



Climate Change And Its Impact On Inuit Communities In The Arctic

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Abstract: Climate change is challenging and threatening the Arctic ecosystem upon which the Inuit communities depend for their livelihood and cultural survival for the past thousand years. The objective of the paper is to attempt to explore all about climate change and its impact on the Inuit communities' health, food system, socio-economic, cultural activities and livelihood in the four regions in the Arctic countries: Alaska (USA), Chukotka (Russia), Greenland (Denmark), and Inuit Nunangat (Canada). The impact of climate change is multidimensional and varied from increasing the risks to challenging the traditional ways of life in the Arctic. The study uses descriptive and analytical studies based on primary and secondary sources. Climate change is one of the key factors that the Inuit communities are now concerned about the Arctic sovereignty issue which will significantly impact their political, social, cultural, and economic rights, and community well-being in these regions. The study seeks to examine the impacts of climate change, and the main reasons for the insecurities of Inuit communities in these four regions, while these four Arctic nations along with the Arctic Council are committed to promoting and protecting the rights of Indigenous Peoples at home and abroad.

Keywords: Arctic, Climate Change, Cultural Survival, Ice Melting, Inuit, Permafrost, Traditional Livelihood and Traditional Knowledge

I. INTRODUCTION

Climate change is widely affecting and threatening the environments and ecosystems on Earth. The change also challenges sustainable development by influencing the socio-economic, livelihood, cultural activities, food security, and health of different communities across the globe. The effects of climate change vary from rising sea levels and submergence of low-lying islands and coastal lands to the melting ice and thawing permafrost that occurs in the Arctic due to rising global temperatures. Some regions and human communities are more vulnerable to climate change than others. Sheila Watt-Cloutier (former/then elected chair of the Inuit Circumpolar Council (ICC) and Inuit environmental activist) stated that "what we Inuit are experiencing here in the Arctic at the present you will experience soon. The Arctic is the world's climate change barometer, and we Inuit are the mercury in that barometer" (Watt-Cloutier 2005). The Inuit are one of the indigenous peoples of the Arctic, and they are citizens of the four Arctic states (Canada, Denmark, Russia and the USA), united by a common culture, language and way of life. Sheila Watt-Cloutier states, "The Arctic is not the wilderness or a frontier, it is our home" (Inuit Circumpolar Conference and UNEP/GRID-Arendal 2004: 17; Watt-Cloutier 2007: 14).

The objective of the paper is to attempt to explore all about climate change and its impact on the Inuit communities' health, food system, socio-economic, cultural activities and livelihood in the four regions in the Arctic countries: Alaska (USA), Chukotka (Russia), Greenland (Denmark), and Inuit Nunangat (Canada). The impact of climate change is multidimensional and varied from increasing the risks to challenging the traditional ways of life in the Arctic. Climate change is one of the key factors that the Inuit communities are now concerned about the Arctic sovereignty issue which will significantly impact their political, social,

cultural, and economic rights, and community well-being in these regions. The study seeks to examine the impacts of climate change and the main reasons for the insecurities of Inuit communities in these four regions, while these four Arctic nations including the Arctic Council are committed to promoting and protecting the rights of Indigenous Peoples at home and abroad. The study uses descriptive and analytical studies based on primary and secondary sources.

II. INUIT PEOPLES AND CLIMATE CHANGE

The Inuit peoples are the circumpolar peoples about 160,000 that inhabiting the four Arctic countries in Alaska (USA), Chukotka (Russia), Greenland (Denmark), and mostly in Inuit Nunangat (Canada). The Inuit people are represented by the Inuit Circumpolar Council (ICC), which was established in 1977 in Barrow, Alaska, to thrive and develop into the most important international indigenous people's organization to have the status of Permanent Participants on the Arctic Council (Arctic Council 2015).

The ICC has priority areas to value that they must raise with a cohesive voice on the Inuit social and economic needs to attain sustainable development with respect to the Arctic region. The focus areas include the safeguarding of their culture and environments and upholding their social and traditional activities in all four circumpolar nations. The key objectives of the Council are as follows: a) to enhance unity among Inuit communities in all four Arctic countries; b) to promote Inuit social, cultural, human, and political rights, at the same time, give voice their interests at international forums and communities; c) to build and maintain long-lasting policies and action plans that protect and preserve Arctic ecosystems, particularly to address climate change; and d) to achieve permanent and active cooperation in the social, political, environmental, and economic development or sustainable development of communities living across the Arctic regions (Arctic Council 2015).

Traditionally, indigenous peoples in the Arctic have been sustained by hunting, trapping, fishing, and reindeer herding, with their rich and abundant natural resources available from air, land, rivers, and sea for thousands of years. Most of these communities in the Arctic are still sustained primarily in harvesting country/traditional food, marine and land animals, freshwater, and vegetation for their livelihoods (ACIA 2004 and 2005).

Subsequently, in attempt to understand climate change and its impact on communities' health, food systems, socio-economic and cultural activities, and livelihoods in the circumpolar Arctic, it is important to first know what climate change is. Climate change is referred to as a significant change in the climate over time. The cause(s) of climate change could be due to mostly as the consequences of human activities. According to the first assessment report of the IPCC, which was published in 1990, temperatures of the earth have generally risen unnoticed at a high rate over the past 100 years. The warmest years have been experienced over the last 30 to 50 years. Most scientists and climatologists affirmed that human activities are mainly responsible for global warming and climate change. Human activities such as burning fossil fuels, particularly coal, natural gas, and oil, and forests and deforestation activities, release greenhouse gases such as carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) into the atmosphere.

Article 1 of Section 2 of the 1992 United Nations Framework Convention on Climate Change (UNFCCC), defines 'climate change' as: "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere, and which is in addition to natural climate variability observed over comparable time periods" (United Nations Organization 1992).

Climate change is a long-term significant change in the measures of climate and weather conditions, events, features, and patterns, or surface variability of significant quantities of weather patterns such as precipitation, temperature, and wind patterns over epochs of time that vary from several decades to hundreds or thousands of years in the region or the whole parts of the world. According to the World Meteorological Organization (WMO), the standard period or epoch of time for measuring the weather patterns or features of climate in the region is at least three decades or more to hundreds or thousands of years. In this context, climate change is a change in the average weather conditions or a change in the distribution of weather events that are related to the average weather or more severe extreme weather of temperatures, such as heat or cold weather events in a region or the entire world. The impacts of climate change will be more severe in some regions or entire parts of the planet (Environmental Protection Agency 2016; Papa 2010; NASA 2005).

Recent research and studies on the impact of climate change in the circumpolar Arctic, including the comprehensive reports of the Intergovernmental Panel on Climate Change (IPCC) 2007 and Arctic Climate Impact Assessment (ACIA) 2005, have increased the knowledge base and understanding of climate change, particularly in the polar Arctic region. The series of research data and information or reports of the IPCC and ACIA indicate that the average temperatures in the Arctic have risen at approximately twice the global average rate in the past few decades and that this trend is expected to continue more severely in the coming decades. Climate Models (CM) have projected that the temperatures of the Earth could rise by at least 3 to 5 degrees Celsius over land and up to 7 degrees Celsius over the oceans in the next century and beyond (ACIA 2004 and 2005).

The circumpolar Arctic environment has changed over the past few decades. The Inuit communities living in Alaska in the US, Canada, Greenland, and Chukotka in Russia have witnessed changes in the natural environment owing to the global warming for the past 20 to 30 years. Changes in the climate system, weather patterns, and environment have been reported by different communities across the Arctic. The Inuit communities came to understand these unfamiliar and adverse environmental changes in the Arctic through fluctuations in temperatures, increasing levels of ice on land, as well as in the seas and open water, or the melting of ice and thawing of permafrost. The key indicators of these adverse changes in the circumpolar Arctic are unpredictable weather and seasons, a strange increasing level of precipitation in the region, warmer and longer summers and shorter winters, the unpredictable and unfamiliar frequent occurring of thunder and lightning, change in migratory patterns of wildlife, particularly the shifting population of caribou and polar bears, and appearance of new species of birds and fish in the Arctic (Riedlinger and Berkes 2001; Leduc 2007:238).

In fact, climate change affects the traditional and cultural activities of these indigenous peoples/communities in the circumpolar region, including indigenous/traditional knowledge (TK), such as prediction of weather patterns, snowfall, and thickness or density of the ice on the land surface as well as sea, animal behavior, and migration patterns in the Arctic. TK in the past has passed from generation to generation in communities. This is how TK or the world has worked, but nowadays it is less accurate than it was due to these changes taking place at a much faster pace on land, sea, water, and ice in the circumpolar Arctic. Climate change is not just a theoretical problem and issue to be solved for future generations, but communities are already struggling to adjust, adapt, and mitigate it (Smith 2007; IPCC 2007; UNEP/GRID-Arendal 2009).

III. IMPACT OF CLIMATE CHANGE ON INUIT COMMUNITIES

According to the World Health Organization (WHO), “all populations will be affected by climate change, but some are more vulnerable than others. People living in small island developing states and other coastal regions, megacities, and mountainous and polar regions are particularly vulnerable” (WHO 2015). The United Nations Environment Program (UNEP) describes “the environmental and climate change in the circumpolar Arctic as the world’s barometer of climate change” (UNEP/GRID-Arendal 2013:4).

A significant change has already occurred in the Arctic environment (ACIA, 2004). According to Sheila Watt-Cloutier, “Arctic is the early warning, the health barometer for the planet. What happens in the world occurs first. To see how healthy the planet is, it comes here to take pulses. Science has recently caught up with the changes, Inuit hunters – scientists in their own right – have been observing for decades” (Watt-Cloutier 2007:14). Climate change is challenging and threatens the Arctic ecosystem, upon which the Inuit communities have depended on their livelihood and cultural survival for the past thousand years.

The impact of climate change is more severe in the northern hemisphere of the planet, particularly in the Arctic or Circumpolar region, than in the southern hemisphere, where multiple layers of ice have been decreasing at an exceptional rate in recent years. Thus, climate change is threatening the Inuit communities across the Arctic region because of the melting permafrost and Arctic ice. In fact, climate change directly and indirectly threatens the Inuit socioeconomic and cultural identity and way of life (Inuit Circumpolar Conference and UNEP/GRID-Arendal 2004).

In essence, the Inuit communities, organizations, and other partners conducted a series of community-level workshops between 2001 and 2005 in all four regions of Inuit Nunangat in Canada: the Inuvialuit region, Nunatsiavut, Nunavik, and Nunavut. In these workshops, the Inuit clearly stated that their observations of climate change in the Arctic region were real because they felt it and experienced environmental changes. The Arctic Climate Impact Assessment (ACIA) first report was published in 2004, and it is considered the most wide-ranging regional assessment of climate change in the world. According to the ACIA assessment report, “climate change in the Arctic is one of the greatest changes in any part of the world... and the indigenous peoples are most affected by the change since the 1980s” (UNEP/GRID-Arendal 2013:4).

In recent years, the United Nations Environment Program (UNEP) and the United Nations Framework Convention on Climate Change (UNFCCC) have described the Arctic as a global climate change indicator and barometer (UNEP/GRID-Arendal, 2009; Prosser, 2011). Due to climate change in the Arctic, Inuit communities have faced many challenges, such as travel and transportation. Subsequently, uncertain weather predictions in the Arctic, such as the prevalence of rainfall, floods, coastal or shoreline erosion, and landslides, make life unpredictable and difficult for communities. The decreasing rate of snowfall, unavailability, and poor quality of freshwater in the circumpolar region has already impacted the health of Inuit communities, wildlife, and the environment or biodiversity.

In addition, an increase in the sea/ocean and surface temperatures and warmer weather in the summertime in these regions have led to thinner sea ice that results in shoreline erosion and landslides. At the same time, new species of flora and fauna are found in the region, and changes in animal migration patterns, movements, and wildlife behavior have also been observed (ACIA 2004 and 2005; Prosser 2011; Peace 2012). Because of their direct contact with the close relationship with the environment, the Arctic indigenous peoples feel and experience the impacts of climate change in the foremost and most deeply in advanced stages, compared to the rest of the world.

IV. PROSPECTS AND CHALLENGES

The circumpolar Arctic is often elucidated as an unexplored immense storehouse of natural resources, such as oil and natural gas, other minerals, and forests, as well as the abundance of fish and wildlife. The expectation that climate change will bring huge opportunities for developing these natural resources has kindled considerable interest among governments, companies, the public, and indigenous communities. The seasonal decrease in Arctic Sea ice coverage has also led to the prospect of large-scale maritime trade via Arctic Passageways, which would result in significant savings in time, distance, and cost.

The development possibilities for local inhabitants in the circumpolar Arctic would consist of new economic options and employment and the availability of social services, communication, and education. Progress regarding the physical infrastructure of roads, ports, pipelines, power lines, and hydropower dams has increased significantly in the past decades in Alaska, northern Scandinavia, northwestern Canada, and Russia. However, there is scope to provide assistance in enhancing the resilience of the Arctic environment and indigenous people's way of life and community well-being (UNEP/GRID-Arendal 2005: 4).

Oil and gas, shipping, fisheries, and tourism companies are drawn to the Arctic by incredible economic opportunities unveiled by thawing ice. The Arctic is assessed to contain the world's largest unexplored/unexploited natural gas reserves, as well as very few of its largest untapped oil reserves. If these oil and gas reserves are exploited, it would have implications for the Arctic environment and global climate. A significant number of these reserves lie in the Arctic shallow, offshore, and biologically productive shelf sea areas. Under these circumstances, the World Wide Fund for Nature (WWF), civil society, and other organizations are working on sustainable development issues to ensure that increased development in the Arctic is managed well for the benefit and well-being of local communities, flora, fauna, and the environment (WWF 2014).

However, indigenous peoples have concerns over both proprietorships of resources and their effects on their customary/traditional ways of life. Most of the non-indigenous populations of the Arctic will benefit directly or indirectly because of their technical advantages for industrial development resources, and most of the secondary benefits of industries build outside the region. In addition, there are possible obstructions to new opportunities for resource extraction, fisheries, tourism, and sea shipping routes passing through the Arctic Ocean (Miere and Mazo 2013).

Climate change impacts have led to the growth of commercial and industrial development activities by extracting natural resources, such as oil and natural gas, and have also led to the opening of international shipping routes in the Arctic. However, these commercial activities stress the indigenous population in several ways. Industrial expansion influences the social, economic, and cultural activities and sustenance of indigenous peoples in the region. Notably, unrestrained pollution of the Arctic environment began in the 1980s owing to the establishment of industrial development in the region. As a result, environmental problems became serious, particularly for the indigenous people of the circumpolar, as the natural environment is the foundation of life for them. At the same time, the lack of interest and attention from the government and policymaking towards addressing the problems of indigenous peoples led to substantial degradation of their socio-economic and cultural development and their unique relationship with the ecosystem in the circumpolar (Arctic-info 2014).

Owing to climate change, many species that are socially, culturally, and economically significant are at risk in the Arctic. For example, thawing of the Arctic land ice and sea ice will unavoidably cause sea level rise, at the same time, these effects will impact on the communities living in the coastal areas. In addition to these events, Arctic wildlife and vegetation are facing significant impacts from contaminants and pollutants. Although some coastal areas are protected, they do not expand from aquatic areas to coastal areas on which people and wildlife rely. Marine protected areas are under-represented in the Arctic, comprising just approximately 1 per cent of the Arctic. Simultaneously, the so-called protected areas in the Arctic also face significant threats and challenges (UNEP/GRID-Arendal 2005: 4).

Arctic fisheries are important for food production and their economic value for communities in the Arctic. Moreover, drilling, seashore oil exploration, and the extraction of natural gas have threatened fish and other marine animals, which are the foundation of the indigenous economy and their livelihoods in the region. Interestingly, some marine mammals, such as whales, use sound to find mates and food and find the way in the deep waters of the ocean and sea. In this regard, seismic noises, such as machines that produce sound from oil and gas companies to extract oil from shorelines and offshore, can be disturbing and deafening for these species. In fact, excessive or unwanted ocean noise from the extraction of oil and gas, drilling, and other activities can cause confusion, injury, and even death in many marine mammal populations living in the Arctic Ocean and sea areas (WWF 2014).

In addition, oil spills from pipeline leaks, blowouts, and shipping accidents, posing a great threat to marine ecosystems in the Arctic. Under these circumstances, marine ecosystems are vulnerable and in great danger to this region. However, spill cleanup is unattainable under these prevailing conditions, and there are no effective tools and methods for controlling and cleaning oil spills over sea ice and icy water. At the same time, the complicated and difficult conditions of the Arctic are its distance from where the ship is stationed, which it can take to respond to the capacity normally days or weeks to respond to the oil spill even during ice-free seasons. The Arctic environment is characterized by low temperatures, limited sunlight, and short productive seasons. Consequently, it could take many years or decades for Arctic regions to recover from environmental disturbance, tundra disruption, and oil spills (WWF 2014).

V. CONCLUSION

Climate change is not just a theory of the Arctic Inuit; it is a harsh and dangerous reality. Human-induced climate change affects the ecosystem in the Arctic, upon which the Inuit communities are dependent on their livelihood and cultural survival from time immemorial (Watt-Cloutier, 2007:17). Climate change in the Arctic is considered to be more severe than in any other part of the world, and indigenous communities/peoples, including the Inuit in the circumpolar region, are most affected by this. The circumpolar Arctic is home to numerous indigenous peoples, whose cultures and activities are shaped by the Arctic environment. Climate change is a significant threat to Arctic communities, flora, fauna, and the physical environment.

In a nutshell, “co-management and partnership with indigenous peoples are fundamental to facilitate and allow them to choose their own way of life and influence the future of the resources that they rely upon for their livelihood as well as their community well-being (UNEP/GRID-Arendal 2005:4). Climate change is a collective responsibility that needs commitment and endeavor at every level of government in the world, including these eight Arctic nations.

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