

Climate Change Adaptation Action Plan

Community of Paulatuk, Northwest Territories



arctic north
consulting

Climate Change Adaptation Action Plan

Community of Paulatuk, Northwest Territories

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FINAL REPORT

Submitted to:

*Department of Indian and Northern Affairs
Canada
Climate Change Adaptation Program*

Submitted by:

ArcticNorth Consulting

In association with:

*Community of Paulatuk
Trailhead Consulting
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ISBN 0-9865908-0-8

Pearce T, Ford F, Caron A, Prno J, and Smith T (2010)
Climate Change Adaptation Action Plan, Paulatuk,
Northwest Territories. Guelph, Ontario. Joint publication of
the Community of Paulatuk and ArcticNorth Consulting.

March 2010

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Acknowledgements

The research team would like to thank all of the working group participants for sharing their knowledge on climate and environmental changes and adaptation actions. A full list of participants, organized by working group theme, is provided in Table 1. We would also like to thank Herb Nakimayak, Debbie Gordon-Ruben and Ray Ruben for reviewing and commenting on working group information.

We would like to thank the following organizations and individuals for their assistance in conducting the working groups: Hamlet of Paulatuk and Paulatuk Visitor's Centre for allowing us to use their meeting room, Judy Kudlak and Emma Green for doughnuts, Laurence Ruben for helping us communicate information to the community, Albert Ruben and John Max Kudlak for their insight into the research process, and Latifa Ruben and Bill Kudlak for their valuable, hard work as research assistants.

We also acknowledge those who provided intellectual input to the concepts and methods used in this report. Specifically we would like to thank Dr. Barry Smit and the Global Environmental Change Group in the Department of Geography at the University of Guelph; Frank Duerden, Ryerson University; Michael Westlake and Yves Theriault, Department of Indian and Northern Affairs Canada; and the Department of Geography, McGill University. Thank you also to Arianwen Goronwy-Roberts for designing the Paulatuk Climate Change Adaptation Action Plan web page.

The project was funded by the Department of Indian and Northern Affairs Canada (INAC) Climate Change Impacts and Adaptation Program.

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Executive Summary

Over the past couple decades, residents of Paulatuk have observed a range of climate-related changes in their region: changes in prevailing wind direction, warmer winters and colder summers, earlier spring ice-break up and later fall freeze-up, open water and thin ice at unexpected times of the year, and generally more unpredictable weather conditions. For a community where subsistence activities remain of central economic and cultural importance, the implications of any environmental change are profound and far-reaching. Changes in travel conditions and wildlife patterns have affected the availability of country foods and nutrition; hunting regulations aimed at protecting species perceived to be threatened by climate change have affected local economic opportunities and the subsistence way of life; permafrost thaw is contributing to damaged infrastructure and shoreline erosion. The Hamlet of Paulatuk and individuals are already taking action to adapt to the impacts of climate change. However, as changes intensify and unforeseen consequences emerge, the community will need additional support in the form of funding, policy, and capacity-building initiatives.

The climate change adaptation planning process initiated this winter builds on documented climate change issues in the community. In a series of thematic workshops, community members identified plausible adaptation actions to address or mitigate the impacts of the changes they are seeing. Through the workshops and follow-up research, the ArcticNorth team and local research assistants took stock of potential resources for funding and leadership at different scales, and situated adaptation actions within existing relevant policies and procedures. The next stage of this process entails detailed feasibility analyses of adaptation actions and mapping out pathways to implementation.

The adaptation actions identified in this stage vary with regards to their priority level, scale, and ease of implementation. Some actions are already underway in Paulatuk while some will require additional planning and support. Some actions address issues of concern to the community that may not be directly caused by climate change but will be exacerbated by climate change and/or affect adaptive capacity. Some key themes that emerge from this document include: (1) The importance of imparting traditional knowledge to youth regarding subsistence related-activities and traveling on the land was emphasized in every workshop. Opportunities for year-round, field-based experiences are seen as crucial to safety and cultural well-being in the face of climate change. (2) Building the capacity and accountability of local organizations is critical to the leadership required to support and facilitate adaptation locally. (3) The needs and perspectives of the community must be considered in all relevant policy-formulation (from hunting quotas to building codes) and local research. (4) Elders have an invaluable role to play in this time of transition. They should be supported and compensated as teachers and consultants. In the case of all proposed adaptation actions, partnerships between the community, decision makers, and experts are essential for implementation. This report lays the foundation for this process.

Introduction

The Inuvialuit Settlement Region (ISR) is on the frontline of our changing climate: temperatures are increasing at greater than twice the global average, sea ice regimes are changing, permafrost thaw is accelerating, and wildlife migration patterns and abundance are being affected. These changes are having implications for people living and working in the ISR. Compromised food security and health status, loss of life and serious injury, constrained transportation access and travel routes to hunting areas, and inability to practice traditional cultural activities, have been documented in communities across the ISR and can be expected to continue as the climate changes (Furgal and Prowse, 2008; Pearce et al. 2009a). Rising sea levels, coastal erosion, and permafrost thaw are also threatening the viability of some settlements, damaging important heritage sites, and affecting municipal infrastructure (i.e. buildings and roads) and water supply (Hoeve et al. 2006; Couture and Pollard 2007). Benefits have also been noted as a result of climatic changes including a longer boating and shipping season, fewer days with extreme cold, and increased interest in resource development, but the balance of impacts is believed to be negative (ACIA 2005; IPCC 2007a).

Communities, governments, and Inuit organizations have expressed concern about the rapidly changing climate, with models indicating accelerated climate change in the future even with greenhouse gas stabilization (Barber et al. 2004; Furgal & Prowse 2008). In this context, adaptation as a response to climate change is particularly important, as stressed by scientific publications (Ford et al. 2007; Huntington et al. 2007; IPCC 2007b; Ford et al. 2010; Pearce 2010), Inuit organizations (Nickels et al. 2006) and the Government of the Northwest Territories (GNWT 2008).

Our understanding of the human dimensions of climate change in the ISR is increasing. Based on a systematic review of climate change research, for instance, Ford and Pearce (2010) identify that we know a lot about current vulnerability, with exception of a few sectors, with recent years experiencing a proliferation of climate change studies. While our understanding of future vulnerability still remains limited, Ford and Pearce (2010) document what community members have been saying for years, that we know enough to start action on adaptation. Indeed, the urgency of adaptation is becoming increasingly apparent. The climate of the western Arctic is changing fast, even shifting to a new regime, and the window for adaptation is short. The concern is that many decisions today are being made without taking into consideration climate change, decisions which may be maladaptive and costly in the long term. For example, land use zoning and building techniques that do not take into account more active landscape hazards (e.g. coastal erosion, permafrost thaw) might result in development in locations at high risk with climate change. It is also a concern that actions are not being taken to maintain livelihoods in a changing climate, specifically those linked to subsistence harvesting. Failure to examine vulnerabilities and plan for them will significantly magnify the effects of climate change.

The good news is that adaptation is possible to many of the effects of climate change. However, while autonomous adaptations have been largely effective to-date, there are good reasons to believe that autonomous adaptation has limits in light of climate projections and socio-economic-demographic trends (Pearce et al., 2009a; Ford et al., 2010). Proactive adaptation is necessary to manage the full effects of a changing climate, and will require policy makers at local, regional, territorial, and federal levels to develop interventions. Adaptation planning offers a formalized means of identifying such interventions. This report documents results from 'stage 2' of a 4-stage approach to guide adaptation plan development.

Stage 1: literature review and gap analysis to identify current understanding on climate change vulnerability in the ISR. Completed in 2009 and reported in Pearce et al. (2009), and Ford and Pearce (2010).

Stage 2: reported here, involves combining baseline understanding of climate change vulnerability with stakeholder knowledge to document adaptation actions to address climate change issues affecting the community. Adaptation actions are profiled in Table 2.

Stage 3: planned for 2010-2011, involves detailed examination of the identified adaptation actions. Adaptation actions will be assessed for importance, urgency, feasibility, durability, mainstreaming, and timeline drawing upon stakeholder and expert knowledge. This stage also involves detailed technical and policy analysis of proposed adaptation actions.

Stage 4: planned for 2011-2012, involves implementation of adaptation actions, and monitoring and evaluation of progress.

This document is intended to be a 'living document.' It is the second stage in the process of identifying and examining potential adaptation options and will benefit from continued input and feedback from community members and other stakeholders. The report is available on an interactive website (www.arctic-north.com) where community members and other stakeholders can post comments and suggestions which will be integrated into the planning process.

Methods

This project engaged community members, scientists, and decision makers to identify and characterize key climate change vulnerabilities, adaptation actions and resources for implementation, as a basis for developing a Climate Change Adaptation Action Plan for Paulatuk. Considerations for community engagement described by ITK and NRI (2007) and Pearce et al. (2009b) were followed to engage community members throughout the planning process. Methods included:

- I. ***Secondary sources of information:*** The literature review and gap analysis documented by Pearce et al. (2009a) and Ford and Pearce (2010) provided the research team with a starting point from which to initiate adaptation planning. Five sectors were identified as particularly vulnerable to climate change including: (1) business and economy, (2) culture and learning, (3) health and well-being, (4) subsistence harvesting, and (5) transportation and infrastructure.
- II. ***Community consultation:*** community representatives were engaged early in the project through a pre-research community consultation visit. A pre-research visit allowed for in-person discussion and project planning: a local coordinator and researchers were confirmed, feedback on project design was collected, a working plan was agreed on, preliminary outreach was undertaken through radio addresses, posters and informal home visits, and potential working group participants were identified.
- III. ***Community working groups:*** five working groups, 1-2 hours in duration, were held in Paulatuk between January and February 2010. A full list of participants, organized by working group theme, is provided in Table 1. Participants were recruited based on their knowledge, interest, and/or experience with regards to each sector and were compensated for their participation. Steps in conducting working groups included: (a) prior to each workshop, the working group coordinator wrote down previously documented climate change issues related to the targeted sector on note cards and posted them on the wall in the meeting venue; (b) participants started by reviewing these “climate change issue cards,” for accuracy, additions, and omissions; (c) most of the workshop time was dedicated to brainstorming and discussing potential adaptation actions to address climate change issues. These were written on pink cards and posted around the ‘climate change issue cards’; (d) each adaptation action was reviewed for urgency and given a color-coded ranking.
- IV. ***Community Reviews:*** Preliminary adaptation action planning tables were developed from the working groups and were reviewed and commented on by community members recognized for the knowledge on community issues.

V. **Photo-voice:** This technique, described by Wang et al (1998) and Wang and Redwood-Jones (2001), was used to engage community members who may otherwise have been left out of the adaptation planning process. Digital cameras were distributed to four people in the community and after a short orientation to the climate change adaptation planning project, participants were asked to take photos related to climate change and things that were important to them about community life. It was explained that the photos could be used to help illustrate the topics being discussed in adaptation planning workshops and/or express their own relevant concerns. Participants described their photos and shared their insights on adaptation planning for climate change in a follow-up meeting with the project coordinator. A slideshow of participant photos and captions was also shared at a summary community presentation.

VI. **Adaptation Action Tables:** The outcomes of this stage of research are summarized in the Adaptation Action Tables. The tables contain five sections, one for each workshop theme. The five columns of information are as follows:

Column 1 - Priority: indicates the level of urgency with which adaptation actions should be implemented. RED = needs immediate attention, ORANGE = important to consider soon, YELLOW = not urgent but good goal to work towards.

Column 2 - Adaptation Action: documents actions that would reduce climate change vulnerability and build adaptive capacity under a range of future climate and environmental conditions.

Column 3 - Climate Change Issue: describes the climate-related change observed or anticipated and the associated impact on the community. Also documented are community concerns, such as declining language skills and drug and alcohol abuse, which can affect adaptive capacity and/or exacerbate vulnerability to climate change.

Column 4 - Desired Outcome: describes the future state the adaptation actions aim to achieve.

Column 5 - Resources and Leadership: a brief summary of programs, organizations, institutions, and individuals who could play a role in implementing the adaptation actions identified. The potential contributions of each entity are described in more detail in the appendices.

Working Groups

Research Assistants: Bill Kudlak and Latifa Ruben


Discussion facilitators and Note-Takers: Amanda Caron and Tanya Smith


Venue: Hamlet of Paulatuk council chambers, Paulatuk Visitor's Ctr. Board Room





Table 1. List of Working Group Participants


Working Group Theme	Participants
Business and Economy	Herb Nakimayak, Terry Thrasher
Culture and Learning	Mary Green, Joe Ruben, Anne Thrasher
Health and Well-Being	Debbie Gordon-Ruben, Herb Nakimayak, Kouakou Pira, Agnes Ruben
Subsistence Harvesting	Jacinta Illasiak, Andy Kudlak, Francis Ruben, Laurence Ruben
Transportation and Infrastructure	Debbie Gordon-Ruben, Albert Ruben, Laurence Ruben, Marlene Wolki


Table 2. Adaptation Action Tables by Working Group Theme



	Adaptation Action	Climate Change Issue	Desired Outcome	Resources and Leadership
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Business and Economy				
	<ul style="list-style-type: none"> • Develop list of priorities for local training opportunities on an annual basis and allot/seek funding to bring in instructors accordingly • Organize and promote training opportunities in: proposal and grant writing, accounting, leadership and management skills • Communicate community's training priorities to Skills Canada IRC representative, Eleanor Gallant • Exploit training and employment opportunities presented by industries like Darnley Bay Resources Ltd. 	<p>Changing and unpredictable conditions are negatively affecting participation in the subsistence economy creating need to diversify economy</p>	<ul style="list-style-type: none"> • Hamlet applies for funding and organizes training opportunities according to community needs • Community has increased capacity to access funding opportunities, fill wage-based positions, and organize and manage community initiatives • Community organizations are more effective and accountable • Residents have better access to training opportunities and steady income 	<ul style="list-style-type: none"> • Hamlet council to develop priority list in collaboration with Angik School and Paulatuk Community Corp. • Aurora College Community Learning Ctr. • Paulatuk Integrated Community Sustainability Plan (ICSP) • Skills Canada NWT has funding to do training in Paulatuk for summer 2010 • GNWT Municipal and Community Affairs School of Community Government • The NWT Mine Training Society • GNWT Grants to Non-Profit Organizations for Special Projects • Darnley Bay Resources Ltd. is committed to exploration activities beginning spring 2010



	Adaptation Action	Climate Change Issue	Desired Outcome	Resources and Leadership
	<ul style="list-style-type: none"> • Develop and promote eco/adventure tourism as an alternative to sport hunting • Consider promoting alternative sports hunting/fishing opportunities 	<p>Sport hunting and related income is being negatively impacted by regulations that aim to protect species perceived to be threatened by climate change (e.g. U.S. ban on polar bear products)</p>	<ul style="list-style-type: none"> • Community offsets decrease in sport hunters with “adventure tourists” • New opportunities for employment and economic gain generated 	<ul style="list-style-type: none"> • Hamlet is pursuing a community website that could be used to promote the Hamlet as a tourist destination • Partnership between Hamlet and Parks Canada to promote Paulatuk as a destination • Paulatuk Community Corporation (PCC) could play role in developing promotional.. materials for Paulatuk tourism • GNWT Dept. of Industry, Tourism and Investment • NWT Business Development and Investment Corporation • INAC’s Aboriginal Business Canada Program
	<p>Use a lottery or rotational system to determine who receives permits for annual grizzly bear hunt</p>	<p>Opportunities for participation in subsistence economy are increasingly limited by changing conditions and species availability, with quotas and permit requirements increasing the challenge</p>	<p>Opportunities to participate in subsistence activities are more equally distributed</p>	<ul style="list-style-type: none"> • Paulatuk Hunters and Trappers Committee (PHTC) • Research how other communities allocate tags/quotas
	<ul style="list-style-type: none"> • Train and hire more people as paid heavy equipment operators for wage-based positions in snow removal • More opportunities for local driver training/licensing or travel grants to support trips to Inuvik to access these services 	<p>Increased blowing snow creating hazardous or obstructing snow drifts in town</p>	<ul style="list-style-type: none"> • Snow removal needs are met efficiently and responsibly • Increased opportunity for waged employment in Hamlet 	<p>Hamlet to hire additional personnel and organize training (does not have sufficient funds to hire/train in 2010; driver licensing in Paulatuk scheduled for spring 2010)</p>







	Adaptation Action	Climate Change Issue	Desired Outcome	Resources and Leadership
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Culture and Learning				
	<ul style="list-style-type: none"> Continue to support land camps for youth as well as opportunities to learn traditional skills throughout the year, in different seasons and conditions Consider feasibility of extending duration of land camps to 4-6 weeks Mandate that instructors and kids stay out on the land for the full duration of the camp except in emergencies Reconsider restrictions eligibility to work with youth (particularly with regards to criminal records) 	<p>Changing and increasingly unpredictable conditions require that hunters develop skills in navigation, weather prediction, and reading the land to ensure safe travel. Youth are especially at risk.</p>	<ul style="list-style-type: none"> Youth are more adept at reacting to changing and unpredictable conditions in the future Land camp experiences are more intensive and effective learning experiences 	<ul style="list-style-type: none"> Hamlet (Justice and Recreation Committees) to determine how much extending land camps would cost; to set guidelines for instructors and youth in collaboration with other funders: Paulatuk Community Corp. (PCC) Brighter Futures Inuvialuit Regional Corporation (IRC) Inuvialuit Cultural Resource Ctr (ICRC) GNWT Dept. of Justice



	Adaptation Action	Climate Change Issue	Desired Outcome	Resources and Leadership
	<ul style="list-style-type: none"> Organize more opportunities for elders to spend time with youth and ensure elders are well-compensated for their time and knowledge Assist elders in accessing funds specifically available for elder-run programs and initiatives (through IRC) Support initiatives to teach traditional skills and knowledge such as drum dancing, sewing, traditional art forms, and story-telling Identify opportunities to record and pass on oral history of how Inuvialuit have adapted and been resilient to environmental changes throughout their history; involve youth in process and put in format that is appealing to them 	<p>Changing environmental norms are impacting transmission of local environmental knowledge, hunting, fishing and trapping skills, and sense of cultural identity</p>	<ul style="list-style-type: none"> Better inter-generational transfer of knowledge Increased efforts to promote culture inspire more interest among residents, especially youth Community identifies strategies from the past that are relevant to current context and lessons from experience and history are documented Enhanced sense of cultural and community identity 	<ul style="list-style-type: none"> Angik School to submit proposal to fund “Wayfinders” program that would give school credit for land-based skills training with elders Youth Centre is a new and ideal venue for elder/youth programming Aboriginal Healing Foundation (AHF) and Brighter Futures Inuvialuit Cultural Resource Ctr (ICRC) GNWT Grants to Non-Profit Organizations for Special Projects GNWT Dept. of Education, Culture and Employment GNWT Dept. of Municipal and Community Affairs (MACA) Dept. of Canadian Heritage




  	Adaptation Action	Climate Change Issue	Desired Outcome	Resources and Leadership
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Health and Well-being				
	<ul style="list-style-type: none"> • Offer training in budgeting-skills and consider making it obligatory for people receiving income support • Use gatherings such as AHF Ladies' Night as a venue for teaching about nutrition and preparing store-bought foods in a healthy way • Put pressure on the Northern Store to stock healthier foods 	Changing travel conditions and species availability are affecting access to country foods, leading to increased reliance on store-bought foods (less nutritious, more expensive)	<ul style="list-style-type: none"> • Community members have stronger budgeting skills and are less likely to be without resources to purchase food • Residents have better knowledge of nutritional needs and how to prepare store-bought foods in a healthy way • Increased availability of nutritional foods 	<ul style="list-style-type: none"> • Aurora College Community Learning Ctr. • Community wellness worker • Northern Store • Aboriginal Healing Foundation • Brighter Futures • Healthy Foods North • Health Canada
	<ul style="list-style-type: none"> • Better and more addictions services in community • Communicate chief concerns and ideas on how people can best be supported to community wellness worker 	Community cohesion and well-being is strained by addictions to alcohol, drugs, and gambling	Strong services exist locally to support people in managing and overcoming addictions	<ul style="list-style-type: none"> • Beaufort Delta Health and Social Services (BDHSS) • GNWT Dept. of Health and Human Services • Health Centre • Integrated Community Sustainability Plan (ICSP)
	<ul style="list-style-type: none"> • Increase stock of (human) rabies vaccines at health centre • Supply information on what to do if bitten by a rabid animal 	Increased incidence of rabid animals in town and surrounding area	<ul style="list-style-type: none"> • Health centre is adequately prepared to manage incidents of human contact with rabid animals • People know what to do if they are bitten by a potentially rabid animal 	<ul style="list-style-type: none"> • Health Centre • Community Health Representative (CHR) • Health Canada




  	Adaptation Action	Climate Change Issue	Desired Outcome	Resources and Leadership
	<ul style="list-style-type: none"> Organize more opportunities for local first aid and emergency response training Host elder sessions on the local radio where elders and hunters discuss safety on the land Review emergency response plans; assess how well community could respond in worst-case scenarios (storm knocks power out, plane goes down nearby, group of hunters stranded, etc.) and identify where plans need to be strengthened 	<p>Changing and unpredictable conditions pose increased threat to personal safety</p>	<p>Community and individuals are well-prepared to react in cases of emergency</p>	<ul style="list-style-type: none"> Laurence Ruben, local radio station RCMP officer is a certified instructor GNWT Ministry of Municipal and Community Affairs (MACA) The Gov't of Canada's National Search and Rescue Secretariat
	<ul style="list-style-type: none"> Establish program to document abnormalities in harvested species (e.g. parasites, discoloration, disease) 	<p>Observations of abnormalities in some fish and wildlife of concern for human health; concern that climate change may introduce new animal diseases</p>	<p>Observations of abnormalities are documented in order to establish trends, baseline data on wildlife health</p>	<ul style="list-style-type: none"> HTC and/or Environment and Natural Resources Officer could keep community log of where and when abnormalities are observed Environment and Natural Resources Officer could provide information indicators of wildlife health to look for when out on the land and keep a log of people's observations Research what other communities have observed and are doing to document
	<ul style="list-style-type: none"> Support initiatives to monitor water sources for contaminants Increase awareness of health consequences of consuming various contaminants 	<p>Concern that permafrost thaw will contribute to leaching of contaminants into water sources used by humans and wildlife</p>	<p>Community is confident in the health of their water sources and any contamination is identified early so that it may be addressed</p>	<ul style="list-style-type: none"> Environment and Natural Resources Officers INAC's Northern Contaminants Program





	Adaptation Action	Climate Change Issue	Desired Outcome	Resources and Leadership
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Subsistence Harvesting				
	<ul style="list-style-type: none"> Establish more permanent community land camps for use by all Organize more community hunts Organize men's group for healing, support and on-the-land activities Assess feasibility of mentor programs between experienced hunters/fishers and youth Promote opportunities for school credit for land skills development 	Changing and unpredictable conditions are contributing to decrease in subsistence activities	Increased opportunities for safe, affordable and accessible subsistence activities	<ul style="list-style-type: none"> Hamlet, Recreation and Justice committees Angik School to submit proposal to fund "Wayfinders" program that would give school credit for land-based skills training with elders Paulatuk Hunters and Trappers Committee (PHTC)
	<ul style="list-style-type: none"> Organize group hunts to help distribute cost of fuel and supplies 	Changes in traveling conditions and species availability require hunters to take longer trips and carry more fuel and supplies, becoming prohibitively expensive for some	Subsistence activities remain affordable	<ul style="list-style-type: none"> PHTC PCC Hamlet GNWT Dept. of Industry, Tourism and Investment

	Adaptation Action	Climate Change Issue	Desired Outcome	Resources and Leadership
	<ul style="list-style-type: none"> • Use local radio for regular reporting on travel and camp conditions • Invest in CB radio/satellite telephones to facilitate communication between hunters and local radio • Establish well-stocked community emergency shelters on the land • Provide access to safety equipment such as beacons, radios, satellite phones, and GPS on a loaning-basis • Use laminated map display in Visitor's Centre to document changes on the land that could affect travel or safety 	<p>Environmental conditions of travel routes and camps increasingly unpredictable and changing → risk of personal injury, emergency situations is higher</p>	<ul style="list-style-type: none"> • Increased awareness of traveling conditions → increased safety and preparedness when traveling • Community has data on local traveling conditions and how they are changing over time 	<ul style="list-style-type: none"> • Laurence Ruben at local radio station reports conditions on an informal basis; could encourage more condition reporting to be passed on to him and keep log • GNWT Dept. of Education, Culture and Employment offers grant money for community broadcasting organizations • PHTC • Hamlet • Albert Ruben (Self Government Office) and PHTC are caretakers of map display • Inuvialuit Harvesters Assistance Program (IHAP)
	<ul style="list-style-type: none"> • Support research on how smaller animals and animals lower on the food chain will be affected by climate change and ensure results are well-communicated locally • Relay information from Parks Canada on caribou migration to local hunters 	<p>Concern that small wildlife is/will be affected by climate change while research is biased towards big mammals like polar bears</p>	<p>Community is well-informed of probable affects of climate change on a range of local animals</p>	<ul style="list-style-type: none"> • Aurora Research Institute • Parks Canada

	Adaptation Action	Climate Change Issue	Desired Outcome	Resources and Leadership
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Transportation and Infrastructure				
	<ul style="list-style-type: none"> Install snow fencing in strategic locations 	Increased blowing snow is creating hazardous and obstructing snow drifts	Snow drifts in roads and against houses are reduced	Hamlet has materials to build snow fence; installation slated for summer/fall 2010
	<ul style="list-style-type: none"> Have shoreline erosion assessed by engineer to determine threat to roads, graveyard and buildings and options for reinforcement 	Rising sea levels and increased storm activity are contributing to shoreline erosion	Hamlet has necessary information to make decisions to prevent shoreline erosion	<ul style="list-style-type: none"> Hamlet has consultant scheduled to come during summer 2010 to assess the situation and suggest options National Resources Canada
	<ul style="list-style-type: none"> Revise building codes to mandate thicker gravel pads, adjustable pilings and a longer settling period for gravel pads Monitor permafrost thaw in community Learn from what other communities are doing to protect infrastructure Learn more about the role of skirting in exacerbating permafrost thaw Determine best-practices for construction and incorporate into building codes 	Concern that permafrost thaw is affecting integrity of buildings	<ul style="list-style-type: none"> Gravel pads have time to settle, making foundations more stable Construction practices yield buildings that are resilient to Northern conditions and impact of changing climate 	<ul style="list-style-type: none"> Paulatuk Housing Association GNWT Ministry of Municipal and Community Affairs (MACA) GNWT Public Works and Services NWT Housing Corporation The Canadian Mortgage and Housing Corporation Technical Guide published by Canadian Standards Association (Hamlet representatives Ray Ruben, Albert Ruben and Debbie Gordon-Ruben attended associated conference)

	Adaptation Action	Climate Change Issue	Desired Outcome	Resources and Leadership
	<ul style="list-style-type: none"> Have undeveloped land assessed for suitability of construction and propose best practices for surface type (e.g. muskeg) Revise community development plan to account for changing permafrost conditions, higher sea level and increased shoreline erosion 	Changing permafrost conditions are of concern when considering future expansion of community	Hamlet has necessary information for sustainable zoning and community planning that accounts for changing ground conditions	<ul style="list-style-type: none"> Hamlet Paulatuk Housing Association Technical Guide published by Canadian Standards Association GNWT Dept. of Public Works and Services (PWS) National Resources Canada
	<ul style="list-style-type: none"> Construct bridges along travel routes where open water necessitates detours 	More open water along over-land travel routes necessitates detours	More direct and efficient travel routes	<ul style="list-style-type: none"> Hamlet is planning bridge construction Herb Nakimayak has spear-headed project thus far and would like to continue but needs more manpower
	<ul style="list-style-type: none"> Consider installing natural culverts that can withstand heavy machinery, like snowplow Take natural drainage paths into account when developing new roads or buildings 	Increased volume of spring melt leads to formation of big puddles in the spring	Obstructing natural drainage paths in town is avoided; spring run-off does not accumulate in town, leading to safety concerns	<ul style="list-style-type: none"> Hamlet MACA

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APPENDIX 1

LOCAL RESOURCES, INITIATIVES, AND CAPACITY

This section identifies community initiatives and resources that could, or have already contributed to the adaptation actions described in the Paulatuk Community Adaptation Action Plan. The section highlights progress in meeting adaptation goals and documents and discusses some of the barriers to adaptation. Recommendations are made for how to overcome these barriers and to help facilitate adaptation action.

Business and Economy: resources and leverage points

The Hamlet of Paulatuk can contribute to adaptation in the Business and Economy sector in several ways:

- Paulatuk has identified “ensuring Hamlet Staff are qualified” as one of its principal goals in the 2010 **Integrated Community Sustainability Plan** and includes “developing and implementing a Human Resource Plan” between 2010 and 2014 as a key strategy. The plan was written in compliance with the 2005 agreement between Canada and the Government of the Northwest Territories to transfer to Gas Tax Funding to NWT communities. There is an opportunity for linking climate change adaptation with sustainability goals insofar as the Hamlet could articulate training priorities for its staff and its residents generally in its Human Resources Plan. Once priorities have been identified, funding and instructors can be sought accordingly.
- The Hamlet has plans to develop a **community website** this fiscal year working with a web designer in Inuvik. Workshop participants identified this as an opportunity to promote Paulatuk as a tourist destination. Local training in web design would facilitate local ownership and maintenance of such a site.
- The Hamlet has indicated that it would benefit substantially from having more trained personnel to operate heavy machinery, such as front loaders and snowplows, as well as the garbage, sewage and water trucks. Currently, there are few people qualified to run these machines and therefore few substitutes if someone cannot or does not do their job. Additional trained personnel helps safeguard against important services being neglected and increases the labor pool for local wage employment. The **Hamlet** has funding to hire additional personnel in the coming year.

The Paulatuk Community Corporation (PCC) is charged with supporting local economic development and to, among other things, “receive moneys from all sources for community purposes and to disburse same as appropriate, either by ways of direct grant or support of specific community-oriented projects.” It is the local administrative arm of the Inuvialuit

Regional Corporation. It was identified as resource for climate change in the following ways:

- The PCC has a role to play in helping to identify training priorities and acting as a liaison between investors/developers (such as Darnley Bay Resources Ltd.) and the community.
- The PCC could contribute to building a local tourism industry by developing promotional materials for Paulatuk, such as brochures, website content, and posters for the airport in Inuvik. It is also a potential source of financial support for local tourism business ventures.

The Paulatuk Hunters and Trappers Committee (PHTC) is charged with representing the interests of local hunters and trappers within the community by administering the Inuvialuit Harvester's Assistance Program (IHAP), quotas and permits, and other resources and representing local interests to the Inuvialuit Game Counsel, the Environmental Impact Screening Committee and other organizations.

- The PHTC is a licensed outfitter. Its members (all Inuvialuit beneficiaries in Paulatuk) are entitled to guide using the PHTC's license. This is an important resource as few local residents have their own licenses or are easily able to apply for one themselves.
- Changing travel routes, species availability and migration patterns are already straining participation rates in subsistence activities. The PHTC could play a role in supporting more widespread participation by ensuring permits are distributed throughout the community. A lottery or rotational system was proposed in workshops.

Tuktut Nogait National Park, located 40 km east of the Hamlet, is a potential draw for tourists, receiving a small number of annual visitors currently. The park office is located in Paulatuk, staffed by two rangers, and offers cultural and ecological exhibits. A partnership between the Hamlet of Paulatuk and Parks Canada could be a useful strategy for promoting Paulatuk as a visitor destination.

Local hunters and sport hunt guides know the surrounding land well and many have experience guiding visitors. In some cases, they even have supplies (tents, camps, skidoos) to accommodate clients. In other cases an initial investment in supplies and possibly infrastructure would be necessary. The switch to guiding clients of sport hunting to "eco" tourism could be made easily (as one resident put it, "Instead of taking people to shoot polar bears we could take them to shoot photos"). Infrastructure for eco/adventure-tourists such as permanent camps or lodges, well-maintained trails, etc. would also support local subsistence activities.

Business and Economy: barriers to adaptation

The main barriers to adaptation in the Business and Economy sector include:

- Lack of amenities to support more than small-scale tourism.

- The expense of travel to Paulatuk.
- Limited local capacity for website development and administration.
- Limited local expertise/training on business development and management.
- The PCC and PHTC have had financial problems in the last year that have lead to temporary shutdowns of both offices. Problems with accountability have been noted.
- Few opportunities for driver licensing are a barrier to training more heavy machinery operators and truck drivers. (There is one training/licensing session planned in Paulatuk for this spring but limited spaces are available.)

Key recommendations include:

- More local opportunities for driver training and licensing and/or travel grants for trips to Inuvik access these services would support this adaptation action.
- Capacity building in the form of training in accounting and leadership skills.
- Local opportunities for web skills development.

Culture and Learning: resources and leverage points

The Hamlet of Paulatuk, Justice Committee and Recreation Committee jointly fund land camps, which are then organized by contracted instructors. They are in the best position to take the lead on setting new standards for the format of the land camps. The **Paulatuk Community Corporation (PCC)** and **Brighter Futures** program also contribute funding.

Angik School is submitting a proposal to INAC for a program to incorporate traditional land skills and those pertinent to a changing climate into school curriculum. The program directly addresses concerns that featured prominently in all our workshop discussions. The program would incorporate short immersion land camps for school credit, separate and complementary to the summer land camp programs that already exist.

The Paulatuk Youth Centre opened in the last year. The Hamlet is still in the process of assigning a permanent coordinator who will organize programming. This new space and the resources it is allotted from the IRC present a great opportunity to initiate elder/youth programming and expand cultural activities for youth (such as drum dancing, sewing, and other art forms).

The Aboriginal Healing Foundation (AHF) has in the past organized events such as Ladies Sewing Night. Federal funding to this organization was recently eliminated. The services and activities funded by the AHF have a role to play in facilitating adaptation to climate change. The community will be looking for alternative funding sources so that this work can persist.

Culture and Learning: barriers to adaptation

The main barriers to adaptation in the Culture and Learning sector include:

- School interferes with time families traditionally would spend on the land, depriving students from opportunities to learn and practice traditional subsistence activities. However, if kids are taken out of school, they are set back academically.
- Elders have important skills and knowledge to impart to younger generations, however, lack the skills needed to access funding for teaching initiatives (grant and proposal writing, researching opportunities).
- Wage employment restricts time people can spend practicing traditional skills (especially those related to travelling and subsistence) and teaching their children.
- Youth are increasingly engaged by new types of media in English that detract from their interest in traditional ways.
- There are many restrictions on who is eligible to work with youth (e.g. criminal record, first aid and CPR certification).

Key recommendations include:

- Experiment with new media for imparting traditional knowledge and language that is appealing to youth.
- Support integrating land skills development into the school curriculum.
- Do outreach to elders on sources of funding and how to apply.
- Offer compensation to people who can teach traditional skills or mentor less experienced individuals.
- Reconsider eligibility requirements for working with in a Northern context.

Health and Well-being: resources and leverage points

The Aboriginal Healing Foundation (AHF) is currently between coordinators but previously organized a weekly “Ladies’ Night.” This was suggested as a venue for workshops on a variety of topics including cooking healthy meals with store-bought foods, household and personal budgeting. Since the community adaptation planning workshops in January, the AHF has seen its funding eliminated, compromising the opportunity described here.

The **Community Health Representative** (currently filled by Agnes Ruben) is in part responsible for community health outreach and monitoring. They also have a role to play in introducing new health initiatives to the community (such as nutrition programs and rabies prevention/treatment protocol).

Brighter Futures is a program that takes a community-based approach to health education and illness prevention. Among other things, it is intended to address mental health and injury prevention both of which are concerns identified locally as exacerbated by climate change. Their program focuses on learning-related activities and is an ideal candidate for sponsoring budget-training programs, cooking and nutrition classes, and contributing to addiction prevention. The current coordinator is Lonnie Knuksana

The position of **Community Wellness Worker** is temporarily being filled by Jamie Norris. After a summary community presentation on preliminary outcomes of the adaptation planning workshops, Mr. Norris approached the research team to express his willingness to

offer workshops on healthy cooking or other things the community is interested in that would contribute to healthy living.

Since the adaptation planning workshops in January 2010, research assistant, Latifa Ruben, started a **community food bank** with support from the health centre and a small group of other residents. Donations will be re-distributed to food-insecure families and individuals in the community, helping to relieve the burden of increased reliance on expensive store-bought foods.

Health and Well-being: barriers to adaptation

The main barriers to adaptation in the Health and Well-being sector include:

- Limited personnel to administer health and well-being services and programs (human resources are stretched thin).
- High cost and low availability of nutritional foods at the store.

Key recommendations include:

- Train and create positions for more community health personnel.
- Consider subsidizing the cost of nutritional foods (especially fresh fruits and vegetables) so they are affordable for Northern residents.
- Treat junk food as a controlled substance and limit proportion of store inventory it comprises.
- Continue to support the Aboriginal Healing Foundation and Brighter Futures so that community health and well-being can be addressed at a local level.
- Hire and support a full-time community wellness worker.

Subsistence Harvesting: resources and leverage points

The **Paulatuk Hunters and Trappers Committee (PHTC)** represents the interests of resident Inuvialuit beneficiaries with regards to subsistence activities. They administer the Inuvialuit Harvesters' Assistance Program (IHAP) and are engaged in some local wildlife research projects. They are an important potential resource for relaying the results of pertinent wildlife research to the greater community, reviewing research proposals and providing feedback that helps research address community needs and interests, supporting initiatives such as community hunts or permanent camps, and documenting local observations of wildlife and environmental conditions.

Angik School is submitting a proposal to INAC for a program to incorporate traditional land skills and those pertinent to a changing climate into school curriculum. The program directly addresses concerns that featured prominently in all our workshop discussions in the community. The program would incorporate short immersion land camps for school credit, separate and complementary to the summer land camp programs that already exist.

The **Paulatuk Community Corporation (PCC)** has in the past supplied some safety equipment for loan. After a prolonged period of instability and temporary closure, the PCC has resumed operations as of January 2010.

Environment and Natural Resources NWT has a local officer in Paulatuk charged with upholding regulations and monitoring natural resources. He is an important resource for relaying information about wildlife and other natural resources to the community.

The **local radio station** is an important resource for disseminating information community-wide. The local radio airs from 1 to 3 pm daily and has a wide audience. It plays an important role in facilitating information sharing on a range of topics.

Laurence Ruben is the current manager. He currently reports on the conditions of travel routes and campsites on a casual basis. Workshop participants suggested expanding this by encouraging everyone who travels on the land to report conditions to the radio station where they could be relayed on the air. VHF radios or satellite phones would permit direct communication between the local radio station and those traveling on the land.

The ArcticNorth research team left a large **laminated map display** of the surrounding area in the Paulatuk Visitors Centre under the stewardship of Albert Ruben in the Self Government Office and the PHTC. The map is publicly accessible and can be used to document environmental conditions, wildlife observations, and migration patterns in space with erasable markers (e.g. transparency pens). Such an initiative would require leadership from the PHTC.

Subsistence Harvesting: barriers to adaptation

The main barriers to adaptation in the Subsistence Harvesting sector include:

- Increased gas prices in combination with the need to travel further and for longer periods of time to access game are making subsistence activities prohibitively expensive for some.
- The Inuvialuit Harvesters' Assistance Program (IHAP) is limited in what it covers and who is eligible. Insurance for equipment is not common.
- School interferes with time families traditionally would spend on the land, depriving students from opportunities to learn and practice traditional subsistence activities. However, if kids are taken out of school, they are set back academically.
- Wage employment restricts the amount of time people can engage in subsistence activities.

Key recommendations include:

- Consider expanding financial aid to local harvesters with increased accountability measures for how it is used and by whom.
- Support integrating land skills development into the school curriculum and expanding summer land camps for youth.
- Support the development of infrastructure that would contribute to the safety, accessibility and affordability of subsistence activities, such as permanent and moveable camps, supply caches on the land, and emergency shelters.
- Offer compensation to people who can teach traditional skills or mentor less experienced individuals.

- Ensure environmental research is tailored to community needs and interests and well communicated to residents.

Transportation and Infrastructure: resources and leverage points

The **Hamlet of Paulatuk** oversees much of the maintenance and development of infrastructure and has several improvement projects in progress. The Hamlet has snow fencing to be installed before the next winter; an engineering consultant has been hired by the Hamlet to assess shoreline erosion during summer 2010; the Hamlet is contributing funding to bridge construction; and several Hamlet employees recently partook in a permafrost and infrastructure workshop in Inuvik. Hamlet councilor Herb Nakimayak had taken the lead on bridge construction along travel routes where open water was necessitating detours.

The **Paulatuk Housing Association** is involved in construction and maintenance of the local housing stock. As the people closest to the reality of maintaining infrastructure in local conditions, this office has an important role to play and establishing best practices in construction and development and overseeing implementation.

Transportation and Infrastructure: barriers to adaptation

The main barriers to adaptation in the Transportation and Infrastructure sector include:

- High cost of most infrastructure improvements.
- Building and developments codes and procedures that do not take into account the implications of climate change.

Key recommendations include:

- Establish best practices for construction and development in consultation with local residents and accounting for ramifications of climate change in the North.
- Conduct cost-benefit analysis on expensive infrastructure improvement projects.

APPENDIX 2

PATHWAYS FOR ACTION – REGIONAL, TERRITORIAL, AND FEDERAL SCALES

This section describes possible pathways for meeting Paulatuk’s adaptation action goals as set out in Table 2. It discusses pathways operating on regional, territorial, and/or federal scales and highlights existing organizations and programs relevant to climate change adaptation action in Paulatuk. Potential entry points for supporting current and/or developing new policies and programs are identified. For ease of discussion, the ‘adaptation actions’ outlined in Table 2 have been generalized and placed into categories. This should be considered a preliminary assessment of pathways for adaptation action and a starting point for future work.

BUSINESS AND ECONOMY

Adaptation actions under the 'Business and Economy' heading have been grouped into three categories: 'development and promotion of new business opportunities - tourism', 'development and promotion of new business opportunities - general', and 'training and skills development for a diversified economy'. Potential pathways for adaptation in each of these categories are described in greater depth below.

a) Development and promotion of new business opportunities - tourism

Tourism represents an important opportunity for economic diversification and growth in Paulatuk. The following organizations have existing mandates with regards to tourism in the region and could play an important role in the development of future tourism opportunities in Paulatuk:

- The ***GNWT Department of Industry, Tourism and Investment*** provides resources and support to the NWT tourism industry for tourism marketing, research, training, and product development. The department is also responsible for business and economic development in the territory, and provides a number of funding and support opportunities for businesses (for more information on these opportunities see 'development of new business opportunities' below) The department has existing programs in the region and operates an office out of Inuvik. More information can be found at: <http://www iti.gov.nt.ca/>
- ***Parks Canada*** operates Tukturnogait National Park, which is located approximately 40 kilometres east of Paulatuk. Existing national park offices are located in Paulatuk and Inuvik. More information can be found at: <http://www.pc.gc.ca/pn-np/nt/tukturnogait/index.aspx>

b) Development and promotion of new business opportunities - general

The creation of a diversified Paulatuk economy will also require that new business opportunities be developed in the community. Generally, the ***GNWT Department of Industry, Tourism and Investment*** is responsible for business and economic development in the territory. However, other organizations also offer relevant programs and support. Some of those relevant to Paulatuk are discussed below.

- The ***GNWT Department of Industry, Tourism and Investment's BizPal*** online resource provides access to the necessary information needed to establish and run a business in the NWT. By answering a short series of questions, *BizPal* will identify the permits and licences entrepreneurs need to operate. More information on *BizPal* can be found at: <http://www iti.gov.nt.ca/business economic development/bizpal.shtml>

The ***GNWT Department of Industry, Tourism and Investment*** has a number of business development funding and support opportunities available. Only general

details are provided here, as each of these programs has specific conditions on who can apply and what types of projects are eligible. More information can be found at:

<http://www.iti.gov.nt.ca/businesseconomicdevelopment/seed.shtml>

Entrepreneur Support - Start up Funding

- Assistance may be provided for costs associated with planning, engineering, start-up working capital, or other development costs deemed to fall within this category by the Regional Superintendent. The maximum funding available is \$15,000 per year.

Entrepreneur Support - Asset Acquisition

- Capital assistance may be provided to assist with the purchase of capital items for business operations, as a means to provide equity necessary to leverage loan financing, or where assistance is not otherwise available to take advantage of a business opportunity. The maximum funding available is \$15,000 per year.

Entrepreneur Support - Market and Product Development

- Assistance may be provided for new market or product development designed to increase sales of NWT products, to promote the NWT as a travel destination, or to participate in trade shows (excluding attendance at conferences). Assistance may also be provided for the marketing of existing tourism, arts and fine arts, and high renewable resource products through trade show participation, print advertising, internet marketing or similar activities. The maximum funding available is \$15,000 per year.

Entrepreneur Support - Operational Support

- Assistance may be provided to increase business skills and capacity, or to: (a) identify and address problems faced by the business; (b) develop a recovery or restructuring plan; (c) provide emergency relief to effect business recovery; or (d) assist with the cost of 'winding down' a business which has a minimal net worth and cannot meet its financial obligations and which could hurt other businesses and employment opportunities if allowed to fall in a disorderly manner. The maximum funding available is \$15,000 per year.

Sector Support – Capital Expansion Incentive

- A contribution may be provided to offset incremental loan interest associated with new capital purchases for expansion of businesses in strategic sectors designated from time to time by the Minister. Assistance may be for interest on loans from any GNWT agency or private sector commercial lender. Assistance must be negotiated and approved-in-principle prior to loan approval. The maximum funding available is \$15,000 per year for a maximum of 2 years.

Sector Support – Sector Research Support

- A contribution may be provided to support sector-specific research that benefits a group of businesses in a sector or will provide information critical to development of the sector or assist in investment attraction, such as product development and packaging or sector-specific marketing that benefits an industry. The maximum funding available is \$25,000 per year.

Community Economic Development

- A wide range of economic initiatives that support Community Economic Development are eligible for support including the following: (a) feasibility plans for community-based projects and evaluation of projects or investigation of economic opportunities that build on a community's resources, or other competitive advantages; (b) assist in developing physical infrastructure where the absence of that infrastructure is a constraint to community business development; (c) improving access to business information; (d) activities aimed at developing community-based or industry strategic plans; and (e) community events that promote economic development, including arts or similar festivals that highlight NWT products or talent. The maximum funding available is \$25,000.

Micro-Business

- Eligible activities would include purchase of, or payment for: (a) tools, equipment or raw materials related to arts and fine crafts or traditional economy; (b) filmmaking equipment or assistance with production expenses for specific film projects; or (c) other self-employment activities. The maximum funding available is \$5,000 over three years.

Business Intelligence and Networking

- Provides assistance to individuals not directly involved in marketing specific products and not eligible under the Market and Product Development category. Financial assistance may be available to assist with costs associated with attendance at seminars and trade shows to access information regarding new technologies or business opportunities. The maximum funding available depends on trip costs.

- The ***GNWT Department of Education, Culture and Employment's Career Development and Employment Division*** offers a large number of programs and services to help northerners improve their skills and find work. A career centre is located in Inuvik that can provide additional information. Funding and support for workers and employers is available through a number of programs, including:

Advanced Training Initiatives for the Oil and Gas Industry

- The program supports northern workers to acquire skill training for entry-level employment and for advancement in the oil and gas industry

Apprenticeship Training Assistance

- This program provides a wage subsidy to an employer to assist in training an apprentice for permanent employment.

Building Essential Skills

- This program provides short term training or education opportunities which help unemployed individuals return to work quickly.

Employment Assistance Services

- This program provides funding to community partners to offer career development services to unemployed people.

Local Labour Market Partnerships

- This program supports community partners and offers funding to help identify economic trends and create strategies to develop a responsive local labour force.

Self Employment Option

- This program provides support to individuals who would like to start a small business.

Training on the Job

- This program helps northerners acquire workplace skills needed for meaningful and permanent employment. Wage subsidies are provided to employers to offset the costs of training.

More information on these and other programs is available at:
<http://www.ece.gov.nt.ca/>

- The ***Northwest Territories Business Development and Investment Corporation (BDIC)*** provides access to business financing, and a wide variety of business support services and business development assistance across all NWT communities. Examples of the financial services and opportunities provided include:

Business Development Project Fund

- Funding from this program can be used for feasibility assessments, project start-ups, research projects and occasional short-term projects that create employment. The maximum each business can receive is \$10,000.

Term Loans

- The BDIC lends to businesses that are unable to obtain financing elsewhere. The BDIC's rates are based on the borrower's risk. Repayment terms are flexible to meet the needs of the borrower.

Standby Letters of Credit

- The BDIC may provide Standby Letters of Credit for contract bids, performance security on contracts or to pay for goods and services. There is an annual charge for this service that varies from 2% to 4%, depending on the borrower's risk.

Venture Investments

- The BDIC invests in businesses in return for preferred shares carrying annual dividends. The amount of the dividend reflects the risk of the investment. The BDIC is currently joint venturing with a number of companies in the NWT.

Subsidiary Companies

- BDIC subsidiaries are northern companies of which the BDIC owns more than 50 percent. The BDIC may provide subsidies and capital investments to these companies in order to build a solid foundation for continued success.

More information on these and other services can be found at:
<http://www.bdic.ca/eng/>

- ***Indian and Northern Affairs Canada's (INAC) Aboriginal Business Canada Program*** provides business development support to Aboriginal entrepreneurs and communities. Depending on the nature of the project, funding may be available to assist with a wide range of activities, including: business planning; establishment (capital) costs; business acquisitions; business expansions; marketing initiatives that are local, domestic, or export oriented; new product or process development; adding technology to improve operations and competitiveness; operating costs in association with capital costs; and, financial services, business support, business-related training, and mentoring services.

Individual Aboriginal entrepreneurs may receive up to \$99,999 in funding assistance. For community-owned businesses, assistance can be up to \$1 million. The level of support for each business project will depend on a number of factors that applicants must discuss with an Aboriginal Business Canada Development Officer. Requests for financial support are assessed on each project's viability and merits. Factors include the scope of the project, the need for financing, and whether other sources of financing are available — including funds received from other government departments and agencies. A successful application requires a balanced financial package, involving debt financing from other sources and a minimum level of the applicant's own equity.

c) Training and skills development for a diversified economy

Achieving a diversified Paulatuk economy will partly depend on adequate training and skills development for community members. Generally, the ***GNWT Department of Industry, Tourism and Investment*** is responsible for business and economic development in the territory. However, a number of other organizations in the NWT and Canada have mandates pertaining to and/or interests in training and skills development. Some of the organizations and programs relevant to Paulatuk are discussed below.

- ***Aurora College*** delivers a number of adult educational programs and courses across the NWT. While larger campuses exist in Inuvik and Yellowknife, the Community Learning Centre in Paulatuk is capable of delivering a small number of courses. For example, students can complete their high school upgrading at the learning centre in preparation for enrolling in a full-time program at one of the Aurora College campuses. Aurora College learning centres also deliver many general interest and employment-related programs and courses. More information can be found at: <http://www.auroracollege.nt.ca/live/pages/wpPages/home.aspx>
- ***Skills Canada NWT*** is an organization that promotes careers in skilled trades and technologies to northern youth. Their mandate is to provide programs that raise awareness of current and emerging skilled trades and technology careers, and to develop partnerships with agencies and organizations involved in promoting current and emerging skill-based careers in trades and technology. More information can be found at: <http://www.skillscanadanwt.org/>

- ***The Northwest Territories Mine Training Society*** provides training opportunities for northerners interested in mining careers. Although largely geared towards full production diamond mining operations, some of these opportunities may be of interest to Paulatuk residents as mineral exploration and development activities increase in the region. Available training programs include:
 - Mineral processing
 - Introduction to underground mining
 - Underground mining
 - Heavy equipment operator
 - Class 1 driver

More information can be found at: <http://www.minetraining.ca/index.php>

- ***The GNWT Department of Municipal and Community Affairs*** oversees The School of Community Government, which coordinates a system of training and development, tools and resources for community governments, their staff and organizations that support community governments. Training is available in:
 - Governance
 - Management & Finance
 - Fire Protection & Public Safety
 - Land Administration
 - Recreation Facility Operations
 - Recreation Leadership
 - Water and Waste
 - Works and Works Management

More information can be found at: <http://www.maca.gov.nt.ca/school/index.html>

- The ***GNWT Grants to Non-Profit Organizations for Special Projects*** provides one-time funding for special projects that support the cultural, economic, political and social participation of women in society. Eligibility is restricted to societies registered under the *Societies Act of the Northwest Territories*, governments, and community organizations which represent the interests of women. Funding is limited to projects that enhance the status of women, to a maximum of \$5,000.00.
- ***Regional Resource Developers*** often require skilled and unskilled labour for their various projects. In many cases, these companies are willing to train workers to enable them to gain skills or learn new tasks. Mineral and oil and gas exploration are currently the largest resource development activities in the Inuvialuit Settlement Region and one company, ***Darnley Bay Resources Ltd.***, is currently exploring for base metals, precious metals and diamonds near Paulatuk. They have committed to exploration activities in 2010 and have begun to develop training programs and investment opportunities for Paulatuk residents. More information can be found at: <http://www.darnleybay.com/>

CULTURE AND LEARNING

Culture and learning are fundamental to climate change adaptation in Paulatuk. As environmental and other conditions change, culture, skills and traditional knowledge will need to be preserved to help ensure the community adapts. A number of organizations have responsibility for culture and learning initiatives in the GNWT. Some existing programs are described below.

- The ***Inuvialuit Regional Corporation (IRC)*** is active in a number of areas pertaining to culture and learning. Through the *Community Development Division* IRC assists individuals, families, and communities to set goals and develop solutions to cultural, economic, social, and health challenges. The *Community Development Division* also works with other regional, territorial, and national organizations to identify, develop, and deliver programs that benefit Inuvialuit. Some of the programs the *Community Development Division* focus on include those pertaining to income and employment; education and training; health and well-being; economic development; culture, language and traditions; Aboriginal Healing Foundation programs in Inuvialuit communities; and health and the environment in the ISR. IRC also maintains a Mackenzie Gas Project impact funding office and an Inuit research advisor program. More information can be found at:
<http://www.irc.inuvialuit.com/>
- The ***Inuvialuit Cultural Resource Centre (ICRC)***, located in Inuvik and run by the ***Inuvialuit Regional Corporation (IRC)*** has a mandate to preserve the Inuvialuktun language, provide support and a language curriculum for Inuvialuktun teachers, and promote the on-going development of the Inuvialuktun language. They have funded a number of projects pertaining to language and culture in the past. Further information on the ICRC can be found at:
<http://www.irc.inuvialuit.com/community/cultural.html>
- The ***GNWT Department Education, Culture, and Employment*** is responsible for supporting culture, heritage and language initiatives throughout the NWT. The *Culture and Heritage Division*, offers funding and assistance to communities for a number of programs related to culture and heritage. Some of these programs are described below:
 - The *Cultural Projects Contributions* program provides financial assistance for the promotion and preservation of cultural identity and the enhancement of traditional cultures in the NWT, and to ensure that NWT oral traditions continue to be recorded by funding specific oral traditions projects.
 - *Oral Tradition* contributions provide funding and professional assistance to those individuals or groups who want to record the oral traditions of the Northwest Territories (NWT). Typical project activity includes research which identifies, examines, assembles, and catalogues oral traditions already recorded. Preference is given, but not limited, to those applicants who are gathering oral traditions in

areas or regions where this research has not been initiated in the past, and to complete previous oral tradition projects.

- *Cultural Enhancement* contributions provide financial assistance for the promotion and preservation of cultural identity and the enhancement of traditional cultures in the NWT. Projects which fulfill this mandate in a traditional context are given priority.
- The *Cultural Organizations Contributions* program provides core-funding contributions towards the administration and operation of organizations that undertake the promotion and development of the arts and cultural diversity in the NWT.
- The *Core Funding Contributions for the Operation of Registered Heritage Centres* program provides core funding contributions towards the operation of registered heritage centres.
- The *NWT Arts Council Contributions* support and encourage the continued development of creative artistic projects in the visual, literary, new media and performing arts in the NWT. The NWT Arts Council recommends approval for organizations or individuals requesting funds for artistic work on a project-specific basis only.
- The *Support to Northern Performers* program provides financial contributions towards development and promotion of performing arts in the Northwest Territories and for the featuring of Northwest Territories performing artists at local and regional public festivals and events.

Details for these and other programs can be found at:

http://www.pwnhc.ca/programs/comm_programs_guidelines.asp#Projects

- The **GNWT Department of Municipal and Community Affairs** has a number of programs relevant to culture and learning. For example:
 - *NWT Youth Corps Contributions* encourage and support community governments and organizations involved in the development and delivery of specialized programs to support NWT youth to develop their skills and contribute to their communities. Funding is dependent on the length, scope and number of participants in the Youth Corps project.
 - The *Youth Contribution* program encourages and supports community governments and organizations involved in the development and delivery of activities directed to youth (e.g. development of youth-related organizations; initiatives aimed at the development of youth programs or specific events; promotion and development of resources for youth activities; and research into relevant youth topics). The maximum amount provided to any territorial organization is \$40,000. The maximum amount provided to any regional organization is \$20,000 and the maximum amount to any community organization or community government is \$5,000.
- The **GNWT Department of Justice** is involved in a number of community justice programs relevant to culture and learning. For example, a number of funding

opportunities exist for land camps and educational opportunities with a justice or correctional focus:

- *Community Justice Initiatives* – This program promotes and encourages the participation of communities in the justice system and the development and implementation of community-based alternatives to the formal justice system. Proposals for funding under this program must have as a goal the development or implementation of culturally relevant community justice initiatives involving both victims of crime and offenders. Program funding levels are based on a per capita model and coordinator funding levels vary according to program activity.
 - *Corrections Elders Programs* – This program supports community agencies to contract elders to provide ‘on the land’ programs for small numbers of offenders from their region. Program funding supports expenses and fees in providing the program. The maximum contribution for each elder’s program is \$50,000.00.
 - *Wilderness Camps* – This program assists contractors who provide ‘on the land’ programs for offenders through an outdoor wilderness camp program. Funding that is provided will assist contractors in purchasing minor equipment necessary for the delivery of the program. The maximum annual contribution to a contractor is \$50,000.00.
- The federal **Department of Canadian Heritage** also offers a number of financial support programs for projects related to language and culture (e.g. Aboriginal Languages Initiative; Territorial Language Accords; Community Memories Program; Gateway Fund). Depending on the program, they may only be applied for by regional organizations/governing bodies or existing cultural organizations (e.g. museums, heritage centres). In some cases, community groups can apply for funding directly. More information can be found at: <http://www.pch.gc.ca/pgm/lst/fndx-eng.cfm>
 - Other organizations offer culture and learning programs, although program objectives may not be explicitly directed towards culture and learning. Organizations such as **Health Canada** (e.g. Brighter Futures program) and the **Aboriginal Healing Foundation** are examples here. These different programs are described elsewhere in this Appendix.

HEALTH AND WELL-BEING

Adaptation actions under the 'Health and Well-being' heading have been grouped into two categories: treatment, care and healthy lifestyle development, and emergency response and management. Potential pathways for adaptation in each of these categories are described in greater depth below.

a) Treatment, care and healthy lifestyle development

Climate change, in association with other social, economic, and environmental stressors will likely create a number of health-related risks for Paulatuk residents. Management of these risks will be a necessary component of climate change adaptation planning in Paulatuk. A number of organizations have existing responsibility for treatment, care and healthy lifestyle development in the GNWT. Some of these organizations are described below.

- The ***Inuvialuit Regional Corporation (IRC)*** is active in a number of areas pertaining to health and well-being. Through the *Community Development Division* IRC assists individuals, families, and communities to set goals and develop solutions to cultural, economic, social, and health challenges. The *Community Development Division* also works with other regional, territorial, and national organizations to identify, develop, and deliver programs that benefit Inuvialuit. Some of the programs the *Community Development Division* focus on include those pertaining to income and employment; education and training; health and well-being; economic development; culture, language and traditions; Aboriginal Healing Foundation programs in Inuvialuit communities; and health and the environment in the ISR. IRC also maintains a Mackenzie Gas Project impact funding office and an Inuit research advisor program. More information can be found at:
<http://www.irc.inuvialuit.com/>
- The ***Healthy Foods North*** program encourages healthy diet and lifestyle choices in northern communities. Specifically, the program aims to encourage the use of traditional foods, encourage the use of healthy store-bought foods, and increase physical activity. Program activities are largely educational, informational, and community-based. Program activities currently only occur in a limited number of communities, although the program has a goal of expanding throughout the Northwest Territories. More information can be found at: <http://www.healthyfoodsnorth.ca/>
- ***Aurora College*** delivers a number of adult educational programs and courses across the NWT. While larger campuses exist in Inuvik and Yellowknife, the Community Learning Centre in Paulatuk is capable of delivering a small number of courses. For example, students can complete their high school upgrading at the learning centre in preparation for enrolling in a full-time program at one of the Aurora College campuses. Aurora College learning centres also deliver many general interest and employment-related programs and courses. More information can be found at:
<http://www.auroracollege.nt.ca/live/pages/wpPages/home.aspx>

- The **GNWT Department of Health and Social Services** has a number of responsibilities pertaining to health and well-being, including environmental health, health promotion, home care and immunization, among others. The **Beaufort-Delta Health and Social Services Authority** plans, manages, and delivers a full spectrum of community services in the Inuvialuit Settlement Region. In Paulatuk, they maintain a small health centre and social services office. More information can be found at: <http://www.hlthss.gov.nt.ca/english/health/default.htm>
- The **GNWT Department of Health and Social Services** also offers funding for health and well being focussed programs, some of which may be relevant to climate change adaptation in Paulatuk. For example:
 - *Community Wellness Program* – Contribution funding for communities and non-profit groups is available for five community wellness programs. These are: the National Aboriginal Youth Suicide Prevention Strategy, Aboriginal Diabetes Initiative, Fetal Alcohol Spectrum Disorder Program, Brighter Futures, and the Canada Prenatal Nutrition Program. Funding available is dependent on the project proposed.
 - *Health Promotion Fund* – Contribution funding is available to non-government organizations for projects that promote healthy lifestyles and practices. The maximum amount available is \$10,000.00.
- The **GNWT Department of Environment and Natural Resources** promotes and supports the sustainable use and development of natural resources to protect, conserve and enhance the NWT environment for the social and economic benefit of all residents. In regards to wildlife, the department is responsible for the stewardship of wildlife resources through the collection of baseline information; assessing and monitoring the status of wildlife; wildlife habitat; species at risk; wildlife health; assessing impacts on wildlife from human activities; and, regulating wildlife protection and use. More information can be found at: <http://www.enr.gov.nt.ca/live/pages/wpPages/home.aspx>
- **Health Canada** is the Federal department responsible for helping Canadians maintain and improve their health. Health Canada also has a *First Nations, Inuit & Aboriginal Health Unit* which has been active in a number of areas including: children and youth, chronic disease and injury prevention, communicable disease control, environmental public health and research, health governance and infrastructure support, mental health and addictions, primary care, and supplementary health benefits. Examples of some of the programs that may be relevant to climate change adaptation are described below:
 - *Program for Climate Change and Health Adaptation in Northern First Nation and Inuit Communities* – This program supports traditional and/or innovative ways of researching the human health impacts of climate change. Projects must be proposed by Northern First Nations or Inuit communities or community members, or non-profit organizations that work on behalf or in partnership with a community. Only proposals that meet the requirements

of the requirements listed in program funding application guide are eligible for consideration.

- *Brighter Futures* – The Brighter Futures program is a community-based health promotion and ill-health prevention program for First Nations and Inuit communities. The program typically promotes health and prevents ill-health through learning-related activities that strive to increase awareness, change attitudes, build knowledge and enhance skills. The program is made up of five components: a) mental health; b) child development; c) parenting; d) healthy babies; and e) injury prevention. Communities have the flexibility to determine which program component(s) to provide community-based programs, services and/or activities in.
- *Building Healthy Communities* - The Building Healthy Communities program is designed to assist First Nations and Inuit communities to develop community-based approaches to youth solvent abuse and mental health crises. First Nations and Inuit communities have the flexibility to determine which program component(s) to provide community-based programs, services and/or activities in.

More information on these and other programs can be found at:

<http://www.hc-sc.gc.ca/fniah-spnia/index-eng.php>

- The ***Aboriginal Healing Foundation*** encourages and supports, through research and funding contributions, community-based Aboriginal directed healing initiatives which address the legacy of physical and sexual abuse suffered in Canada's Indian Residential School System, including intergenerational impacts. The foundation is no longer committing funds for new projects, although it is continuing to support existing foundation-funded projects. More information can be found at: <http://www.ahf.ca/announcements>

b) Emergency response and management

Effective emergency response and management will help ensure climate change-related incidents are handled in a timely and appropriate manner. Some existing organizations with responsibilities for emergency response and management are described below. Existing programs that may support adaptation initiatives are also highlighted.

- The ***GNWT Ministry of Municipal and Community Affairs (MACA) Emergency Management Office*** is responsible for NWT emergency preparedness and response activities. This includes planning for territorial emergencies, as well as NWT involvement in national emergencies, and supporting community emergency operations. The office also supports prevention, mitigation, and disaster recovery work. MACA provides assistance and guidance to communities in completing and maintaining the currency of Community Emergency Plans, and a Community Emergency Response Plan Template is available for all communities to use. MACA also provides supportive funding for community-organized searches for missing persons, up to a maximum of

\$10,000.00. For further information on MACA's emergency management office please see:

http://www.maca.gov.nt.ca/emergency_management/index.htm

- The ***Government of Canada's National Search and Rescue Secretariat*** is the central coordinating point for the National Search and Rescue (SAR) Program for the federal element of search and rescue. While it does not direct or manage the work of its partners, the Secretariat brings them together to encourage collaboration and to ensure best use is made of their resources and capabilities. The following federal departments are responsible for search and rescue delivery in Canada:
 - Canadian Forces (Department of National Defence)
 - Canadian Coast Guard (Department of Fisheries and Oceans)
 - Royal Canadian Mounted Police (Public Safety Canada)
 - Transport Canada
 - Meteorological Service of Canada (Environment Canada)
 - Parks Canada (Agency)

Within the non-federal jurisdiction, the Secretariat works directly with provincial and territorial SAR authorities and police services to develop and standardize the quantity and quality of SAR service available to the provinces and territories.

The Joint Rescue Coordination Centre in Trenton, Ontario, operated by the Canadian Forces, provides emergency response and alerting systems for the Canadian Arctic. Generally speaking, the Canadian Forces and the Civil Air Search and Rescue Association provide air resources for SAR incidents under federal jurisdiction (i.e. aircraft incidents and all marine incidents in waters under federal jurisdiction). The Canadian Coast Guard and the Canadian Coast Guard Auxiliary provide primary marine resources. Other organizations may be involved in search and rescue as well. For example, Parks Canada provides search and rescue services within national parks, national marine conservation areas and reserves, national historic sites and historic canals. Outside the national parks the RCMP responds to SAR incidents in the territories and various municipalities. The Meteorological Service of Canada provides information on climate, weather, ice and other environmental issues of particular interest to the SAR community, while Transport Canada fosters safe and secure transportation.

The *Search and Rescue New Initiatives Fund* provides funds for projects that: a) enhance the effectiveness of SAR response in federal, provincial and territorial jurisdictions; b) promote the sharing of response and prevention best practices throughout the SAR community; and, c) promote and improve SAR prevention. The New Initiatives Fund has an annual allotment of \$8.1 million available to federal, provincial and territorial governments, profit and not-for-profit Canadian organizations from volunteer, academic or private sectors and individuals with responsibilities in the National SAR Program. More information can be found at:

http://www.nss.gc.ca/site/index_e.asp

SUBSISTENCE HARVESTING

Adaptation actions under the 'Subsistence Harvesting' heading have been grouped into three categories: harvester support, community programs and skills development, and wildlife research. Potential pathways for adaptation in each of these categories are described below.

a) Harvester support

Harvester support programs help individuals continue to pursue subsistence harvesting and help preserve traditional harvesting skills and culture. As climate change continues to alter environmental conditions and wildlife patterns, harvester support programs may represent an important pathway for adaptation. Harvester support (financial and otherwise) is available from a number of existing organizations. Some of these are described below.

- The *Inuvialuit Harvesters Assistance Program (IHAP)* is an existing program managed by the ***Inuvialuit Regional Corporation (IRC)*** and ***Inuvialuit Game Council (IGC)***. Through funds held in the Inuvialuit Harvesters Assistance Trust, the program provides financial support to Inuvialuit renewable resource harvesters and is intended to encourage the continuance of traditional harvesting activities amongst Inuvialuit beneficiaries. IHAP may approve one financial contribution of up to \$5,000.00 to any eligible applicant once every three year period toward the purchase of one piece of major harvesting equipment (e.g. snowmobiles, boats, outboard motors), or ongoing financial contributions of up to \$1,000.00 per year towards the purchase of any minor piece(s) (e.g. radios, tents, flotation devices) of harvesting equipment per applicant.
- The ***GNWT Department of Industry, Tourism and Investment*** provides support and financial assistance in a number of areas pertaining to harvesting. Some of these include:
 - *Fur Price Program* (also known as the Genuine Mackenzie Valley Fur Program) provides NWT hunters and trappers with access to the financial resources necessary to participate in the fur industry. There are three components to this program
 - *Advance* - The Genuine Mackenzie Valley Fur (GMVF) advance program provides guaranteed advances to trappers delivering prime fur for sale through the GMVF program. Advances are based largely on anticipated market performance.
 - *Prime Fur Bonus* - If the trapper's fur is sold for the same value or more than the advance, the trapper is entitled to receive a Prime Fur Bonus. The bonus payment recognizes that the fur is in good condition and has been well handled by the trapper.
 - *Fall Grub Stake* - A trapper must harvest 20 or more pelts, to a maximum of 200 pelts of any species in the GMVF program to receive a payment (minimum \$100; maximum of \$1,000).

The GMVF marketing program also pays for all commissions, shipping and handling fees for fur shipped to auction. Trappers who choose to ship their fur outside the GMVF program are entitled to the same benefits with the exception that no advance will be issued.

- *Community Harvesters Assistance Program (CHAP)* provides annual funding assistance to Local Wildlife Committees for distribution to their respective memberships. These program funds assist in defraying a portion of capital and operating costs of harvesting activities.
- *Hunters and Trappers' Disaster Compensation Program* assists harvesters who sustain substantial financial losses due to unavoidable natural disasters except for forest fires. For harvesters who earned at least 25% of gross income from renewable resource harvesting for the period of 12 months immediately prior to the incident, maximum compensation is up to \$4,500.00 per occurrence. Compensation is not made for losses due to carelessness or poor judgement.

b) Community programs and skills development

Community and skills development programs directed at subsistence harvesting provide opportunities for community members to continue to pursue traditional harvesting activities. A number of community and skills development programs are currently in existence in the NWT and include:

- The ***GNWT Department of Industry, Tourism and Investment*** in co-operation with the ***Department of Municipal and Community Affairs*** and the ***Department of Environment and Natural Resources*** offers the *Take a Kid Trapping* program. This program is designed to introduce youth in the NWT to traditional harvesting practices of hunting, trapping, fishing and outdoor survival, and is delivered through schools and Aboriginal organizations. Instructors incorporate visits to trap lines and hands-on experience setting traps, snares and fishnets, to teach traditional life skills, conservation and best practices in the preparation of pelts for markets. More information can be found at:
<http://www.iti.gov.nt.ca/fursagriculturefisheries/kidtrapping.shtml>
- The ***GNWT Department of Industry, Tourism and Investment*** offers *Trapper Workshops*, which provide trappers with expert advice and information from auction house specialists. Pelt handling workshops, introduction of new and improved technology, and hands on demonstrations are provided. More information can be found at:
<http://www.iti.gov.nt.ca/fursagriculturefisheries/trapperworkshops.shtml>
- The ***GNWT Department of Education, Culture and Employment*** offers the *Community Broadcasting Grant Program* which provides grant money to help pay for

the operating costs of community broadcasting organizations. A community broadcasting organization may receive up to \$6,000.00 per year in support.

A number of other relevant community and skills development programs exist, although subsistence harvesting may not be the primary focus of all these programs (e.g. some programs may be health or culture focussed). Some of these programs have already been described elsewhere in this Appendix. Please see the 'Culture and Learning' section for additional information of these programs.

c) Wildlife research

Research on climate change and its effects on wildlife will help northern communities understand the changes that are expected, and enable them to develop adaptive responses. A number of organizations in the NWT and Canada have mandates pertaining to and/or interests in wildlife research. These are discussed below.

- The ***Aurora Research Institute*** is responsible for licensing, conducting and coordinating research in the NWT. They also promote communication between researchers and the people of the land in which research is being conducted, and have supported projects pertaining to wildlife in the past. More information on the Aurora Research Institute can be found at: <http://www.nwtresearch.com/default.aspx>
- The ***GNWT Department of Environment and Natural Resources*** promotes and supports the sustainable use and development of natural resources to protect, conserve and enhance the NWT environment for the social and economic benefit of all residents. In regards to wildlife, the department is responsible for the stewardship of wildlife resources through the collection of baseline information; assessing and monitoring the status of wildlife; wildlife habitat; species at risk; wildlife health; assessing impacts on wildlife from human activities; and regulating wildlife protection and use. More information can be found at: <http://www.enr.gov.nt.ca/live/pages/wpPages/home.aspx>
- A number of researchers at ***Canadian Universities*** and abroad specialize in the study of climate change impacts on northern wildlife. An opportunity may exist to approach these researchers directly and inquire about the possibility of Paulatuk-focused research programs.

TRANSPORTATION AND INFRASTRUCTURE

Adaptation actions under the 'Transportation and Infrastructure' heading have been grouped into two categories: infrastructure maintenance and development, and emergency response and management. Potential pathways for adaptation in each of these categories are described below.

a) Infrastructure maintenance and development

As communities grow, so too will infrastructure maintenance and development needs. This growth will occur against the backdrop of climate change, which is likely to pose new risks to infrastructure; these risks are beginning to force communities to consider adaptive strategies. A number of organizations have responsibilities pertaining to infrastructure maintenance and development in the NWT and are described below.

- Under the *New Deal for NWT Community Governments* (implemented in April, 2007), **community governments** now have full authority for decisions about community public infrastructure. They are responsible for establishing capital investment plans, making decisions about priority projects, deciding on the scope and timing of those projects, and determining how to finance them. The **GNWT Department of Municipal and Community Affairs** is supporting these changes by providing community governments with stable, long-term predictable funding for infrastructure development, training through the Department's School of Community Government and ongoing advice and assistance.
- The **GNWT Department of Municipal and Community Affairs (MACA)** delivers frontline services to community governments through its Yellowknife headquarters and five regional offices. Some department functions relevant to infrastructure maintenance and development include:
 - *Land administration* - Administers Commissioner's Lands, community planning, land purchases, property assessments, land development, surveys and mapping, and supports community infrastructure.
 - *Office of the Fire Marshall* - Responsible for delivering several programs relating to fire and life safety as identified in the *Fire Prevention Act*.
 - *Emergency management* - Responsible for NWT emergency preparedness and response activities.
 - *Legislation* - Laws and regulations relevant to MACA's mandate and operations include: the *Hamlets Act*; the *Charter Communities Act*; *Cities, Towns and Villages Act*, and others.
 - *Community operations* - Provides various services on behalf of community governments including community financial services, financial policy and infrastructure planning, capital planning and infrastructure, community governance, and environmental planning.

More information can be found at: <http://www.maca.gov.nt.ca/>

- The **GNWT Department of Transportation** is responsible for the planning, construction or reconstruction, acquirement, operation and maintenance of public transportation infrastructure in the NWT, including community airports, docks, and the highway system. They also manage the *Community Local Access Roads Contributions* and *Marine Facilities Contributions* programs which provide funding to communities wishing to construct or rehabilitate community local access roads, or construct, rehabilitate or replace community marine facilities. More information on the department can be found at:
<http://www.dot.gov.nt.ca/live/pages/wpPages/home.aspx>
- The **GNWT Department of Public Works and Services (PWS)** provides services and support in a number of areas including asset management, procurement, and community water systems. They look after the design and construction of schools, water systems, tank farms, and other types of buildings and works. They have developed the *Good Building Practice For Northern Facilities 2009* guidebook which provides those involved with buildings and construction a comprehensive set of practical recommended technical best practice northern building guidelines. They have also developed the *Good Engineering Practice for Northern Water and Sewer Systems* guidebook which contains performance guidelines, preferred materials and methods, and logistical considerations for the design and construction of northern water and sewer systems. These and a number of other relevant guides and information are provided on the PWS website.

For communities concerned about the state of their buildings and works, PWS offers technical evaluation services to report on the condition and performance of architectural, structural, mechanical and electrical systems, subsystems and components in buildings and works facilities. Recommendations that are provided are based upon the Good Building Practice guidebook, the National Building Code, and information from other regulatory agencies. The evaluation provides information for program and facility planners, designers, builders and operators to know which systems, subsystems, components and materials are at or near the end of their economic service life, and may be in need of repair or replacement. As well, the evaluation outlines how operating methods can be corrected to make facilities safer, more comfortable, more energy efficient, and more durable.

More information can be found at: <http://www.pws.gov.nt.ca/index.htm>

- The **NWT Housing Corporation** together with citizens, communities, Local Housing Organizations, Aboriginal organizations, the business community, other non-government organizations, and other governments, are jointly responsible for addressing the quality, adequacy, suitability and affordability of housing in the NWT. More information can be found at <http://nwthc.gov.nt.ca/index.html>
- **Private sector consultants and contractors** are often drawn upon to help design, build and maintain infrastructure in the NWT. In a community setting, consultants

and contractors are often working on behalf of local or territorial government clients.

- The **Canadian Standards Association** is in the process of developing the guidance document *Infrastructure Foundations and Permafrost: A Practice Guide for Climate Change Adaptation*. This publication is intended for the planners, designers, builders, owners, regulators and managers of northern community infrastructure, and will provide information on risks related to permafrost, climate change and community infrastructures that require foundations. It will also provide a set of key planning, design, construction, operation and maintenance-related principles linked to the attenuation of these risks. More information on this and other infrastructure-related publications and standards can be found at: <http://www.csa.ca/cm/ca/en/home>
- The **National Research Council of Canada** produces the national model construction codes of Canada used by builders, engineers and designers. These codes include:
 - National Building Code of Canada 2005
 - National Fire Code of Canada 2005
 - National Plumbing Code of Canada 2005
 - National Housing Code of Canada and Illustrated Guide 1998
 - Model National Energy Code of Canada for Houses 1997
 - Model National Energy Code of Canada for Buildings 1997

More information can be found at: http://www.nationalcodes.ca/nbc/index_e.shtml

- The **Canadian Mortgage and Housing Corporation (CMHC)** works to enhance Canada's housing finance options, assist Canadians who cannot afford housing in the private market, improve building standards and housing construction, and provide policymakers with the information and analysis needed to sustain a vibrant housing market in Canada. CMHC also provides research on best practices in housing technology, construction and design. More information can be found at: <http://www.cmhc-schl.gc.ca/en/index.cfm>

b) Emergency response and management

Effective emergency response and management will help ensure climate change-related incidents are handled in a timely and appropriate manner. Some existing organizations with responsibilities for emergency response and management, and programs that may support adaptation initiatives, are described elsewhere in this Appendix. Please see the 'Health and Well-being' section for more information.

ADDITIONAL PATHWAYS FOR ACTION

Potential additional pathways for action are described here. These include existing programs and funding opportunities offered by a number of organizations.

- The ***GNWT Department of Environment and Natural Resources*** offers the following programs:
 - The *Alternative Energy Technologies Program* is designed to promote the use of renewable energy sources in the NWT. Funding is split into three sections and based on the scope and scale of the proposed project: 1) Community Renewable Energy Fund (CREF); 2) Medium Renewable Energy Fund (MREF); and, 3) Small Renewable Energy Fund (SREF). For the CREF, funding of up to one-half of the project cost is available, to a maximum of \$50,000 per year. For the MREF, funding of up to one-third the cost of the project is available, to a maximum of \$15,000.00 per year. For the SREF, funding of up to one-third of the cost of the project is available, to a maximum of \$5,000.00 per year.
 - The *Energy Conservation Program* assists community funded departments, boards and agencies, and non-profit organizations. Funding is available to support projects which reduce usage of electrical and heat energy, and water.

More information can be found at:

http://www.enr.gov.nt.ca/live/pages/wpPages/Energy_Conservation_and_Alt_Energy_Techn.aspx

- The ***Arctic Energy Alliance*** is a not-for-profit society with a mandate to help communities, consumers, producers, regulators and policymakers work together to reduce the costs and environmental impacts of energy and utility services in the NWT. They administer the *Energy Efficiency Incentive Program* which provides rebates to homeowners and consumers who purchase new, more energy efficient models of products they use. A website provides information on other energy programs available, such as the federal government's ecoENERGY program. The Arctic Energy Alliance also supports communities who are interested in creating and implementing Community Energy Plans. More information on these and other programs can be found at: <http://www.aea.nt.ca/default.aspx>
- ***Indian and Northern Affairs Canada (INAC)*** oversees a number of climate change-related programs. For example:
 - The *Assisting Northerners in Assessing Key Vulnerabilities and Opportunities* program provides funding for projects that will support communities and organizations to assess and identify risks and opportunities related to the impacts of climate change, and develop and implement climate change adaptation projects and/or plans to increase the capacity of Aboriginal and Northern communities to address the impacts of a changing climate. Contributions may be provided to Aboriginal and northern organizations and communities (e.g. associations, not-for-profit institutions,

education/research institutions etc); other levels of government and other non-federal entities, public or private, that have an interest in dealing with broad environmental issues affecting Canada's North. The maximum funding available per project per year is \$200,000.00.

- *The ecoENERGY for Aboriginal and Northern Communities Program* works with communities to improve energy efficiency and adopt alternative energy sources to reduce dependence on diesel fuel. The program assists communities through all stages of project development, including project identification and inception, feasibility and planning studies, financial and project management, equity partnerships, power purchase agreements, and project completion. Incentives are directed at renewable energy and energy efficiency projects and include investment in small and micro hydro projects, wind turbines, improved diesel generation efficiency projects, and district heating and building heating systems. For Community Clean Energy Action Plans, between \$5,000 and \$15,000 per community is available. For Energy Efficiency Projects, up to \$100,000 is available. For Renewable Energy Projects, up to \$250,000 is available. Funding amounts for all these projects will depend on the size of the project and its stage of development).

For more information see: <http://www.ainc-inac.gc.ca/enr/clc/index-eng.asp>

- **Natural Resources Canada's (NRCan) Climate Change Impacts and Adaptation Division** facilitates the generation and sharing of knowledge, tools and mechanisms to integrate climate change adaptation into policy, plans and projects. The division encompasses two main activities:
 - *The Regional Adaptation Collaboratives Program* - This program provides a mechanism for collaboration between different levels of government, private sector entities, and community organizations on complex adaptation issues that address federal, sectoral, or regional priorities. The objective of this initiative is to equip decision-makers with the information and advice that they need to make policy, operational, and management changes that respond to regional opportunities and threats from a changing climate.
 - *Tools for Adaptation* - This program develops adaptation tools to support decision-making on whether and how to adapt to a changing climate.

For more information see: http://adaptation.nrcan.gc.ca/index_e.php

- **Environment Canada** manages a number of climate change related programs. It also maintains the *Green Source Funding Database* that contains information on public and private sector programs, and organizations that provide financial assistance to community groups involved in environmental projects. Some of the programs contained in the database have climate change components. For more information see: http://www.ec.gc.ca/pace-cape/grnsr/index_e.cfm

- The ***Government of Canada*** maintains a website on climate change and the various mitigation and adaptation focussed programs it administers. For more information see:
<http://www.climatechange.gc.ca/default.asp?lang=En&n=E18C8F2D-1>

Shoreline erosion and permafrost degradation is assessed and mapped identifying where building reinforcement is needed and guiding the location of new developments, land skills are integrated into the school curriculum and students are credited for their achievements, and skills training is offered in the community to prepare community members to benefit from emerging economic opportunities – these are just some of the adaptation actions identified by community members in Paulatuk to deal with current and expected future climate change.

This report documents adaptation actions to address climate change issues affecting the community of Paulatuk. The next stage in the adaption planning process involves continued collaboration with community members and other stakeholders, and the engagement of expert resources to assess the feasibility and durability of the identified adaptation actions and steps to implementation.

ArcticNorth is committed to working together with communities to address and plan for the consequences of a changing climate.



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*Design by Arianwen Goronwy-Roberts
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March 2010



Printed on recycled paper, processed chlorine free