Climate Change Adaptation Part III: Climate Change Adaptation from Planning to Implementation

KNOWLEDGE BRIEF

Bill Regner photo

INTRODUCTION

While small and rural communities have common characteristics each community is unique. Climate change adaptation should reflect the distinctive perspectives, priorities and circumstances of each community. While adaptation is place-based, learning from other communities' experiences in the adaptation process can help a community prepare for their own experience. Below are experience-based recommendations for climate change adaptation.

ADOPT INTEGRATED APPROACHES

Adaptation should be integrated into municipal policies, planning, practices and tools, and current and future programs whenever possible.[1, 2] Mainstreaming adaptation into primary community work areas and planning documents such as Official Community Plans (OCP), lowers the probability of the topic being ignored.[3] Adaptation actions that also provide social, economic, and environmental benefits encourage collaborative planning and implementation.[4 – 9]

The District of Elkford, BC

Elkford was one of the first communities in Canada to integrate a climate adaptation strategy within their OCP. In 2008-2009, Elkford undertook a year long process using climate change scenarios to identify associated potential local impacts, vulnerabilities, and risks. Utilizing this assessment, the community developed strategies and actions, and in 2010 released their integrated community sustainability plan. The Elkford OCP includes a Greenhouse Gas Reduction Strategy along with Climate Change Adaptation. With specific policies related to protecting water sources, reducing water consumption and addressing increased risks of wildfires and flooding, the OCP provides a roadmap to direct growth and development while protecting and enhancing Elkford's current quality of life.

Read more about Elkford's Official Community Plan.

KNOWLEDGE BRIEF

APPLY ECOSYSTEM-BASED APPROACHES

Where appropriate adaptation should take into account strategies to increase ecosystem resilience and protect critical ecosystem services (e.g., watersheds and wetlands provide abundant filtered water, reduce flooding, and offset drought impacts) on which humans depend, to reduce vulnerability of human and natural systems to climate change. Approaches that maintain and enhance the interconnectedness of communities with natural systems offer increased resilience along with other benefits.[10, 11, 12]

Case Study: Towards an Eco-Asset Strategy in the Town of Gibsons, BC

In 2009 it was set forth that Canadian municipalities must not only record the purchase or construction of infrastructure and assets, but also include asset depreciation in financial statements. The Town of Gibsons is taking effective asset management one step further by including traditional assets (e.g., roads, storm sewers) as well as natural assets, or 'eco-assets' (e.g., forests, aquifers, creeks, wetlands and foreshores) that provide essential civil services to citizens.

Gibsons recognized that their eco-assets may play an increasingly important role in climate change adaptation. In an uncertain climate future Gibsons can:

- Manage risk through a clear understanding of what services they receive from natural assets, such as flood prevention, provision of drinking water, and rain water management, and what it would cost to replace the natural asset with an engineered alternative if the natural assets were degraded or destroyed.
- Save on cost by managing natural assets in a way that they will provide services at lower cost than engineered solutions and in perpetuity.

Recognizing the important role that the natural environment plays in supporting communities will lead to more informed and holistic decision-making, long term cost savings, and the addition of co-benefits such as healthy local ecosystems.

For more information visit the Town of Gibsons Website.

PRIORITIZE THE MOST VULNERABLE & START WITH SIMPLE SOLUTIONS

Adaptation strategies should look to the areas and infrastructure of the community that are most vulnerable to climate impacts (e.g., areas prone to flooding, vulnerable to drought or neighbourhoods susceptible to wildfire). Support for adaptation can be found through actions taken towards immediate, recognizable threats.[13, 14] It is important to begin by implementing adaptation actions that are simple and cost-effective, as this can help build support and momentum for larger more complex actions later on.[15, 16]

Communities, such as those in the Basin, in areas where the frequency and intensity of extreme precipitation events are projected to increase can look towards simple solutions to reduce the amount of stormwater run-off that can overwhelm and leave vulnerable storm drainage systems and property as well as to conserve rainwater for domestic uses. For example:

- In 2016, the region of Peel created an incentive in the form of a rebate for local homeowners which offered a maximum of $100 per home to disconnect their downspouts.[17]
- The Regional District of Nanaimo offers a rebate up to $750 for homeowners who install a cistern as part of a rainwater harvesting system on their property.[18]

Targeted, simple, low cost adaptation initiatives such as these can play an effective role in a communities' overarching adaptation strategy. For more in-depth look at tools for stormwater management and enhancing community climate resilience, see: Enhancing climate resilience of Subdivision and Development Servicing Bylaws in the Columbia Basin: A guidance document.

BENEFIT FROM EXTERNAL COLLABORATION & RECRUIT EXPERTS

Partnerships are needed and can be beneficial to all participants. Partnering with different levels of government, post-secondary institutes, community groups, and non-governmental organizations (NGOs) can provide the expertise and support to inform adaptation planning and implementation. Collaboration between neighbouring municipalities can help address issues that cross administrative

boundaries.[19 – 26] Involving experts can help the climate change adaptation planning process, and link it to regional and provincial processes. Experts can also answer technical questions and lend additional credibility.[27, 28, 29]

Bill Regner photo

Promoting Climate change Adaptation Through Regional Collaboration

The Powell River Regional District includes five rural electoral areas, three unincorporated villages, Tia'amin Nation, and the City of Powell River. In their 2015-2018 strategic plan they incorporated climate change mitigation and adaptation as a strategic priority with a key component being establishment of an approach for climate change hazard identification.

Powell River Regional District recognizes that climate change adaptation can benefit through collaboration. They partnered with:

- The University of British Columbia to provide coastal assessments to support public information brochures and to establish coastal indicators to support adaptation planning; and
- With the BC Climate Action Secretariat to bring in experts to discuss climate change science and participate in events for local communities.

Establishment of partnerships to overcome capacity constraints is necessary and can offer rewarding experiences for all involved.

USE BEST- AVAILABLE SCIENCE & COMMUNICATE EFFECTIVELY

Adaptation should be grounded in the best-available scientific understanding of climate change risks, impacts, and vulnerabilities.[30, 31] However, it is important to recognize that localized climate change projections are not necessarily needed to begin the process and that local knowledge can be leveraged to inform planning.[32] Climate change adaptation can be a complex issue to communicate, so remember to:

- Distinguish between adaptation and mitigation;
- Engage everyone - use accessible language and maps and do not overwhelm people with graphs and statistics;
- Make the adaptation conversation relevant to your audience and identify tangible solutions they can relate to. Take the conversation outside – a community walk-about can be a valuable information sharing tool for this; and
- If needed, reframe the discussion using economic and financial rationales.[33 – 38]

ESTABLISH MONITORING & EVALUATION PLANS

Monitoring and evaluation is an important component of the implementation phase of climate change adaptation. Establishment of a system to observe results can track successes and shortcomings of adaptation initiatives. Results can be used to guide and assist future actions and to communicate success to community stakeholders.[39] Adaptation is iterative and periodic evaluation ensures that the community is taking new information and using it to inform future decisions. Several resources exist to help establish a system of indicators and processes for evaluation (see Appendix of Key Resources).

KNOWLEDGE BRIEF

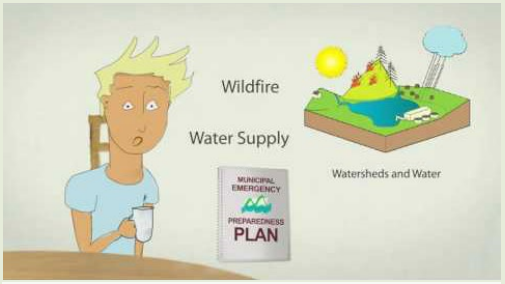
KNOWLEDGE BRIEF

Columbia Basin Trust – Creating Videos for Education

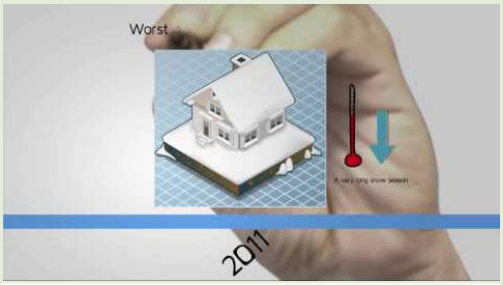
The Columbia Basin Trust created videos communicating climate change science and the effects that Basin communities can expect to experience. They use plain language and simple graphics to engage everyone and were able to create resources they can leverage in future adaptation programming.

Videos:

Climate Change 101



Climate Change 102



Climate Extremes

From Dialogue to Action

APPENDIX OF KEY RESOURCES

Adaptation Library – Resources for Climate Adaptation

The library is a publicly accessible and searchable collection of community, forestry, and energy related climate change adaptation information resources. It houses over 100 documents and allows users to filter according to filter those according to region, sector, and climate change impacts.
http://www.adaptationlibrary.ca/

Canadian Communities' Guidebook for Adaptation to Climate Change

The guidebook provides an in-depth collection of climate change adaptation actions as well as useful tools and resources to be utilized in the planning process. It also outlines an approach to generate mitigation co-benefits in the context of sustainable development.
https://www.fcm.ca/Documents/tools/PCP/canadian_communities_guidebook_for_adaptation_to_climate_change_EN.pdf

Climate Change Adaptation Planning: A Handbook for Small Canadian Communities

The handbook helps small Canadian communities to prepare and implement a Climate Change Adaptation Plan. It outlines key steps required to plan for adaptation and presents tools to assist decision-makers determine what strategic actions need to be taken. It is especially useful for small communities without 'in house' planning resources.
https://www.cip-icu.ca/Files/Resources/RURAL-HANDBOOK-FINAL-COPY

Climate Change Adaptation Community of Practice (CCACOP)

This portal serves as a space for an interactive online community dedicated to advancing knowledge and action in the area of climate change adaptation. The CCACOP serves as a location where researchers, experts, policy-makers and practitioners from across Canada can come together to ask questions, generate ideas, share knowledge, and communicate with others working in the field of climate change adaptation.
https://ccadaptation.ca/

Columbia Basin Trust (CBT) – Climate Change

The CBT website hosts a suite of information related to climate change that was developed to provide communities in the Canadian Columbia Basin with information and tools to help them become more resilient to climate change impacts and extreme weather.
http://ourtrust.org/our-work/climate-change/

Indicators of Climate Adaptation in the Columbia Basin: How 'State of The Basin' Indicators can be used to Measure Climate Changes, Impacts and Progress Towards Adaptation

This report reviews indicators for the Columbia Basin Trust region and their ability to measure the effectiveness of climate adaptation. It introduces a suite of regional-level indicators in order to assist communities in understanding climate change and adaptation, help decision-makers in the Basin make informed decisions and measure the success of adaptation efforts.
http://ourtrust.org/wp-content/uploads/delightful-downloads/IndicatorsClimateAdaption_FullReport__forweb_FINAL-1.pdf

Land Use Planning Tools for Local Adaptation to Climate Change

This report published by the Government of Canada introduces land use planning tools and decision support tools available to Canadian communities in the context of climate change adaptation.
http://publications.gc.ca/collections/collection_2013/rncan-nrcan/M4-106-2012-eng.pdf

Official Community Plan Policies Supporting Climate Resilience – A Resource Guide for Communities in the Canadian Columbia Basin

The resource guide provides local governments with guidance and examples for the integration of climate-resilient policies into the Official Community Plan bylaws and Development Permit Area guidelines. While aimed at the Columbia Basin, this resource can prove useful to communities in other jurisdictions.
http://ourtrust.org/wp-content/uploads/downloads/2015-11_Trust_ClimateResilience_OCPResourceGuide.pdf

Plan2Adapt Interactive Planning Tool Website

The Plan2Adapt tool generates maps, plots, and data describing projected future climate conditions for regions throughout British Columbia. It is designed to help you assess climate change in your region based on a standard set of climate model projections.
https://www.pacificclimate.org/analysis-tools/plan2adapt

Preparing for Climate Change: An Implementation Guide for Local Governments in British Columbia

This guide is designed to assist local governments to plan and act in ways that will make their communities more resilient to the impacts of climate change. It identifies tools that local governments can use to implement adaptation strategies.
http://wcel.org/sites/default/files/WCEL_climate_change_FINAL.pdf

KNOWLEDGE BRIEF

REFERENCES & RESOURCES

1. Center for Climate Strategies (2011). Comprehensive Climate Action Planning: The Center for Climate Strategies Adaptation Guidebook. Retrieved from http://www.climatestrategies.us/library/library/view/908.
2. ICLEI Canada (2016). Making Strides on Community Adaptation in Canada. Retrieved from http://www.icleicanada.org/component/k2/item/244-making-strides-on-community-adaptation.
3. Canadian Institute of Planners (2012). Climate Change Planning: Case Studies from Canadian Communities. Retrieved from http://www.cip-icu.ca/Files/Resources/CASE-STUDIES-FROM-CANADIAN-COMMMUNITIES-FINAL.
4. Canadian Institute of Planners (2011) Climate Change Adaptation Planning: A Handbook for Small Canadian Communities. Retrieved from https://www.cip-icu.ca/Files/Resources/RURAL-HANDBOOK-FINAL-COPY.
5. Headwater Economics (2012) Implementing Climate Change Adaptation: Lessons learned from ten examples. Retrieved from http://www.sustainablecitiesinstitute.org/topics/climate-adaptation-and-resilience/adaptation-planning/implementing-climate-change-adaptation-lessons-learned-from-ten-examples.
6. Bizikova L., T. Neale and I. Burton 2008. Canadian communities' guidebook for adaptation to climate change. Including an approach to generate mitigation co-benefits in the context of sustainable development. First Edition. Environment Canada and University of British Columbia, Vancouver.
7. Richardson, G.R.A. and Otero, J. (2012). Land use planning tools for local adaptation to climate change. Ottawa, Ont.: Government of Canada, 38 p.
8. Baker, I, et al. (2012) Local government response to the impacts of climate change: An evaluation of local climate adapatation plans. Journal of Landscape and Urban Planning.
9. West Coast Environmental Law (2012). Preparing for Climate Change: An Implementation Guide for Local Governments in British Columbia. Retrieved from http://wcel.org/sites/default/files/WCEL_climate_change_FINAL.pdf.
10. Center for Climate Strategies (2011).
11. Bizikova L., T. Neale and I. Burton 2008. Canadian communities' guidebook for adaptation to climate change. Including an approach to generate mitigation co-benefits in the context of sustainable development. First Edition. Environment Canada and University of British Columbia, Vancouver.

12. West Coast Environmental Law (2012).
13. Center for Climate Strategies (2011).
14. Headwater Economics (2012).
15. ICLEI (2016).
16. Canadian Institute of Planners (2011).
17. https://www.peelregion.ca/pw/water/sewage-trtmt/downsput-disconnection-rebate.html.
18. http://www.rdn.bc.ca/cms.asp?wpID=2500#4
19. Fraser Basin Council. (2013) Cariboo Regional District Case Study. Retrieved from http://www.fraserbasin.bc.ca/_Library/CCAQ_BCRAC/bcrac_fbc_cs_crd.pdf.
20. Canadian Institute of Planners (2012).
21. ICLEI (2016).
22. Canadian Institute of Planners (2011).
23. Headwater Economics (2012).
24. Headwater Economics (2012).
25. Ian M. Picketts , John Curry & Eric Rapaport (2012) Community Adaptation to Climate Change: Environmental Planners' Knowledge and Experiences in British Columbia, Canada, Journal of Environmental Policy & Planning, 14:2, 119-137, DOI: 10.1080/1523908X.2012.659847.
26. West Coast Environmental Law (2012).
27. Fraser Basin Council. (2013) District of Saanich Case Study. Retrieved from http://www.fraserbasin.bc.ca/_Library/CCAQ_BCRAC/bcrac_fbc_cs_saanich.pdf.
28. Canadian Institute of Planners (2012).
29. Headwater Economics (2012).
30. Center for Climate Strategies (2011).
31. Fraser Basin Council. (2013a).
32. Canadian Institute of Planners (2012).
33. Fraser Basin Council. (2013b).
34. Fraser Basin Council. (2013a).
35. Canadian Institute of Planners (2012).
36. Canadian Institute of Planners (2011).
37. Headwater Economics (2012).
38. Headwater Economics (2012).
39. ICLEI (2016).

KNOWLEDGE BRIEF

The Columbia Basin Rural Development Institute, at Selkirk College, is a regional research centre with a mandate to support informed decision-making by Columbia Basin-Boundary communities through the provision of information, applied research, and related outreach and extension support. Visit www.cbrdi.ca for more information.

www.cbrdi.ca 1.888.953.1133

COLUMBIA BASIN RDI RURAL DEVELOPMENT INSTITUTE