

# **CLIMATE CHANGE PRIORITY ISSUES IN NUNAVUT**



**Canadian Institute of Planners  
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## ACKNOWLEDGEMENTS

This report was prepared by the Canadian Institute of Planners (CIP) for the climate change partnership that involves CIP, Indian and Northern Affairs Canada (INAC), the Government of Nunavut (GN), and Natural Resources Canada (NRCan). The funding assistance of INAC for the preparation of this report is gratefully acknowledged.

This report was authored by Dr. Gary Davidson FCIP, RPP and Beate Bowron FCIP, RPP on behalf of CIP. All rights are reserved by CIP and INAC. However, this report can be used as an open source document for research, educational and community planning activities, as long as it is referenced and the contribution of CIP and INAC is acknowledged.

## 1.0 Purpose and Background

The Canadian Institute of Planners (CIP), the Government of Nunavut (GN), Indian and Northern Affairs Canada (INAC) and Natural Resources Canada (NRCan), have formed a partnership to assist Nunavummiut to adapt to climate change. CIP's contribution to this climate change partnership is to develop a model climate change adaptation action plan (CCAAP) and a community climate change adaptation planning workbook for use by the GN and communities throughout Nunavut.

To assist in this endeavour, CIP will work with five communities across Nunavut to prepare five pilot CCAAPs over the next two years. The communities selected are: Iqaluit; Cambridge Bay; Whale Cove; Arviat; and Kugluktuk.

CIP has already completed two CCAAPs, one with Hall Beach and the other with Clyde River, both in the Baffin Region. Also, CIP is working with the Government of Nunavut to prepare the Nunavut Climate Change Adaptation Plan<sup>1</sup>. One of the priority actions of the Adaptation Plan is to integrate components of climate change adaptation planning into the more comprehensive domain of community planning.

Over the past three years, CIP has accumulated a significant amount of information on the issues or problems associated with climate change and their impact on Nunavut and its communities. While working with Elders, youth, communities and scientists, the focus has been on "What are the issues".

As CIP prepares to embark on plans with more pilot communities and develop a model CCAAP approach, it is helpful to synthesize the accumulated knowledge on issues, to indicate the priority communities place on them and suggest key directions for adaptation planning. Otherwise, there is a tendency to repeat the entire process of issue identification and reinvent the wheel of climate change. When this happens, it is difficult to focus on planning solutions.

During the past several years, there has been considerable discussion surrounding the type of knowledge that best describes the problems of climate change in Nunavut. Is it Inuit Quajimajatuquangit (IQ), community knowledge or structured scientific research? Through its work CIP has learned that the three need to be combined and that each has its own unique place and contribution to make. In developing the Nunavut Climate Change Adaptation Plan, CIP coined the term "the three pillars of knowledge" – IQ, community and scientific - to best

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<sup>1</sup> A draft copy of the Nunavut Climate Change Adaptation Plan is currently under review by the Department of Environment.

describe the contribution of each approach. None are superior and all contribute equally.

The identification of climate change problems and adaptation concerns based on each type of knowledge yields a similar, though differently described, set of issues. Often the problem is in communication and presentation. The three groups, especially the Elders and the scientists, approach understanding from different perspectives and often don't trust each other's form of knowledge. Their different approach results in considerable duplication of effort and treats each new community planning effort as unique, with its own set of issues that have to be discovered again.

To avoid this problem from overtaking the preparation of new climate change adaptation action plans, CIP proposed a project to bring together the key aspects of the three pillars of knowledge as they apply to climate change issues in Nunavut. This will provide a launch pad for the five upcoming pilot CCAAPs and help inform the Elders, communities, scientists and planners that will be involved.

Fortunately, considerable work has already been done on climate change issue identification in Nunavut by CIP. This project does not have to start at square one but can be synthesized from previous work. The background for this synthesis is:

1. Significant work undertaken on IQ knowledge (some of it supported by INAC)
2. Considerable community specific work undertaken by NRCan

This work provides a solid, general background. At a more detailed level, CIP and the GN held a series of workshops in developing the Nunavut Climate Change Adaptation Plan (NCCAP). These structured workshops were conducted in all three of Nunavut's regions – Baffin, Kivalliq and Kitikmeot - and involved Elders and community members from across the regions. Also, NRCan and, in some instances, INAC participated. In addition, a special "Youth and Elders" workshop was held with participants invited from across Nunavut<sup>2</sup>.

These facilitated workshops followed a similar approach and three followed an identical agenda<sup>3</sup>. A copy of the agenda is provided in Appendix 1. Because of this similar approach, the information on issues, priorities and actions are comparable.

When all this information is brought together, compared and synthesized, there is a wealth of knowledge on Elder and community perspectives on climate change issues and priorities that can assist in the preparation of the five upcoming pilot

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<sup>2</sup> The financial assistance of INAC in holding these workshops is gratefully acknowledged.

<sup>3</sup> The first workshop for the Baffin Region used a different approach, although issues were identified.

adaptation action plans. This report, undertaken by CIP and funded by INAC, presents a prioritization of climate change issues in Nunavut, as expressed through the series of workshops held in conjunction with the preparation of the Nunavut Climate Change Adaptation Plan.

## **2.0 Approach**

The approach used in this report is one of collating and synthesizing information on climate change issues and priorities from the above referenced four climate change workshops across Nunavut. This information is then brought together with published and scientific information used in the development of the Nunavut Climate Change Adaption Plan.

There is a considerable amount of detailed information to sift through to develop this synthesis. Each of the workshops produced detailed reports. In order to keep this report to a readable length, only the results are presented. Detailed information is provided in Appendices. Complete supporting reports are referenced and, if available, web sites to download these reports are cited.

### *2.1 Workshops*

Three regional workshops and a special workshop with youth and Elders were held. Specifically these were:

- Baffin Region (Iqaluit) – December 2006
- Kivalliq Region (Rankin Inlet) – August 2007
- Kitikmeot Region (Cambridge Bay) – November 2007
- Youth & Elders (Iqaluit) – March 2008

The close proximity of these workshops, especially the last three, in terms of time makes their results particularly comparable. Also, the regional representation yields a Nunavut-wide perspective. The comparability of the results is further augmented because the same CIP planners facilitated the last three workshops. Approximately 25 participants attended each workshop.

### *2.2 Analysis of Results*

Each workshop produced both a general report and a detailed list of issues and priorities. Reports for each of the workshops have been submitted to the Nunavut Department of Environment. They are currently being translated into Inuktitut and, when that is complete, they will be posted on the Department's web site in both English and Inuktitut.

For this report the raw data on climate change issues and priority action areas for climate change adaptation have been extracted for comparative analysis. The workshops from the Kivalliq Region, the Kitikmeot Region and the Youth and Elders workshop are the most comparable. As noted, they followed an identical format and were facilitated and recorded by the same CIP planners. In the analysis that follows, it is these three workshops that are used.

Appendices 2 to 5 present the raw data. This data is analyzed in Section 3 and 4 of this report. The climate change issues were organized into four subgroups for further discussion and prioritization. These were:

- *Hamlets: These issues represent concerns around climate change in communities;*
- *Scientific Information: These issues list types of information that need to be researched, developed and communicated;*
- *Support for Hunters and Trappers: These issues concern mostly safety, but also support for the Hunters and Trappers Organizations (HTOs); and,*
- *Opportunities and Initiatives: Information in this subgroup of issues reflects opportunities that participants think might result from climate change.*

There is a certain amount of overlap of issues among the four subgroups. This can be expected given the number of participants and the active interest they all took in the topic.

Specifically, the information in the Appendices is:

*Appendix 2 notes the number of issues that were raised in the workshops. They are presented in no specific order. This Appendix provides evidence of the sheer volume of issues.*

*Appendix 3 ranks all issues in descending order. This gives an understanding of the overall priority of issues in Nunavut.*

*Appendix 4 lists the issues in rank order under the four subgroups. It also notes in which workshop or workshops the issue was raised. This Appendix provides information on any regional variation of climate change issues within Nunavut.*

*Appendix 5 further breaks down issue identification within the four main subgroups to provide a context for climate change adaptation planning and highlights key ideas.*

These four appendices provide the bulk of information and form the basis for the general observations found throughout this report.

### **3.0 Issues and Priorities**

Issues and the priority in which those issues are held are important for the community planning process. This section summarizes the material found in Appendices 2 to 4 in order to develop a deeper understanding of climate change issues and their prioritization in Nunavut. While this information draws from a limited sample of three workshops, it represents the most comprehensive data set developed to date on this topic.

#### *3.1 Issues*

Appendix 2 “Climate Change Issues in Nunavut” lists issues in no specific order. Workshop participants raised climate change issues both in plenary and break out sessions. These issues were recorded on flipcharts by the facilitators. For this report, issues that were identical or very similar have been grouped. There is some overlap. The objective was to do some grouping to remove obvious repetition, but not remove the variety and nuances of the climate change issues identified by workshop participants.

The most obvious observation about the issues is the sheer number of them and their extensive range. Sixty-nine separate issues were identified. They cover an exceedingly wide variety of topics and range from general polar issues to specific community issues.

In and of themselves such a range of issues has limited relevance for adaptation planning. They form a base, but considerable analysis needs to be done to move from this eclectic list of issues to planning directions for Nunavut. The first step is to determine priorities.

#### *3.2 Priorities*

Moving from issues to priorities was made possible by the format of the three workshops. After identifying issues, participants were asked what were the priority issues for climate change adaptation planning. The selection used a process called “dotmocracy”. In this process all participants get an equal number of sticky dots (14 in this case) and they “vote” for their priorities by placing a dot or dots next to an issue.

Appendix 3 “ Climate Change Priorities in Nunavut” orders the climate change issues in Appendix 2 to yield a priority order of all the climate change issues that the workshops identified. The number in brackets behind each issue represents the number of “votes” that issue received and has been used to determine its priority order.

A review of the priorities reveals that there are 3 general groups. The top priority was:

*“Document and share Elders’ information. Use video and audio recordings, map travel routes and place names in a GIS format, use KIA existing information and use stories from ancestors; teach how to be on the land, seasons and traditional place names.”*

This issue scored 102, over twice as high as the next priority. This indicates the importance that participants placed on the knowledge of the Elders. This reinforces the use of traditional knowledge as one of the three pillars for climate change planning in Nunavut.

There is what could be called an intermediate group of priorities identified in Appendix 3. These scored from 28 to 49. There are 9 priority issues in this group that focus primarily on community infrastructure.

Using a score of 28 as a break point is somewhat arbitrary. However, from a score of 25 through to 1 there is a continuous list of priorities. In fact, there are 59 issues in this group. There is no logical break point for grouping. This group reflects a considerable range of climate change issues with no clear consensus at this macro level of analysis.

In an effort to gain greater clarity of the priority issues and generate some directions to assist in climate change adaptation planning, four general subgroups for focusing the climate change issues were developed and used in the workshops. These were:

- *Hamlets (Communities)*
- *Scientific Information (Information)*
- *Support for Hunters and Trappers (Traditional Activities)*
- *Opportunities / Initiatives (Opportunities)*

These general groupings reflect both climate change impacts and can be used as a focus for comprehensive adaptation planning.

Appendix 4 “Priority Ranking by Workshop” presents three types of information. First it groups issues in the four general subgroups noted above. Second it ranks the issues under the subgroups based on their overall priority. The score in brackets that follows the issue notes priority order. Finally, the workshop(s) in which the issue was discussed is also shown in the Appendix.

At the outset, it can be concluded that while there are differences in issues identified in different workshops, there is little consistent regional variation. Similarly, there is little variation between the Elders and Youth Workshop and the regionally based workshops. This reflects the fact that climate change issues are generally shared with only limited regional variation. These variations, while limited, must be considered in community adaptation plans. However, it will be more productive to focus on individual community issues than regional issues.

Grouping climate change priorities around communities, information, traditional activities and opportunities provides a better framework for both priority analysis and adaptation planning. These are the four lenses through which future work on climate change must respond. The priorities within each of the lenses can provide some overall planning guidance.

The Hamlets grouping reveals issues and priorities that will be important for the community climate change adaptation plans that the Canadian Institute of Planners (CIP) will undertake. This issue is explored in more detail in the next Section.

While the focus for CIP is community adaptation planning in hamlets, this can only proceed, if the other climate change groupings are given due consideration. New knowledge and information sharing are critical in advancing climate change understanding and adaptation action, especially at the regional and local level. The priority listing in this subgroup provides general direction.

Climate change profoundly impacts the Inuit traditional way of life. The subgroup entitled "Support for Hunters and Trappers" focuses on the types of adaptation actions that were suggested to support this aspect of traditional Inuit life.

While climate change presents considerable problems, there are certain opportunities that may become available to the residents of Nunavut. These are grouped and ranked under the heading of "Opportunities and Initiatives".

Knowing issues and priorities is the basis for action. The material in Appendices 2, 3 and 4 provides a wealth of information on issues, priorities and regional concerns. By inference, they imply actions that should be taken. Still, a great deal of work needs to be done to move knowledge to action. This theme is taken up in the next Section.

## 4.0 Directions for Adaptation Planning

Planning for climate change is multi-faceted. It requires a comprehensive approach that covers a wide variety of actions. Understanding needs to encompass both climate change issues and their priorities. This report starts to bring these diverse elements together and begins to provide a basis for community climate change adaptation action planning. This material should not be taken as a template, but as background guidance.

The climate change partnership formed by INAC, CIP, the GN and NRCan will consider the broad range of issues noted in the Appendices to this report. CIP's focus over the next two years will be on completing five pilot community climate change adaptation action plans. In an effort to provide some specific guidance for the community plans, the data has been structured to focus on climate change planning priorities.

Appendix 5 "Climate Change Planning Priorities" further refines Appendix 4 to highlight some key ideas that will be helpful in climate change adaptation planning. Again, the same four broad headings are used. However, additional sub-headings are employed and key planning ideas are identified.

Appendix 5 provides key ideas across the first three groupings – communities, information and traditional activities. The subgroup reflecting opportunities did not have enough similar material to distill key ideas. Hence, just sub-headings are provided. Again, the overall workshop priority ranking is shown as a bracketed number.

As CIP's focus is on community adaptation planning, only that group is elaborated here. The other material is important background and context information and can be viewed in Appendix 5.

The material grouped under Hamlets in Appendix 4 has been further subdivided into four components for community adaptation planning. These are:

- *Energy*
- *Infrastructure*
- *Housing*
- *Community Clean-up*

Some "key ideas" to assist in adaptation planning have been distilled from the various priority climate change issues under each of the above components. The intent is to select a few such key ideas that can focus planners involved in climate change adaptation plans in Nunavut.

Four issues comprise the energy component and produce two key ideas:

- *Explore alternative energy sources that are designed for the North*
- *Improve energy efficiency of community infrastructure.*

These two points seem to sum up the various issues reflecting community energy.

Thirteen issues comprise the infrastructure component and produce five key ideas:

- *Improve the safety and quality of community water supplies*
- *Improve and/or relocate sewage lagoons*
- *Improve waste management – composting, recycling and fence dumps*
- *Erosion control*
- *Improve docks*

Infrastructure is the largest issue for communities both in terms of general community planning and climate change adaptation planning. Climate change impacts are extensive and costly. Infrastructure considerations will form a major part of any community climate change adaptation action plan.

Housing is an important part of any community and Nunavut is no exception. The extreme climate puts extra demands on housing, as does climate change, which can affect foundation stability, among other impacts. There was only one suggestion for housing and it is a good summary of a range of issues – “Put in better housing that is energy efficient and properly located”.

The final grouping is community clean up. Three key ideas emerge here.

- *Dust control*
- *Blowing and burning garbage*
- *Community appearance*

The suggestions for hamlets or communities cover a broad range of issues, not all of which are directly related to climate change. However, these are the issues that community members have brought forward and that planners will be faced with as they work with communities to prepare climate change adaptation action plans.

## **5.0 Summary**

The material presented in this report represents a start in defining and prioritizing climate change adaptation issues in Nunavut. It is based on detailed information obtained through facilitated community workshops held during the preparation of the Nunavut Climate Change Adaptation Plan.

While there is a lot of data, our understanding of issues, priorities and planning directions is just beginning. The material in this report provides some background information for the CIP planning teams working on five pilot adaptation plans over the next two years. Their work will add more information that will expand our knowledge of climate change issues and priorities and can be used in other adaptation action plans in Nunavut communities.

Beate Bowron & Gary Davidson  
December 2008

## SAMPLE WORKSHOP AGENDA

**Kitikmeot Region**  
**ADAPTATION ACTION IN ARCTIC COMMUNITIES**  
**November 28 and 29, 2007, CAMBRIDGE BAY, NUNAVUT**

### **Day One – Wednesday, November 28**

8:30 am – 9:00 am	Coffee/Tea
<b>9:00 am – 10:15 am</b>	<b>Introductory Presentations</b>
9:00 am – 9:30 am	<p><b>Nunavut Climate Change Program</b>          Jackie Bourgeois, Climate Change Coordinator, GN</p> <ol style="list-style-type: none"> <li>1. Nunavut Adaptation Program             <ol style="list-style-type: none"> <li>a) Territorial adaptation plan</li> <li>b) Community-based adaptation planning</li> </ol> </li> <li>2. Climate Change Center</li> </ol>
9:30 am – 9:45 am	<p><b>NRCan Project - “Enhancing Resilience in a Changing Climate”</b>          David Mate, Project Leader Program</p> <p>Pilot Projects:</p> <ol style="list-style-type: none"> <li>1. Iqaluit</li> <li>2. Clyde River</li> <li>3. Hall Beach</li> <li>4. Permafrost monitoring</li> </ol>
9:45 am – 10:00 am	<p><b>Summer Field Work and Technical Training</b>          Lee Ann Pugh, Research Assistant, GN</p>
10:00 am – 10:15 am	<p><b>Adaptation Planning at the Community Level</b>          Gary Davidson and Beate Bowron, Canadian Institute of Planners – <b>Clyde River &amp; Hall Beach</b></p>
10:15 am – 10:30 am	<b>HEALTH BREAK</b>
10:30 am – 10:45 am	<p><b>Introduction to Working Sessions</b>          Beate Bowron and Gary Davidson</p>
10:45 am – 12:00 pm	<p><b>Working Session # 1:</b>          Climate Change Adaptation Issues in Kitikmeot Region</p>

<b>12:00 pm – 1:00 pm</b>	<b>LUNCH- PROVIDED</b>
1:00 pm – 2:00 pm	<i>Sharing of Issues and General Discussion</i>
2:00 pm – 3:15 pm	<b>Working Session # 2:</b> <i>What is currently being done about these issues?</i>
<b>3:15 pm – 3:30 pm</b>	<b>HEALTH BREAK</b>
3:30 pm – 4:30 pm	<i>Sharing &amp; General Discussion &amp; Next Steps for Day Two</i>

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### **Day Two – Thursday, November 29**

<b>8:30 am - 9:00 am</b>	<b>Coffee/Tea</b>
9:00 am - 10:15 am	<b>Working Session # 3:</b> <i>What are the Priority Issues in Climate Change Adaptation Planning in Kitikmeot Region?</i>
<b>10:15 am – 10:30 am</b>	<b>HEALTH BREAK</b>
10:30 am – 11:30 am	<i>Sharing &amp; General Discussion</i>
11:00 am – 12:00 pm	<i>Selection of Priorities</i>
<b>12:00 pm – 1:00 pm</b>	<b>LUNCH- PROVIDED</b>
1:00 pm – 2:15 pm	<b>Working Session # 4:</b> <i>What Actions are needed to deal with the Priority Issues?</i>
<b>2:15 pm – 2:30 pm</b>	<b>HEALTH BREAK</b>
2:30 pm – 3:30 pm	<i>Sharing &amp; General Discussion</i>
3:30 pm – 4:00 pm	<i>Selection Priority Actions</i>
4:00 pm – 4:30 pm	<i>Wrap-up and Next Steps</i>
4:30 pm	<i>Adjournment</i>

<b>CLIMATE CHANGE ISSUES</b>
Explore alternative energy sources designed for the north to reduce green house gases and save money - i.e. wind, solar, hydro-electric
Relocating infrastructure – i.e. water supplies and sewage lagoons
Build erosion control structures (small craft harbours)
Fences around dumps to prevent blowing garbage and garbage going into the ocean and water supply
Put in better housing that is energy efficient and properly located
Increasing dust in all communities – very fine and people are getting sick
Improve Cambridge Bay dump and sewage lagoon
Infrastructure that is energy efficient
Good staff in the hamlets to keep the communities clean and in good order
Change medical practices to adapt to new viruses, increased UV exposure, changing diet
Alternative water source for Kuugaarjuk
Proper waste management: too much garbage from the south; a need for recycling and a means to implement these programs
Community clean-up
Construct dock in Kuugaarjuk
Cambridge Bay water lake is getting siltier
Communities need to do adaptation plans
Bay in Taloyoak is silting up
Clean up existing hazardous waste sites
How to deal with new kinds of animals – disease threat
Document and share Elders' information. Use video and audio recordings, map travel routes and place names in a GIS format, use KIA existing information and use stories from ancestors; teach how to be on the land, seasons and traditional place names
Dust in all communities makes people sick
Better measuring and reporting of local ice and weather conditions to communities
Centre for learning about our traditions and culture for our young people
Dumps burn garbage, it blows and is a hazard to wildlife and ocean; sewage lagoon leaks into ocean
Community awareness about climate change among schools, health care centres and Elders
Guidelines and standards for planning for climate change

<b>CLIMATE CHANGE ISSUES – cont’d</b>
More Inuit scientists
Information to keep hamlets up-to-date: web sites, newsletters, Q&A that would help hamlet staff sort through important information on best practices for cost savings
Research on wildlife / fish to sustain the communities (hamlets)
Need cooperation between IQ and scientists with both of equal weight. We want “true information not propaganda”
Develop scientific information on regional climate change trends
Increase awareness in hamlet councils
Alternative energy sources that can adapt innovative technology to arctic conditions
Train recreational hunters
Recognize / formalize info. that hunters provide regarding ice & snow conditions
Increase research capacity of HTO’s
New forms of communications (satellite phones) so that Hunters and Trappers can warn communities about dangers
Elder / Youth Camps to pass on traditional knowledge
Inform Department of Environment about the polar bear situation
Better measuring and reporting of local ice & weather conditions to communities
Wildlife census
Floater suits sold at cost by HTO
Promoting the use of dog teams for safety and to reduce pollution
Compensation for dealing with sick wildlife
Maps with Inuit names
Compensation for increased costs associated with climate change
Flares for search & rescue available through HTO’s
Community freezers, with assistance for power and maintenance costs
Need bright orange tarps
Promoting the use of sun screen
Adapting hunting practices to thinner ice
Government support for selling pelts
Personal beacons and meridian phones
Tourism – exhibit local artists in hamlets and re-package polar bear hunts to make them more expensive and more special; northern lights; Eco-tourism – more trails for hunters and trappers; Summer recreation – i.e. hiking

<b>CLIMATE CHANGE ISSUES – cont'd</b>
Better pollution control for mining operations and ships transporting ore
Centre for learning about our traditions and culture for young people
Document Elders' knowledge for baseline info.
Pursue alternative forms of energy, composting facilities and new waste management solutions
Use longer shipping season – commercial fishing for arctic char and more north-south trade
Map traditional names
Adapt alternative energy technologies to arctic needs
Recycling might become more economical – need to explore
More research opportunities for Inuit students
Involve more local people in search & rescue
Longer construction period for roads, houses, etc.
Trees in Cambridge Bay
Sewing centre in Kuugaarjuk so young people can learn arts & crafts
Construction work – mines and communities are growing

<b>CLIMATE CHANGE ISSUES IN PRIORITY ORDER – cont'd</b>
Document and share Elders' information. Use video and audio recordings, map travel routes and place names in a GIS format, use KIA existing information and use stories from ancestors; teach how to be on the land, seasons and traditional place names (102)
Explore alternative energy sources designed for the north to reduce green house gases and save money - i.e. wind, solar, hydro-electric (49)
Dust in all communities makes people sick (46)
Relocating infrastructure – i.e. water supplies and sewage lagoons (41)
Build erosion control structures (small craft harbours) (39)
Better measuring and reporting of local ice and weather conditions to communities (39)
Tourism – exhibit local artists in hamlets and re-package polar bear hunts to make them more expensive and more special; northern lights; Eco-tourism – more trails for hunters and trappers; Summer recreation – i.e. hiking (37)
Centre for learning about our traditions and culture for our young people (33)
Fences around dumps to prevent blowing garbage and garbage going into the ocean and water supply (28)
Dumps burn garbage, it blows and is a hazard to wildlife and ocean; sewage lagoon leaks into ocean (28)
Put in better housing that is energy efficient and properly located (25)
Recognize / formalize info. that hunters provide regarding ice & snow conditions (24)
Better pollution control for mining operations and ships transporting ore (24)
Increasing dust in all communities – very fine and people are getting sick (23)
Increase research capacity of HTO's (22)
Improve Cambridge Bay dump and sewage lagoon (21)
New forms of communications (satellite phones) so that Hunters and Trappers can warn communities about dangers (20)
Elder / Youth Camps to pass on traditional knowledge (19)
Infrastructure that is energy efficient (19)
Centre for learning about our traditions and culture for young people (19)
Inform Department of Environment about the polar bear situation (18)
Good staff in the hamlets to keep the communities clean and in good order (18)
Community awareness about climate change among schools, health care centres and Elders (18)
Guidelines and standards for planning for climate change (15)
Document Elders' knowledge for baseline info. (15)
Pursue alternative forms of energy, composting facilities and new waste management solutions (15)
Use longer shipping season – commercial fishing for arctic char and more north-south trade (15)
Better measuring and reporting of local ice & weather conditions to communities (14)
Change medical practices to adapt to new viruses, increased UV exposure, changing diet (14)
Map traditional names (14)

<b>CLIMATE CHANGE ISSUES IN PRIORITY ORDER – cont'd</b>
Need for research knowledge to be reported back to the community in non-technical language (13)
Alternative water source for Kuugaarjuk (13)
Proper waste management: too much garbage from the south; a need for recycling and a means to implement these programs (13)
More Inuit scientists (13)
Wildlife census (13)
Information to keep hamlets up-to-date: web sites, newsletters, Q&A that would help hamlet staff sort through important information on best practices for cost savings (12)
Community clean-up (12)
Floater suits sold at cost by HTO (11)
Promoting the use of dog teams for safety and to reduce pollution (11)
Adapt alternative energy technologies to arctic needs (11)
Research on wildlife / fish to sustain the communities (hamlets) (10)
Compensation for dealing with sick wildlife (10)
Recycling might become more economical – need to explore (10)
Need cooperation between IQ and scientists with both of equal weight. We want “true information not propaganda”. (9)
Maps with Inuit names (9)
Construct dock in Kuugaarjuk (9)
Cambridge Bay water lake is getting siltier (9)
More research opportunities for Inuit students (9)
Compensation for increased costs associated with climate change (8)
Flares for search & rescue available through HTO's (8)
Communities need to do adaptation plans (8)
Involve more local people in search & rescue (7)
Develop scientific information on regional climate change trends (7)
Alternative energy sources that can adapt innovative technology to arctic conditions (6)
Increase awareness in hamlet councils (6)
Community freezers, with assistance for power and maintenance costs (6)
Need bright orange tarps (6)
Promoting the use of sun screen (5)
Longer construction period for roads, houses, etc. (5)
Bay in Taloyoak is silting up (5)
Train recreational hunters (4)
Trees in Cambridge Bay (3)

<b>CLIMATE CHANGE ISSUES IN PRIORITY ORDER – cont'd</b>
Clean up existing hazardous waste sites (3)
How to deal with new kinds of animals – disease threat (3)
Sewing centre in Kuugaarjuk so young people can learn arts & crafts (2)
Government support for selling pelts (2)
Adapting hunting practices to thinner ice (2)
Construction work – mines and communities are growing (1)
Personal beacons and meridian phones (1)

APPENDIX 4  
PRIORITY RANKING BY WORKSHOP

<b>PRIORITY</b>	<b>RI</b>	<b>CB</b>	<b>Y&amp;E</b>
<b>Hamlets</b>			
Explore alternative energy sources designed for the north to reduce green house gases and save money - i.e. wind, solar, hydro-electric (49)		x	x
Relocating infrastructure – i.e. water supplies and sewage lagoons (41)	x	x	x
Build erosion control structures (small craft harbours) (39)			x
Fences around dumps to prevent blowing garbage and garbage going into the ocean and water supply (28)		x	x
Put in better housing that is energy efficient and properly located (25)	x		
Increasing dust in all communities – very fine and people are getting sick (23)		x	
Improve Cambridge Bay dump and sewage lagoon (21)		x	
Infrastructure that is energy efficient (19)		x	
Good staff in the hamlets to keep the communities clean and in good order (18)	x	x	
Change medical practices to adapt to new viruses, increased UV exposure, changing diet (14)			x
Alternative water source for Kuugaarjuk (13)		x	
Proper waste management: too much garbage from the south; a need for recycling and a means to implement these programs (13)	x		
Community clean-up (12)	x		
Construct dock in Kuugaarjuk (9)		x	
Cambridge Bay water lake is getting siltier (9)		x	
Communities need to do adaptation plans (8)			x
Bay in Taloyoak is silting up (5)		x	
Clean up existing hazardous waste sites (3)			x
How to deal with new kinds of animals – disease threat (3)	x		
<b>Scientific Information</b>			
Document and share Elders' information. Use video and audio recordings, map travel routes and place names in a GIS format, use KIA existing information and use stories from ancestors; teach how to be on the land, seasons and traditional place names (102)		x	x
Dust in all communities makes people sick (46)		x	
Better measuring and reporting of local ice and weather conditions to communities (39)		x	x
Centre for learning about our traditions and culture for our young people (33)		x	
Dumps burn garbage, it blows and is a hazard to wildlife and ocean; sewage lagoon leaks into ocean (28)		x	

APPENDIX 4  
PRIORITY RANKING BY WORKSHOP

<b>PRIORITY– cont'd</b>	<b>RI</b>	<b>CB</b>	<b>Y&amp;E</b>
Community awareness about climate change among schools, health care centres and Elders (18)	x		
Guidelines and standards for planning for climate change (15)		x	
Need for research knowledge to be reported back to the community in non-technical language (13)	x		
More Inuit scientists (13)	x		
Information to keep hamlets up-to-date: web sites, newsletters, Q&A that would help hamlet staff sort through important information on best practices for cost savings (12)		x	
Research on wildlife / fish to sustain the communities (hamlets) (10)	x		
Need cooperation between IQ and scientists with both of equal weight. We want “true information not propaganda”. (9)	x		
Develop scientific information on regional climate change trends (7)		x	
Increase awareness in hamlet councils (6)	x		
Alternative energy sources that can adapt innovative technology to arctic conditions (6)		x	
Train recreational hunters (4)	x		
<b>Support for Hunters and Trappers</b>			
Recognize / formalize info. that hunters provide regarding ice & snow conditions (24)	x	x	
Increase research capacity of HTO's (22)	x		
New forms of communications (satellite phones) so that Hunters and Trappers can warn communities about dangers (20)			x
Elder / Youth Camps to pass on traditional knowledge (19)		x	
Inform Department of Environment about the polar bear situation (18)			x
Better measuring and reporting of local ice & weather conditions to communities (14)		x	
Wildlife census (13)	x		
Floater suits sold at cost by HTO (11)		x	
Promoting the use of dog teams for safety and to reduce pollution (11)		x	
Compensation for dealing with sick wildlife (10)	x		
Maps with Inuit names (9)		x	
Compensation for increased costs associated with climate change (8)	x		
Flares for search & rescue available through HTO's (8)		x	
Community freezers, with assistance for power and maintenance costs (6)		x	
Need bright orange tarps (6)		x	
Promoting the use of sun screen (5)		x	

APPENDIX 4  
PRIORITY RANKING BY WORKSHOP

<b>PRIORITY– cont'd</b>	<b>RI</b>	<b>CB</b>	<b>Y&amp;E</b>
Adapting hunting practices to thinner ice (2)			x
Government support for selling pelts (2)	x		
Personal beacons and meridian phones (1)		x	
<b>Opportunities / Initiatives</b>			
Tourism – exhibit local artists in hamlets and re-package polar bear hunts to make them more expensive and more special; northern lights; Eco-tourism – more trails for hunters and trappers; Summer recreation – i.e. hiking (37)	x	x	
Better pollution control for mining operations and ships transporting ore (24)			x
Centre for learning about our traditions and culture for young people (19)		x	
Document Elders' knowledge for baseline info. (15)	x		
Pursue alternative forms of energy, composting facilities and new waste management solutions (15)	x		
Use longer shipping season – commercial fishing for arctic char and more north-south trade (15)	x	x	
Map traditional names (14)		x	
Adapt alternative energy technologies to arctic needs (11)		x	
Recycling might become more economical – need to explore (10)		x	
More research opportunities for Inuit students (9)	x		
Involve more local people in search & rescue (7)	x		
Longer construction period for roads, houses, etc. (5)	x		
Trees in Cambridge Bay (3)		x	
Sewing centre in Kuugaarjuk so young people can learn arts & crafts (2)		x	
Construction work – mines and communities are growing (1)		x	
Notes			
(1) RI = Rankin Inlet; CB = Cambridge Bay; Y&E = Youth & Elders			

<b>HAMLETS/COMMUNITIES</b>
<b>Energy</b>
Explore alternative energy sources designed for the north to reduce green house gases and save money - i.e. wind, solar, hydro-electric (49)
Infrastructure that is energy efficient (19)
Alternative energy sources that can adapt innovative technology to arctic conditions (6)
Adapt alternative energy technologies to arctic needs (11)
<b>Key Ideas</b>
1. Explore alternative energy sources designed for the north
2. Improve energy efficiency of infrastructure
<b>Infrastructure</b>
Relocating infrastructure – i.e. water supplies and sewage lagoons (41)
Build erosion control structures (small craft harbours) (39)
Improve Cambridge Bay dump and sewage lagoon (21)
Alternative water source for Kuugaarjuk (13)
Construct dock in Kuugaarjuk (9)
Cambridge Bay water lake is getting siltier (9)
Bay in Taloyoak is silting up (5)
Clean up existing hazardous waste sites (3)
Sewage lagoon leaks into ocean (28)
composting facilities and new waste management solutions (15)
Fences around dumps
Dumps burn garbage, it blows and is a hazard to wildlife and ocean
Recycling might become more economical – need to explore (10)
<b>Key Ideas</b>
1. Water Supply - improve safety, quality
2. Sewage - improve/ relocate lagoons
3. Improve waste management - composing, recycling, fence dumps
4. Erosion Control
5. Improving docks

<b>HAMLETS/COMMUNITIES – cont’d</b>
<b>Housing</b>
Put in better housing that is energy efficient and properly located (25)
<b>Community Clean up</b>
prevent blowing garbage and garbage going into the ocean and water supply (28)
Increasing dust in all communities – very fine and people are getting sick (23)
Good staff in the hamlets to keep the communities clean and in good order (18)
Proper waste management: too much garbage from the south; a need for recycling and a means to implement these programs (13)
Community clean-up (12)
Dust in all communities makes people sick (46)
Dumps burn garbage, it blows and is a hazard to wildlife and ocean
Trees in Cambridge Bay (3)
<b>Key Ideas</b>
1. Dust control
2. Blowing and burning Garbage
3. Community appearance
Communities need to do adaptation plans (8)

<b>INFORMATION: I.Q. SCIENTIFIC AND COMMUNITY</b>
<b>IQ Knowledge</b>
Document and share Elders' information. Use video and audio recordings, map travel routes and place names in a GIS format, use KIA existing information and use stories from ancestors; teach how to be on the land, seasons and traditional place names (102)
Centre for learning about our traditions and culture for our young people (33)
Elder / Youth Camps to pass on traditional knowledge (19)
Inform Department of Environment about the polar bear situation (18)
Maps with Inuit names (9)
Centre for learning about our traditions and culture for young people (19)
Document Elders' knowledge for baseline info. (15)
Map traditional names (14)
<b>Key Ideas</b>
1. Document and share elders information
2. Map traditional / Inuit place names
3. Opportunities for learning from elders - centre, camps
<b>Scientific Knowledge</b>
Better measuring and reporting of local ice and weather conditions to communities (39)
Guidelines and standards for planning for climate change (15)
Information to keep hamlets up-to-date: web sites, newsletters, Q&A that would help hamlet staff sort through important information on best practices for cost savings (12)
Research on wildlife / fish to sustain the communities (hamlets) (10)
Develop scientific information on regional climate change trends (7)
Better measuring and reporting of local ice & weather conditions to communities (14)
Wildlife census (13)
More Inuit scientists (13)
<b>Key Ideas</b>
1. Forecasts of ice and weather conditions
2, Information on regional climate change trends
3. Best practices for hamlet on climate change / energy savings
4. Wildlife census
5 Guidelines and standards for planning for climate change

<b>INFORMATION: I.Q. SCIENTIFIC AND COMMUNITY – cont’d</b>
<b>Community Knowledge</b>
Community awareness about climate change among schools, health care centres and Elders (18)
Need for research knowledge to be reported back to the community in non-technical language (13)
Need cooperation between IQ and scientists with both of equal weight. We want “true information not propaganda”. (9)
Increase awareness in hamlet councils (6)
<b>Key Ideas</b>
1. Raise awareness about climate change
2. Equal consideration of IQ and science

<b>SUPPORT FOR HUNTERS AND TRAPPERS</b>
<b>Organizational Support</b>
Recognize / formalize info. that hunters provide regarding ice & snow conditions (24)
Increase research capacity of HTO's (22)
Compensation for dealing with sick wildlife (10)
Compensation for increased costs associated with climate change (8)
Government support for selling pelts (2)
Community freezers, with assistance for power and maintenance costs (6)
<b>Key Ideas</b>
1. Increased resources for HTO's
<b>Safety</b>
New forms of communications (satellite phones) so that Hunters and Trappers can warn communities about dangers (20)
Floater suits sold at cost by HTO (11)
Promoting the use of dog teams for safety and to reduce pollution (11)
Flares for search & rescue available through HTO's (8)
Need bright orange tarps (6)
Adapting hunting practices to thinner ice (2)
Personal beacons and meridian phones (1)
<b>Key Ideas</b>
1. Provide safety equipment for hunters and trappers
2. Adapting hunting practices - dogs teams, thin ice

<b>OPPORTUNITIES / INITIATIVES</b>
<b>Opportunities / Initiatives</b>
<b>Tourism</b>
Tourism – exhibit local artists in hamlets and re-package polar bear hunts to make them more expensive and more special; northern lights; Eco-tourism – more trails for hunters and trappers; Summer recreation – i.e. hiking (37)
Sewing centre in Kuugaarjuk so young people can learn arts & crafts (2)
Train recreational hunters (4)
<b>Employment</b>
Use longer shipping season – commercial fishing for arctic char and more north-south trade (15)
More research opportunities for Inuit students (9)
Involve more local people in search & rescue (7)
Longer construction period for roads, houses, etc. (5)
Construction work – mines and communities are growing (1)
<b>Others</b>
<b>Public Health</b>
Change medical practices to adapt to new viruses, increased UV exposure, changing diet (14)
How to deal with new kinds of animals – disease threat (3)
Promoting the use of sun screen (5)
Better pollution control for mining operations and ships transporting ore (24)