

**CLIMATE CHANGE ADAPTATION
PLANNING GUIDEBOOKS
FOR INDIGENOUS COMMUNITIES**

ANNEXES

These Guidebooks were created by the Centre for Indigenous Environmental Resources in partnership with Sioux Valley Dakota Nation in Manitoba and Peter Ballantyne Cree Nation, Deschambault Lake Community, in Saskatchewan. The Centre for Indigenous Environmental Resources updated the guidebooks in 2020 with guidance from T-Sou-ke First Nation in British Columbia and Fox Lake Cree Nation in Manitoba.

Please contact earth@yourcier.org for any questions or comments on these Guidebooks.

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Crown-Indigenous Relations
and Northern Affairs Canada

Relations Couronne-Autochtones
et Affaires du Nord Canada



ANNEX I

CLIMATE CHANGE ADAPTATION PLANNING CHECKLISTS

The Project Coordinator is the one responsible for coordinating the following checklists of tasks. It is their responsibility to ensure meetings with the proper groups takes place. The Working Group should assist the Coordinator as much as possible as they are the group driving the project.

The checklist below may be useful in ensuring the tasks outlined in this guidebook are accomplished. Remember, these guidebooks provide suggestions on how to accomplish tasks but your community may have other methods that work best.



GUIDEBOOK 1: STARTING THE PLANNING PROCESS

Task	Recommended to complete task	Progress
Designate a Project Coordinator		
Meet with Leadership	Coordinator	
Set up a Working Group	Coordinator	
Informing Community Members	Coordinator	



GUIDEBOOK 2: CLIMATE CHANGE IMPACTS IN THE COMMUNITY

Task	Recommended to complete task	Progress
Collect background information about the environment, economy, society, and culture in the community	Coordinator	
Brainstorm local observations of climate change	Working group	
Set up a meeting with the broader community OR collect information through interviews or surveys	Coordinator	



GUIDEBOOK 3: IDENTIFYING COMMUNITY SUSTAINABILITY AND CLIMATE CHANGE VULNERABILITIES

Task	Recommended to complete task	Progress
Community Visioning	Working group meeting	
Community Visioning	Youth and/or community members	
Brainstorm 4 areas of sustainability	Working group, Elders, youth, and community	
Review climate impacts from Guidebook 1	Working group	
Identify vulnerabilities and how they affect the four areas of sustainability	Working group	
Create matrix of vulnerabilities	Working group	
Identify connections between vulnerabilities and sustainability's	Coordinator	
Create Influence Diagrams	Working group	
Create Scenarios	Working group	
Set up Community meeting or Elders dinner/bingo to share results and gather more information	Coordinator	
Community Mapping Exercise	Community members	



GUIDEBOOK 4: IDENTIFYING SOLUTIONS

Task	Recommended to complete task	Progress
Revisit the Influence Diagrams	Working Group	
Revisit the Scenarios	Working Group	
Identifying Feasible Solutions	Leadership	
Rewrite the List of Selections (focusing on feasibly solutions)	Coordinator	
Set Priorities for Climate Change Planning	Community	
Set Priorities for Climate Change Planning	Elders	
Set Priorities for Climate Change planning	Youth	
Create comprehensive list of the adaptation solutions priorities	Coordinator	



GUIDEBOOK 5: TAKING ADAPTIVE ACTION

Task	Recommended to complete task	Progress
Learn about past success from past community leaders	Coordinator & Community Leadership	
Learn about past success from Elders	Coordinator & Elders	
Complete the activity focused on decision-making in the community	Coordinator & Youth	
Learn about past success from other communities	Coordinator	
Design an action plan	Community Leaders	
Modify Working Group (as needed)	Coordinator	
Determine the details needed to implement action items	Working Group	
Share information to broader community on why particular solutions were selected and generate community support	Coordinator	
Challenge Tree activity	Coordinator	
Begin implementing your action items and celebrate your achievements	Community	
Learn about past success from past community leaders	Coordinator & Community Leadership	
Learn about past success from Elders	Coordinator & Elders	
Complete the activity focused on decision-making in the community	Coordinator & Youth	
Learn about past success from other communities	Coordinator	
Design an action plan	Community Leaders	
Modify Working Group (as needed)	Coordinator	
Determine the details needed to implement action items	Working Group	
Share information to broader community on why particular solutions were selected	Coordinator	
Challenge Tree – A T’Souke Nation Youth Project	Coordinator	
Celebrate	Community	



GUIDEBOOK 6: MONITORING PROGRESS AND CHANGE

Task	Recommended to complete task	Progress
Create an evaluation or monitoring team	Coordinator	
Evaluate Adaptation Actions and Action Plan	Evaluation or monitoring team	
Share successes and challenges with the community	Evaluation or monitoring team	
Monitor the plan annually or every two years	Working Group	
Revisit Climate Change Community Planning every six to seven years	Community leadership and membership	

ANNEX II

MAPPING

Using maps is a good way to talk about and record background information on the environment and discuss the community's relationship with the land and waters within their home territory. Expansion and accessibility of technology allows people to utilize digital maps and use geographic information system (GIS) software to get real-time data instantaneously.

Applications such as Google Earth are free, and information can be added and removed from digital maps relatively easily (see below for more details on how to download Google Earth). It is possible to overlay maps of one topic with another to get a map with many different layers of information (for e.g. you may have a layer outlining proposed housing developments, another layer outlining a floodplain, another outlining berry patches, and so on). Once you download **Google Earth** onto your computer, it is easy to make customized maps. Google Earth has tutorials to guide you through the process. If your team has access to a projector, you can project Google Earth onto a screen or wall and people can use a laser pen to point out important locations to document digitally. Your team can determine the colour coding and symbols as per your needs. Traditional hunting areas documented by community members can be overlaid with geographic landform layers to create a single map that illustrates both of these layers of information. Digital mapping allows easy analysis with relatively little waiting time in comparison to using paper maps. As your team documents data digitally, you may start to see certain areas of your community that many people rely on. These may be areas of sustainability for your community (e.g. hunting grounds or harvesting areas).

As a reminder, although it is exciting to embrace new technology, some people may be reluctant to use digital mapping software or Google, due to personal privacy concerns and Internet security threats. If community members are not comfortable using technology to create digital maps or to digitize information, you can still use this software to print customized maps (e.g. a simple map of the community) that community members can draw or write on to capture important information.

Paper maps or mapping the 'old fashioned' way have traditionally been used to document people's information often using a mylar (plastic overlay), a base map, a colour legend, and interview guide to collect data. This method of mapping is still a good way to document data. It may take longer and cost more money to produce maps in this way due to the availability of community members and the costs associated with purchasing mylar, base maps, computer software, and hiring someone to produce the map. Some Indigenous communities have land departments within their governments and have people employed with GIS specialization who can do the work in-house. If a community decides to pursue expertise through an outside consultant, a community should have a trusting relationship with the outside consultant. An agreement should be signed between the community and consultant regarding confidentiality and ownership of the data. Refer to the section "Protecting Indigenous Knowledge" in guidebook 2 for more information.

Remember, maps are not neutral, they have a point or a specific purpose. What we choose to include or omit from (leave off) our maps is both interesting and important. This is important to remember when you are looking at maps that have been created by others.

Digital Mapping Applications

There are other free applications such as **QGIS** that can be used if your community has members who have GIS training and experience. **ArcGIS** is another software that can be utilized but has a yearly subscription fee. Google Earth enable users to digitize right on their home computers using free Internet software. You can download **Google Earth** from the Internet to your computer for free. Google Earth's software will allow you to add points, lines, and/or polygons to your digital map. You can also add in GPS tracks (files that include data such as geographical coordinates, altitude, distance, etc.) and waypoints (GPS coordinates that mark a specific location) from a GPS unit. Each point, line, or polygon you add can be edited to include unique data or place names and can be colour-coded to indicate certain themes or types of information you wish to share. When your digital map is complete, you can share it virtually if you choose to. If desired, you could create a virtual story using Google's Tour Builder or ArcGIS' StoryMaps. The downside of virtual mapping is that your data may have limited privacy controls and some community members may not want their data to be uploaded to an Internet software mapping program.

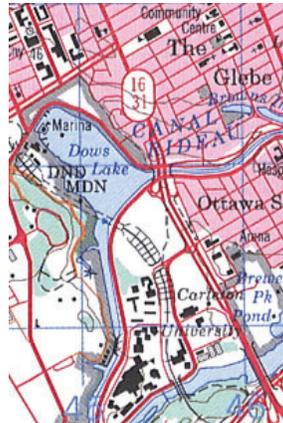
Base Maps

You can also purchase topographic maps and aerial photos from provincial or territorial governments (see Purchasing Maps and Photos below for a list of select locations in each province and territory) or from other sources (e.g. www.canadamapsales.com).

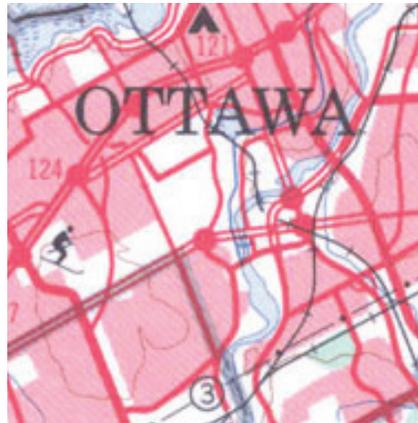
Province/Territory	Contact Details
British Columbia	ITMB Publishing Ltd. 1-604-273-1400 https://itmb.ca/
Alberta	MAPTOWN 877-921-6277 https://www.maptown.com/
Saskatchewan	Information Services Corporation of Saskatchewan 866-275-4721 https://www.isc.ca/
Manitoba	Canada Map Sales 1-877-627-7226 http://www.canadamapsales.com/
Ontario	World of Maps Inc. 1-800-214-8524 https://www.worldofmaps.com
Quebec	Aux Quatre Points Cardinaux 1-888-843-8116 https://aqpc.com/
New Brunswick	Government of New Brunswick http://www.snb.ca/geonb1/e/index-E.asp
Nova Scotia	Nova Scotia Geomatics Centre 1-800-789-0706 https://geonova.novascotia.ca/
Prince Edward Island	Canada Map Sales 1-877-627-7226 http://www.canadamapsales.com/
Newfoundland & Labrador	Canada Map Sales 1-877-627-7226 http://www.canadamapsales.com/
Yukon	Mac's Fireweed Books 867-668-6104 1-800-661-0508 https://www.macbooks.ca
Northwest Territories	Overlander Sports www.overlandersports.com 1-867-873-2474 Government of Northwest Territories www.geomatics.gov.nt.ca/mapcat.aspx
Nunavut	Canada Map Sales 1-877-627-7226 http://www.canadamapsales.com/

Map Scales

Smaller-scale maps that show more land and have less detail can help you identify connections to other landscapes, reserve land, traditional territory, and relationships with other jurisdictions (e.g. hospitals, transportation of goods, schools, municipal service agreements, etc.). A scale of 1:50,000 or 1:10,000 generally provides a map suitably sized to show traditional territories and regional connections. Larger-scale maps (e.g. 1:500) that show less land and more detail are helpful in identifying specific information about the community (e.g. buildings, infrastructure, recreation areas, commercial areas, dugouts, forest cut lines, etc.). See below for more information on mapping scales.



1:50,000 National Topographic System map sample.
Source: NRCAN.gc.ca



1:250,000 National Topographic System map sample.
Source: NRCAN.gc.ca

Here's how to understand the scale of a map:

In a map with a scale of:

1:50,000, 1 cm = 500 m

1:10,000, 1 cm = 100 m

1:500, 1 cm = 5 m

1:1000, 1 cm = 10 m

Topographic Maps and Aerial Photos

Most people like maps because maps tell stories. You can include photographs, quotes, notes, children's drawings, or anything else to make your maps relevant to the people in your community so that they feel connected to the maps and want to use them.

Topographic maps show the lay of the land and include natural and human-made features. These maps show the elevation of the land, lakes, rivers, wetlands, roads, railway lines, towns and villages, and location of reserve land). All of Canada has been mapped as part of the National Topographic System, and there is a grid system (based on latitude and longitude lines) that divides the country into uniformly sized 1:250,000 scale map sheets. These sheets are then subdivided into 16 separate sections covered by 1:50,000 scale maps. Aerial photos provide greater detail. Additionally, photos taken over many years are available. It is best to get photos that are recent and were taken during the spring or summer (so that landmarks and features are visible and not covered in a blanket of snow). However, depending on specific issues in your community, you may want to recover aerial photos from different seasons to see the vegetation, tree cover, areas of flooding, and other changes on the land and water at different times of the year. You may also be able to use a satellite photo of your community, available for free on the Internet (e.g. Google Earth).





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