups' well-being by focusing on adaptability, openness to change, and maintaining a support network in times of uncertainty, stress, and disruption of systems and environment.

- Recognizes times of challenge for self or team and calls upon personal and supportive resources to mitigate mental and physical health impacts.
- Intentionally practices resilient coping strategies by being proactive and working on adaptive responses and skills.
- Integrates creative and mindful approaches to remain positive while keeping a realistic assessment of challenges, stress, and loss.

COMPETENCY DOMAIN —

CLIMATE ADAPTATION PLANNING & IMPLEMENTATION

- Climate Adaptation Strategy & Planning
- Adaptive Solution Design
- Climate Adaptation Policy & Governance
- Climate Adaptation Capacity Development
- Adaptive Project Management
- Climate Adaptation Mainstreaming

COMPETENCY DOMAIN —

CLIMATE ADAPTATION PLANNING & IMPLEMENTATION



CLIMATE ADAPTATION STRATEGY & PLANNING

Generates adaptation strategies, initiatives, and plans that maximize long-term social and ecological resilience, biodiversity, and financial viability.

- Applies nationally and internationally recognized climate adaptation planning processes (e.g., Building Adaptive and Resilient Communities, ICLEI Canada), standards (e.g., ISO 14090 – Adaptation to Climate Change; Task Force on Climate-related Financial Disclosures).
- Builds from and leverages existing sustainability, climate adaptation, energy and emissions reduction, and biodiversity research, plans and goals.
- Translates strategic goals and visions into outcome-based plans and strategies.
- Employs a risk reduction and climate resilience lens to identify opportunities for and barriers to incremental and transformative adaptation measures.
- Integrates an interdisciplinary, cross-sector orientation to adaptation that further acknowledges the potential need for cross-boundary (geographic, political, disciplinary) strategies, initiatives, and solutions.
- Champions the value and significance of ecosystem-based, sustainable adaptation measures and strategies that address multiple planning horizons and co-benefits.

COMPETENCY DOMAIN —

CLIMATE ADAPTATION PLANNING & IMPLEMENTATION



ADAPTIVE SOLUTION DESIGN

Applies an iterative, adaptive, outcomes-based approach to the design, development, and implementation of adaptation plans and actions to identify and capitalize on opportunities that are themselves adaptive.

- Uses iterative and human-centric processes of inquiry and problem solving and real-world experimentation with an appreciation of the value of feedback cycles for refining and improving ideas.
- Employs a diversity and inclusion approach that respects the rights of affected communities or sub-populations and taps into their creative potential to visualize alternative futures and generate solutions.
- Seeks out relevant details and interconnections; considers multiple factors and implications within and beyond the existing situation, such as multiple planning horizons, multiple beneficiaries, cross-boundary solutions, etc.
- Navigates ambiguity and uncertainty while engaging in processes that allow for observation and information gathering, ideation, reflection, creation, and iterative prototyping (i.e., design thinking).
- Proactively deals with problems, issues, and questions working to reduce ambiguity and address resistance to change.

COMPETENCY DOMAIN —

CLIMATE ADAPTATION PLANNING & IMPLEMENTATION



CLIMATE ADAPTATION POLICY & GOVERNANCE

Applies an integrated approach to interpreting and applying climate adaptation and disaster risk reduction international, regional, and local policies, standards, agreements, and precedents in plans, strategies, projects.

- Identifies and is accountable for acting in compliance with relevant local, regional, national and policies, procedures and standards related to climate adaptation and disaster risk reduction.
- Respects the rights and title of Indigenous peoples and nations and their implications for adaptation
- Applies governance structures that facilitate accountability, transparency, and equity in all phases of a project/plan/initiative from strategy development to implementation.
- Interprets complex policy documents to provide relevant information to partners, collaborators, and decision-makers.
- Provides strategic and tactical governance advice to decision-makers in the domains of climate preparedness and adaptation, sustainability, disaster risk reduction, biodiversity, health, and social justice.
- Contributes collaboratively with organizations and legislative bodies to generate, influence, or revise adaptation initiatives and policies.

COMPETENCY DOMAIN —

CLIMATE ADAPTATION PLANNING & IMPLEMENTATION



CLIMATE ADAPTATION CAPACITY DEVELOPMENT

Contributes to knowledge and capacity development through the design and delivery of community and climate adaptation education, training, and professional development.

- Assesses learner needs and offers learning options to address different levels of understanding and capability.
- Incorporates principles of instructional design that empower learners and create impactful education, training, and professional development options.
- Applies a range of situated learning strategies (e.g., use cases, social or group learning, action learning) that encourage and drive the uptake of climate action and sustainable behaviours.
- Prepares and delivers learning experiences that engage and empower participants, support the acquisition of adaptation competencies, and foster inter – and trans-disciplinary thinking.
- Creates a safe learning environment that supports the active participation of all learners.
- Contributes to knowledge sharing and climate adaptation learning and action networks.

COMPETENCY DOMAIN —

CLIMATE ADAPTATION PLANNING & IMPLEMENTATION



ADAPTIVE PROJECT MANAGEMENT

Supports the development and implementation of adaptive strategies and plans in collaboration with identified partners, groups, and communities to achieve defined program objectives.

- Strives to incorporate an interdisciplinary orientation and collaboration in strategic and tactical planning and implementation of climate adaptation programs and initiatives.
- Designs and integrates an ongoing learning strategy to generate new information and track progress on adaptation and adaptive capacity as part of project/program scoping and development.
- Implements project-specific and/or institutional mechanisms for incorporating and acting on new information to shape project cycles and ensure adaptation strategies and actions are flexible, responsive and address a range of futures.
- Identifies and differentiates immediate (prioritized) and deferred adaptation strategies and actions, and an approach that is responsive to relevant policies and policy limitations.
- Reviews and evaluates established metrics, data, and enabling conditions to identify and communicate relevant issues, opportunities for improvement, and monitor the impacts on, vulnerability, and resilience of those directly and indirectly impacted.

COMPETENCY DOMAIN —

CLIMATE ADAPTATION PLANNING & IMPLEMENTATION



CLIMATE ADAPTATION MAINSTREAMING

Promotes the integration of climate adaptation considerations into all objectives and decisions across programs, projects, operations, policies, procedures, financing, and training.

- Creates synergies between organizational and/or community strategies and objectives, and relevant international frameworks(e.g., UN Sustainable Development Goals, Sendai Framework on Disaster Risk Reduction, Paris Agreement), national, and regional emissions, adaptation, and resilience targets and standards.
- Leverages existing policies, legislation, and capabilities to enable and amplify current and future climate adaptation.
- Applies climate adaptation lens to the development, implementation, and evaluation of decisions, goals, strategies, policies, and procedures.
- Identifies and engages diverse partners to maximize social learning, engagement, and empowerment of rights-holders and stakeholders.

4.0 Using the Climate Adaptation Competency Framework

Using the Climate Adaptation Competency Framework effectively requires an understanding of how all the components of the competency framework work together for both communicating expectations regarding the work of climate adaptation, and for supporting objective assessments of individuals and teams performing the work. This further requires applying an understanding of the principles of reconciliation in all the competencies outlined in the Climate Adaptation Competency Framework.

Implementation focuses on communicating the competency expectations for each role. The individual's level of proficiency in each competency is assessed and verified, which can be conducted a number of ways with varying levels of rigour and objectivity (see section below). Increased rigour necessitates increased complexity and is often required where competency assurance is demanded due to high-risk activities. Applying the Climate Adaptation Competency Framework requires also an understanding of proficiency levels and how these relate to specific roles.

The practical application of competency assessment data is useful in many human resource (HR) management contexts that have either a business focus (e.g., succession planning or recruiting) or an employee focus (e.g., career development planning). Over time, ideally, competency management processes will dovetail with existing HR programs and processes.



4.1 Proficiency Scale & Role Descriptions

Given the range of practitioners and professions relevant to climate adaptation, it is impossible to describe competency profiles for every potential role or function. Further, as previously stated, not all climate adaptation roles will require the same level of proficiency in each competency. The degree to which climate adaptation is the focus of an individual's role, and the functions of climate adaptation that are most relevant to that role, will shape the degree to which each practitioner requires higher levels of proficiency in any given competency.

The Climate Adaptation Competency Framework 4-level proficiency scale is an assessment tool that provides standard or generic descriptions of the expected behaviours at four distinct, increasing levels of proficiency. This scale is not intended as a performance evaluation tool but rather a communication support tool that provides a shared understanding of various levels of expected understanding, abilities, and knowledge at four progressively more advanced levels of expertise and experience. Ratings are intended to be whole numbers with one rating per each competency.

4.1 Proficiency Scale

AWARENESS	BASIC	SKILLED	EXPERT
1	2	3	4
Developing familiarity with concepts, principles, terminology, and relevance within the scope of the job.	Understands the core aspects of the competency; relies on advisors for sensitive or challenging work.	Well versed in theory and practice. Has a thorough understanding within a variety of situations.	Possesses extensive knowledge and experience, both broad and deep. Recognized internally and externally as a thought leader within the field.
Requires structured support or guidance with non-routine applications	Anticipates and addresses problems within routine situations.	Generates large scale improvements that resolve significant and/or cross-functional issues.	Provides solutions or resolves challenges where no precedents exist.
Identifies and resolves common issues that could impact success.	Applies a structured process of analysis to resolve unfamiliar or challenging problems.	Works independently and provides creative solutions to complex or undefined problems.	Interprets, communicates, and renews strategies, direction, and standards with broad impact.
Seeks to adapt and evolve; effectively manage change within scope of responsibility.	Improves standards of practice by actively championing the need for ongoing improvement.	Breaks down systemic barriers and resistance to change. Explores innovative ways to improve overall results.	Anticipates changes. Drives continuous improvement, leads transformational change and/or industry innovation.
Seeks assistance or support in building proficiency.	Strives to develop and cultivate capability	Acknowledged as a go-to person; capable of guiding and coaching others in this area.	An authoritative source and mentor.

For a suggested Competency Profile Template, see Appendix C on page 74.

4.2 Climate Adaptation Roles

For the purposes of the Climate Adaptation Competency Framework, we have defined a climate adaptation practitioner as any individual responsible for a role encompassing the duties and accountabilities related to climate adaptation. Below we offer two climate adaptation practitioner role categories that distinguish between those roles with a primary focus on climate adaptation, and those in which climate adaptation represents a portion of what they do. These are described as either a generalist or a specialist (see 4.3 Role Descriptions). In addition to these practitioners, there will be other professionals with a vested interest in the capability management of climate adaptation practitioners.

The key users of the Climate Adaptation Competency Framework would primarily fall under one of the following main groups:

PRACTITIONERS

Climate Adaptation Generalist

Depending on the nature, design, and size of the organization or community, individuals may have a primary responsibility for climate adaptation or a distinct climate adaptation role within a team of professionals. In this document, we use the term Generalist to cover a range of functions whose primary responsibility relates to climate adaptation. In some cases, external consultants are hired to provide the climate adaptation expertise needed.

Contributing Functional Specialists

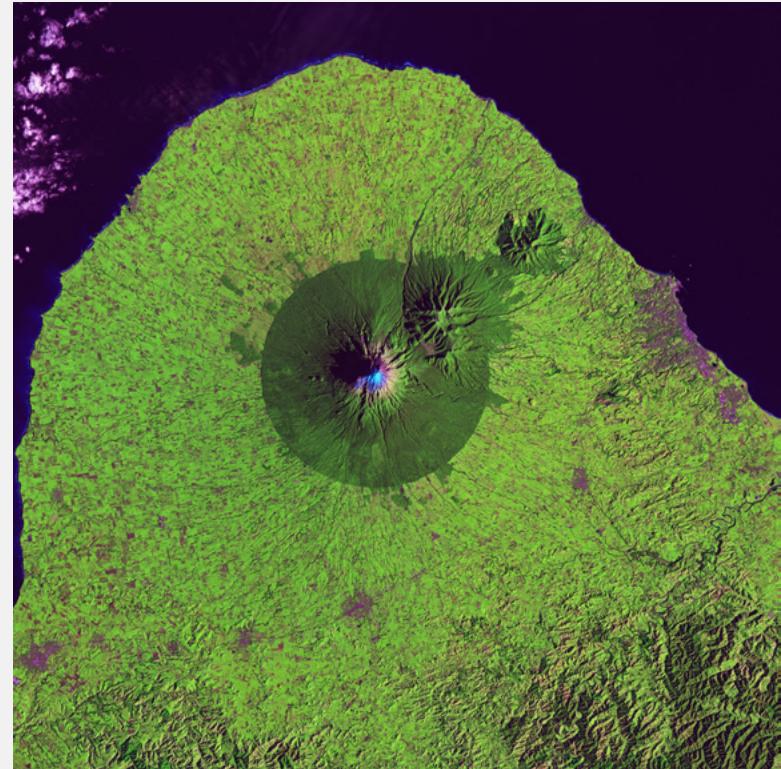
Although in some cases a climate adaptation generalist will provide climate adaptation services, in many organizations, municipalities and governments, climate adaptation expertise will be provided by a Specialist – a professional with subject matter expertise in a specific functional area, often with backgrounds, skillsets, and experience in the related domain (e.g., engineering, finance). Only a portion of their overall responsibilities relate to climate adaptation. When referring to a role within another function or discipline that has only a portion of their responsibilities relating to climate adaptation, we use the term Contributing Specialist. For example, engineers, landscape architects, planners, foresters, agrologists, architects.

4.3 Role Descriptions

LEADERS AND MANAGERS

Individuals responsible for managing those with dedicated or contributing climate adaptation roles or driving the climate adaptation agenda are considered organization/community leaders. Many organizations are concerned about how they will adapt to climate change. Many companies have recognized the impacts of climate change as a risk they need to mitigate. All governments and public and private corporations are under intense pressure to have adaptation plans in place. Most parties are moving to build the necessary capabilities in their organizations. It is essential for those conducting this work to have a sufficient depth of understanding about the knowledge, experience and expertise required within this field to help their organizations build the needed capacities and capabilities.

Farms reach right to the boundary of this park on all sides creating an almost perfect circle of natural forest.
Egmont National Park, New Zealand.



4.3 Role Descriptions

SUPPORT PARTNERS

There are several roles involved in facilitating individual capacity and capability building. Examples include:

Human Resources (HR) Leaders or Advisors support enterprise-wide and/or climate adaptation specific recruiting, selection, employee development, performance, or succession management. This group would use competency frameworks to define, assess and manage the capabilities the organization needs.

Educational Program & Instructional Designers responsible for the design of learning and training resources that address the growing requirements for climate adaptation competency development and the learners' needs. This group includes corporate learning and development professionals who build climate adaptation capabilities in their organizations; people at colleges and universities that are adding programs, courses and professional training to develop climate adaptation competencies; professional training organizations; and professional associations that see climate adaptation as a labour force development priority.

Competency Administrators implement and/or support the Climate Adaptation Competency Framework for a group of people.

Community & Political Leaders generate climate adaptation policies, funding, and actions and support and enable and motivate climate adaptation actions.

DATA USERS

This group uses reports and analysis of competency data to evaluate organizational capabilities and facilitate considerable system improvement. Those who use the data from competency analysis could be internal to an organization or external (e.g., accounting or organizational development firms). They apply the Climate Adaptation Competency Framework to organizations and institutions whose mandates align with climate adaptation responsibilities (e.g., engineering, city planning firms, municipal government departments).

External consulting organizations work through HR Advisors/Support Partners or Administrators to obtain the staff group's required information.

Governance Bodies for Professionals already address competencies in several different ways, from *body of knowledge* to *required skills*, and they want to add the most relevant skills for adaptation to climate change.

Educational Institutions are reporting a growing demand for courses in this area from young people and working professionals wanting to upgrade their skills. The Climate Adaptation Competency Framework will help prospective students understand the requirements and see if they want to pursue a career in this emerging field.

4.4 Role Descriptions for Climate Adaptation Practitioners

The following section presents several role descriptions for climate adaptation practitioners in both Generalist and Specialist roles. These sample roles illustrate how climate adaptation competencies apply to a wide range of positions, organizations and industries. Depending upon the organization's size and structure, each function could be assigned to many people or could form only part of one person's responsibilities. Further, organizations may outsource some of their climate adaptation responsibilities to external service providers or consultants. This model has been developed to be flexible enough to accommodate a range of roles and levels of responsibility.

Each of the examples provided includes a summary statement that describes the overall purpose of the role and a selection of responsibilities that may relate specifically to climate adaptation. These examples are offered as a guide to individuals and organizations in order to frame roles that may include climate adaptation functions and their unique accountabilities and outcomes.

4.4 Role Descriptions for Climate Adaptation Practitioners

GENERALIST

There could be many dedicated roles specifically related to climate change, depending on the level or type of accountabilities assigned. For example, a senior advisor, analyst, or coordinator could all perform climate adaptation related duties.

GENERAL RESPONSIBILITIES

Climate Adaptation Professional (Generalist)

Leads and coordinates the development and implementation of climate adaptation programs, plans, practices, and policies to increase the organization's or client's climate resilience.

CLIMATE ADAPTATION RELATED RESPONSIBILITIES

- Design and conduct public/community awareness and/or training activities related to climate adaptation.
- Analyse and develop tools to enable implementation of climate adaptation measures.
- Monitor and prepare reports on the effectiveness of climate adaptation measures.
- Coordinate adaptation actions across one or more communities, a region, organization, business, or institution.
- Take a proactive role to support climate education and awareness as part of program management.
- Set objectives and timelines, develop implementation plans, and collaborate with the various units in the community, organization, business or institution to prepare and complete climate adaptation measures for review and approval.
- Build partnerships, develop and manage strategic relationships with internal and external rights-holders, stakeholders, and/or partners to advance the implementation of the climate adaptation strategy.

4.4 Role Descriptions for Climate Adaptation Practitioners

SPECIALIST

These specialist roles provide their discipline-specific expertise to climate adaptation initiatives, programs, policies, and projects. This includes adding a climate adaptation perspective to strategic and tactical management practices.

GENERAL RESPONSIBILITIES

CLIMATE ADAPTATION RELATED RESPONSIBILITIES

Risk Manager

Develops risk policies and processes for an organization, including risk models involving environmental, climate, financial, and operational risk. Assures controls are operating effectively and provide research and analytical support.

- Conduct vulnerability and impact analysis, and integrated risk assessments to determine priorities for climate adaptation measures and initiatives, policies and procedures
- Review and provide feedback and guidance on federal, provincial, and local low-carbon or climate change policies
- Ensure climate risk compliance with legislation and policy
- Participate in adaptation projects with other departments/units acting as the risk management expert
- Design and conduct monitoring and evaluation strategies to ensure continuous learning and improvement of climate adaptation measures.

(Physical) Asset Manager

Develops, implements, and monitors strategic plans for managing grey and green assets. Manages fixed or non-current assets such as equipment and vegetation. Applies a systematic approach to the management of these assets from concept to disposal.

- Develop life-cycle cost assessment capabilities, improve client understanding of the life-cycle cost of grey (infrastructure) and green (natural assets) investments, and establish performance benchmarks for these assets.
- Support analysis and integrate climate adaptation policies and actions for strategic asset management plans.
- Prepare, execute, and compile annual audit reports regarding resilience to climate hazards of strategic assets, and the benefits, costs and opportunities of climate adaptation measures.
- Participate in adaptation projects with other departments acting as the asset management expert.

4.4 Role Descriptions for Climate Adaptation Practitioners

SPECIALIST

These specialist roles provide their discipline-specific expertise to climate adaptation initiatives, programs, policies, and projects. This includes adding a climate adaptation perspective to strategic and tactical management practices.

GENERAL RESPONSIBILITIES

CLIMATE ADAPTATION RELATED RESPONSIBILITIES

Municipal Planner

Develops plans and programs to use the land to create communities, accommodate growth, or revitalize physical facilities and green spaces in towns, cities, counties, and metropolitan areas.

- Support analysis and integration of relevant climate adaptation policies and actions for municipal/community development plans to ensure climate resilience.
- Support municipalities and/or clients in their efforts to transition to a climate-resilient municipality/ organization.
- Participate in adaptation projects and initiatives with other departments acting as the urban planning expert.

Policy Practitioner

Tracks national trends, academic research, political currents, and the details of laws and regulations. Crafts policy papers and/or analyses current policy proposals to examine existing policies and offers alternatives.

- Monitor and analyze changes to laws and regulations that would impact the organization and make recommendations on policies and procedures to address them, paying particular attention to climate adaptation targets and strategies.
- Guide various divisions on climate adaptation issues drawing on policy knowledge and research.
- Review programs and processes against external legislative and regulatory requirements, voluntary commitments and internal policies and objectives related to environmental and social risk management and performance.
- Design corporate/institutional approaches and methodologies for the analysis and development of climate and climate adaptation policies.
- Participate in adaptation projects with other departments acting as the policy expert.

4.4 Role Descriptions for Climate Adaptation Practitioners

SPECIALIST

These specialist roles provide their discipline-specific expertise to climate adaptation initiatives, programs, policies, and projects. This includes adding a climate adaptation perspective to strategic and tactical management practices.

GENERAL RESPONSIBILITIES

CLIMATE ADAPTATION RELATED RESPONSIBILITIES

Health Practitioner

Plays a central and critical role in improving access and quality health care for the population. Health practitioners provide essential services that promote health, prevent disease, and deliver health care services to individuals, families and communities based on the primary health care approach.

- Analyze and integrate climate policies and actions for health plans and strategies.
- Design and implement resilience initiatives to support individual, organizational, and population level resilience.
- Conduct and/or analyze research to inform public or primary health measures and policies that support climate adaptation and resilience.
- Participate in adaptation projects with other departments or practitioners, bringing subject matter expertise to the consideration of, planning for, and implementation of climate adaptation measures in ways that support health and well-being.

4.4 Role Descriptions for Climate Adaptation Practitioners

SPECIALIST

These specialist roles provide their discipline-specific expertise to climate adaptation initiatives, programs, policies, and projects. This includes adding a climate adaptation perspective to strategic and tactical management practices.

GENERAL RESPONSIBILITIES

Environmental Engineer (water, forestry, soil, air)

Devise and promote concepts of eco-design and resource efficiency. Develop and deliver solutions for corporate and regional sustainability and a low-carbon economy. Key areas of focus include improved assessment and treatment methods for water, wastewater, and polluted air, and devising innovative systems or uses for recyclable materials to reduce the volume of solid and hazardous waste.

CLIMATE ADAPTATION RELATED RESPONSIBILITIES

- Conduct risk and vulnerability assessment of natural and other green infrastructure and assets.
- Provide expertise on a variety of green infrastructure projects for local municipalities and land development projects.
- Participate in the delivery of natural resource certification audits and carbon verification audits.
- Assist clients in developing sustainable natural resources management through climate adaptation measures, compliance reporting systems, and carbon inventories and assessments.
- Assist in delivering natural resources due diligence and advisory services across a range of public and private sector clients.
- Support the delivery of a broad range of climate adaptation and sustainability services across industry sectors.
- Support organization and/or clients in their efforts to transition to a climate-resilient organization.
- Support analysis and integration of climate adaptation policies and actions for municipal and community planning and plans.
- Participate in climate adaptation projects with other departments acting as the environmental engineering expert.
- Manage climate adaptation projects or contracts using project management best practices and work closely with internal clients to report progress and expenditures.

4.4 Role Descriptions for Climate Adaptation Practitioners

SPECIALIST

These specialist roles provide their discipline-specific expertise to climate adaptation initiatives, programs, policies, and projects. This includes adding a climate adaptation perspective to strategic and tactical management practices.

GENERAL RESPONSIBILITIES

Civil Engineer

Oversees large construction projects, including designing, constructing, supervising, and maintaining buildings and other infrastructures (e.g., bridges, roads, railways, tunnels, dams, water treatment and sewage systems).

CLIMATE ADAPTATION RELATED RESPONSIBILITIES

- Conduct risk and vulnerability assessment of grey (built) assets.
- Design infrastructure to anticipate and manage both current and future climate conditions.
- Ensure compliance with environmental and other legal requirements and prepare reports on climate adaptation performance.
- Provide climate adaptation expertise on a variety of civil infrastructure projects for municipalities and land development.
- Support analysis and integrate climate adaptation policies and actions for various plans (e.g., Stormwater Master Plan, Transportation Master Plan, etc.).
- Contribute climate adaptation knowledge and expertise to inform engineering designs and corporate/organizational sustainability.
- Collaborate with project managers to ensure climate adaptation measures and considerations are incorporated in capital planning.
- Act as an advisor in the climate science arena, remain active in the relevant academic, scientific, and professional communities.
- Participate in adaptation projects/initiatives with other departments acting as the infrastructure engineering expert.
- Manage climate adaptation projects or contracts using project management best practices and working closely with internal clients to report progress and expenditures.

4.5 Processes Involved in Using the Framework

Using the Climate Adaptation Competency Framework also involves particular processes, depending on principles and philosophy.

1. Assessment of an individual's or team's competency strengths and gaps is intended to be based on observation of competence demonstrated over time. Competencies are defined with explicit criteria to support an objective and thorough evaluation using the Standard Proficiency Scale. Competency assessment is the result of on-the-job observation of the individual demonstrating their competence in the work environment.
2. Gap Analysis: Following assessment, the individual or team should meet with their supervisor or mentor to discuss the assessment and resulting gap analysis. Discuss strengths and potential development opportunities to determine possible actions and priorities for gap closure for each area with a competency gap.
3. Career Management: Individuals may be free to select a role profile for their current role or a potential future role, representing a career move. The assessment will reveal the strengths and requirements for further development.
4. Defining Learning Outcomes: Instructional designers may use the Climate Adaptation Competency Framework to shape learning outcomes. The term learning outcome is most often used in the context of educational and training initiatives to describe what is expected of a learner to demonstrate they have achieved or acquired a specific competence.

For further suggestions on how to implement the use of the Climate Adaptation Competency Framework, see:

[Appendix A: Key Steps for Implementation on page 67](#)

[Appendix B: Gap Analysis and Team Matrix on page 72](#)

[Appendix C: Role Profile Template on page 74](#)

5.0 Background

The Climate Adaptation Competency Framework has been developed as part of the Adaptation Learning Network: Inspiring Climate Action project, a three-year initiative led by Dr. Robin Cox, and the Resilience by Design (RbD) Lab at Royal Roads University. The Adaptation Learning Network project is focused on increasing the capacity of working professionals in British Columbia to advise and make informed climate adaptation decisions to guide decisions, plans, and strategies related to climate change impacts on communities, infrastructure, natural resources, food security, and other social, economic and cultural resources.

This project responds to the escalating need for climate action and the growing awareness that professionals in our communities require skills to support planning for and responding to the current and future challenges of climate change. As a result, Dr. Robin Cox and the RbD Lab team initiated the ALN project in January 2019. The project aims to increase the province's capacity to adapt to climate change by enhancing professionals' knowledge and skills through climate adaptation continuing professional development, and participation in a professional learning community.

5.1 ALN: Inspiring Climate Action

The Adaptation Learning Network: Inspiring Climate Action (ALN) project is contributing to the mobilization of climate adaptation capacity in British Columbia by increasing the number of professionals who have the necessary knowledge, training, and access to resources to integrate climate change considerations into their practice. Building a learning community based on climate adaptation will contribute to making the province's approach to climate change more effective by building bridges between multiple and diverse rights-holders and stakeholders, thereby ensuring a shared and consistent response. In addition, resources and tools generated through the project will be made available for sharing, repurposing, and remixing British Columbia and other jurisdictions throughout Canada and the world through open educational resource repositories and the ongoing actions of the ALN.

ALN PROJECT DELIVERABLES & PARTNERS

The Climate Adaptation Competency Framework was identified as a core deliverable of the ALN project. There has been significant and sustained interest in the Climate Adaptation Competency Framework as the emerging field offers minimal structured and standardized guidance regarding competency and workforce skills development. This deliverable links to the other core deliverables of the ALN project: high-quality, continuing professional development courses with topics focused on climate adaptation; and an adaptation learning community. The Climate Adaptation Competency Framework was developed through expert input from across Canada and globally and is intended to use within and beyond British Columbia.

For more information on the design and development of the Climate Adaptation Competency Framework, see Appendix D: Framework Development

The ALN project includes seven British Columbia post-secondary institutions collaborating in the design and development of 10 professional development courses. These courses are delivered through various channels by the continuing professional development (CPD) units of these seven universities. All resources developed are open access, using Creative Commons licenses, making them accessible to people whether or not they take a course (e.g., tools, frameworks, open access papers). An open-educational approach is an ideal tool to address the urgent need for increased climate awareness and action. The project includes implementing a learning community to share and leverage the expertise and motivations of professionals and other stakeholders, engaging participants in knowledge exchange and personal and professional connections through a website, social media, newsletter and community events.

For a full list of the partners involved in the ALN see Appendix E: Collaborators & Project Developers on page 83

APPENDICES

- Appendix A: Key Steps for Implementation
- Appendix B: Gap Analysis and Team Matrix
- Appendix C: Role Profile Template
- Appendix D: Framework Development
- Appendix E: Collaborators & Project Partners

6.0 Appendix A: Key Steps for Implementation

1. **Vision:** Clearly define the purpose of competency management and the target audience. Include a well-defined statement of issues, concerns and pain points and how the competency framework will contribute to resolution. Understanding the issues, challenges, and organizational readiness establishes clear, viable and measurable targets.
2. **Leadership Support:** Ensure that you have the support of the leaders of the organization. Competency management requires significant change and involves expenditures of time and resources. It is essential to have active, consistent, and visible support of leaders at all levels to implement and resource the follow-up learnings and development support required for individuals to implement the Competency Framework. Be deliberate about the time and effort needed to go from beginning to end. Implementation is dependent on the execution of an effective communication strategy.
3. **Project Management:** Implementation of a project requires management and controls. Ensure sufficient resources, whether time, money, or skills, are available to meet the business requirements and timelines. This process involves getting all support partners on board to ensure that the competency framework gets integrated into relevant organizational processes. Define the implementation roadmap, including a communication and change management plan. Managers will then review this plan with key rights holders and stakeholders.
4. **Refine the Architecture:** Review the competencies, framework and roles as presented and adjustment as necessary to suit your organizational context and culture. Involve stakeholders as appropriate.
5. **Establish Role Profiles for critical roles:** Consider the work that needs to be done and determine the proficiency required in each competency to perform the work at a fully capable level. Each competency on the profile is assigned a level of proficiency, which reflects the expectations of the role. See Appendix 5 for a Team Competency Profile Matrix. When setting the required competencies for any one role, it is crucial to consider the number of climate adaptation practitioners on your team and how each contributes to the team accountabilities.

6.0 Appendix A: Key Steps for Implementation

6. **Implementation Roll Out:** Execute communication and change management plans to ensure communication is effective for all key stakeholder groups as you begin rolling out the competencies.
 - a. **Assess your competency gaps:** Use Climate Adaptation Competency Framework as a way of identifying strengths and gaps in individual and shared competencies and capabilities. Identify where there may be strengths and skill gaps that require action. When evaluating development priorities, consider the team's strengths as a unit, and focus on the areas where the team as a whole needs strengthening, either through education and training, new hires or other means.
 - b. **Seek out development opportunities:** Increase employee capability by fostering development at the appropriate level in the organization; consider that there may not be internal resources to meet training requirements. Not every available course would provide quality or meet standards.
 - c. **Strengthen leadership support and commitment:** Educate organizational leaders on the specialized skill set required and the need to build internal expertise.
- d. **Establish a Support Structure:** Make sure users and support partners are effectively prepared and provided sufficient support at all levels. Provide a solid support model that includes support for:
 - i. Employee assessment and gap analysis – guide as needed to support objective assessment.
 - ii. Planning and prioritizing development needs – individuals may need help in identifying relevant learning activities—incorporate **experiential and social learning** and formal classroom work.
 - iii. Ongoing support for employee development. **Learning outcomes** are to be clearly defined and linked directly to business outcomes.
 - iv. General Q&A.

6.0 Appendix A: Key Steps for Implementation

7. **Sustainment:** Conduct an after-action review to identify strengths, weaknesses, and opportunities to improve the model and the process. Put in place a sustainment program, preferably one that includes benchmarking.
 - e. **Continue to build awareness:** Increase awareness of the benefits of a standardized competency model and professional development for climate change adaptation practitioners.
 - f. **Increase community involvement:** Reach out to different Rights – and stake-holder groups and industries to strengthen the community of interest.
 - g. **Resolve course gaps:** Seek out additional learning options and find new ways to resolve course gaps.
 - h. **Program refinement:** Evolve the competencies and program through continuous improvement.

6.0 Appendix A: Key Steps for Implementation

INTEGRATING CLIMATE ADAPTATION COMPETENCIES INTO HUMAN RESOURCE MANAGEMENT PROCESSES

1. **Professional Development:** Competencies and role profiles provide structure and support for individuals' professional development by focusing on key areas. This structure enables employees to selectively develop based on organizational priorities. It guides individuals on job responsibilities and expected levels of knowledge, skills, and abilities required in various positions.
2. **Individuals:** Self-assessment or manager assessment can identify individual strengths and weaknesses, providing a clear focus for individual development (for their current role or a potential career move).
3. **Teams:** Managers can assess their team's overall skill health and make more strategic decisions regarding building capability by focusing on what is needed by the team.
4. **Learning Design and Delivery:** Articulated competencies provide a foundation for designing relevant learning outcomes, experiences and assessments. The level of detail describing each competency and the overall competency framework can help provide clarity on what priorities and skills needs are required and therefore what learning opportunities need to be identified and/or developed.
5. **Managing performance:** Role profiles set out clear expectations for the level of knowledge, skills and attitudes needed in various positions. The competency definitions and behaviours provide language for talking about challenging subjects—provides the words that start the conversations. Competency standards clarify expectations, ensure consistency of practice, and support effective performance management.
6. **Recruiting & Selection:** By clarifying role expectations and selection criteria, it contributes to a more effective and efficient hiring process. The competency model provides input to the interviewing and selection process to guide hiring decisions to focus on critical skill gaps and foundational competencies for success. Competency standards guide common talent management processes such as hiring, developing, evaluating, and managing succession.

6.0 Appendix A: Key Steps for Implementation

7. **Organizational Culture:** Competency management is used to drive culture. Communication about competencies sets out clear expectations of acceptable and desired behaviour.
8. **Strategic Staff Planning:** provides information on the current skills inventory of the department. Combining this inventory with an understanding of the organization's strategic objectives allows management to ensure the staff has the appropriate level of competence to meet the evolving needs of the business.
9. **Succession Management:** Organizations need to be prepared to meet today's requirements and be prepared for the needs of the future. With effective competency management, organizations have the information they need to understand their current candidate pool and plan for the future. This information enables management to coordinate development activities to enhance the team's required competencies and ensure high calibre internal candidates are available.

7.0 Appendix B: Gap Analysis and Team Matrix

A gap analysis is a comparison of an individual's assessed competencies when compared with the requirements of a role. A gap assessment against the individual's current role is the most common form of gap analysis. A gap assessment against "aspirational roles" (other roles the individual might aspire to or be curious about) is also possible for any individual. Typically, role profiles are created with just the competency proficiency requirements for that role, with an additional column for an assessor to indicate the current proficiency assessment of the individual.

Ideally, the initial competency assessment starts with the individual conducting a self-assessment of their competence relative to role requirements in preparation for a collaborative discussion with their manager, who will also have assessed the individual. It is important that the competency assessment be conducted as objectively as possible by someone who has been able to observe and effectively evaluate the individual's capability. The manager is ultimately responsible for the performance and development of their direct reports and may find it necessary to seek additional input from third parties to ensure the assessment is valid and thorough. Competency assurance is based on the integrity of the processes used to collect and evaluate evidence of an individual's competence at a level of rigour that is appropriate for the task/role. The result is an objective and reliable assessment of an individual's demonstration of competence.

A gap against requirements, usually reported as a plus or minus number relative to the role requirement, will usually signal an opportunity to set a goal for learning and development to close the gap. However, some gaps may not be selected for a learning intervention for a number of reasons. It may be, for example, that other priorities prevail, or there are limited opportunities to use/apply that particular competency at present. This information is used to focus and encourage learning and development that builds individual and organizational capability. In order to build organizational capability, it helps to look at the climate adaptation capability of the entire team. When the team's scores are reviewed, the manager is able to see the strengths and weaknesses of the entire team.

The table below shows a Team Matrix and illustrates how the (Generalist) Senior advisor requires much greater skill level in climate adaptation competencies than the leaders and executives, because they are the discipline expert. The support role has a much lower level. The expectations for all the contributing specialists are the same when it comes to climate adaptation competencies, although that may be tweaked a bit depending on the discipline (e.g., Finance contributor may require higher skills in economic analysis). This provides a road map so the users can see the territory and make adjustments for their own organization.

7.1 Appendix B: Team

This team matrix is offered as an example, to illustrate how members of a team may bring different levels of proficiency in the various competencies. It is optimal to have a balance of levels of proficiency in the competencies across a team.

		CLIMATE ADAPTATION TEAM ROLE			
		GENERALIST		CONTRIBUTING SPECIALIST	
CLIMATE ADAPTATION COMPETENCY	Organizational Executive (accountable for Climate Adaptation)	Climate Adaptation Manager or Department Leader	Climate Adaptation Senior Advisor (internal or external expert)	Climate Adaptation Analyst or Coordinator (support)	Contributing Specialist (cross functional advisor)
	Climate Change Science	3	3	4	3
	Climate Adaptation Science	2	2	4	3
	Indigenous Knowledge Systems	3	3	3	2
	Climate Adaptation Research	2	2	3	3

CLIMATE ADAPTATION SCIENCE & PRACTICE LITERACY					
Climate Change Science	3	3	4	3	2
Climate Adaptation Science	2	2	4	3	2
Indigenous Knowledge Systems	3	3	3	2	1
Climate Adaptation Research	2	2	3	3	3

7.1 Appendix B: Team

CLIMATE ADAPTATION COMPETENCY	CLIMATE ADAPTATION TEAM ROLE					CONTRIBUTING SPECIALIST	
	GENERALIST						
	Organizational Executive (accountable for Climate Adaptation)	Climate Adaptation Manager or Department Leader	Climate Adaptation Senior Advisor (internal or external expert)	Climate Adaptation Analyst or Coordinator (support)			
CLIMATE ADAPTATION LEADERSHIP							
Climate Informed Professional Practice	4	4	3	2	3		
Climate Adaptation Leadership	4	3	3	2	3		
Climate Informed Change Management	4	3	3	2	3		
Climate Informed Decision Making	3	3	3	1	3		
WORKING TOGETHER IN CLIMATE ADAPTATION							
Climate Communication	3	3	4	2	2		
Cultural Agility & Safety	3	3	3	3	2		
Facilitating Adaptation Conversations	2	2	3	2	3		
Engagement in Climate Action	3	3	3	2	3		
Cross-Sector Collaboration	3	3	3	2	3		

7.1 Appendix B: Team

CLIMATE ADAPTATION COMPETENCY	CLIMATE ADAPTATION TEAM ROLE					CONTRIBUTING SPECIALIST	
	GENERALIST						
	Organizational Executive (accountable for Climate Adaptation)	Climate Adaptation Manager or Department Leader	Climate Adaptation Senior Advisor (internal or external expert)	Climate Adaptation Analyst or Coordinator (support)			
UNDERSTANDING THE CLIMATE ADAPTATION CHALLENGE							
Climate Vulnerability & Impact Analysis	2	2	4	2	3		
Iterative Risk Management	3	3	3	2	3		
Futures Thinking	4	3	3	2	3		
Climate Informed Financial Analysis	3	3	3	2	3		
Personal Resilience	3	3	3	2	2		

7.1 Appendix B: Team

CLIMATE ADAPTATION COMPETENCY	CLIMATE ADAPTATION TEAM ROLE					CONTRIBUTING SPECIALIST	
	GENERALIST						
	Organizational Executive (accountable for Climate Adaptation)	Climate Adaptation Manager or Department Leader	Climate Adaptation Senior Advisor (internal or external expert)	Climate Adaptation Analyst or Coordinator (support)			
CLIMATE ADAPTATION PLANNING & IMPLEMENTATION							
Climate Adaptation Strategy & Planning	3	3	4	2	2		
Adaptive Solution Design	3	3	4	2	2		
Climate Adaptation Policy & Governance	3	3	4	2	2		
Climate Adaptation Capacity Development	3	3	4	2	2		
Adaptive Project Management	3	3	4	2	2		
Climate Adaptation Mainstreaming	4	3	4	2	2		

8.0 Appendix C: Role Profile Template

The following template can be used for the purpose of developing a role profile for each separate role. The first line indicates that the employee has been assessed at a proficiency level of 1, meaning that there is a gap of 1 between expectations and current proficiency.

ROLE TITLE: CLIMATE ADAPTATION SENIOR ADVISOR (EXAMPLE)	ROLE REQUIREMENTS	EMPLOYEE ASSESSMENT	GAP ANALYSIS
EMPLOYEE NAME			
CLIMATE ADAPTATION SCIENCE & PRACTICE LITERACY			
Climate Change Science	2	1	(1)
Climate Adaptation Science	2		
Indigenous Knowledge Systems	1		
Climate Adaptation Research	3		
CLIMATE ADAPTATION LEADERSHIP			
Climate Informed Professional Practice	3		
Climate Adaptation Leadership	3		
Climate Informed Change Management	3		
Climate Informed Decision Making	3		

8.0 Appendix C: Role Profile Template

ROLE TITLE: CLIMATE ADAPTATION SENIOR ADVISOR (EXAMPLE)	ROLE REQUIREMENTS	EMPLOYEE ASSESSMENT	GAP ANALYSIS
EMPLOYEE NAME			
WORKING TOGETHER IN CLIMATE ADAPTATION			
Climate Communication	2		
Cultural Agility & Safety	2		
Facilitating Adaptation Conversations	3		
Engagement in Climate Action	3		
Cross-Sector Collaboration	3		
UNDERSTANDING THE CLIMATE ADAPTATION CHALLENGE			
Climate Vulnerability & Impact Analysis	3		
Iterative Risk Management	3		
Futures Thinking	3		
Climate Informed Financial Analysis	3		
Personal Resilience	2		
CLIMATE ADAPTATION PLANNING & IMPLEMENTATION			
Climate Adaptation Strategy & Planning	2		
Adaptive Solution Design	2		
Climate Adaptation Policy & Governance	2		
Climate Adaptation Capacity Development	2		
Adaptive Project Management	2		
Climate Adaptation Mainstreaming	2		

9.0 Appendix D: Framework Development

OVERVIEW

The development process of the Climate Adaptation Competency Framework is iterative and involved over 100 experts who provided advice and feedback. This research-test-analyse-review approach became a circular approach and will continue to be applied as the model evolves over time. The initial steps in the development process included desktop research on competency frameworks in the field of climate change adaptation, mitigation, sustainability and ecology and available training on climate change adaptation training, a report was published that included a draft of a first Climate Adaptation Competency Framework. Next, a series of in-depth interviews were held with leading national and international climate change adaptation professionals and academics. The analysis informed version II of Climate Adaptation Competency Framework (February 2020).

Following this the RbD Lab led two workshops at the Adaptation Canada 2020 Conference, held in Vancouver (February 2020) with adaptation experts from government and industry. The feedback informed version III of Climate Adaptation Competency Framework (March 2020). The most recent step was to involve a competency expert (Lynn Sikorski of Kaleidoscope Performance Consulting Ltd.) to refine the structure and wording of the competency framework before initial publication. The development process is outlined in more detail below.

9.0 Appendix D: Framework Development

DESKTOP RESEARCH

The goal of the research process was to establish a sound and comprehensive Climate Adaptation Competency Framework through an iterative process as described below:

- A review of existing competency frameworks related to professions in the area of climate adaptation and mitigation, sustainability and ecology as well as certification programs and courses for climate adaptation
- Collection of systematic feedback of national and international climate adaptation experts on elements of the Climate Adaptation Competency Framework.

An extensive desktop review of the literature relating to competency frameworks and in specific competency frameworks for climate change and climate adaptation was undertaken using the web and Royal Roads University library database. Information regarding competency framework and certification models in North America, Australia, Europe, Asia, and Africa were collected. When competency framework of relevant organizations were not publicly available, a written request was sent to concerned organizations.

A preliminary report written in March 2019 with examples of competency frameworks, climate adaptation competency domains, certification models including citations and bibliography concluded the research.

INTERVIEWS

Between December 2019 to January 2020, semi-structured in-depth interviews were conducted with 29 leading climate adaptation academics and professionals, each lasting between 60 to 90 min. Apart from one in-person interview, all interviews were conducted via Skype, Zoom or telephone. The goal of the interviews was to:

- have the preliminary draft of the climate adaptation competency framework critically reviewed by climate adaptation subject matter experts and climate adaptation practitioners
- receive advice on the further refinement of the competency framework
- ensure that the final framework was comprehensive in structure and content – reflecting the broad range of skills, expertise and capabilities that are necessary for doing adaptation work – while also identifying competency areas that specific professional groups (e.g., biologists, planners, engineers, foresters) may need to integrate into their work in the context of climate change.

With the exception of two, all interviews were audio-recorded, transcribed and summarized. A thematic analysis of the interviews was conducted to inform the structure, categories, competencies, and competency descriptions. The first Climate Adaptation Competency Framework draft was updated with the insights from the

9.0 Appendix D: Framework Development

interviews (February 2020).

WORKSHOPS

Following the interviews, the RbD led two workshops at the Adaptation Canada 2020 conference in Vancouver (February 2020). The first workshop took place on Tuesday, February 18, with participants involved in and/or leading Natural Resources Canada Building Regional Adaptation Capacity and Expertise (BRACE) projects. This included mainly federal and provincial government officials and project leads (N=45).

The second workshop was held on Friday, February 21, 2020 with conference participants. This workshop included a variety of practitioners, government employees working in climate adaptation, students, and several BRACE project-leads (N = 55). The goals of the workshops were to:

- Help validate the existing 24 competencies.
- Identify gaps in, or refinements to, those competencies.
- Identify which of the emergent adaptation competencies would be relevant to a specific adaptation role; OR grouping within the framework (just one table).

Participants in both workshops gathered at tables organized around a specific identified professional role. Participants were asked to self-select which role

or table they would join. The roles were Health Manager, Natural Resources Manager, Finance Officer, Technical Consultant, Convening Consultant, Asset Manager, Policy Analyst, Planner and Risk Manager. At the second workshop, one additional table worked from a more general lens, focusing on the competencies and the grouping of the competencies, without relation to a specific role.

Each table conversation was facilitated by a member of the RbD or someone assigned by the RbD. Each table facilitator, or host, was briefed about their table hosting role prior to the workshop. The table hosts recorded the discussions, questions, assumptions, and comments.

The resulting feedback from both workshops was compiled and grouped according to the specific role, and then classified into competency – and role-specific comments, as well as questions, assumptions, and more general feedback. This resulted in the second draft of the Climate Adaptation Competency Framework which was completed in the month following the workshops (March 2020).

9.0 Appendix D: Framework Development

EXPERT CONSULTATION

The most recent steps involved working with a competency management expert (Lynn Sikorski of Kaleidoscope Performance Consulting Ltd.) to refine the structure and wording of the competency framework before initial publication.

The RbD Lab team worked with this consultant in an iterative and collaborative refinement process from June through to November 2020 to ensure the consistency of the language and structure of the Climate Adaptation Competency Framework, and to design the current governance document. In addition, members of the RbD Lab team participated in the design of an Open Competency Framework platform, led by eCampusOntario, as ways-and-means to further inform the Climate Adaptation Competency Framework development. And finally, RbD team had several other subject matter experts and consultants review the final framework documents with an eye on language and structure.

The revision process will continue with the launch of the Version 1 Climate Adaptation Competency Framework which will be accompanied by a request for feedback from users and subject matter experts. This feedback will be used to refine the framework and this governance document resulting in a Version 2 and a final, Version 3 Climate Adaptation Competency Framework.

9.0 Appendix D: Framework Development

LESSONS LEARNED

In this section we list some of our key lessons learned from this development process. These lessons primarily relate to the challenge of designing and implementing a competency framework and what we believe is critical to the success of any future work.

1. Take a more **deliberate approach** to building capability, following a rigorous research and industry collaboration process.
2. **Keep it relevant.** Stay focused on business outcomes that this will achieve. Competencies and learning activities should drive business results.
3. **Keep it simple.** Include the minimum number of competencies required to guide without being overwhelming.
4. **Engage key rights holders and stakeholders.** Engage a diverse group of central people for several reasons: to get real-time information on what matters now and in the future for organizations and the regulators; increase the likelihood that the model will be transferable across organizations and industries; early engagement with key influencers increases the likelihood of endorsement and continued support; different organizations are at varying levels of maturity and therefore have different needs.

5. **Build in flexibility.** Be prepared to respond to diverse requirements. Management system practitioners are positioned differently in every organization, and each organization is at a unique stage of readiness to integrate and implement climate adaptation competencies and measures. Recognize that roles are uniquely structured in different organizations, and each professional development opportunity will need to be responsive to different learning styles and needs.
6. **Build with rigour.** Take time to build credibility through detailed research and engagement. Stakeholders want evidence-based competency development.
7. **Whole person.** Many competencies contribute to overall performance, hence the focus on the whole person, encompassing competencies across the spectrum.

10.0 Appendix E: Collaborators & Project Partners

Following are the groups and individuals who were consulted in the design and construction of the Climate Adaptation Competency Framework. In addition to groups and people who were regularly consulted, numerous individuals provided their valuable insights along the path either through structured interviews, in workshops or discussions.

PROFESSIONAL ASSOCIATIONS

The project has active participation from:

- Applied Science Technologists & Technicians of BC
- Association of BC Forest Professionals
- BC Institute of Agrologists
- BC Society of Landscape Architects
- College of Applied Biology
- Engineers and Geoscientists of BC
- Planning Institute of BC

In addition to these professional associations, the RbD Lab consulted with the American Society of Adaptation Professionals (ASAP). ASAP was formed as a professional society that could help bridge the geographic and sectoral gaps that naturally develop in any field—and especially in the diverse, dynamic, and emerging field of climate adaptation. The society brings together professionals and sectors to share knowledge and resources about climate adaptation and climate resilience building. ASAP has been developing their own adaptation competency framework.

For more information on the society and their work see: [Adaptation Professionals](#)

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CLIMATE ADAPTATION SUBJECT MATTER EXPERTS AND PRACTITIONERS – INTERVIEW PARTNERS

The following individuals were interviewed and asked to share their expertise on the theoretical and applied practice of climate adaptation:

1. Al Douglas, Climate Risk Institute (formerly OCCIAR), Director and member of Canada's Expert Panel on Climate Change Adaptation and Resilience
2. Anna Beswick, Program Manager, Adaptation Scotland
3. Bev Windjack, Principal LADR at LADR – Landscape Architecture (British Columbia)
4. Christine Callihoo, Sr. Land Use & Community Planner (British Columbia)
5. Dave Spittlehouse, BC Institute of Agrologists (British Columbia)
6. Deb Harford, Director ACT, Simon Fraser University (Vancouver)
7. David Lapp, Engineers Canada (Ottawa, Canada)
8. Eliana Chia, Lead Climate Change and Energy Resilience, Fraser Basin Council (British Columbia)
9. Harris Switzman, Calgary Airport Authority, former climate adaptation consultant, (Calgary, Canada)
10. Heather Auld, Program Lead, Risk Science International (Ottawa, Canada)
11. Jeff Zukiwsky, Director of Operations, AllOneSky Foundation (Calgary, Canada)
12. Jesse DeMaria-Kinney, PlanAdapt (Geneva, Switzerland)
13. Jo-Ellen Perry, Director of Adaptation, International Institute of Sustainable Development (Winnipeg, Canada)
14. Joe Daraio, Associate Professor of Engineering, Memorial University (St. John's, Canada)
15. Johanna Wolf, Climate Action Secretariat, Ministry of Environment and Climate Change Strategy, BC Government
16. Kari Tyler, Training Specialist and Trevor Murdoch, Lead, Regional Climate Impacts at Pacific Climate Impacts Consortium (PCIC), University of Victoria (British Columbia)
17. Kate Lonsdale, Manager UK Climate Resilience Programme, Leeds University (United Kingdom)
18. Lo Cheng, Director Canadian Centre for Climate Services, Government of Canada
19. Matt Godsoe, Director for Public Safety Canada, Government of Canada

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20. Paul Shorthouse, Senior Director, Green and Circular Economy, Delphi Group
21. Rachel Jacobsen, Deputy Director, The American Society of Adaptation Professionals (ASAP)
22. Robyn Laubman, Environment Manager, Yucwmenlúcwu (Caretakers of the Land), Splatsin Development Corporation (British Columbia)
23. Richard Boyd, Director of Research, AllOneSky Foundation (Calgary, Canada)
24. Roger Street, Oxford University, former UKCIP Technical Director and associated with CSIRO, The Commonwealth Scientific and Industrial Research Organisation
25. Roland Hohmann, Director Climate Change Adaptation, Ministry of the Environment, Switzerland
26. Ryan O'Grady, Engineer, Municipality of Courtney (British Columbia)
27. Susi Moser, Affiliate Faculty at University of Massachusetts Amherst and Director Moser Consulting
28. Tessa Terbasket, Indigenous community member, water management, Okanagan Nation Alliance, (British Columbia)
29. Tina Neale, Climate Change Adaptation Advisor, Climate Action Secretariat, Ministry of Environment and Climate Change Strategy, BC Government

10.0 Appendix E: Collaborators & Project Partners

ORGANIZATIONAL INPUT

The project has active participation from:

- Government of Canada – Natural Resources Canada (NRCan)
- BC Ministry of Environment and Climate Change Strategy – Climate Action Secretariat (CAS)
- Pacific Climate Impacts Consortium (PCIC)
- Stockholm Environment Institute (weADAPT web platform)
- UN Climate Change Secretariat – R. Kinley, Deputy Secretary (retired)
- Indigenuity Consulting Group

POST-SECONDARY INSTITUTION PARTNERS

In addition to Royal Roads University the project has active participation from individuals of following Universities:

- Simon Fraser University
- University of Northern British Columbia
- University of British Columbia
- University of Victoria
- Vancouver Island University
- Capilano University

DOCUMENT DESIGN

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ONLINE PLATFORM – IBBAKA TALENT

In addition to the paper-based version of the Climate Adaptation Competency Framework, the RbD Lab has been working with Ibakka Talent, a consulting and technology development company, to support the translation and publication of the Climate Adaptation Competency Framework to an online platform. Given the size of the audience, the importance of this work and the need to make the Climate Adaptation Competency Framework widely available, adaptable, and connected with other talent management systems, the RbD Lab team selected Ibakka Talent as the competency management platform, given their interest and investment in designing open competency frameworks, provided under a Creative Commons License, so that any organization or entity can use the Climate Adaptation Competency Framework to model present and future competencies of its workforce. The work of developing the Climate Adaptation Competency Framework, will be translated from a document to the Ibakka Talent online system, in 2021–2022.