

Climate Change Planning Tools for First Nations

August 2006

1 2 3 4 5 6



Guidebook 4 Identifying Solutions

Climate Change Planning Tools for First Nations Guidebook List

| | | |
|--|-----------|---|
| Starting the Planning Process | Guidebook | 1 |
| Climate Change Impacts in the Community | Guidebook | 2 |
| Vulnerability and Community Sustainability | Guidebook | 3 |
| Identifying Solutions | Guidebook | 4 |
| Taking Adaptive Action | Guidebook | 5 |
| Monitoring Progress and Change | Guidebook | 6 |

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.

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

The objectives of these resources are to provide user-friendly and culturally appropriate climate change and adaptation guidebooks to help First Nations through planning to avoid, minimize or adapt to impacts caused by climate change. The Guidebooks outline a planning process and framework for decision making that allows wide application, local adaptation and on-going modifications.

© Centre for Indigenous Environmental Resources Inc, 2006. All rights reserved. Reproduction of this material is permitted without the specific permission of the Centre for Indigenous Environmental Resources Inc., provided that the material is reproduced accurately and is not used in a commercial purpose or a misleading context. Modifications are not permitted without the permission of the Centre of Indigenous Environmental Resources Inc.

These Guidebooks were created with financial support from the Government of Canada's Climate Change Impacts and Adaptation Program and Indian and Northern Affairs Canada's Aboriginal and Northern Communities Action Program.

Contents

| | |
|---|----|
| 4.1 Identifying Possible Solutions and Setting Priorities | 1 |
| 4.2 Building Your Influence Diagram | 1 |
| 4.3 Building Your Scenarios | 4 |
| 4.4 Setting Priorities | 7 |
| 4.5 Lessons From Other First Nations | 15 |
| 4.6 Lessons From Other Communities | 17 |

Community Experiences:

| | |
|--|----|
| Adaptation Solutions | 6 |
| Community Participation in Priority Setting in Deschambault Lake | 12 |
| Community Participation in Priority Setting: Youth Participation | 14 |

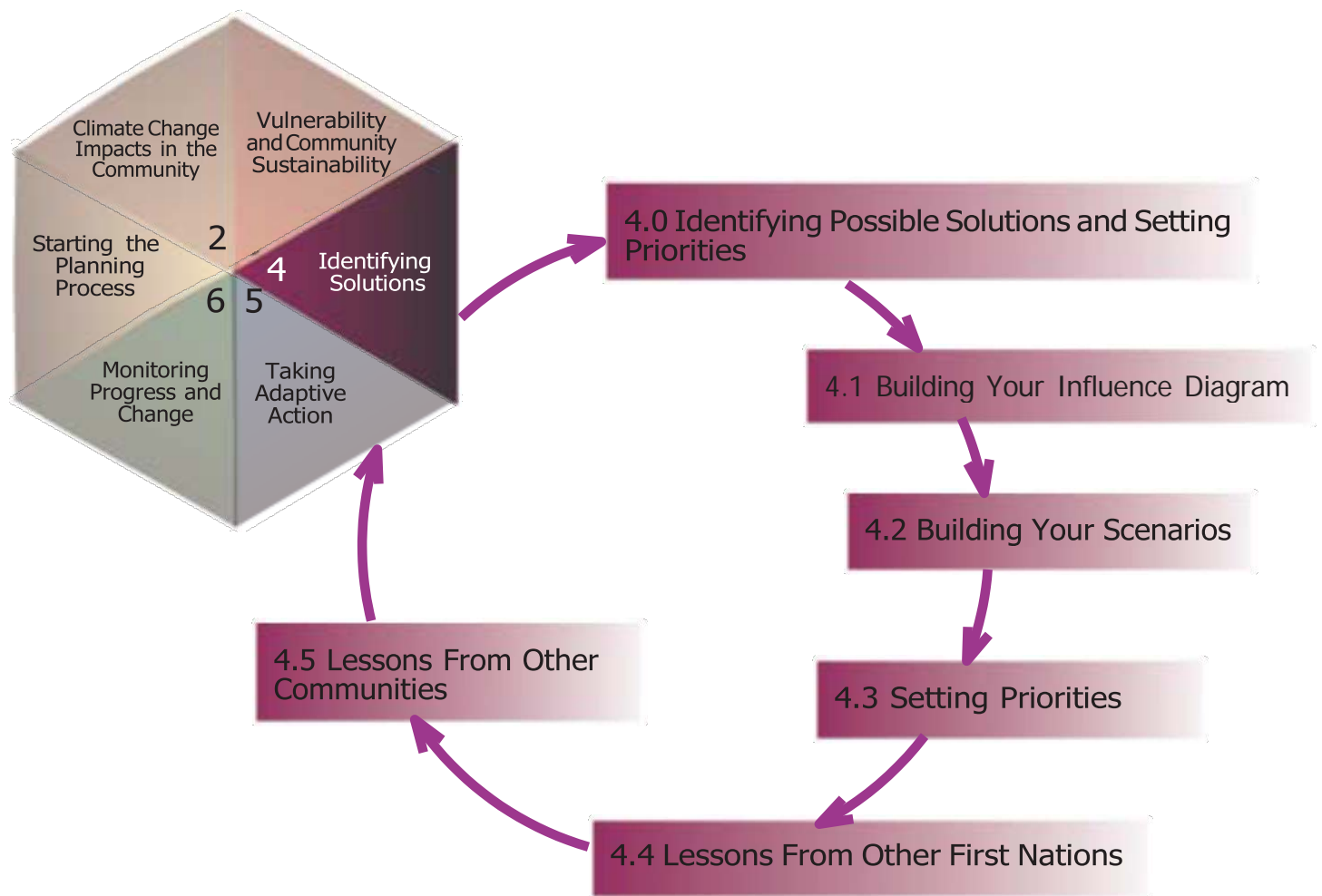


Activity:

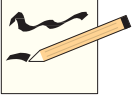











| | |
|--|---|
| Reviewing the Influence Diagram | 2 |
| Revisiting the Scenarios | 4 |
| Brainstorming - 4 Areas of Sustainability | 7 |
| Setting Priorities and Climate Change Planning | 9 |

Understanding the Planning Process

The Guidebooks include activities and information to work through the planning process. Each book leads into the next steps in the process.



Symbols used in the Guidebooks

| | | | | | |
|---|---|---|--|---|---|
|  |  |  |  |  |  |
| Activity | Meeting | Environmental | Economic | Winter | Summer |
|  |  |  |  |  |  |
| Materials | Recommended Group | Social | Cultural | Spring | Fall |

4.0 Identifying Possible Solutions and Setting Priorities

What Can We Do, What is Feasible, and What Should We Do First?

Now that you have a good idea of the impacts of climate change, community vulnerabilities and how these relate to sustainability you can start thinking about possible solutions for coping with and adapting to climate change. Start by building on the influence diagrams and scenarios developed with the Working Group in Guidebook 3 to generate a list of possible solutions. The leadership (e.g. Chief and Council, hereditary Chiefs, family/clan leaders, etc.) can help to determine which of these solutions are feasible, and then the Working Group, Elders, youth, and the rest of your community can help to set priorities for what to do first. At the end of this Guidebook you should be ready to move these prioritized solutions into actions.

4.1 Building on Your Influence Diagram

Plan a meeting with the Working Group to revisit the influence diagrams and add possible adaptations to the chain of effects. Call-out shapes can be used to suggest adaptation solutions. These are placed at the spot along the chain of effects where the solution should be implemented to help modify the final impacts. You will need to rebuild the influence diagrams for this activity. An example of how to build these types of solutions into your influence diagram is provided on page 3.

Meet with





Reviewing the Influence Diagram

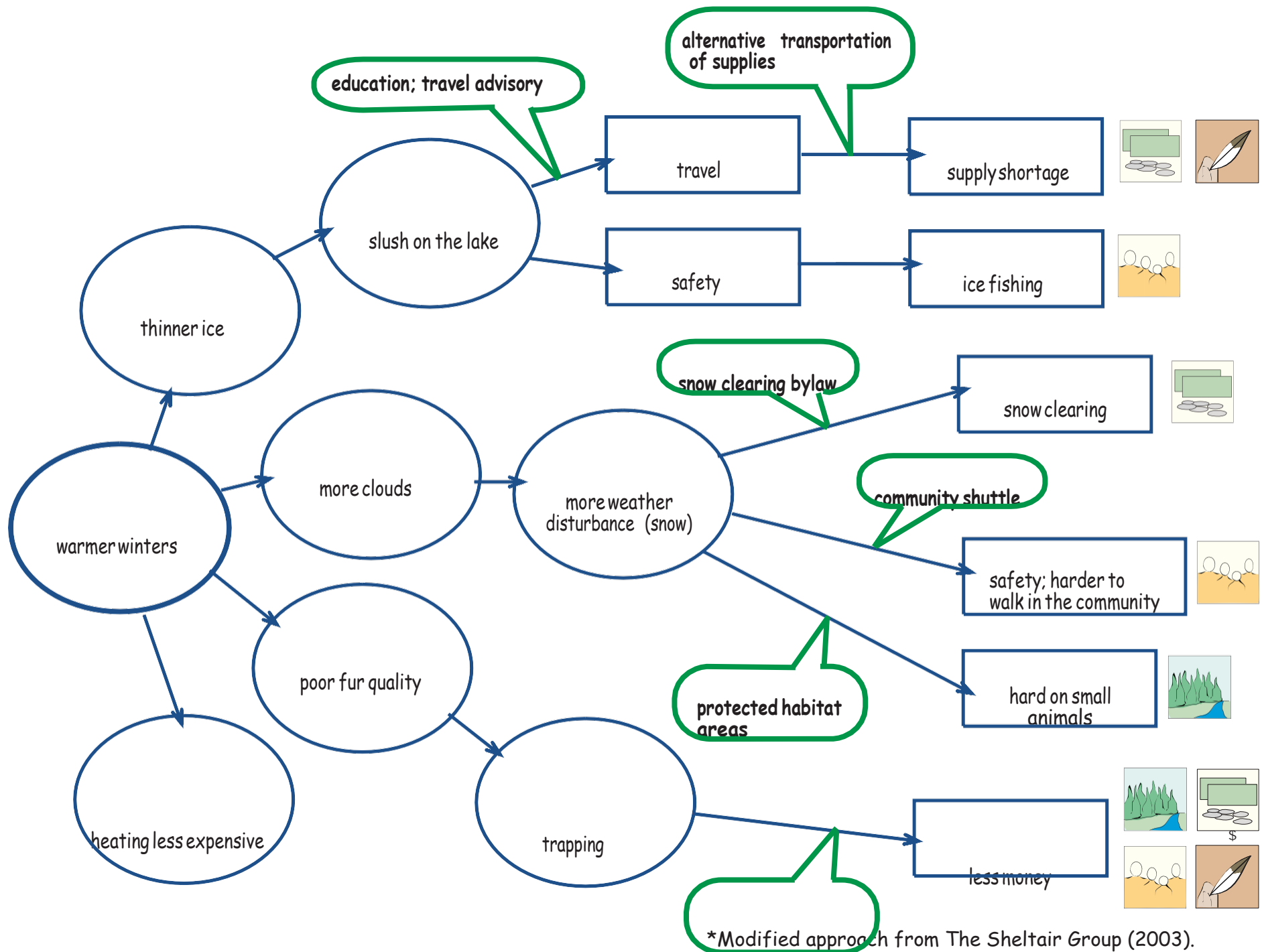


- Influence diagram shapes
- Sticky-tack/ tape
- Markers
- Note paper

- 1 Review the previous influence diagram activity with the Working Group. Put each of the shapes used to create the influence diagram (the ovals and rectangles) on the wall again, reading them out as you go, and ask people to start thinking about ways the community could try to change the final impacts for the better.
 - a) What solutions are possible to minimize or eliminate any negative effects and to enhance any positive effects?
- 2 Write possible solutions that people come up with on the call-out shapes and place them on the wall so that the call-out points to the place along the chain of effects where that solution should be implemented.
- 3 Continue brainstorming solutions and add as many call-out shapes as you need to the diagram.
- 4 Complete this activity again for the other influence diagram topics. Ask someone to help you by writing down each topic and the solutions that were generated so that you have this recorded on paper, as well as on the influence diagram pieces.

After the Working Group meeting you can compile these lists of possible adaptation and coping solutions. See if any of the same solutions were suggested for more than one topic. Solutions that are repeated will help you identify priorities later on, since implementing these particular solutions will result in positive changes in more than one area affected by climate change.





*Modified approach from The Sheltair Group (2003).

local
value-
added
industr
y

4.2 Building on Your Scenarios

Meet with



In this activity you will revisit the scenarios that the Working Group envisioned previously and guide people through a discussion to take these scenarios to the next step of identifying how to make their desired future a reality. This provides another way to come up with a list of possible solutions for adapting and coping with climate change.



Revisiting the Scenarios



- Scenario B and C index cards from Guidebook 3
- Sticky-tack / tape
- Chart paper
- Markers

Bring the Working Group together for a short meeting (or do this activity during the same meeting as 'building on your influence diagram').

- 1 Use the index cards that described the details of Scenario B (with all of the climate change vulnerability assumptions plus the community development assumptions developed in Guidebook 3) to remind the group what this possible vision of the future could look like.
 - a) Put the index cards up on the wall under the heading "Scenario B" so that everyone can read them. Talk about the need to consider climate change vulnerability and impacts as well as other community development changes (because the community will continue to develop and change whatever happens with the climate).
- 2 Use the index cards that described the details of Scenario C (that includes successful adaptation to the effects of climate change developed in Guidebook 3).
 - a) Put these index cards up on the wall as well under the heading "Scenario C". Talk about the

desire to implement solutions that will allow the community to adapt to the effects of climate change, and plan for other community development and sustainability needs.

- 3 Ask people to think about what the First Nation should do to make Scenario C the future reality. Start brainstorming!
 - a) Include solutions that are specific to the effects of climate change but don't forget to think about the solutions that relate to other community development needs that may have come up during the discussions of other aspects of the future scenario (e.g. related to health, education, housing, etc.)
 - b) What decisions are needed?
 - c) What actions are needed?
-





4.3 Setting Priorities

After doing these two activities with the Working Group, you probably have a long list of possible solutions that will help your First Nation cope with and adapt to climate change, while enhancing community sustainability at the same time. Excellent! This list will be the starting point for determining which solutions are feasible (given available time, people, and funding) and then which are top priorities for the community (which to do first). These next steps will include the leadership in the community, Elders, and the broader community, as well as members of the Working Group.

4.3.1 Determining Feasibility

It is important to talk to the leadership at this point to share the list of possible adaptation solutions and discuss the activities that generated these ideas. The leadership can help to begin the process of narrowing down this list through their knowledge and input on what is feasible. Ask for a special meeting of Chief and Council (and/or the hereditary or traditional leadership) or for an hour or two on the agenda of an upcoming meeting.

Set up a



with community
leaders



Brainstorming - 4 Areas of Sustainability



- Scenario B and C index cards from Guidebook 3
- Sticky-tack / tape
- Chart paper
- Markers

- 1 Compile the list of solutions from both activities. You could organize these according to the related climate change impact or to the four components of sustainability. Whichever way you decide to do it, make sure that you are comfortable talking about how the climate change impacts

relate to sustainability (or vice versa) for the different possible solutions. Write the solutions on large pieces of paper (e.g. chart paper) and put them up on the walls.

- 2** Tell the leadership that the next step will be to take a shorter list of possible solutions back to the whole community and to the Working Group to talk about which ideas people think the First Nation should implement first, second, third, etc. You need their input to create this shorter list.
 - 3** Ask people in the leadership meeting to think about the overall needs of the community - related to community development and climate change - addressed in this list of solutions as well as the existing (and potential future) availability of funding, time and people (both the number of people and the skills necessary) available to implement the various solutions. With this in mind, what solutions are actually feasible?
 - a)** Give each person a marker and ask him or her to put a check mark beside the five solutions they believe are feasible and could be implemented in the next five years. You can also use stickers (e.g. small coloured circles) to identify feasible solutions. If you use stickers, give each person a set of five.
 - b)** When people are finished, read out the solutions that were given a check mark or a sticker. Start with the ones that received the most selections. When you are finished ask people if there are any that they strongly disagree with (e.g. solutions that received only one selection may be considered unfeasible to some people in the group).
 - i)** If there are disagreements, have a discussion about each of these selections and agree as a group to either keep each particular solution as one that is feasible, or to eliminate it.
 - c)** Tell the leadership that this short list will be shared with community members to begin a dialogue on priorities.
 - d)** After the meeting, rewrite the list of the selected solutions on chart paper to share with the community. You should also write these solutions down in a notebook (or in the notes section of this Guidebook) so you have a separate record of the results of this meeting.
-

4.3.2 Determining What To Do First

Now it's time to get more people involved in the planning process again. When more people are involved in discussing the future plans in the community, the chances of people supporting these actions when they are implemented increase, and people also often want to be involved in making these actions successful. Implementing these adaptation solutions will affect virtually everyone in the First Nation in some way (either directly or indirectly, through their work or through a family member) so try to involve as many people as possible. This may sound difficult to do, but it doesn't have to be. Here are two ideas that you can use to get people involved in helping set priorities for climate change planning in your community. Take these ideas and adapt them to suit the situation in your First Nation.

Set up a meeting for



Setting Priorities and Climate Change Planning



- Prepared poster or display board
- Refreshments
- Small door prize
- Markers

Additional items for small group:

- solutions written out on chart paper
- sticky-tack / tape
- finger or water-based paint
- cut-up egg cartons

Additional items for large group:

- solutions written out on separate index cards
- enough envelopes for each solution
- packages of 'community money' for each participant

Host a community meeting to bring people together. You could also ask to participate in an existing event (e.g. a bingo, a community dinner) to take advantage of times when people are already coming together as a group. You will need a few people to help you with activity. Talk to the high school or members of the Working Group to see who is interested and available to work with you to organize and run this activity.



Elders meeting in Deschambault

1 Put up information about the project on posters or a display board, including examples of the influence diagrams, the index card information for Scenario C, any photographs you have of the different groups working on this planning process (if you have a laptop and projector you can show these photographs as a slideshow), and of course, the list of feasible solutions.

a) If you decide to use the activity described in 4 (see below) then you need to write each solution on its own piece of paper.

2 Plan to have refreshments (coffee, tea, fruit, muffins) to help attract people to your event and as a small thank-you to people who participate. If you have the budget for a small prize (or can get one donated), you could also have a door prize to encourage people to come to the event.

3 If you are working with a small group you can use the "vote with your hand" activity to prioritize the different solutions. In this activity, each person makes their mark with finger paint (with a thumb or fingerprint) beside the solutions he or she consider to be priorities. Depending on the number of possible solutions you have to choose from you can ask people to use only one hand (and choose five) or both hands (and choose 10) so that you end up with a short list of participants priorities. You can give people the option to select certain priorities more than once (e.g. give one solution two fingerprints) if they feel it is that important.

a) Cut up an egg container (or something to hold the paint) ahead of time and pour a small amount of paint into each 'cup' to hand out to people as they walk around the room and choose their priorities.

b) When people are finished, walk around the room and count the marks beside each solution. Write #1, #2, etc. on the solutions that are the top five or ten priorities (your choice).





Discuss with



It is important to talk to the Elders about what they consider to be priorities for the First Nation. Some Elders may have participated in the community event; even so, it is a good idea to sit down over coffee or tea and include others in your First Nation. Share the list of feasible solutions that were created through your discussions with the leadership and ask people to talk about their thoughts. In their opinion, based on their Indigenous Knowledge, as well as what they know about the First Nation's past successes and challenges, which solutions should the First Nation strive to implement first, second, etc.?

Write down these ideas (after the meeting, perhaps) so that you can reflect on these priorities and relate them to the priorities identified by the community and the youth.

Discuss with



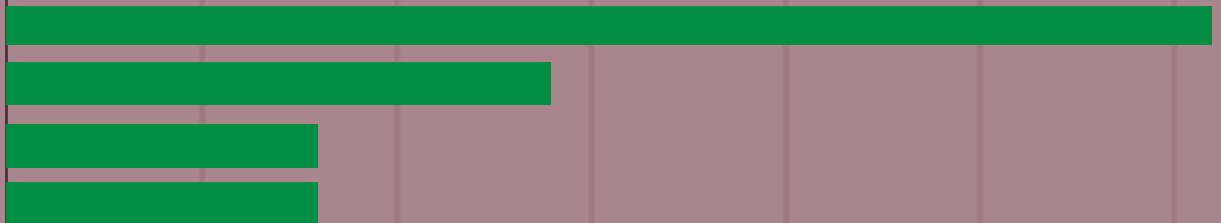
If few young people participated in the community events you may want to visit the high school to ask students about their priorities. The youth will be the leaders in your First Nation in the future and their involvement in the planning process gets them interested at an

early age and also ensures that their opinions and ideas are included. You can do one of the two activities (vote with your hand, or community money) with the youth.

- 1 Ask the principal if you can host an event in the gym and invite the classes to visit you for approximately 30 minutes throughout the day to learn about the project and share their ideas. See if the school office will coordinate the different class visits.
- 2 If this is not possible, ask the principal if there are specific classes or teachers who may be interested in the project (e.g. climate change could relate to the science curriculum; community planning could relate to the social science curriculum) and arrange to visit these classes individually.

Make sure to also review the input you have received so far from other youth and children. Ideas and pictures these young people have shared about their vision and what they love about your First Nation will give you an idea of their priorities and will also help you include their perspectives when you are working with the list of priorities generated by the entire community.





4.4 Lessons From Other First Nations

Other First Nations are making decisions for their communities to begin adapting to climate change and many are moving forward to implement these successfully. Learning about what other First Nations are doing is inspiring, could provide a contact in another community to talk to and learn from, and could help you to think about potential adaptation options in your First Nation. Talk to the First Nations in your region to share information on your climate change planning and adaptation solutions. You may even find that there are ways you can collaborate to implement solutions together to be more effective and efficient!

Champagne and Aishihik First Nation

The Champagne and Aishihik First Nation and the Government of Yukon approved the first community-directed forest management plan within the region in November 2004. The development of the plan involved active participation by both partners and included subjects such as reduction of fire hazards, forest renewal, economic benefits and wildlife habitat preservation as forest management and planning. The plan includes an adaptive management approach so that the First Nation is better prepared for and able to respond to climate change effects that are occurring now and in the future. The forward thinking approach this First Nation took required that they know and understand the changes that have and may occur in the future and what actions can be carried out to meet these new challenges.

Mohawks of the Bay of Quinte

The Mohawks of the Bay of Quinte, located in Ontario, have worked hard to establish the internal infrastructure and skill set to realize the community's vision of energy efficient and healthy housing for its membership. The First Nation builds and retrofits housing to the R-2000 standard and does so with First Nation band member trades people, project managers and housing administrators. The plan was implemented to meet



various objectives, including the construction of homes that minimize negative effects on the land, air and water. Highly energy efficient homes are not only lessen the impacts that contribute to climate change by decreasing the amount of energy used, but are also be an adaptive action. As extreme weather events increase (a climate change prediction for many regions), it will be beneficial to have housing that is better able to maintain internal temperatures. These homes will remain warmer during cold snaps and winter storms without great increases in energy use. Also, the high construction standards provide fewer operation and maintenance requirements, which means that additional dollars can flow to other programming or the construction of more homes.

Kawawachikamach Naskapi Nation

Many First Nations involved in traditional winter pursuits are finding it difficult as ice conditions change. These changes can affect the availability of trails that were used in the past to access hunting areas and trap lines. Finding safe ways to continue these activities has become a priority for many First Nations. For example, the Naskapi of Quebec (Kawawachikamach) partnered with the Kativik Regional Government and three Inuit communities (Kangiqsujuaq, Kangiqsualujjuaq and Umiujaq) to establish the ice trail monitoring network, which is a part of a larger project called ""Climate Change in Northern Quebec: Access to Land and Resources"". The network was developed at the beginning of the 2004-2005-winter season in response to the dangerous and changing conditions of the ice trails. The goal of the monitoring network is to identify ice conditions are considered safe for travel and to predict possible changes within the Nunavik trail network and the effects on human safety. The Kativik Regional Government manages and maintains a website that organizes maps and provides weekly ice trail condition updates based on interviews and input by traditional peoples such as hunters and trappers. Scientific fieldwork completed by local peoples also adds to this input. In 2005-2006, the communities of Ivujivik and Akulivik also joined this network. This climate change adaptation action provides information to people who use trails for hunting, trapping, recreational, or cultural pursuits and helps to decrease the number winter accidents (e.g. snowmobiles falling through the ice).



4.5 Lessons From Other Communities

All communities in Canada, from the smallest rural town to the biggest city, are experiencing the effects of climate change. Each has different combinations of vulnerabilities but we can learn from what they are doing to minimize the negative effects and adapt to climate change. While the adaptation measures taken by a big city may not apply directly to a First Nation, you can apply the pieces of the solutions that are relevant to your First Nation. Talk to the other communities in your region to find out what other jurisdictions are doing to adapt to climate change.

Toronto's Heat-Health Alert System

Toronto has been hit with extreme heat waves in the past, which have affected many of the vulnerable populations in the city and some climate change predictions indicate that Toronto will experience more frequent heat waves over the next 100 years. In 2001, Toronto developed the Heat-Health Alert System to help protect vulnerable people including the elderly, children, medically-at-risk people, and the homeless from the effects of extreme heat. One of the main benefits of the program has been increasing public awareness of the problems related to extreme heat.



The Heat-Health Alert System uses models to predict when deaths are probable because of the presence of certain heat-related air masses. When the probability of death reaches 65%, the Toronto Medical Officer of Health issues a Heat Alert. When the probability rises above 90%, an Extreme-Heat Alert is issued. The Heat-Alert System is able to predict a Heat Alert or Extreme Heat-Alert up to 48 hours before the event is expected in the city.

The City of Toronto uses media, distributes pamphlets, and posts fact sheets on its Web site in order to get Heat-Alert related information out to the public. Steps are then taken citywide to respond to the Heat-Alert. Some of these steps include:

- Distributing bottled water to vulnerable people;
 - Operating a heat information hotline to answer heat-related questions from the public;
- Setting up designated cooling centres at various public locations, such as community centres so that people can find relief from the heat. Some centres are open 24 hours during Extreme-Heat Alerts; and
- Contacting community organizations and asking them to take appropriate action. For example, shelters ease their rules and allow people to stay inside during the day.

Source: Adapting to Climate Change: An Introduction for Canadian Municipalities. C-CIARN February 2006

Halifax Municipality's ClimateSMART Initiative

Recent unexpected and extreme weather events such as hurricanes and severe winter storms in the Atlantic region have triggered increased concern about the potential impacts of climate change in the Halifax Municipality area. As a result, in March 2004, the ClimateSMART project was initiated in order to help integrate climate change mitigation (actions/policies to lessen factors contributing to climate change) and adaptation into municipal planning and decision-making. Before this, Halifax had no method of incorporating climate change into any municipal planning. The ClimateSMART project has helped to bring three levels of government and the private sector together to work on a comprehensive and integrated approach to incorporate predicted impacts of climate change into municipal planning.

Halifax is the first community to adopt the ClimateSMART approach to planning for climate change. Lessons learned and information gathered will be used to develop a toolkit that will help other communities with climate change planning and management. The completed toolkit will include information on:

- Greenhouse gas reduction plans;
- Tools for assessing community vulnerability and risk management;
- A climate change adaptation planning and management options guide; and,
- A tool to assist municipalities in conducting cost-benefit adaptation assessments.

Source: Adapting to Climate Change: An Introduction for Canadian Municipalities. C-CIARN February 2006

Climate-SMART
An Integrated Strategy for Climate Change Adaptation, Preparedness and Planning

Recent Extreme Climate Events for the Halifax Regional Municipality (HRM) & Nova Scotia (NS)

- July 2004 Four Nova Scotians were killed and 15 and 100,000 lost power.
- Sept. 2003 Hurricane Juan hit HRM/Nova Scotia, causing 1500 deaths in total and environmental damage.
- March 2003 Severe winter storm hit HRM/Nova Scotia, causing 115 million losses from power loss on wind turbines and severe transportation disruption.
- Jan/2003 Rapid for Storm: In HRM, killed trees on streets & buildings, damaged power and water lines, considerable underground stormwater infrastructure repair costs.
- Extreme climate events increased energy consumption and financial costs to HRM such as: Excess and/or heating of public, private and residential buildings during cold snaps, the resulting overloads during heat waves, more severe flooding & sailing, repair or redesign of vulnerable essential infrastructure (eg. water & energy plants, communications networks, storm drains, schools and clinics) to withstand extreme loadings.

Climate Change - Global Warming is when we experience a significant warming and variation in the climate or its variability, persisting for an extended period (typically decades or longer).

What causes it?
Contributing to global warming (climate change) are increased levels of greenhouse gas, as well as gas that trap heat inside our atmosphere. The increasing levels of such gases upset a natural balance in the atmosphere, which is making the Earth's climate warmer & more variable.

The highest contributor to greenhouse gas is carbon dioxide (CO2), a gas produced when fossil fuels such as oil, coal & wood are burned. By 2100, anticipated temperature increase will range between 1.4 & 4.8 C.

This will result in additional stress on the globe's water and food systems, along with increased risk to public health and safety.

The Cost Of A Climate-Changing World

- The frequency of hazardous climate events tripled in the 1990s (in 5 fold increase in financial losses (World Bank). Worldwide, economic losses from natural disasters double every 10 years (\$150 billion in climate-related damage/loss within a decade (UNEP).
- Insurance claims will be \$300 billion/year, equivalent to one World Trade Center attack annually (Swiss Re).

Big Fixes
The most method to reduce greenhouse gas emissions is to reduce the use of fossil fuels through energy efficiency, alternate fuels, and the protection of forests such as forests and farmland, which absorb carbon from the atmosphere. One of the planned big fixes is through the Kyoto Accord.

Kyoto Accord
The Kyoto Accord is an international agreement negotiated by 160 countries in 1997 in Kyoto, Japan. It is designed to cut greenhouse gas emissions (counted mostly by burning fossil fuels) to 5.2 per cent below 1990 levels by 2012. In December 2002, Canada reaffirmed Kyoto with the US.

So what is Climate-SMART, who is involved and how can it help?
What? Climate-SMART (Sustainable Mitigation and Adaptation Risk Toolkit) is a leading edge collaborative partnership involving both the public and private sectors. Its goal is to help municipalities integrate "greenhouse gas" emissions reduction and climate change impact & adaptation issues into the decision making process for policy makers, practitioners and vulnerable communities. With HRM as the prototype municipality, lessons learned can be replicated to other municipalities across Canada and overseas.

Clearly put, Climate-SMART will help HRM & its partners to develop more aggressive and planning tools to prepare for climate change impacts, and to develop strategies to reduce practices that contribute to global warming in the first place - primarily the reduction of greenhouse gas emissions.

This pioneering project will:

- Reaffirm HRM's leadership on climate change priorities on the ground.
- Help fulfill Nova Scotia's commitment (through a Sustainable Environment) to address climate change adaptation & support the Federal and Provincial Government Climate Change priorities.
- Create an enabling environment to leverage Federal/Provincial initiatives and adaptation funding for integrated climate change actions.

Who? A partnered approach with Climate-SMART

Federal:
Environment Canada (Atlantic Region)
Natural Resources Canada (NS and NSCA)
Atlantic Canada Opportunities Agency (ACOP)

Provincial:
Nova Scotia Department of Energy
Nova Scotia Environment and Labour

Municipal:
Federation of Canadian Municipalities (FCM)
Halifax Regional Municipality (HRM)

Private Sector:
Member companies of the ClimateChange Network and the Nova Scotia Environmental Industries Association (NSIEA)

How? Climate-SMART suite of toolkits include:

1. **Greenhouse Gas Emissions Reduction Management Plan.**
2. **Community-Based Vulnerability and Risk Management:** to evaluate vulnerability to public infrastructure and utilities, & environmental assets from global climate change impacts.
3. **Climate Change Adaptation Planning and Management Options Guide:** planning and management mechanisms, adaptation strategies, and emergency preparedness response planning.
4. **Cost/Benefit Adaptation Assessment:** to help determine potential social, economic and environmental impacts and costs of adaptation.
5. **Communication and Outreach:** to inform the public and enhance community stewardship.

Need More Information?
For more information about the Climate-SMART Project or on climate change in general, please contact us or visit us on line at www.climateadapt.com.

HALIFAX NOVA SCOTIA Canada Lettely GREEN

<http://www.climateadapt.com/C-SMART%20poster%20March%202006%2004.pdf>

References

Sheltair Group. (2003). Climate Change Impacts and Adaptation Strategies For Urban Systems in Greater Vancouver. (Vol. 1). Vancouver: Cities Plus.

Notes

Notes

Notes

