



INDIGENOUS
PROFESSIONAL
SERVICES INC.

**CLIMATE CHANGE ADAPTATION STRATEGY
FOR THOMPSON RIVERS UNIVERSITY**

**ADDRESSING CLIMATE RISKS
IN THE INTERIOR
OF BRITISH COLUMBIA**



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Executive Summary

Thompson Rivers University, located in the interior of British Columbia, faces significant climate-related risks, including wildfires, droughts, extreme heat events, poor air quality, floods, and other hazards. In response to these challenges, TRU has undertaken the development of a comprehensive Climate Change Adaptation Strategy to enhance resilience and safeguard its operations, infrastructure, and community.

CLIMATE CONTEXT

The United Nations Intergovernmental Panel on Climate Change released its Sixth Assessment Report in March 2023, stating that “Human-caused climate change is already affecting many weather and climate extremes in every region across the globe. This has led to widespread adverse impacts and related losses and damages to nature and people.” While climate mitigation is more important than ever to limit the extent of climate change, increasing climate impacts make adaptation an imperative. The IPCC calls for “climate resilient development [that] integrates adaptation and mitigation” that recognizes deep, rapid and sustained mitigation and adaptation in this decade would reduce future losses and damages from climate change for humans and ecosystems.

Western Canada is already on average one to two degrees warmer than it was in the 1940sⁱⁱ. These projections translate to a range of impacts on human, natural, and built systems, including: increased risk of negative health and safety outcomes; overheating of new and existing buildings; increased loss of trees, vegetation and biodiversity; and increased street, property and shoreline flooding.



Introduction

Nestled amidst the rugged landscapes and majestic beauty of British Columbia’s interior lies Kamloops, a vibrant city known for its rich history, cultural diversity, and natural wonders. At the heart of Kamloops stands Thompson Rivers University (TRU), a beacon of learning, innovation, and community engagement. Since its inception, TRU has played a pivotal role in shaping the educational landscape of the region, offering a diverse array of programs, fostering cutting-edge research, and nurturing generations of students who have gone on to make meaningful contributions to society.

As TRU continues to evolve and adapt to the changing needs of the 21st century, it faces a new and pressing challenge: climate change. Like many communities in the interior, Kamloops and TRU are not immune to the impacts of a warming planet. From the threat of increasingly severe wildfires to the challenges of water scarcity and extreme weather events, the risks posed by climate change are undeniable.

Over the last few decades, Western North America and the BC Interior have seen an average temperature increase of one to two degrees warmer compared to the early and mid 1900’s. Future climate models predict further temperature increases in the coming years within the BC Interior along with changes in historical weather patterns and an increase in severe weather events. Heat dome’s, extreme flooding, severe wildfires and other abnormal weather events have raised the awareness and risk regarding individual health and safety concerns, structural integrity and the loss of biodiversity and natural habitat features that are crucial to the BC Interiors unique ecotype.

In response to these challenges, TRU has embarked on a journey of resilience and adaptation by leveraging its expertise, resources, and community connections to address climate-related risks head-on. This report serves as a testament to TRU’s commitment to sustainability and its dedication to building a resilient future for Kamloops and the surrounding region.

Drawing upon the collective wisdom of stakeholders, experts, and partners, we explore the strategies and approaches needed to mitigate climate risks, enhance resilience, and foster a culture of sustainability. By harnessing the power of knowledge, innovation, and collaboration, TRU and the broader community can chart a course towards a more sustainable and resilient future, where generations to come can thrive amidst the challenges of a changing climate.



The Challenge

In 2023, the Intergovernmental Panel on Climate Change (IPCC) released its Sixth Assessment Report (AR6) summarizing the state of knowledge of climate change, its widespread impacts, and risks. The report stated that “human activities, principally through emissions of greenhouse gases (GHGs), have unequivocally caused global warming. Across the world, changes to weather and climate extremes are already being witnessed, leading to widespread adverse impacts and related damage and losses to people and the environment. Globally, 2023 was by far the hottest year on record, and Western Canada is on average one to two degrees warmer than it was in the 1940s.

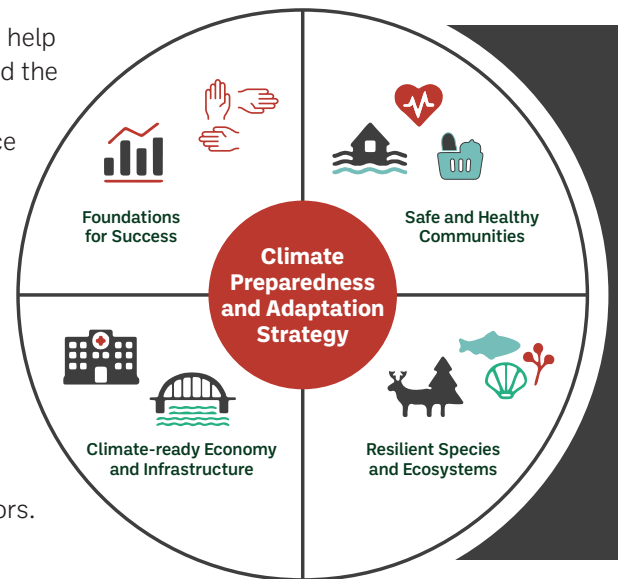
It is widely accepted that, despite efforts to limit GHG emissions, global temperature will continue to increase in the near term (2021-2040) as result of cumulative emissions to date and is likely to reach 1.5°C above historical averages even under a low emissions scenario. Every increment of warming will intensify climate impacts, and the World Economic Forum’s 2024 Global Risks Report ranks extreme weather events linked to climate change as the number one global risk over the long-term.

In Canada, which is warming at twice the global average rate, climate change is increasing risks to health and wellbeing, nature and biodiversity, infrastructure, and the economy. Since the Strategy was last updated in 2018, British Columbia has experienced Canada’s most fatal climate-related event (2021 heat dome), the province’s most costly weather event (2021 flooding), and the most destructive and expensive wildfire season on record (2023).

What is a Climate Resiliency Strategy?

A climate resilience strategy is a comprehensive plan designed to help communities, organizations, or individuals adapt to and withstand the impacts of climate change. It involves identifying vulnerabilities, assessing risks, and implementing measures to enhance resilience to changing climate conditions.

Here’s an overview of key components typically included in a climate resilience strategy:



Risk Assessment

Conducting a thorough assessment to identify current and future climate-related risks and vulnerabilities. This involves analyzing data on temperature trends, precipitation patterns, extreme weather events, sea-level rise, and other climate indicators.

Vulnerability Analysis

Evaluating the potential impacts of climate change on infrastructure, ecosystems, economy, public health, and social well-being. This includes identifying populations or sectors that are particularly susceptible to climate risks.

Adaptation Goals and Strategies

Adaptation goals and strategies include setting clear goals and objectives for building resilience to climate change. These goals should be specific, measurable, achievable, relevant, and time-bound (S.M.A.R.T). They should align with the organization's mission, values, and priorities.

There is equal importance in developing a range of adaptation strategies to address identified vulnerabilities and achieve resilience goals. These strategies may include infrastructure upgrades, land use planning, natural resource management, emergency preparedness, community engagement, and policy development.

National and Provincial Climate Adaptation Strategies

The Government of Canada's National Adaptation Strategy (2023) charts a collaborative course towards a more climate-resilient nation. It presents a vision and actionable steps across five interconnected domains: disaster resilience, health and well-being, nature and biodiversity, infrastructure, and the economy and workforce.

Similarly, the Province of B.C.'s Climate Preparedness and Adaptation Strategy 2022-2025 details measures to enhance the province's ability to anticipate and respond to sudden events such as wildfires, floods, and heatwaves. It also addresses slower-occurring changes like rising sea levels, receding glaciers, and evolving ecosystems. The strategy is organized into four main pathways: laying the foundations for success, ensuring safe and healthy communities, fostering resilient species and ecosystems, and building a climate-ready economy and infrastructure.

Role of Local Government in Climate Adaptation

Climate adaptation is most effectively implemented at the regional and local levels because the specific hazards, vulnerabilities, adaptive capacities, and risks are unique to each area. Local governments, which oversee services and infrastructure directly impacted by climate change, are pivotal in this regard. They possess essential tools for climate adaptation, including land use planning, building standards, and emergency response capabilities. Additionally, they invest in long-term capital projects and programs that will serve their communities for decades to come.

Local governments also have a responsibility to care for their residents, particularly those most vulnerable to climate change impacts. By working with higher levels of government, local authorities can proactively plan for resilience to future climate conditions. This forward-thinking approach not only enhances the city's resilience but also helps save money by avoiding the higher costs associated with repairing or rebuilding later. For more detailed information, you can refer to the Kamloops Climate Action Plan.

What Is Climate Adaptation?

“Adaptation is finding new ways of making decisions, building communities and businesses, and protecting each other and the places we value in anticipation of climate change. It means ensuring that we are all better able to prevent, prepare, respond, and recover from climate impacts today and in years to come. Taking ambitious and collective action to adapt in ways that are equitable and inclusive will help us ensure that everyone's lives and welfare are protected from the impacts of a changing climate”.

-National Adaptation Strategy, Government of Canada (2023).

GOALS

- Integrate a climate change adaptation lens into local policies, strategies and planning.
- Improve climate resilience of built systems, natural systems and human systems.
- Improve awareness, knowledge, skills and resources of City staff, enhancing capacity for transformative change.
- Enhance opportunities for coordination and cooperation through the development of networks and partnerships.
- Apply an equity lens to centre those disproportionately impacted by climate impacts.

GUIDING PRINCIPLES

- **Evidence-based:** Use the best, most up-to date science available to inform a risk-based approach.
- **Adaptable:** Promote flexible and adaptive management approaches that leave a range of future options available.
- **Integrated:** Give priority to adaptation strategies that build on existing programs or policies and provide co-benefits with other community priorities.
- **Relevant and transparent:** Collaborate with community partners and share progress.
- **Comprehensive:** Mainstream adaptation into day-to-day City business.
- **Equitable:** Seek ways to transform current systems, policies, and processes to achieve equitable outcomes for those disproportionately impacted by climate change.

✓ EVIDENCE-BASED

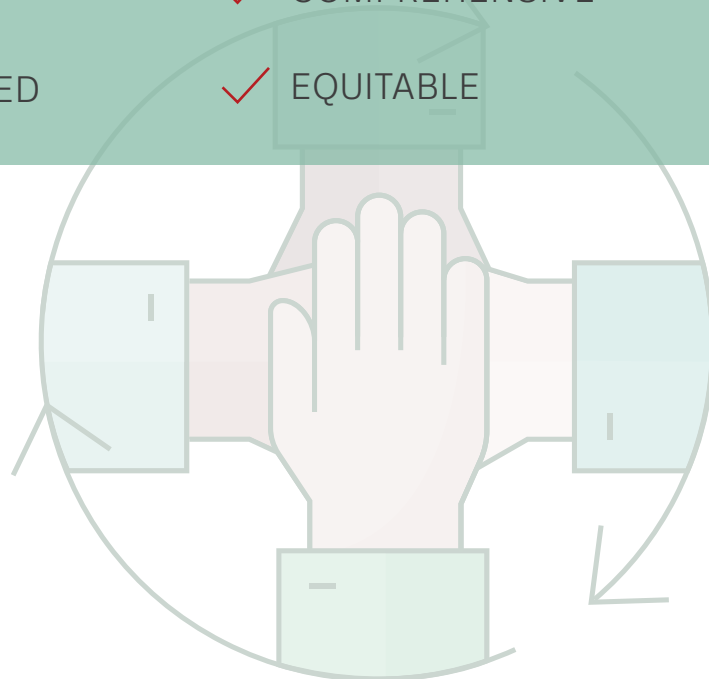
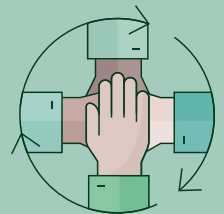
✓ RELEVANT AND TRANSPARENT

✓ ADAPTABLE

✓ COMPREHENSIVE

✓ INTEGRATED

✓ EQUITABLE



Objectives and Strategies

To achieve these goals, TRU has established specific objectives and strategies tailored to address the unique climate-related risks and challenges faced by the university. These objectives are S.M.A.R.T and are aligned with TRU's mission, values, and strategic priorities. Climate change projections indicate that the interior of British Columbia including TRU will experience more frequent and severe weather-related events. These changes have profound implications for TRU's operations and campus community.

Key objectives include:

- **Enhance Resilience** - TRU aims to enhance its resilience to climate-related hazards, including wildfires, droughts, extreme heat events, poor air quality, floods, and other climate impacts. This includes strengthening infrastructure, developing robust emergency preparedness plans, and fostering a culture of resilience across campus.
- **Reduce Vulnerability** - TRU is committed to reducing vulnerability to climate change by identifying and addressing areas of susceptibility within its operations and community. This includes assessing vulnerabilities in infrastructure, water resources, ecosystems, and social systems, and implementing measures to mitigate risks and enhance adaptive capacity.
- **Promote Sustainability** - TRU seeks to promote sustainability and environmental stewardship by integrating climate adaptation into its broader sustainability initiatives. This includes reducing greenhouse gas emissions, promoting energy efficiency and renewable energy, and incorporating climate resilience considerations into campus planning and development.
- **Infrastructure Resilience** - Enhance the resilience of campus infrastructure to withstand climate-related hazards, such as wildfires, floods, and extreme weather events. This includes retrofitting buildings, improving drainage systems, and incorporating climate-resilient design standards into new construction projects.
- **Water Resource Management** - Implement water conservation measures, drought response plans, and sustainable water management practices to ensure reliable access to water for campus operations and minimize impacts on local water resources.
- **Ecological Restoration** - Restore and conserve natural ecosystems on campus grounds to enhance biodiversity, improve ecosystem services, and provide natural buffers against climate-related risks, such as wildfires and floods.
- **Community Engagement** - Engage students, faculty, staff, and the broader community in climate resilience planning, education, and outreach initiatives. Foster partnerships with local stakeholders, Indigenous communities, and government agencies to collaboratively address climate challenges and build community resilience.
- **Research and Innovation** - Support research and innovation initiatives focused on climate change adaptation, resilience-building, and sustainable development. Foster interdisciplinary collaboration and knowledge exchange to develop innovative solutions to complex climate-related challenges.

By pursuing these adaptation goals and objectives, TRU aims to build a more resilient and sustainable campus community that can thrive in the face of a changing climate. Through proactive action, collaboration, and innovation, TRU is taking a leadership role in addressing climate change and safeguarding the well-being of its students, staff, and surrounding communities.



What are the Climate Risks and Vulnerabilities to TRU?

As previously mentioned, there are many climate factors that pose a risk to TRU. To address these risks, proactive measures are essential, including climate change adaptation strategies, land use planning, ecosystem restoration, infrastructure upgrades, emergency preparedness, and community engagement. TRU is committed to enhancing resilience to climate change through sustainability, equity, and innovation. By understanding and mitigating these risks, TRU and the broader community can build resilience and ensure a sustainable future for residents and ecosystems in BC's interior.

Wildfires

Wildfire severity and frequency in North America is increasing at a significant rate each year, significantly degrading air quality and posing a multitude of risks. The interior of British Columbia (BC) is prone to wildfires, especially during hot, dry summers which are expected to increase in frequency.

Climate change is projected to increase the frequency, intensity, and duration of these fires, enhancing the impact on ecosystems, communities, and infrastructure. The acute and long-term health impacts of smoke exposure are profound, particularly for individuals with pre-existing cardiovascular and respiratory conditions.

Poor air quality from wildfire smoke leads to a range of health and mental health issues, increases in climate anxiety, and decreases in public access to outdoor and cultural activities. It disrupts businesses, deteriorates indoor air quality due to inadequate filtration, and can even result in the cancellation of outdoor events. Consequently, it is imperative to adopt strategies to mitigate these impacts by adapting buildings, enhancing our understanding of air quality issues, and safeguarding natural environments.



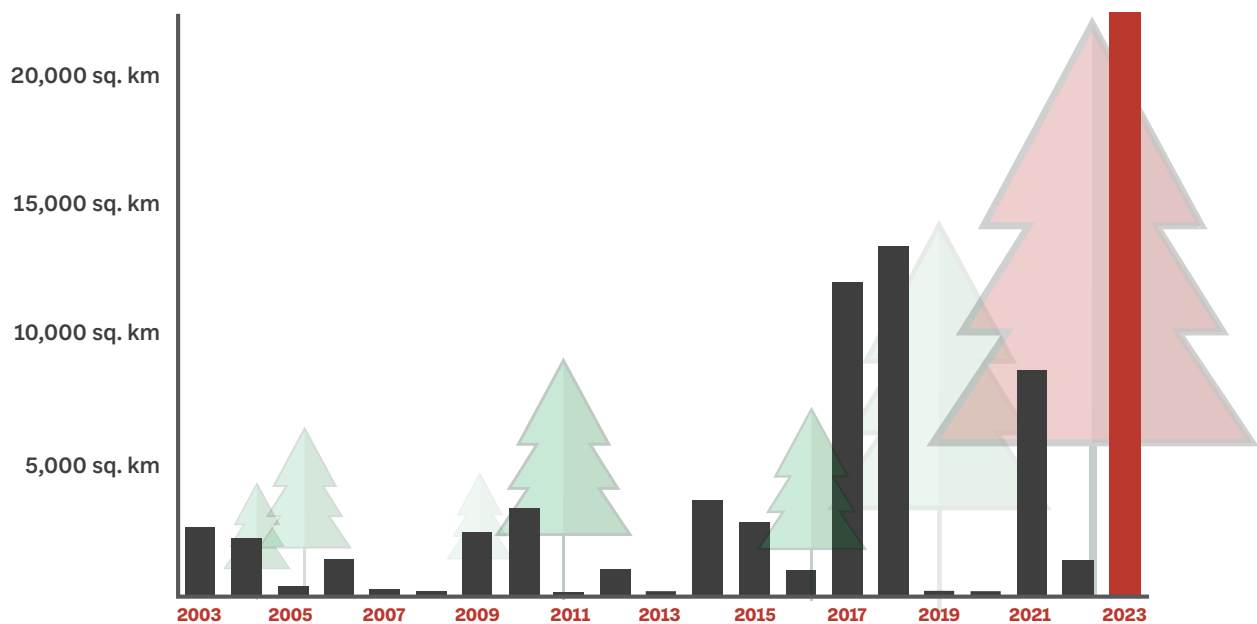
WILDFIRE IMPACTS

- Immediate and long-term effects on cardiovascular and respiratory health from smoke exposure, especially for those with existing medical conditions.
- Detrimental mental health consequences stemming from social isolation, reduced physical activity, and limited access to culturally significant natural areas.
- Heightened anxiety related to climate change.
- Poor indoor air quality in buildings lacking proper filtration systems.
- Business and service interruptions caused by smoke exposure, leading to temporary income loss and health risks, particularly for outdoor workers.
- Restricted access to outdoor recreation, cultural activities, and tourism.
- Possible cancellation of outdoor events, including festivals, park activities, and recreational events.

WILDFIRE OBJECTIVES

- Reduce the negative impacts of poor air quality caused by wildfire smoke and ground level ozone through adaptation of buildings and the exterior built and natural environments.
- Improve understanding of poor air quality caused by wildfire smoke and ground level ozone

AREA BURNED DURING B.C. WILDFIRE SEASONS



2023 data as of Sept. 10.

Source: B.C. Wildfire Service (Akshay Kulkarni/CBC)

Poor Air Quality

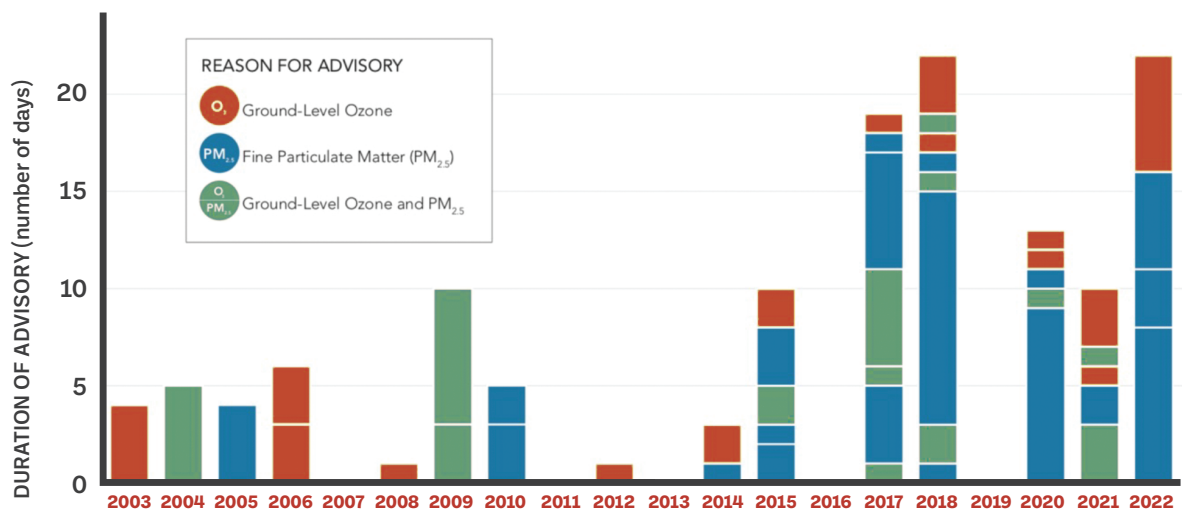
Extreme heat and poor air quality events frequently occur together, leading to compounded effects. The BC Interior has experienced poor air quality due to wildfire activity multiple times over the past five years. These impacts can sometimes be mitigated through similar strategies, such as building upgrades and emergency response programs that focus on vulnerable communities.

1. Collaborate with health, housing, and community-based partners to enhance support for seniors and people with disabilities through the Resilient Neighbourhoods Program during extreme heat and poor air quality events.
2. Consider expanding the social capital grants program to fund resilient retrofits for social infrastructure, addressing immediate needs related to extreme heat and poor air quality events.
3. Investigate requirements for installing cooling and air quality systems (such as air conditioning and air filters) as part of tenant improvements or renovations in city-partnered emergency homeless shelters.
4. Ensure climate resiliency measures are included in the construction of new City-owned buildings and support upgrades for existing structures. All new public-facing facilities will include mechanical cooling and enhanced air filtration systems, with designated clean air spaces having additional filtration requirements to manage wildfire smoke events.



Wildfires, industrial activities, and vehicle emissions contribute to poor air quality in BC's interior, particularly during wildfire season. Climate change could worsen air quality issues by increasing the frequency and severity of wildfires and heatwaves.

AIR QUALITY ADVISORIES 2003-2022



Ground-level ozone

In addition to wildfire smoke events, ground-level ozone can also contribute to poor air quality. Warmer and drier summer temperatures can lead to elevated levels of ground-level ozone. The projected increase in temperature extremes and warmer summers could lead to elevated concentrations of ground-level ozone.





Extreme Heat Events

Heatwaves are becoming more frequent and severe in BC's interior due to climate change. Extreme heat events can pose health risks, particularly to vulnerable populations, and increase energy demand for cooling systems. During the 2021 Heat Dome, 98% of deaths in British Columbia occurred indoors.

Climate Projections

Climate projections for the next 30 years into the 2050's show that warmer temperatures are anticipated, with more extreme heat days in summer and more frequent, longer heatwaves.

- The average number of days above 25°C will triple from 20 to 61 per year.
- The average number of days above 30°C will increase from one to nine per year.

Heatwaves and extreme heat days

- The average number of heatwaves will increase from one to four per year.
- The length of the longest annual heatwave will increase from three to six days, and feature both warmer daytime and nighttime temperatures.
- From 1981-2010, a daily maximum temperature of 33°C or higher occurred once every 20 years or so in Vancouver. In the projections up to the 2050's, this temperature is expected to exceed those maximums an average of 9 times in a 20-year period, or almost once every other year.
- A 1-in-20-year heat event is projected to have a median magnitude of around 37°C.

Impacts

- Rising instances of heat-related illnesses and fatalities, especially among those facing economic or social hardships.
- Adverse mental health effects from social isolation, reduced physical activity, and limited access to culturally suitable cooling spaces.
- Growing anxiety about climate change.

- Increased prevalence of disease vectors and respiratory illnesses.
- Higher rates of violence, including intimate partner violence.
- Elevated indoor temperatures in older buildings designed for historically cooler climates, with low air conditioning availability.
- Greater strain on healthcare systems and emergency rooms.
- Higher demand on the electrical grid and increased consumer costs due to the use of mechanical cooling methods like air conditioning.
- Business and service interruptions caused by unsafe working conditions, leading to temporary income and service losses, particularly affecting outdoor workers, food establishments, and community-serving businesses like childcare facilities.
- Stress on ecosystems and marine life mortality during extended heatwaves.
- Expansion and spread of invasive species due to consistently warmer weather throughout the year.

Equity and Extreme Heat: Disproportionally Impacted Population

In Canada, extreme heat causes more weather-related fatalities on average each year than any other hazard, and its effects are unevenly distributed across populations. Vulnerable groups include adults aged 60 and older, individuals living alone, those with pre-existing conditions like diabetes, heart disease, or respiratory issues, and individuals with mental illnesses such as schizophrenia, depression, or anxiety. Others at higher risk are people with substance use disorders, including alcohol dependency, those with limited mobility, the homeless or precariously housed, outdoor workers, pregnant individuals, and infants and young children.

Objectives

- Reduce the negative impacts of extreme heat on people, the environment, and infrastructure through adaptation of buildings and the exterior build and within natural environments.
- Improve the resilience of people, the environment, and infrastructure to extreme heat through equitable planning, emergency preparedness, and programming.



During the 2021 Heat Dome, 98% of deaths in British Columbia occurred indoors.



Extreme Cold Events

While BC's interior experiences relatively mild winters compared to other regions of Canada, extreme cold events can still occur, especially in mountainous areas. These events can disrupt transportation, strain energy systems, and pose risks to public health and safety.

Flash Floods and Extreme Rain Events

Climate projections for the 2050's show more precipitation falling in fall, winter, and spring, and less in summer. An increased proportion of precipitation will fall as rain instead of snow in winter, and extreme rainfall events will become more intense and occur more frequently.

Shifting precipitation patterns

- Average fall rainfall is expected to increase by 12%.
- By the end of the century, some years may have more rain in autumn than in winter, with average snowfall decreasing by 60%.

Impacts

- Increased frequency of overland flooding, resulting in building damage and displacement of tenants in ground-floor and basement levels.
- Higher incidence of sewer backups in both combined and separate sewer systems due to heavy rainfall, affecting water quality in receiving bodies.
- More frequent surface water flooding from rainwater pooling in low-lying areas or overwhelming drainage systems during heavy rains.
- Business disruptions caused by indoor flooding and a general decrease in the public's use of outdoor recreational spaces.
- Traffic pattern disruptions and reduced pedestrian access on sidewalks due to flooded streets and intersections.
- Mental health impacts and heightened climate anxiety due to the stress of displacement and financial difficulties.
- Elevated landslide risk impacting public infrastructure and private property.
- Increased volume of third-party liability claims against the city following major rain events.

Objectives

- Improve understanding of extreme rainfall events and overland flooding across the Interior.
- Manage risk related to rainfall related flooding and improve resilience of people, the environment, and infrastructure to these impacts.

Intense rainfall events can lead to flash floods, landslides, and erosion in BC's interior, particularly in mountainous regions. Climate change may increase the frequency and severity of these events, posing risks to infrastructure, communities, and natural ecosystems.



Average fall rainfall is expected to increase by 12%.



Droughts

Droughts are a recurring phenomenon in BC's interior, affecting water availability for agriculture, industry, and municipal use. Climate change is projected to exacerbate drought conditions, leading to water shortages, reduced crop yields, and impacts on biodiversity.

Water stress is a growing concern in BC's interior, particularly during drought periods. Competition for water resources between various users, including agriculture, industry, municipalities, and ecosystems, may intensify as climate change alters precipitation patterns and reduces snowpack.

Ecological Impacts

Climate change is expected to have profound impacts on BC's interior ecosystems, including changes in species distributions, altered wildfire regimes, loss of habitat, and disruptions to ecological processes such as pollination and migration.

Social and Health Impacts

Climate-related hazards within British Columbia's interior pose significant social and health implications, affecting mental health, food security, clean water access, and overall community well-being. These impacts are particularly severe for vulnerable groups like Indigenous communities, the elderly, and low-income households.

Effectively addressing these climate-related challenges demands proactive approaches such as implementing climate change adaptation strategies, enhancing land use planning, restoring ecosystems, upgrading infrastructure, preparing for emergencies, and fostering community involvement. By comprehensively understanding and mitigating these risks, British Columbia's interior can bolster its resilience to climate change and safeguard a sustainable future for both residents and ecosystems alike.

Mitigation Strategies

Climate mitigation efforts aim to curb climate change by reducing greenhouse gas emissions in the atmosphere. In British Columbia's interior, mitigating climate risks involves a multifaceted approach to bolster resilience, enhance adaptation, and reduce vulnerability.

Wildfire Risk Management

- Implementing strategies like prescribed burns and vegetation thinning to decrease wildfire fuel loads.
- Creating defensible spaces around homes through landscaping and maintenance.
- Investing in early detection and rapid response systems for swift wildfire containment.
- Enhancing community preparedness and evacuation plans to ensure effective responses.

Drought Resilience

- Adopting water conservation measures such as efficient irrigation and landscaping practices.
- Diversifying water sources and expanding storage capacity to withstand drought conditions.
- Promoting sustainable agricultural practices to conserve water and enhance resilience.
- Upgrading water infrastructure for improved reliability through reuse systems and aquifer projects.

Extreme Heat and Cold Preparedness

- Developing response plans for heatwaves and cold snaps, especially for vulnerable populations.
- Improving building design and insulation to enhance comfort and energy efficiency during extremes.
- Increasing access to cooling and heating shelters, particularly in urban heat islands.
- Educating communities about heat/cold safety and promoting awareness of temperature-related risks.

Air Quality Management

- Implementing emissions reduction measures such as vehicle standards and pollution controls.
- Enhancing strategies for managing wildfire smoke through advisories and monitoring.
- Promoting alternative transportation modes to reduce emissions and improve air quality.
- Investing in green infrastructure like urban forests to filter pollutants and enhance air quality.



Flood Risk Reduction

- Implementing floodplain management strategies such as zoning and mapping.
- Building and maintaining flood mitigation infrastructure like levees and stormwater systems.
- Restoring natural floodplain ecosystems to bolster resilience and provide natural protection.
- Encouraging climate-resilient building practices to minimize flood damage.



Water Resource Management

- Adopting integrated approaches to manage water resources and prioritize ecosystem health.
- Enhancing water conservation efforts to optimize usage and reduce wastage.
- Managing groundwater recharge and aquifer levels for sustainable water supply.
- Protecting water quality through pollution prevention and watershed management.

Ecological Restoration and Conservation

Conserving and revitalizing natural ecosystems, including forests, wetlands, and grasslands, plays a crucial role in bolstering biodiversity and strengthening ecosystem resilience. This effort involves:

- **Protecting and Restoring Ecosystems:** Safeguarding and rehabilitating natural habitats to support diverse species and enhance ecosystem stability.
- **Promoting Habitat Connectivity:** Establishing wildlife corridors to aid species migration and help them adapt to evolving climate conditions.
- **Managing Invasive Species:** Controlling non-native species and pests that jeopardize native ecosystems and biodiversity.
- **Integrating Climate Change in Conservation:** Incorporating climate considerations into land management and conservation strategies to ensure the sustained health and diversity of ecosystems over the long term.



Community Engagement and Capacity Building

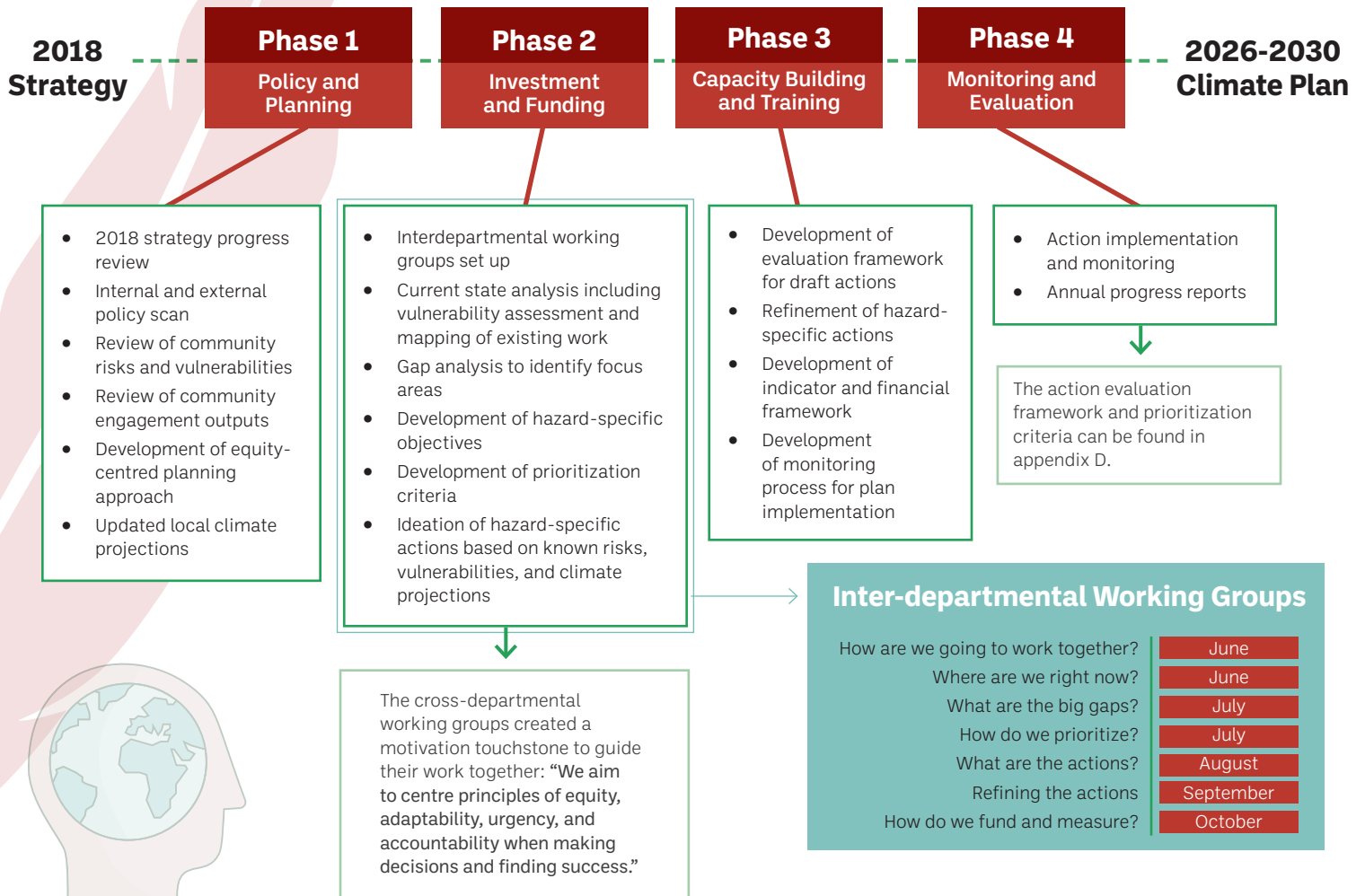
- Engaging stakeholders in climate resilience planning and decision-making processes.
- Providing education and outreach to raise awareness about climate risks and adaptation.
- Facilitating collaborations between sectors and organizations to enhance resilience.
- Empowering communities to develop local resilience plans tailored to their specific needs.

By implementing these strategies comprehensively and collaboratively, British Columbia's interior can effectively build resilience to climate change, reducing risks associated with wildfires, droughts, extreme temperatures, poor air quality, floods, and other climate-related hazards.



Implementation Plan

2024-2025 STRATEGY UPDATE PROCESS



Implementation of this Strategy and its action plan will continue to be a cross-departmental effort. Sustainability staff will continue to track and support implementation of the strategy to ensure TRU is prepared for the impacts of climate change.

These adaptation strategies will be implemented through a phased approach, with clear timelines, responsibilities, and budget allocations. TRU will collaborate with internal and external stakeholders to ensure comprehensive and coordinated efforts.

Implementing mitigation measures for climate-related risks in British Columbia’s interior requires a coordinated and multi-faceted approach involving various stakeholders, resources, and strategies. Here’s how these mitigation measures could be implemented:



Phase 1 - Policy and Planning

Phase 1 Plan for Climate Mitigation Strategies in Kamloops, BC

Step 1. Stakeholder Engagement and Initial Assessment

Objective

Engage key stakeholders and conduct initial assessments to lay the groundwork for comprehensive climate mitigation planning.

Actions

Stakeholder Identification

- Identify and engage stakeholders including university officials, local government, community leaders, and environmental organizations.

Workshops and Meetings

- Organize workshops and meetings to raise awareness about climate risks and mitigation strategies.

Initial Risk Assessment

- Conduct a preliminary assessment of climate risks specific to Kamloops, focusing on wildfire risk, drought resilience, extreme heat and cold preparedness, air quality, flood risk, water resource management, and ecological conservation.

Step 2. Detailed Planning and Strategy Development

Objective

Develop detailed mitigation strategies tailored to Kamloops' climate risks and vulnerabilities.

Actions

Wildfire Risk Management

- Identify priority areas for prescribed burns and vegetation thinning. Collaborate with local fire departments and forestry services to establish protocols for early detection and rapid response. Assess existing defensible spaces and propose landscaping and maintenance improvements.

Drought Resilience

- Evaluate current water conservation practices on campus and propose improvements. Investigate options for diversifying water sources and expanding storage capacity. Partner with local agricultural stakeholders to promote sustainable water management practices.

Extreme Heat and Cold Preparedness

- Develop heatwave and cold snap response plans tailored to university facilities and vulnerable populations. Conduct energy audits of campus buildings to identify insulation and energy efficiency upgrades. Identify locations for cooling and heating shelters and develop operational plans.

Air Quality Management

- Implement emission reduction measures on campus, focusing on vehicle fleets and energy consumption. Establish monitoring systems for wildfire smoke and develop communication strategies for air quality advisories. Promote alternative transportation options and explore green infrastructure solutions to improve air quality.

Flood Risk Reduction

- Collaborate with local authorities to update floodplain maps and zoning regulations. Assess campus infrastructure for flood resilience and propose improvements. Explore opportunities for restoring natural floodplain ecosystems to enhance flood resilience.

Water Resource Management

- Conduct a detailed assessment of campus water usage and propose conservation measures. Investigate groundwater recharge opportunities and aquifer management strategies. Develop pollution prevention plans and watershed management strategies to protect water quality.

Ecological Restoration and Conservation

- Identify priority areas for ecological restoration on university grounds. Develop partnerships with local conservation organizations to enhance biodiversity and ecosystem resilience. Integrate climate change considerations into habitat management plans to ensure long-term sustainability.

Step 3. Goal Setting and Implementation Planning

Objective

Establish clear goals and develop implementation plans for prioritized mitigation strategies.

Actions

Goal Setting

- Define specific, measurable goals for emission reductions, resilience improvements, and ecosystem conservation. Implementation Plans: Develop detailed timelines, budgets, and resource allocation plans for each mitigation strategy.

Monitoring and Evaluation

- Establish monitoring frameworks to track progress towards goals and evaluate the effectiveness of implemented strategies.

Step 4. Community Engagement and Capacity Building

Objective

Foster community involvement and build capacity for climate resilience across Kamloops.

Actions

- Education and Outreach: Conduct public awareness campaigns and educational programs on climate risks and mitigation strategies.
- Collaboration: Facilitate partnerships between university stakeholders, local businesses, community groups, and government agencies.
- Local Resilience Planning: Support community-driven initiatives to develop localized resilience plans aligned with broader mitigation efforts.

Conclusion

By systematically implementing these Phase 1 actions, TRU and Kamloops, BC, can begin to address climate risks effectively, laying the foundation for long-term resilience and sustainability. This approach integrates stakeholder engagement, detailed planning, goal setting, and community capacity building to ensure a comprehensive and collaborative response to climate change impacts

Phase 2 - Investment and Funding

Phase 2: Investment and Funding for Climate Resilience for TRU

Objective

Secure necessary funding and investment to implement climate resilience projects, infrastructure upgrades, and community initiatives identified in Phase 1.

Public and Private Funding Allocation

- **Elaboration:** Develop a detailed budget outlining the financial requirements for each mitigation strategy identified in Phase 1. Allocate funds from both public sources (e.g., municipal budgets, provincial grants) and private sources (e.g., university funds, corporate sponsorships).
- **Implementation:** Establish a transparent process for fund allocation, ensuring that resources are distributed equitably across various resilience projects and initiatives.

Utilization of Government Grants and Incentives

- **Elaboration:** Identify and leverage available government grants, subsidies, and tax incentives at the municipal, provincial, and federal levels. These could include funding for renewable energy projects, green infrastructure development, and climate adaptation initiatives.
- **Implementation:** Form partnerships with relevant government agencies to streamline the application process for grants and incentives. Develop grant proposals that align with strategic priorities identified in Phase 1.

Engagement of Philanthropic and Impact Investors

- **Elaboration:** Reach out to philanthropic organizations, impact investors, and foundations interested in supporting climate resilience and sustainability initiatives. Highlight the TRU's commitment to environmental stewardship and its potential impact on the local community.
- **Implementation:** Develop tailored pitches and proposals to attract investment from philanthropic sources and impact investors. Emphasize the measurable outcomes and societal benefits of climate resilience projects, such as improved public health, economic stability, and environmental conservation.

Establishment of Financing Mechanisms

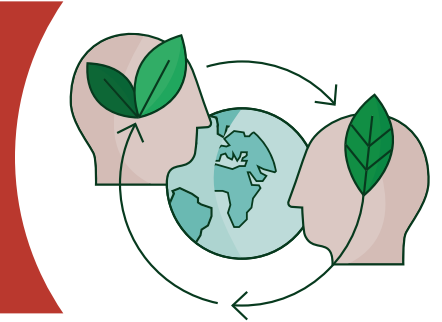
- **Elaboration:** Explore innovative financing mechanisms such as green bonds, public-private partnerships (PPPs), and revolving loan funds. These mechanisms can provide sustainable funding streams for long-term climate resilience projects.
- **Implementation:** Collaborate with financial institutions and sustainability experts to design and implement financing mechanisms tailored to TRU's needs. Ensure that these mechanisms align with the TRU's financial sustainability goals and ethical investment principles.

Monitoring and Reporting

- **Elaboration:** Implement robust monitoring and reporting frameworks to track the utilization of funds and the progress of climate resilience projects. Provide regular updates to stakeholders, including university administration, donors, and the community.
- **Implementation:** Utilize data-driven insights to optimize resource allocation, demonstrate project impact, and ensure accountability. Engage with stakeholders through transparent communication channels to build trust and support for ongoing funding initiatives.

Conclusion

Phase 2 focuses on securing and effectively managing the financial resources necessary to implement climate resilience projects identified in Phase 1. By leveraging public and private funding sources, engaging with philanthropic organizations and impact investors, and exploring innovative financing mechanisms, TRU can strengthen its commitment to sustainability and resilience in Kamloops, BC. This strategic approach not only addresses immediate climate challenges but also lays the groundwork for a resilient and sustainable future for the university and its surrounding community



Phase 3 - Capacity Building and Training

Phase 3: Capacity Building, Training, Community Engagement, and Partnerships

Objective

Enhance community capacity and foster collaborative partnerships to effectively implement and sustain climate resilience measures identified in Phases 1 and 2.

Capacity Building and Training

1. Training and Educational Programs:

- **Elaboration** Develop and implement comprehensive training sessions, workshops, and educational programs aimed at government agencies, community organizations, businesses, and residents. These programs will focus on building awareness and skills in climate resilience planning, risk assessment, and project implementation.
- **Implementation:** Collaborate with local experts, universities, and technical institutions to design curricula tailored to local needs. Offer hands-on training and technical assistance to ensure stakeholders are equipped to address climate challenges effectively.

2. Technical Assistance and Resources

- **Elaboration:** Provide ongoing technical assistance, resources, and tools to support stakeholders in developing and implementing climate adaptation strategies. This includes access to data, modeling tools, and expert guidance to facilitate informed decision-making.
- **Implementation:** Establish a resource center or online portal to centralize information and facilitate knowledge-sharing among stakeholders. Offer mentoring programs and peer-to-peer learning opportunities to enhance skills and build confidence in implementing resilience measures.

3. Partnerships with Universities and Research Institutions

- **Elaboration:** Forge strategic partnerships with universities, research institutions, and technical experts to exchange knowledge, expertise, and best practices in climate resilience. Collaborate on research projects, pilot initiatives, and applied research to innovate and improve resilience strategies.
- **Implementation:** Establish joint research programs, host seminars, and participate in collaborative forums to disseminate findings and integrate cutting-edge research into practical applications for climate resilience.

Community Engagement and Partnerships

4. Collaboration and Partnerships

- **Elaboration:** Foster collaboration and partnerships between government agencies, Indigenous communities, non-governmental organizations (NGOs), businesses, and residents to co-develop and implement climate resilience projects.
- **Implementation:** Facilitate regular meetings, workshops, and networking events to strengthen relationships and build trust among diverse stakeholders. Encourage joint planning and resource sharing to maximize impact and sustainability of resilience initiatives.

5. Participatory Planning and Decision-Making

- **Elaboration:** Engage local communities in participatory planning processes and community-based risk assessments. Ensure that adaptation measures are responsive to community needs, values, and priorities.
- **Implementation:** Organize inclusive forums, citizen advisory panels, and public consultations to gather input and feedback from residents. Empower communities to take ownership of resilience efforts and co-design solutions that reflect their unique contexts and aspirations.

6. Empowerment of Community Leaders and Champions

- **Elaboration:** Identify and empower community leaders, stakeholders, and champions to drive climate resilience initiatives within their respective communities.
- **Implementation:** Provide leadership training, capacity-building workshops, and recognition programs to cultivate local leadership in resilience planning and implementation. Foster a network of ambassadors who can mobilize resources, support, and collective action toward shared climate resilience goals.

Conclusion

Phase 3 focuses on building community capacity, fostering partnerships, and engaging stakeholders to ensure the successful implementation and sustainability of climate resilience measures in Kamloops, BC. By investing in training, technical assistance, and collaborative initiatives, TRU can empower stakeholders to effectively address climate challenges while fostering inclusive, resilient communities for the future. This approach not only strengthens local resilience but also enhances collective action and innovation in response to climate change impacts.



Phase 4 - Monitoring and Evaluation

Phase 4: Monitoring and Evaluation for Climate Resilience

Objective

Establish robust monitoring and evaluation systems to assess the effectiveness of implemented climate resilience measures and projects in Kamloops, BC.

Monitoring and Evaluation Systems

1. Establishment of Monitoring Frameworks

- **Elaboration:** Develop and implement comprehensive monitoring frameworks to track the progress and outcomes of climate resilience measures identified in Phases 1-3. This includes setting clear indicators, metrics, and targets aligned with resilience goals.
- **Implementation:** Utilize digital tools, data collection protocols, and standardized reporting formats to ensure consistency and accuracy in monitoring efforts. Regularly update frameworks based on evolving climate data and community feedback.

2. Data Collection and Analysis

- **Elaboration:** Collect and analyze data on climate indicators, environmental conditions, and socio-economic impacts relevant to Kamloops. This includes tracking changes in temperature, precipitation patterns, air quality, and community resilience metrics.
- **Implementation:** Collaborate with academic institutions, research organizations, and government agencies to access relevant datasets and conduct robust analysis. Use GIS technology and modeling tools to visualize data trends and identify emerging climate risks.

3. Feedback Mechanisms and Stakeholder Engagement

- **Elaboration:** Establish feedback mechanisms to gather insights from stakeholders, community members, and experts on the effectiveness and relevance of implemented resilience strategies.
- **Implementation:** Conduct regular surveys, focus groups, and stakeholder consultations to solicit feedback on resilience initiatives. Incorporate feedback into adaptive management processes to refine strategies, prioritize actions, and allocate resources effectively.

Continuous Improvement and Adaptation

4. Refinement of Strategies and Prioritization

- **Elaboration:** Use insights from monitoring and stakeholder feedback to refine climate resilience strategies and prioritize actions based on emerging climate risks and community needs.
- **Implementation:** Convene periodic review meetings with key stakeholders to evaluate progress, identify gaps, and adjust strategies accordingly. Foster a culture of continuous improvement and adaptive management across all levels of implementation.

Conclusion

Phase 4 emphasizes the importance of monitoring, evaluation, and adaptive management in ensuring the effectiveness and sustainability of climate resilience efforts in Kamloops, BC. By establishing robust monitoring frameworks, collecting relevant data, and engaging stakeholders in feedback loops, TRU can optimize resource allocation and decision-making processes. This systematic approach not only enhances accountability but also strengthens the resilience of TRU and the broader community to climate change impacts such as wildfires, droughts, extreme temperatures, poor air quality, and floods.

Conclusion

TRU, nestled in the picturesque interior of British Columbia, is confronting profound climate-related risks that threaten its operations, infrastructure, and community. As outlined in this report, TRU has developed a comprehensive Climate Change Adaptation Strategy to fortify its resilience and lead the charge towards sustainability in Kamloops and beyond.

ADAPTATION GOALS AND STRATEGIES

TRU’s adaptation goals are aligned with TRU’s mission and values statements, while being rooted in the principles of resilience and sustainability. They are S.M.A.R.T and align with TRU’s mission and values. These goals encompass enhancing infrastructure resilience, reducing vulnerability across campus and beyond, promoting sustainability through emissions reduction and sustainable practices, and fostering community engagement and innovation.

NATIONAL AND PROVINCIAL CLIMATE ADAPTATION STRATEGIES

In tandem with TRU’s initiatives, the Government of Canada and the Province of British Columbia have articulated robust climate adaptation strategies. These frameworks prioritize disaster resilience, health, biodiversity, infrastructure, and economic resilience. They underscore the necessity of coordinated efforts across sectors to mitigate risks associated with wildfires, floods, heatwaves, and other climate-induced challenges.

ROLE OF LOCAL GOVERNMENT IN CLIMATE ADAPTATION

Local governments play a pivotal role in climate adaptation due to their direct oversight of infrastructure and services vulnerable to climate impacts. With tools like land use planning, building standards, and emergency response capabilities, local governments can spearhead resilience-building initiatives. By collaborating with higher levels of government, they can proactively prepare for future climate conditions, ultimately safeguarding communities and minimizing economic impacts.

WHAT IS CLIMATE ADAPTATION?

Climate adaptation entails proactive measures to anticipate, respond to, and recover from climate impacts. It necessitates equitable and inclusive actions to protect lives, welfare, and environments from the consequences of a changing climate. Through evidence-based, adaptable, integrated, transparent, comprehensive, and equitable strategies, adaptation efforts ensure sustained resilience and wellbeing for all.

GOALS AND GUIDING PRINCIPLES

TRU’s adaptation strategy integrates climate considerations into local policies, enhances resilience of built and natural systems, builds capacity for transformative change, fosters partnerships, and prioritizes equitable outcomes. Guided by these principles, TRU is committed to proactive climate resilience that aligns with current science and prepares for future uncertainties.



OBJECTIVES AND STRATEGIES

TRU's objectives include enhancing resilience to wildfires, extreme heat events, and floods; reducing vulnerability through infrastructure upgrades and community engagement; promoting sustainability through emissions reduction and ecological restoration; and fostering innovation and research in climate resilience.

CLIMATE RISKS AND VULNERABILITIES TO TRU

TRU faces significant climate risks, including wildfires, extreme heat events, poor air quality, floods, and droughts. These risks necessitate proactive adaptation measures such as infrastructure upgrades, emergency preparedness, ecosystem restoration, and community engagement to safeguard campus operations and the wellbeing of its community.

MITIGATION STRATEGIES

To mitigate these risks, TRU employs a multifaceted approach, integrating resilience-building measures across campus infrastructure, water resource management, ecological restoration, community engagement, and research initiatives. By pursuing these strategies, TRU aims to cultivate a resilient and sustainable campus community amid a changing climate.

In conclusion, Thompson Rivers University's Climate Change Adaptation Strategy exemplifies its dedication to sustainability and resilience in the face of escalating climate risks. By implementing proactive adaptation measures aligned with national and provincial strategies, TRU is not only safeguarding its operations and community but also leading the charge towards a sustainable future for British Columbia's interior. Through collaboration, innovation, and steadfast commitment to climate resilience, TRU stands prepared to navigate the challenges ahead and inspire transformative change in its pursuit of a resilient future. This report encapsulates TRU's proactive stance in addressing climate risks, integrating local, provincial, and national strategies into its adaptation framework.



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