

 **2024**

# **POLICY AND BEST PRACTICE RESEARCH TO INFORM CLIMATE RESILIENCE DEVELOPMENT IN KAMLOOPS**

**EXECUTIVE  
SUMMARY**



Retrieved from:  
<https://www.railbookers.ca/destinations/north-america/canada/kamloops-bc>

**Prepared by: Shiyao Zhu, UBC Sustainability Scholar, 2024**

**Prepared for: Grace Smith, Climate and Sustainability  
Planner, City of Kamloops**

**August 2024**

## Disclaimer

This report was produced as part of the UBC Sustainability Scholars Program, a partnership between the University of British Columbia and various local governments and organizations in support of providing graduate students with opportunities to do applied research on projects that advance sustainability across the region.

This project was conducted under the mentorship of City of Kamloops staff. The opinions and recommendations in this report and any errors are those of the author and do not necessarily reflect the views of City of Kamloops or the University of British Columbia.

## Acknowledgements [optional]

The author acknowledges that the work for this project took place on the unceded ancestral lands of the Secwépemc Nation.

## Introduction

Global climate change poses significant challenges to urban areas worldwide, necessitating the enhancement of urban resilience to mitigate the impacts of climate-related hazards. Recent events in Canada, such as the Lytton fire and Merritt flood of 2021, highlight the urgency of this need. Effective resilience strategies are crucial for protecting communities, reducing economic losses, and ensuring sustainable urban development.

## Background

Kamloops, located in British Columbia, Canada, is a vibrant city known for its picturesque landscapes, diverse culture, and dynamic economy. As an important urban center in the interior of British Columbia, Kamloops faces various environmental challenges that necessitate robust urban resilience and climate adaptation strategies.

## Objectives

The main objectives of this project are to conduct foundational research aimed at informing and prioritizing future updates to various policies and guidelines within the City of Kamloops. This will be achieved by:

.

- Identifying best practices that promote climate resilience in urban planning.
- Identifying challenges, gaps, and opportunities for Kamloops' development policies and guidelines to support community resilience to climate hazards, risks, and vulnerabilities.
- Preparing recommendations for policy options and other actions that have the potential for improving the climate resilience of new urban development in Kamloops.

## Research Approach

The project employed a hybrid method with qualitative and quantitative data, combining a literature review, policy review and evaluation. Semi-structured interviews with City of Kamloops (CoK) staff were also completed. First, the literature review involved selecting and reviewing 25 pieces of literature related to resilience policy in Canada. Second, policies from five major cities in BC were compared to climate resilient policies in Kamloops. A policy evaluation framework was developed, encompassing four dimensions and 20 indicators. Eleven policies in Kamloops were provided for evaluation, and seven challenges and gaps, and their solutions, were identified based on the evaluation results. Last, three City of Kamloops staff, from different departments and with different roles, were invited for interviews to provide input on the policy evaluation framework and policy suggestions.

## Summary

This project conducted a comprehensive analysis using a hybrid method that combined qualitative and quantitative data to inform and prioritize future updates to the policies and guidelines within the City of Kamloops.

The literature review involved selecting and reviewing 25 pieces of literature related to resilience policy in Canada. From this review, five major recommendations were identified: institutional cooperation, Indigenous community inclusion, infrastructure-related strategies, policy evolution, and new tool development. These recommendations provide a foundation for enhancing climate resilience in urban planning.

In the policy review, policies from five major cities in BC were compared with those of Kamloops regarding climate resilience. A policy evaluation framework was developed, encompassing four dimensions and 20 indicators. The evaluation results revealed a moderate score of 0.559 out of 1 for Kamloops, based on the analysis of 11 provided policies and bylaws. This score indicates that while there are some strengths in the current policies, significant gaps and areas for improvement remain.

To validate the framework and results, interviews were conducted with three city staff members from different departments. These interviews provided diverse opinions influenced by the roles

and experiences of the interviewees, offering a multi-faceted perspective on the current state of resilience in Kamloops.

- Challenges Identified During the Interviews
  - Rapid Climate Change: Recognized as a significant challenge due to its fast pace.
  - Conflicting Interests: Development vs. natural resource protection presents ongoing conflicts.
  - Funding Limitations: Funding is a variable factor. Securing consistent funding is challenging but crucial.
  - Policy Adaptability: Existing policies may not be adaptable enough to respond to rapid changes.
  - Political Priority: Climate resilience is not always a high priority for politicians, affecting policy development.
  - Time and Resources: General constraints, although not specific to climate resilience, are significant.
  - Education: Need for increased education among staff, politicians, and the public to prioritize climate resilience.
- Recommendations from the interviews
  - Learn from Successful Cases: Examine successful strategies from places like Logan Lake and Kelowna.
  - Consider Local Conditions: Adapt policies to the specific climate and conditions of Kamloops.
  - Stronger Policies at Higher Levels: Advocate for robust policies at the provincial and national levels to support local efforts.
  - Distinction Between Policy Types: Focus on integrating resilience into visionary policies (e.g., Official Community Plan) in addition to regulatory documents (e.g., subdivision development control bylaw).
  - Selective Integration of Resilience: Incorporate climate resilience where it is most relevant or impactful, rather than uniformly across all policies.
  - Public Education and Political Prioritization: Enhance public education and political focus on the importance of climate resilience.

## Recommendations and Next Steps

By integrating the findings and recommendations from this research, Kamloops can better prepare for climate-related hazards, ensuring a sustainable and resilient future for its residents.

- Final challenges-recommendations:
  - Environmental challenges- rapid climate change: learn from successful case; regularly update risk assessment/climate database.
  - Socio-political challenges – conflict interest; political priority: consider local conditions; public education and political focus on the importance of climate resilience.
  - Financial challenges – funding limitations: alternative funding; cost-effective analysis of green infrastructure.
  - Governance challenges – political adaptability: stronger policies at higher level; distinction between policy types; policy evolution.
  - Resource and capacity challenges – time and resources; education: new technical tools; involve higher authorities; enhance public education and indigenous community involvement.

The proposed next steps for resilience-related policy development in Kamloops are outlined in Figure 1.

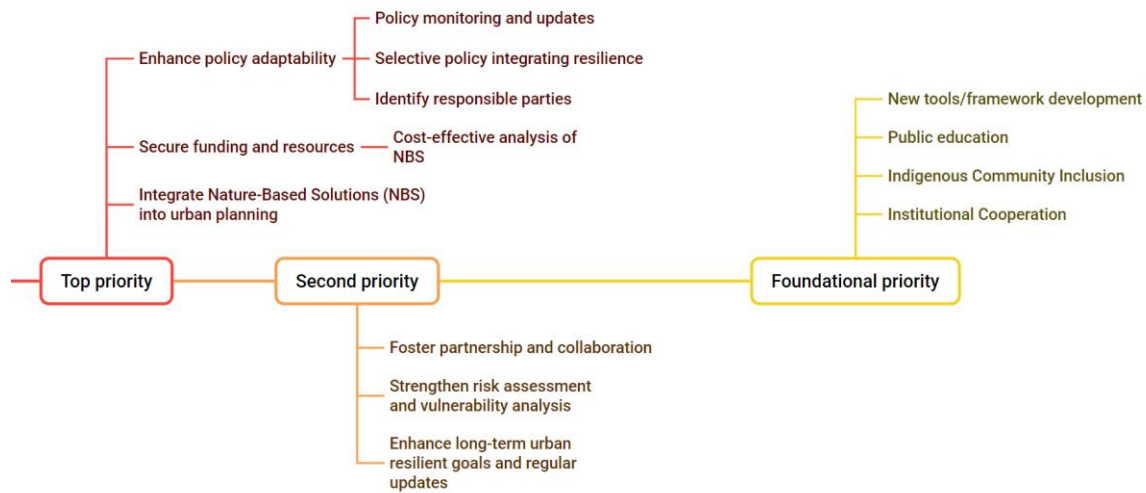


Figure 1 Proposed next steps for the City of Kamloops

## References

- Amirzadeh, M., Sobhaninia, S., Sharifi, A., 2022. Urban resilience: A vague or an evolutionary concept? *Sustainable Cities and Society* 81, 103853.  
<https://doi.org/10.1016/j.scs.2022.103853>
- Anderies, J.M., Folke, C., Walker, B., Ostrom, E., 2013. Aligning Key Concepts for Global Change Policy: Robustness, Resilience, and Sustainability. *Ecology and Society* 18.
- Anderson, V., Gough, W.A., 2022. Enabling Nature-Based Solutions to Build Back Better—An Environmental Regulatory Impact Analysis of Green Infrastructure in Ontario, Canada. *Buildings* 12, 61. <https://doi.org/10.3390/buildings12010061>
- Anderson, V., Zgela, M., Gough, W.A., 2023. Building Urban Resilience with Nature-Based Solutions: A Multi-Scale Case Study of the Atmospheric Cleansing Potential of Green Infrastructure in Southern Ontario, Canada. *Sustainability* 15, 14146.  
<https://doi.org/10.3390/su151914146>
- Birchall, S.J., Bonnett, N., 2021. Climate change adaptation policy and practice: The role of agents, institutions and systems. *Cities* 108, 103001.  
<https://doi.org/10.1016/j.cities.2020.103001>
- Bozza, A., Asprone, D., Manfredi, G., 2015. Developing an integrated framework to quantify resilience of urban systems against disasters. *NATURAL HAZARDS* 78, 1729–1748.  
<https://doi.org/10.1007/s11069-015-1798-3>
- Chmutina, K., Lizarralde, G., Dainty, A., Boshier, L., 2016. Unpacking resilience policy discourse. *Cities* 58, 70–79. <https://doi.org/10.1016/j.cities.2016.05.017>
- Coaffee, J., Therrien, M.-C., Chelleri, L., Henstra, D., Aldrich, D.P., Mitchell, C.L., Tsenkova, S., Rigaud, É., Participants, T., 2018. Urban resilience implementation: A policy challenge and research agenda for the 21st century. *Journal of Contingencies and Crisis Management* 26, 403–410. <https://doi.org/10.1111/1468-5973.12233>
- Datola, G., 2023. Implementing urban resilience in urban planning: A comprehensive framework for urban resilience evaluation. *Sustainable Cities and Society* 98, 104821.  
<https://doi.org/10.1016/j.scs.2023.104821>
- Golden, D.M., 2017. First Nation observations and perspectives on the changing climate in Ontario’s Northern Boreal: forming bridges across the disappearing.
- Golden, D.M., Audet, C., Smith, M.A. (Peggy), 2015. “Blue-ice”: framing climate change and reframing climate change adaptation from the indigenous peoples’ perspective in the

- northern boreal forest of Ontario, Canada. *Climate and Development* 7, 401–413.  
<https://doi.org/10.1080/17565529.2014.966048>
- Hatala, A.R., Njeze, C., Morton, D., Pearl, T., Bird-Naytowhow, K., 2020. Land and nature as sources of health and resilience among Indigenous youth in an urban Canadian context: a photovoice exploration. *BMC Public Health* 20, 538. <https://doi.org/10.1186/s12889-020-08647-z>
- Jabareen, Y., 2013. Planning the resilient city: Concepts and strategies for coping with climate change and environmental risk. *CITIES* 31, 220–229.  
<https://doi.org/10.1016/j.cities.2012.05.004>
- Jacob, J., Valois, P., Tessier, M., 2022. Development and validation of an index to measure progress in adaptation to climate change at the municipal level. *Ecological Indicators* 135, 108537. <https://doi.org/10.1016/j.ecolind.2022.108537>
- Kong, J., Zhang, C., Simonovic, S.P., 2023. Resilience and risk-based restoration strategies for critical infrastructure under uncertain disaster scenarios. *Sustainable Cities and Society* 92, 104510. <https://doi.org/10.1016/j.scs.2023.104510>
- Muffly, J., Birchall, S.J., 2023. Key elements of defensible space land use bylaw provisions in wildland-urban interface municipalities of Alberta, Canada. *International Journal of Disaster Risk Reduction* 96, 103988. <https://doi.org/10.1016/j.ijdrr.2023.103988>
- Nay, J.J., Abkowitz, M., Chu, E., Gallagher, D., Wright, H., 2016. A review of decision-support models for adaptation to climate change in the context of development, in: *Community-Based Adaptation*. Routledge.
- Preston, V., Shields, J., Akbar, M., 2022. Migration and Resilience in Urban Canada: Why Social Resilience, Why Now? *Int. Migration & Integration* 23, 1421–1441.  
<https://doi.org/10.1007/s12134-021-00893-3>
- Raikes, J., Smith, T.F., Baldwin, C., Henstra, D., 2022. Disaster risk reduction and climate policy implementation challenges in Canada and Australia. *Climate Policy* 22, 534–548.  
<https://doi.org/10.1080/14693062.2022.2048784>
- Reynard, D., Collins, D., Shirgaokar, M., 2021. Growth over resilience: how Canadian municipalities frame the challenge of reducing carbon emissions. *Local Environ.* 26, 448–460. <https://doi.org/10.1080/13549839.2021.1892046>
- Tschakert, P., Dietrich, K.A., 2010. Anticipatory Learning for Climate Change Adaptation and Resilience. *Ecology and Society* 15.

- Van Assche, K., Birchall, J., Gruezmacher, M., 2022. Arctic and northern community governance: The need for local planning and design as resilience strategy. *Land Use Policy* 117, 106062. <https://doi.org/10.1016/j.landusepol.2022.106062>
- Vogel, B., Henstra, D., McBean, G., 2020. Sub-national government efforts to activate and motivate local climate change adaptation: Nova Scotia, Canada. *Environ Dev Sustain* 22, 1633–1653. <https://doi.org/10.1007/s10668-018-0242-8>
- Yosri, A., Ghaith, M., El-Dakhakhni, W., 2024. Deep learning rapid flood risk predictions for climate resilience planning. *Journal of Hydrology* 631, 130817. <https://doi.org/10.1016/j.jhydrol.2024.130817>
- Zhang, F., Chan, A.P.C., Li, D., 2023. Developing smart buildings to reduce indoor risks for safety and health of the elderly: A systematic and bibliometric analysis. *Safety Science* 168, 106310. <https://doi.org/10.1016/j.ssci.2023.106310>