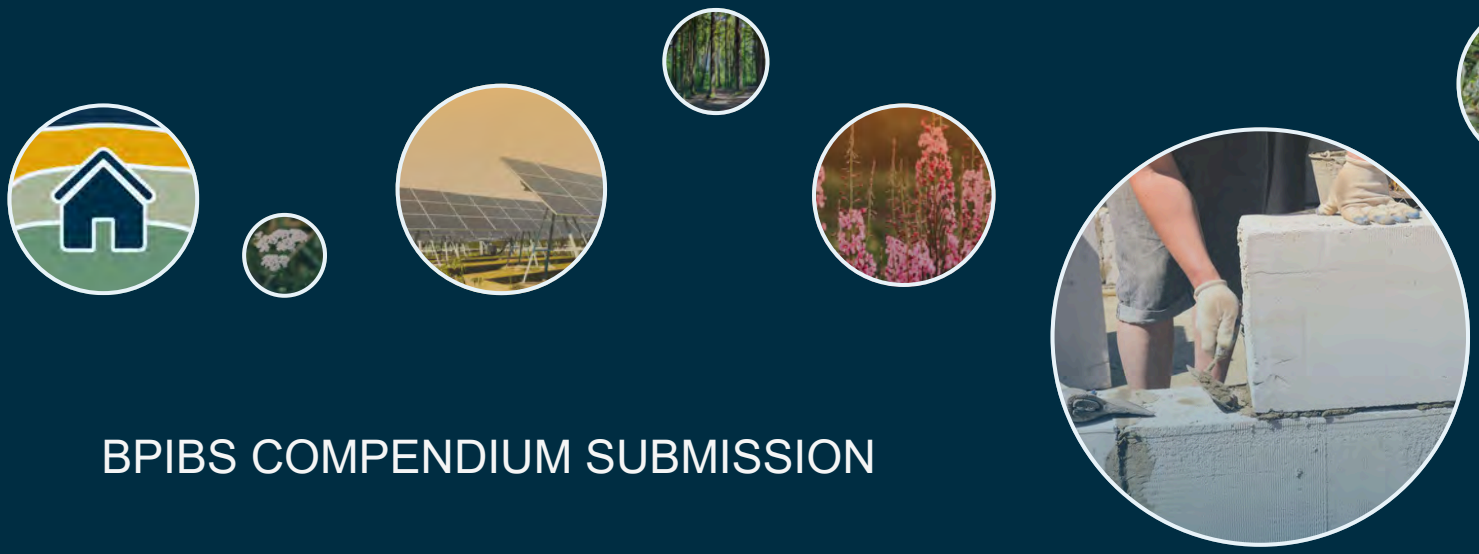
VALUES-BASED APPROACHES TO CLIMATE-RESILIENT HOUSING SOLUTIONS



BPIBS COMPENDIUM SUBMISSION

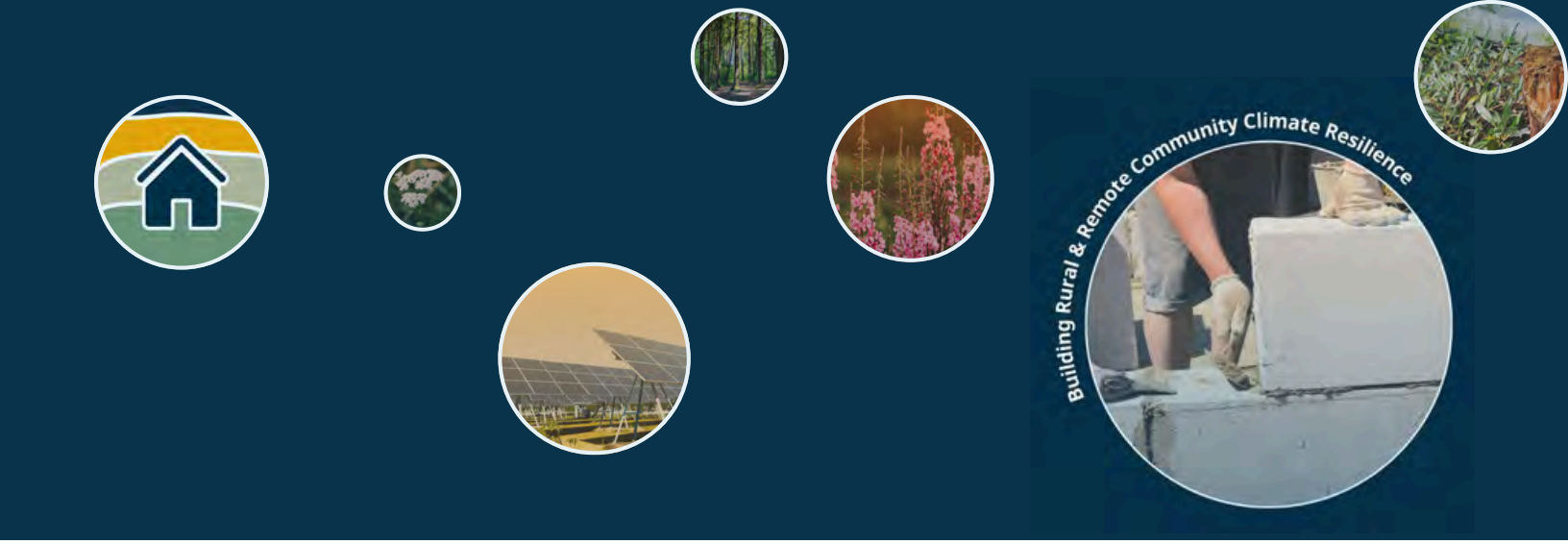
Project Name: Building Climate Resilience in Rural and Remote Communities

Principle Investigator: Dr. Nancy Olewiler
Presenters: Kathryn Wells, Project Manager; Gabrielle Wong, Jaina Gahunia, Oliver Sowa, Valentijn Helmus, Research Assistants

Building Rural & Remote Community Resilience

We honour, thank, and respect the deep connection, wisdom, and values Indigenous Peoples across the province have to the land, waters, and ecosystems for many generations. Our global wellbeing and survival depends on reducing greenhouse gas emissions and increasing climate resilience. Climate impacts have disproportionately affected rural, remote, and Indigenous communities in our province. Our hope is to work with these communities, combining our knowledge to help address the imbalances our colonial practices have produced.

From native-land.ca



ABOUT US

Funding

Funded by PICS (Pacific Institute for Climate Solutions), $1 million over 4 years to March 2027

Partnerships

Universities: SFU, UVic, UCalgary
Research Partners: BC Housing, First Nations Housing & Infrastructure Council (FNHIC), Technical Safety BC (TSBC), rural, remote and First Nations communities in BC

Project Goal

Our goal is to work together to enable and empower rural, remote and Indigenous communities to engage with climate resilient housing, technical systems, and energy security across BC. Through augmenting and informing existing strategies, policies, regulations and legislation we aim to build relationships and resources that reflect our values for low carbon resilience within our scope.

OUR STORY

Initially, our project team wanted to connect with rural/ remote communities to co-develop climate resilient housing solutions with 3-4 communities to work with as case studies.

CHALLENGES

1. Our initial consultation phase identitified that communities face many demands on their time and expertise. Communities are seeking relationships where the research team brings tangible “products” that add value to their own work. They welcomed the type of work we were proposing but wanted to see our work more developed.
2. Communities do not want short-lived partnerships that produce “another report on the shelf”, the project needs to have *usefulness*. Communities want long term relationships that produce helpful outputs so they have agency in their decision-making
3. This meant that communities did not have the capacity for in-depth partnership without established groundwork from the project team

VALUES-BASED APPROACH

The groundwork the project team laid:

- Establishing shared values (values-based approach) through workshops with Charlene SanJenko, who produced this graphic (our enlivened values + embodied vision)
- Ensuring whole team has access to training (OCAP®) Ownership, Control, Access, Possession
- Attempting to flip the traditional approach on its head: bottom-up, community feedback driven (values-based approach throughout the process)

PRINCIPLES: CONNECTING WITH COMMUNITY PARTERS

Transparency

Have an earnest and developed introduction to community values, project goals, and capacity. Come properly prepared and with knowledge and respect for the communities and with defined parameters of contributions

Holding Space

Co-learning and co-development requires listening, (un)learning, paying attention to ways of knowing, systems of governance, traditional laws & goals of community partners

Engagement

Differs by & defined by community. Respect voices of Elders, knowledge keepers, and youth. Be well prepared with OCAP® principles, 4R's: respect, relevance, reciprocity, responsibility, knowledge of culturally safe engagement practices, and trauma- informed practice

Adaptability

Timelines and paths will change, project content or goals may need to be adapted: all must be flexible to capacity and needs. Co-produced research that is rooted in decolonial methodology often follows what many researchers may consider a non-linear path

Research Initiatives

We have 11 research initiatives that are ongoing.
We will highlight two next:

Community Fire Resilience Handbook

Climate Resilient Building Materials

RURAL & REMOTE COMMUNITY FIRE RESILIENCE HANDBOOK

INTRODUCTION

Specifically addressing BC's rural, remote, and Indigenous communities, the Fire Handbook reflects rural housing, infrastructure, and community needs through a strengths-based approach that focuses on localized strategies and actionable community-driven solutions to interface fire mitigation and response.

FUTURE GENERATIONS

Providing information and resources to get the whole community, from children to Elders, involved in fire-resilient practices and planning ensures that building fire-resilient communities for future generations will be rooted in past, present, and future innovations.

STRENGTHS-BASED

Rural and remote communities and Indigenous Nations are inherently resilient, knowledgeable, and deeply experienced with climate change and the land and waters of their distinct territories. A strengths-based approach recognizes and **builds on existing strengths, capacity, and knowledge of communities**. Cultural safety, self-determination, and data sovereignty are intertwined within a strengths-based approach.

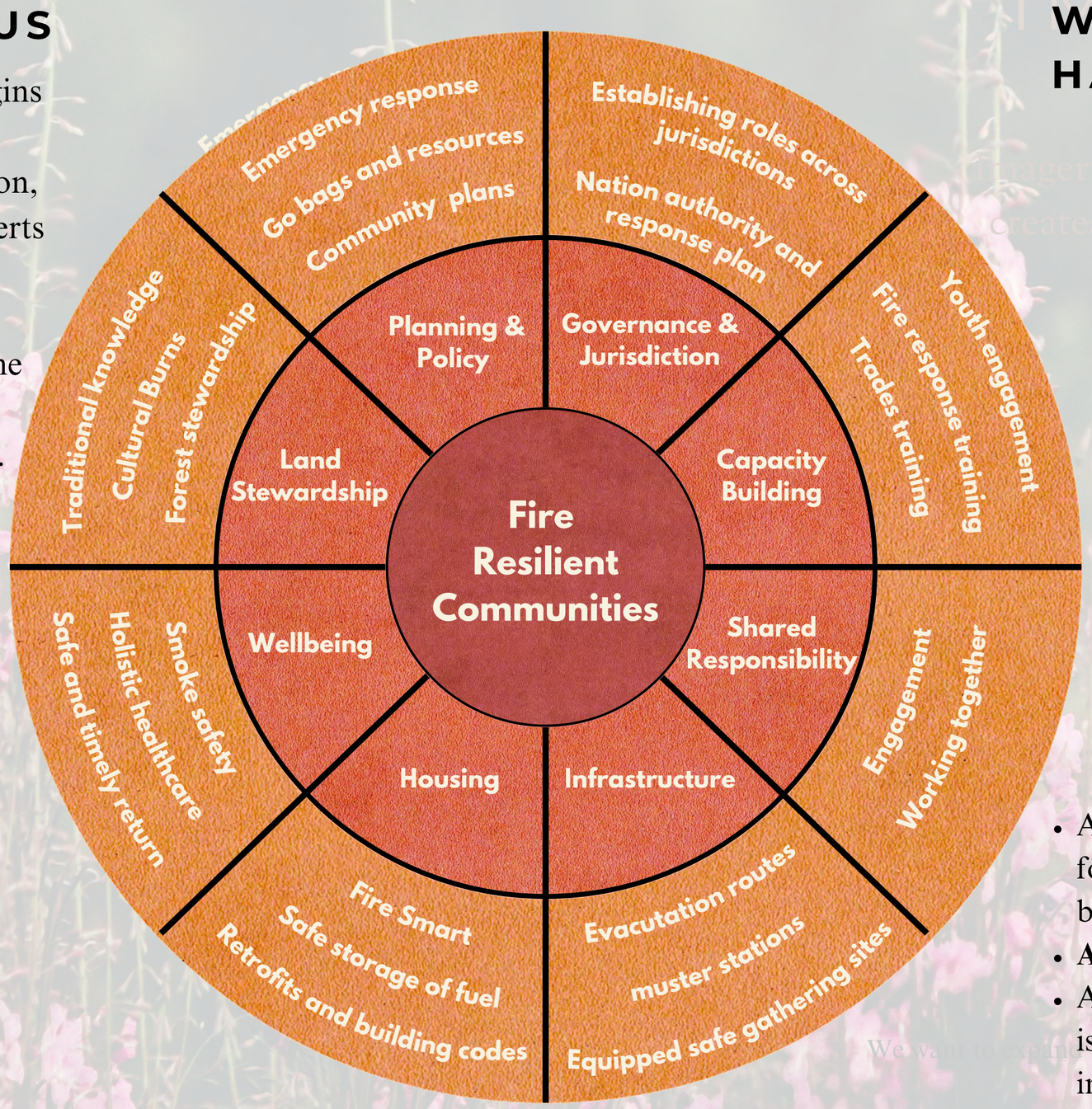
CAPACITY BUILDING

By sharing planning resources, training opportunities, and funding streams, the handbook aims to show that their are practical and accessible ways fire resilience can be practiced by everyone in a community.

RESEARCH FOCUS

Community fire resilience begins with systems of shared responsibility. Every generation, community member, and experts plays a role, and by working collectively we can create wholistic systems to protect the intersecting risks associated with fire for our communities.

- Engaging for everyone, at every age.
- A resource guide for housing, maintenance, capital, infrastructure and other managers, residents, and homeowners.
- Providing information on fire mitigation strategies from the household and community levels.
- Clear and concise.
- Capacity-building ideas, activities, and programs for communities.
- Storytelling platform to connect communities, share knowledge, and inform future policy.



WHAT IS IN THE HANDBOOK?

- **Ignition zones** and fire behaviour
- Fire resilient b**uilding materials** for retrofits and new builds, cost analysis, and access information.
- **Technical system safety** for electric and gas, including safe propane storage.
- Community planning, **capacity-building**, and engagement ideas.
- A **community toolkit** to be customized by each community and household.
- A **calendar** with important dates for fire resilient maintenance to be done.
- **Air quality** safety guidelines.
- An **emergency bag** checklist that is culturally informed and intergenerational
- **Funding opportunities** for fire resilient retrofits, new builds, and community resources.
- **Children's activities** and resources.

PICS
PACIFIC INSTITUTE FOR CLIMATE SOLUTIONS

BC FIRST NATIONS HOUSING & INFRASTRUCTURE COUNCIL

A Values-Based Framework for Climate-Resilient Housing in Rural & Remote Communities

This project explores **values-based approaches to climate-resilient housing solutions** in rural, remote, and Indigenous communities in British Columbia. Rather than focusing solely on engineering performance or cost, the research examines how communities prioritize housing decisions based on cultural, environmental, and economic values. By **connecting climate risks with alternative building materials and construction methods**, the project aims to translate technical research into accessible tools for community decision-makers. Materials explored include rammed earth, cob, straw bale, hempcrete, autoclaved aerated concrete (AAC), mass timber. The techniques of modular construction and pit houses are also considered.

Building Rural & Remote Community Resilience

Conceptual Framework: Linking Climate Risks, Community Values, and Building Materials

Climate Risk	Design Strategy	Potential Materials
Wildfire	Fire-resistant structures and materials	AAC, rammed earth
Extreme heat	High thermal mass and passive cooling strategies	Rammed earth, cob
Cold temperatures	High insulation	Straw bale, hempcrete
Flooding	Elevated or modular construction	n/a
Supply chain disruptions	Local materials and labour	Variable

Key Community Values

- Cultural resonance and traditional building knowledge
- Local material availability
- Local labor and economic opportunities
- Circularity and environmental impact
- Resilience to climate hazards

The project's resources include a visual guidebook and a web-based materials hub. These tools aim to support communities in exploring climate-resilient housing pathways that reflect local priorities, environmental conditions, and cultural contexts.

Alternative Building Materials

Rammed Earth

Fire-resistant, erosion-resistant, and good thermal mass.

Risk of moisture retention in humid climates, damage in floods or storms, and lacks insulation.

Straw Bale

A fire-resistant material with good seismic resilience.

Substantial concerns with mold and lack of ventilation.

Cob

A fire-resistant material that is often locally available, cost-effective, and beginner-friendly.

Vulnerable to flood and earthquake damage if not properly reinforced.

Hempcrete

Resilient to wildfire, moisture, seismic activity, and pests.

Low compressive strength limits application to insulation or infill.

Autoclaved Aerated Concrete

Fire-resistant, breathable, and seismic-resilient.

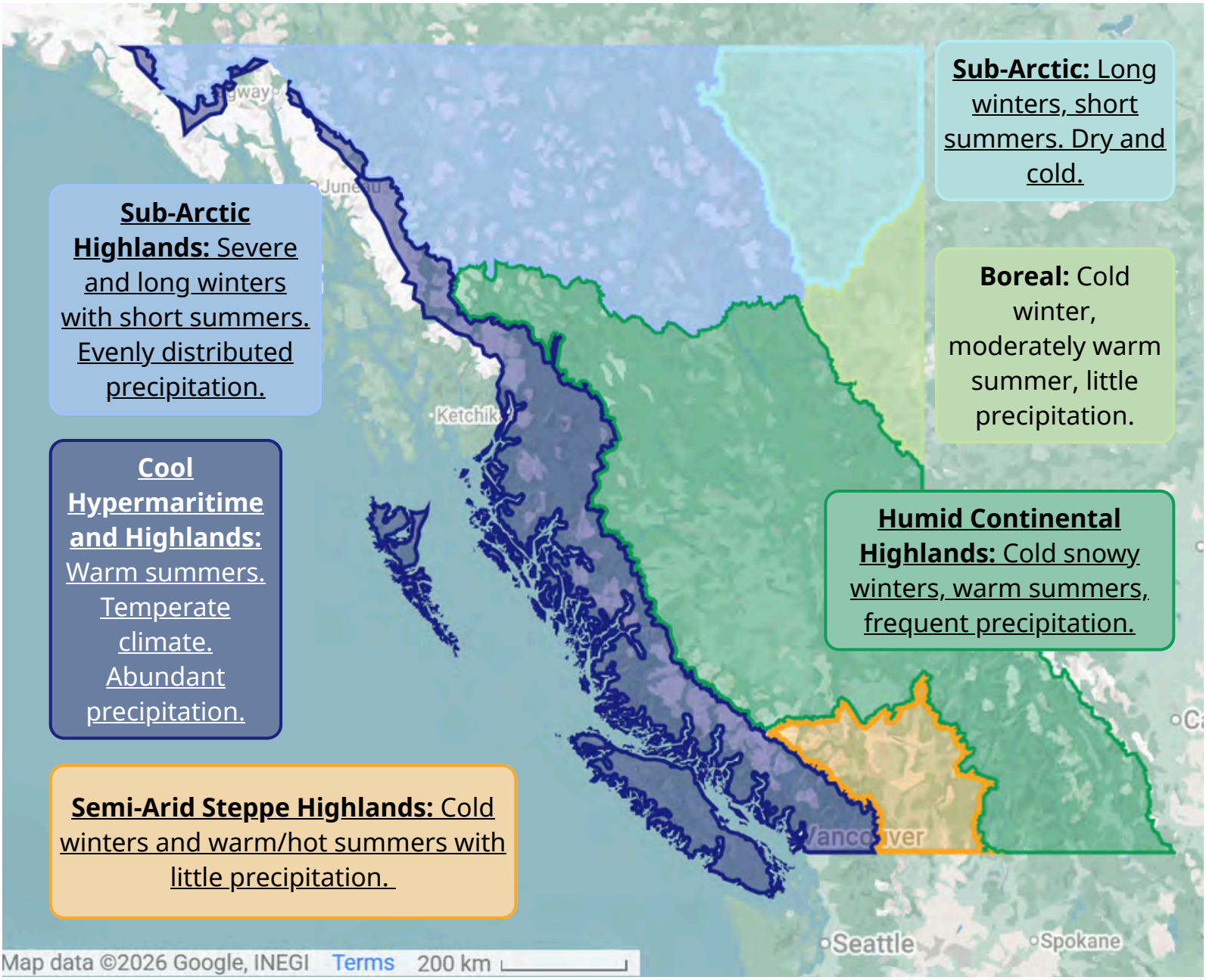
Modifications required for freeze-thaw resistance and limited domestic supply options.

Mass Timber

Fire-resistant, wind-resistant, and seismic-resilient.

Needs moisture management. Moderate insulation.

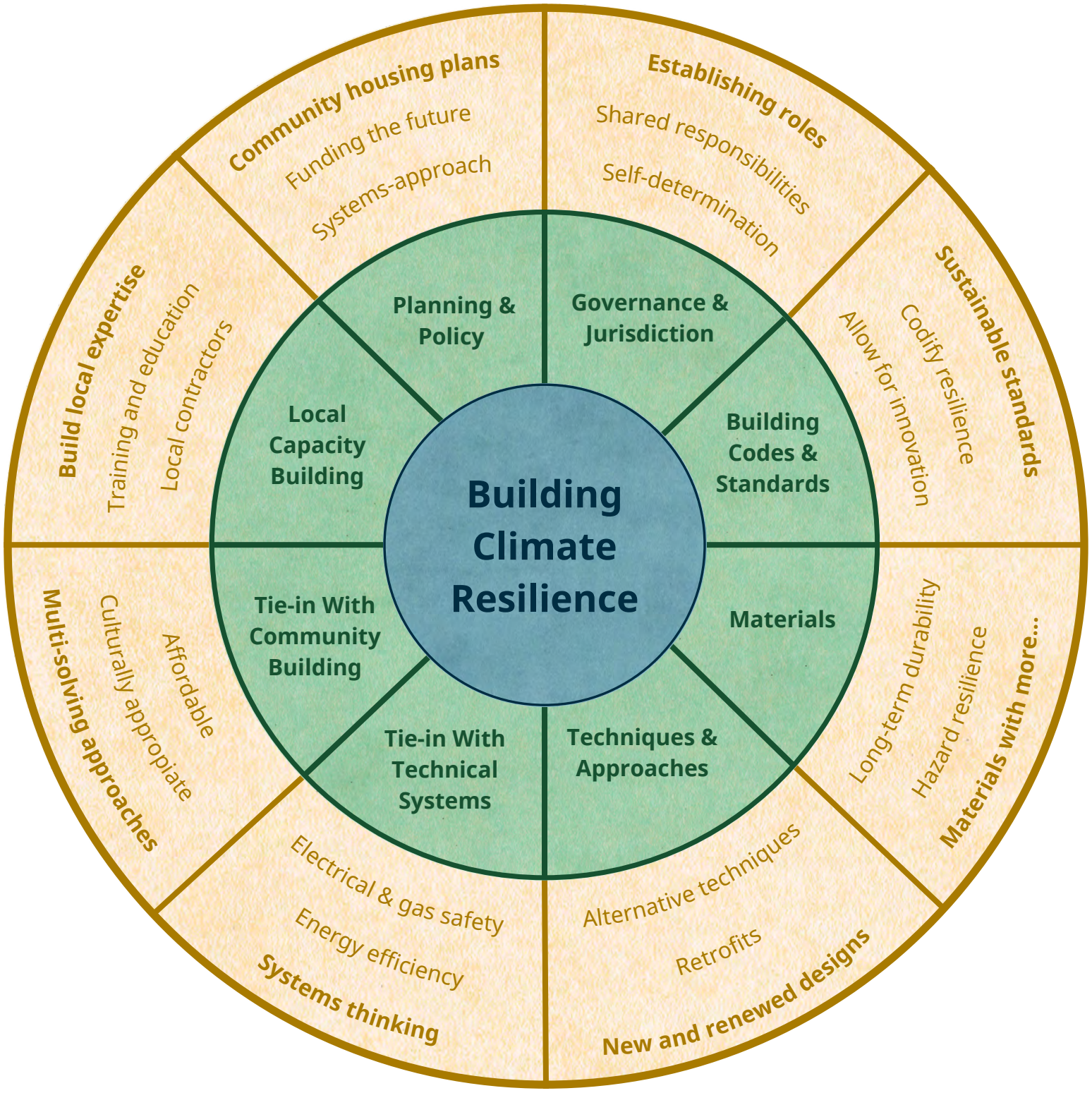
Not all materials belong in all climates…



Decisions about building materials involve assessments of cost, quality, and resilience to various hazards. Such decisions involve tradeoffs (e.g., between heat resilience and moisture resilience). BC is an ecologically diverse province, so what works in one area may not be suitable in another.

In addition to a community's values, undertaking a climate risk assessment and/or consulting the Province of British Columbia's disaster and climate risk and resilience maps may be helpful approaches to determine which hazards should be prioritised.

Building for the future means **constructing with climate change in mind**. How can we build climate resilience in our housing systems?



Building Rural & Remote Community Resilience

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For more information on our work

Climate-Resilient Building Materials
https://climatesolutions.ca/climate-resilient-building-materials/

Community Fire Resilience Handbook
https://climatesolutions.ca/community-fire-resilience-handbook/

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