Háskólinn á Akureyri

Living condition of indigenous people and relations of gender in the Arctic in light of rapid climate change and globalization

Inga Hrönn Ólafsdóttir

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Jón Haukur Ingimundarson

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Inga Hrönn Ólafsdóttir

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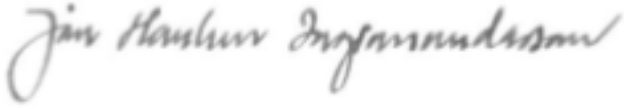

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Jón Haukur Ingimundarson

Ágrip

Það er mörgu að huga að þegar að það kemur að málefnum Norðurslóða. Á síðustu árum hafa gífurlegar breytingar orðið á umhverfi norðurslóða í kjölfar hlýnunar jarðar. Þessar loflagsbreytingar ásamt hraðfara hagrænni hnattvæðingu hafa ekki einungis áhrif á umhverfið og dýralíf heldur einnig þróun lífskjara á norðurslóðum. Umhverfið og vistkerfið á norðurslóðum er gríðarlega viðkvæmt og hafa umhverfis- og loftslagsbreytingar víðtækari áhrif á norðurslóðum en annars staðar í heiminum. Svæðið er gríðarlega stórt og fjölbreytt og einkennist af sterkri menningararfleið og menningarlegum fjölbreytileika. Frumbyggjar í dag eiga undir högg að sækja í kjölfar hlýnun jarðar vegna þeirra áhrifa sem að loftlagsbreytingar hafa á umhverfi þeirra og auðlindir. Með hlýnandi loftslagi á Norðurslóðum og sífeldum breytingum á náttúrulegu umhverfi frumbyggja koma nýjir þættir inn í söguna sem að stefna öryggi og velferð frumbyggja á norðurslóðum í hættu. Þessi ritgerð fjallar almennt um loftlagsbreytingar og áhrif þeirra á þróun lífskjara á norðurslóðum ásamt því að farið verður yfir öryggi, velferð, ólíka stöðu kynjanna og stöðu frumbyggja á norðurslóðum.

Lykilhugtök: Norðurslóðir, loftlagsbreytingar, lífskjör, frumbyggjar, fæðuöryggi og jafnrétti kynjanna

Abstract

The residents of the circumpolar Arctic are currently facing numerous critical issues and challenges. The Arctic environment has been undergoing major changes in recent years due to global warming. Climatic changes together with rapid globalization are not only having significant impacts on the region´s natural environment but on human development and living conditions as well. Arctic ecosystems are very vulnerable, and climatic and environmental changes are altering the Arctic faster and more severely than other parts of the world. This extensive region is geographically diverse and marked by strong cultural traditions and rich cultural diversity. Arctic indigenous people, in particular, are under threat from global warming which is having strong impact on their natural environment and subsistence resources. As Arctic warming continues, causing constant changes of their environment, indigenous people must confront ever-new challenges and threats to their security and well-being. This thesis broadly focuses on climate change and it´s impacts on human development and living conditions in the Arctic and, more specifically, it addresses the particular issues of security, well-being, the diverse and differentiated situations of woman and men, and the conditions of indigenous people in the Arctic.

Keywords: Circumpolar Arctic, climate change, living conditions, indigenous people, food security, gender equality.

Þakkarorð

Þessi ritgerð er lokaverkefni mitt til BA gráðu í félagsvísindum við Félagsvísindadeild Háskólans á Akureyri. Ritgerðin var unnin vorið 2017 undir leiðsögn Jón Hauks Ingimundarsonar. Ég vil þakka honum sérstaklega fyrir að hafa kynnt mig fyrir málefnum norðurslóða sem eru mér nú afar mikilvæg og vil ég einnig þakka honum fyrir frábæra leiðsögn og þolinmæði. Einnig vil ég þakka fjölskyldu minni, maka, foreldrum og systkinum fyrir alla þá aðstoð sem að þau hafa veitt mér í gegnum þetta ferli. Móðir mín Anna Guðríður Einarsdóttir og systir mín Ingibjörg Ásta Norðdahl fá sérstakar þakkir fyrir þá aðstoð og þann stuðning sem að þær veittu mér og maka mínum í gegnum þetta ferli með því að aðstoða við uppeldi barnanna.

Table of Content

1 Introduction

Climate change is a fact of life. The Arctic needs protecting and the impact of climate change has had profound impact on living conditions of people in the Arctic, especially indigenous peoples, and the vast majority of animal species found in the Circumpolar Arctic region. The Arctic is warmer than it used to be and continues to get warmer and climate change is challenging the well-being of communities in the Arctic. The Arctic region is geographically diverse and marked by strong cultural traditions and rich cultural diversity. Arctic indigenous peoples have lived in the regions of the Circumpolar North for thousands of years and what makes them unique is their distinctive cultural traditions that are still practiced in many communities to this day.

The reason for the rapid changes in the climate and the warming of the Arctic region is global emissions of greenhouse gases. Global emissions of greenhouse gases have changed the physical environment of the Arctic with widespread effects for societies and ecosystems. Climate change in the Arctic region has consequences for biodiversity, ecosystems and human living conditions (Arctic Council, 2013).

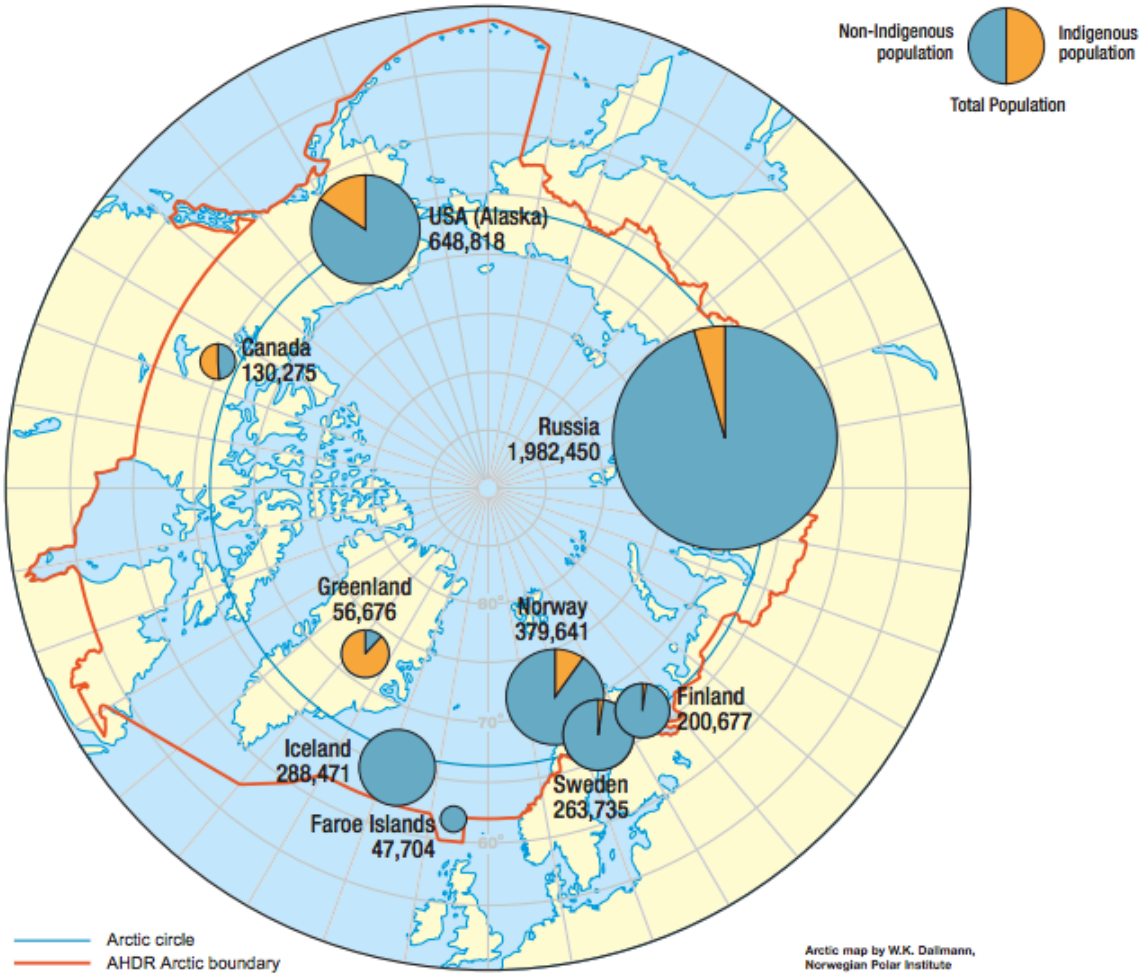
Climate change is not the only factor that is affecting Arctic indigenous people's livelihoods. Factors such as resource development, industrialization and economic changes are also greatly affecting their lives. Issues such as property rights, access to resources and health issues related to these changes are of great concern for the indigenous peoples living in the Arctic region (Fondahl, Filippova and Mack, 2015).

In this thesis I will focus on the Arctic residents and resources, human security, human health, gender issues and state of indigenous peoples in light of globalization and rapid climate and environmental changes occurring in the Arctic. I will especially explore the relationship between climate change and indigenous people's social change by focusing on Inuit culture.

This thesis underlines the importance of research into climate change in the Arctic and its social impacts, particularly on gender relations and issues.

2 The Arctic Region and its Residents and Resources

The Circumpolar Arctic region includes northern parts of eight nations: the USA (Alaska), Canada, Greenland (part of the Danish kingdom), Iceland, Norway, Sweden, Finland, and the Russian Federation (Bruce, Tulz and Koch, 2016). Some of the nations are completely located within this region, namely Iceland, Greenland, and the Faroe Islands (Bogoyavlenskiy and Signer, 2004a).



A map of the Arctic by W.K. Dallman and Norwegian Polar Institute, of the total population in the region (Young and Einarsson, 2004b).

About four million people live in the Arctic today and among them live many distinct indigenous groups that try to adapt to the modern world. The majority of the population of Greenland is indigenous but if we look at the total population of the Arctic region, indigenous peoples are roughly 10 % of the Arctic's total population (Arctic Council, 2015a). According to the Arctic Human Development Report (2004), about half of the Arctic's population is located within the Russian Federation.

The Arctic is not always defined geographically in the same way. The Arctic Human Development Report (AHDR) from 2004 for example, refers the Arctic as being a region that encompasses all of Alaska, Canada North of 60°N together with northern Quebec and Labrador, all of Greenland, the Faroe Islands, and Iceland, and the northernmost counties of Norway, Sweden and Finland. It also includes areas of Russia, such as Murmansk Oblast, the Nenets, Yamalo-Nenets, Taimyr, and Chukotka autonomus okrugs, Vorkuta City in the Komi Republic, Norilsk and Igsrka in Krasnoyarsky Kray, and those parts of the Sakha Republic whose boundaries lie closest to the Arctic Circle (Young and Einarsson, 2004b). The National Snow and Ice Data Center in the United Stated, say that scientist define the Arctic in different ways but most commonly scientist define the Arctic as the region above the Arctic Circle, an imaginary line that circles the globe at approximately 66° 34' N (National Snow and Ice Data Center, n.d. c). The Arctic and the Sub-Arctic together are often referred to as the Circumpolar North.

The Arctic region is different from the rest of the world because of the extremely sparse population (Bogoyavlenskiy and Signer, 2004). The Arctic region is also home to more than 21.000 species that can survive in and are adapted to the extreme cold and climatic conditions. Many of the species can't be found anywhere else in the world. The most iconic and most talked about species in the Arctic region is the polar bear (CAFF, 2013).

The Circumpolar North provides the global populations and local communities with unique marine and terrestrial ecosystems but the change in climate we see today, threatens many of these ecosystems and the services they provide us (O'Garra, 2017). A lot of desired non-renewable resources can also be found in the Arctic region and according to Crandall and Thurston (2007), the U.S. and Canadian Arctic alone are estimated to hold 45% of all undiscovered Arctic energy resources. According to the parliamentary resolution on Iceland's Arctic Policy that was approved by Althingi on March 28, 2011, the Arctic region is believed to hold an estimated 30% of the world's unexploited gas and 13% of oil. The Arctic ecosystem is very fragile and utilization of resources is subject to various political, economic, environmental and social constraints and conditions. The Arctic could become an area of conflict in the near future because of continental shelf claims that can compromise the relationship between the Arctic States. Continental shelf claims have yet to be settled within the framework of international law (Icelandic Ministry for Foreign Affairs, 2011).

2.1 The Arctic Council

The Arctic Council was established in 1996 and is the only intergovernmental forum for political discussions on Arctic issues that involves all the Arctic states. Canada, Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, Russia, Sweden and the United States are the eight member states of the Arctic Council. The aim of the Arctic council is to promote co-operation and interaction between these states along with protecting the Arctic environment. The Arctic Council role is also to promote the economic, social and cultural wellbeing of northern people. Along with the eight member states, the Arctic Council includes six international organizations representing Arctic Indigenous peoples that have the status of Permanent Participants, as well as six working groups that carry out the Council's

work and activities in the Arctic. Several non-Arctic states, international organizations and non-governmental organizations participate as observers (Arctic Council, 2015c). Arctic indigenous people through the Permanent Participants, participate in discussions in the same manner as states. Indigenous peoples are given the opportunity to add their voices to international issues and make valuable contributions to the Arctic Council's activities. Technically speaking, however, only Arctic states are allowed to determine whether there is a consensus for decisions but Permanent Participants can sometimes persuade some Arctic states not to join a consensus on issues where there is strong Permanent Participant opposition (Fenge and Funston, 2015).

3 Climate Change

Climate is the weather condition of a place averaged over a period of time. Climate change is talked about in terms of years, decades or centuries (National Snow and Ice Data Center, n.d b). Climate change in the Arctic is to a great extent caused by human activity (anthropogenic) and does not only affect the environment but can also cause social transformations. According to the Arctic Monitoring and Assessment Program (2015), human-caused climate change is due to increased anthropogenic emissions of carbon dioxide and other "greenhouse gases" around the world. Carbon dioxide (CO_2) is the largest driver and is released into the atmosphere in vast quantities. The problem with CO_2 is that it stays in the atmosphere for centuries or longer, which means it's warming effects persist for that long as well. Increased CO_2 emission also leads to rising ocean acidification, and according to the IPCC (2014), about half of the cumulative anthropogenic CO_2 emissions between 1750 and 2011 have occurred in the last 40 years. According to the Arctic Monitoring and Assessment Program (2012), most of the greenhouse gases contaminants that are found in the Arctic result from human activities outside the region and are carried north by air and ocean currents.

Climate change impact on the Arctic has implications for the health of Arctic ecosystems and the wellbeing of local and global communities. As the Arctic's permafrost melts it increases the concentration of greenhouse gases in the atmosphere. In addition, the ice-albedo effect is diminishing. When the sea-ice melts less sunlight is being reflected back into space, leading to even greater warming of the atmosphere. Both these effects imply the loss of important climate regulation services provided by the Arctic (O'Garra, 2017).

Any changes in the Arctic climate are important to recognize because the Arctic acts as a refrigerator for the rest of the world, meaning that the Arctic helps cool the planet. Over the past 30 years, the Arctic has warmed more than any other region on earth (National Snow and Ice Data Center, n.d a).

According to Barnett and Adger (2007), the changes we now see in the earth's climate system have no precedent in the history of human civilization. Franchini and Manucci (2015) say that climate change experts strongly believe that climate change will lead to increasingly frequent and severe heat waves along with extreme weather events in the future.

3.1 The Intergovernmental Panel on Climate Change (IPCC)

The Intergovernmental Panel on Climate Change (IPCC) is an international organization that was established in 1988. The IPCC assesses the science-related information about climate change and provides policy makers with regular assessments that address the impacts of climate change and discuss among other things the implications of response options (IPCC, n.d a). The IPCC has released five assessment reports since 1990 and these are considered the most comprehensive scientific reports about climate change and are distributed worldwide. The IPCC does not conduct any research itself but depends on clear and up-to-date view of the current state of scientific knowledge relevant to climate change (IPCC,n.d. b).

The latest assessment report (AR5) predicts that with continued emissions of greenhouse gases, climate change will have mostly negative impacts for the Arctic's biodiversity, ecosystem services and economic development. This will pose new risks for livelihoods and human security but the risks however depend on the state of vulnerability of different regions and groups of people (IPCC, 2014).

4 Arctic Communities and Resilience

Arctic communities are facing multiple stressors due to climate change. The Arctic has been affected by both global environmental change and globalization but through history human societies in the Circumpolar North have shown high resilience, they have faced severe challenges before and adapted successfully to changing conditions (Larsen, Schweitzer, and Petrov, 2015). The population of the Arctic is ethnically complex. The Arctic states have different ways of categorizing people based on their identity. The United States classifies people based on race. Canada classifies people based on ethnic origin. Greenland categorizes people based on place of birth, the main distinction being in Greenland or outside Greenland. Iceland and The Faroe Islands classify people based on place of birth or citizenship but Norway, Sweden and Finland ceased to record ethnicity after World War II (Heleniak, 2014).

Resilience has through history been a crucial factor for living in the Arctic. The Arctic environment is very unpredictable but Arctic people have found ways to adapt to the high degree of unpredictability (Huitric, Peterson and Rocha, 2016). The term adaptation means adjustment in ecological, social, or economic systems in response to actual or expected environmental change (Smit and Pilifosova, 2001). The nature of traditional knowledge is important for adapting to current conditions (Larsen and Fondahl, 2014).

Due to regional differences in climate conditions as well as variations in health status throughout the Arctic, the ability to adapt to changes differs from place to place depending on populations. Rural Arctic residents for example in small, isolated communities with a fragile system of support, little infrastructure and poor health system are most vulnerable to changes. Factors such as age, lifestyle, gender and access to resources play a big role (Arctic Climate Impact Assessment, 2004).

The thinning of sea ice in the Arctic Ocean brings both opportunities and challenges. The thinning of sea ice opens up opportunities for industry but for Arctic communities and rural

areas climate change poses a number of challenges due to fewer livelihood options, financial resources and the fact that the rate and extent of change are much greater than the ability to adjust (Rasmussen, Hovelsrud and Gearheard, 2014).

4.1 Arctic Indigenous Peoples

There are over 40 different ethnic groups in the Circumpolar North that identify themselves as indigenous peoples (Willow, 2015). Arctic Indigenous peoples' subsistence is based on a unique knowledge of their environment, called Traditional Knowledge. Traditional indigenous knowledge is a worldview that is based on the perception that humans and the environment are inseparable (Seurujärvi-Kari, 2002*)*. Traditional knowledge is passed down generations through storytelling and community members exchange intimate knowledge of the land and sea. This way, they are able to understand a changing environment and adapt community practices to meet current condition (Dingman, 2013).

Indigenous people have through history suffered from the consequences of historic injustice, including colonization, dispossession of their lands, territories and resources and lack of control over their own ways of living (Carino, 2009). Indigenous peoples have often been accused of wanting "special rights" over land and resources but for Indigenous peoples it's about the importance that the land and resources have for their traditional livelihoods (Forbes and Kofinas, 2014). According to Caulfield (2004), property rights are central to indigenous peoples' claim to governance. It's important for them to have control over their resources because it constitutes the basis of their sustainable livelihoods. According to Sowa (2013), the Greenlandic Inuit for example have one of the most extensive systems of self- government in the world and are seen as a role model for other indigenous peoples in the world. Greenland was granted home rule in 1979, and self-government was established on June 21, 2009.

Greenland has a population of 55. 847 and is part of the Kingdom of Denmark (Statistics Greenland, 2016).

Arctic indigenous populations are uniquely vulnerable to climate change because of their dependence on and close relationship with their environment. Climate change affects sustainable development of Arctic communities through its impact on sanitation and water infrastructure, food supply, transportation infrastructures and the rates of infectious diseases. Climate change threatens indigenous people's health in two ways. The direct health threats from climate change in the Arctic are the increased incidence of physical injuries and mortality associated with unpredictable ice and storm conditions. The indirect impacts on indigenous populations are increased mental and social stress related to changes in environment and loss of traditional lifestyle (Parkinson, 2009).

Indigenous peoples' natural resources that they use for their traditional activities like hunting animals, fishing and herding are being exploited by industrial companies, causing significant harm to their living conditions. Under current conditions where industrial pollutants and climate change is a factor indigenous people are not able to adapt in the same way as their ancestors, leaving many of them in a state of hopelessness and confusion (Abryutina, 2009).

In 2007 the General Assembly of the United Nations adopted a declaration on the rights of indigenous peoples. The declaration is long and complex but it represents a wide range of basic human rights. Among them are that indigenous peoples are equal to all other people, they should be free from any discrimination, they have the right to determine their own identity and the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources (United Nations, 2008).

4.2 Food security

With warming climate come factors that create security concerns. Although, extractive industry development can bring some economic benefits to the Circumpolar Arctic area there are also human security concerns associated with these development projects such as environmental contamination (Sweet, 2014). For more than twenty years, food safety has been a major focus of Arctic research. Arctic Monitoring Assessment Programme (AMAP), a working group for the Arctic Council, has been monitoring levels of environmental contaminants and toxic metals in wild species like fish, marine mammals, reindeer, caribou and moose (Rautio, 2016). Food insecurity is a growing concern not only for Arctic indigenous peoples but also for indigenous communities worldwide. Amongst the indigenous people traditional food serves a great social, cultural and nutritional resource for the people but sadly pollutants resulting from industrial activities are affecting their food security (Bordeleau, Asselin, Mazerolle and Imbeau, 2016). Subsistence foods from the local environment provide Arctic residents, especially indigenous peoples with unique cultural and economic benefits and food insecurity affects the well-being of the people (Larsen, Schweitzer, and Petrov, 2015).

5 Inuit Culture and Health

Through history the health of Inuit and other indigenous peoples across the Arctic region have undergone substantial changes, brought about by interactions with Europeans. When the Europeans arrived, there was very little resistance or immunity in the indigenous population making them vulnerable to deceases that had not been experienced before in the indigenous populations (Bjerregaard, Young, Dewailly and Ebbesson, 2004).

Changes in living conditions and lifestyle following societal transition in the Arctic affected the Inuit culture and health in numerous ways. The change from traditional food to a more Western diet for example, resulted in the loss of the socio-cultural values related to eating and sharing the traditional food. Today, older people consistently consume more traditional food than the younger generation. The younger generation does not choose the store-bought food because they think it's a healthier choice but because it's convenient for them to pick up store bought foods. The younger generation however, still thinks that the traditional foods are healthier and provide energy and strength that the store bought foods can't give them and recognize that the traditional food is a significant contributor to Inuit cultural identity (Curtis, Kvernmo and Bjerregaard, 2005).

In 1977, an organization was established called The Inuit Circumpolar Council (ICC). ICC is now one of the six Arctic indigenous peoples' organizations that have the status of Permanent Participant on the Arctic Council. The ICC represents approximately 160,000 Inuit in four countries; Alaska, Canada, Greenland and Chukotka (Russia). The aim of the ICC is to strengthen unity among Inuit of the Arctic region and promote Inuit rights and interests on an international level (Arctic Council, 2015b). In 2009 the ICC held a summit called the Circumpolar Inuit Health Summit in Yellowknife, Canada. According to the summit, over the past 100 years there have been improvements in health and survival for the Inuit but stark differences still exist between Inuit and the national populations in the four countries. Life

expectancy is one of the key indicators for health and is on average between 4.6 to 12.2 years lower for Inuit compared to the national average in the four countries. It was also discussed during the summit that suicide rates in all Inuit inhabited areas have been increasing and in 2009 suicide rates were highest for Nunavik in Quebec. In Inuit areas in Canada, 51% of the total suicides are committed by males under the age of 25, as compared to 14% by females under the age of 25 (ICC, 2009). According to Hild and Stordahl (2004), Inuit suicide rates among young adults in the Arctic region are higher than national or regional average. Jack Hicks (2014) has said that in Nunavut, Canada, Inuit are 11 times more likely to die by suicide than other Canadians. The reason behind these numbers lie in significant historical trauma related to government policies in the past. According to Nunavut Tunngavik Incorporated (2013), this historical trauma relates to when Nunavut Inuit experienced colonization that started back in 1950 by the Government of Canada. Nunavut Inuit were forced to undergo rapid social transition by the government which relocated them from small seasonal camps into permanent year-round settlements. Nunavut Inuit experienced among other things loss of mobility. This loss of mobility contributed to the breakdown of gender roles. To be able to hunt for food symbolized autonomy and self-reliance for hunters and their families and when they were not able to hunt like they could before colonization, it took a toll on the self-esteem and self-worth of many hunters. This period of change disempowered the Inuit and altered their traditional gender and community roles, resulting in emergence of social challenges and elevated suicide rates.

According to Curtis, Kvernmo and Bjerregaard (2005), Inuit men are more likely to commit suicide than Inuit women. Women have shown a much better capacity to adapt to climate change and social change. Women still have their status as the caregivers in the family but for men the transition from hunter and sole bread winner to wage earner has been a difficult

transition for many Arctic males resulting in stress or frustration. The Inuit men become more likely to be violent or commit suicide.

5.1 Inuit Food Security

Food security is also a concern for all of the Inuit in the Circumpolar Arctic region. According to ICC (2009), isolated communities in Arctic Canada for example, reported back in 2004 high food insecurities of 40 – 83%, while overall food insecurity in non-indigenous households was about 9%. For Inuit across the Arctic, the food security situation is influenced by various factors and depends on the vulnerability of communities. Contributing to food insecurity in these remote communities are factors such as high food cost, the costs of hunting, limited available income, inadequate government support, and other societal and individual challenges.

When talking about the traditional Inuit diet or country foods we are referring to the consuming of wild animals or plant species from the local environment. Market-foods are for the most part the foods that are transferred from the south. The market food that the Inuit consume is however poor in nutrition compared to their traditional country foods. The market food contains high levels of sugar, salt and fat. Despite increased reliance on market foods, Inuit country foods remain central to identity and wellbeing of Inuit (ICC, 2012b). The high levels of carbohydrates that market foods contain result in some cases to chronic diseases like diabetes (ICC, 2012c). For many Inuit communities the high cost of oil, fuel and transportation serves as a big factor contributing to food insecurity because it affects their ability to conduct their hunting activities and limits access to both traditional foods as well as store bought goods. According to Nunavut Tunngavik Incorporated (2013), country foods are less expensive than store bought-foods, so if hunting becomes more difficult because traveling is more expensive and more dangerous due to melting of snow and ice, it can lead to acute shortage of country

foods in some households and communities. Shortage of country foods can have a seriously detrimental effect on the wellbeing of Inuit.

The Arctic food web is being contaminated by chemicals that are produced and used for industries located outside the region resulting in contamination of the diet of Inuit. To Inuit their diet is not only important because of nutritional benefits but also because it supports traditional knowledge and skills (ICC, 2012a). Environmental changes in the Arctic caused by climate change directly affects traditional food security and therefore threatens sustainability of Inuit communities where the infrastructure is dependent on permafrost stability (Donaldson, Adlard and Odland, 2015).

6 State of Gender Affairs and Equity

Globally, women and men face different vulnerabilities due to their different gender roles. In the Arctic communities indigenous people, elderly, women and children are considered particularly vulnerable groups (Kukarenko, 2011). Arctic indigenous peoples' social systems have exhibited sharp differences in the roles assigned to men and women but relatively few conflicts framed in terms of gender issues. To be able to survive in this harsh environment it required a partnership between men and women (Young and Einarsson, 2004a). Rautio, Poppel and Young (2014) say that in traditional Arctic social systems men are more likely than women to attempt to preserve traditional ways of life, choosing to hold on to traditional occupations such as hunting and fishing. Williamson (2004), as well as Kukarenko (2011), say that any disruption of traditional roles like hunting and fishing has been identified in a number of studies as a reason for profound problems in male identity and loss of men's self-esteem which leads to psycho-social disorders among men, including higher suicide rates and alcoholism.

According to Williamson (2004), when we are addressing gender equality issues among indigenous people of the Circumpolar North it has to be understood from a uniquely Arctic perspective, different from the idea of power imbalance between men and women among southerners. Williamson says that if we will insist on introducing southern styles of gender equality issues to the Arctic indigenous peoples, it will only reinforce colonial attitudes. Indigenous peoples' experiences of colonialism have already had a devastating effect on areas such as language, religion and management of resources.

7 Continued Climate Change Impact on Arctic Living Conditions in the Future

If we won't reduce emission of greenhouse gases it will cause further warming and long lasting changes in all components of the climate system. It will also lead to potential increase of severe and irreversible impacts for people and ecosystems. If we continue greenhouse gas emissions without thinking about how it could affect the future we will see increase in climate change risks and it will also create new risks for natural and human systems (IPCC, 2014).

Over the past 100 years nearly all glaciers and ice caps in the Arctic have shrunk and Arctic sea-ice has declined faster during the past ten years than in the previous 20 years. Over the past 30 years the average extent of sea ice cover in summer has declined by 15-20%. It is expected that decline in sea-ice will accelerate and we will see near total loss of sea ice in summer late this century (ACIA, 2004). Increasing global concentrations of carbon dioxide and other greenhouse gases due to human activities are predicted to contribute to additional Arctic warming of about 4-7 °C over the next 100 years. The Arctic will experience the largest future increases in temperature on the planet, so the changes observed today are going to continue and accelerate. The melting sea ice will affect fisheries that many rely on. It is expected that we will see behavior change of the fish and relocation, and hunting and fishing by Arctic indigenous peoples becomes more difficult as some species that are hunted for food are declining because their habitat changes or animals move to new locations making traveling more difficult for hunters (AMAP, 2012).

The warming Arctic and the unprecedented changes to the environment will continue to significantly impact the health and well-being of Arctic residents, especially for many indigenous peoples. Factors such as extreme weather events, unpredictable weather conditions and increasingly unsafe hunting conditions will have direct impact on health. It will also have an effect on factors such as changes in animal and plant populations, changes in the physical

environment for Arctic residents, diet, drinking water access among other things (Larsen and Fondahl, 2014).

7.1 Recent Key Findings of SWIPA

The recent SWIPA (Snow, Water, Ice and Permafrost in the Arctic) assessment was conducted between the year of 2010 and 2016 and published in 2017. More than 90 scientist contributed to the assessment and it was peer-reviewed by 28 experts. The SWIPA assessment predicts that the Arctic Ocean could be largely free of sea ice in summer as early as the late 2030s, much earlier than previously estimated by most climate models. According to scientific measurements the sea ice thickness in the central Arctic Ocean has declined by 65% over the period 1975–2012 and the Arctic is warming faster than any other region on Earth. Scientific measurements also showed that the Arctic was warmer from 2011-2015 than at any other time in recorded history. The changes we see today in the Arctic region will continue through at least mid-21st century due to warming that has already been locked into the climate system but by reducing knowledge gaps we will improve our ability to respond to current and future changes in the Arctic. The main message of the new SWIPA assessment is that human actions over the next years can possibly make a difference. We can make efforts to reduce emissions but the impact that would make won't become visible until at least mid-21st century. The SWIPA assessment says that this will require northern countries, communities and other stakeholders to focus on adaptation because the Arctic environment will continue to undergo significant changes (AMAP, 2017).

8 Conclusion

The importance of the Arctic must be recognized. We must improve our understanding and address gaps in knowledge relating to climate change and its impact, especially in the Circumpolar North. For most people around the world climate change is distant and abstract and isn't something that is felt directly but changes in the Arctic affect the rest of the world through the Arctic's importance in the global climate system. Rapid climate change is due to human activities, affects us all and holds us all responsible. It is possible to reduce the emissions of greenhouse gases and get the world to address this problem.

With warming climate come security concerns. Food insecurity is a growing concern for Arctic indigenous peoples. The Circumpolar North provides the global populations and local communities with unique marine and terrestrial ecosystems.

Much has been written about how climate change and human activity in the Arctic has impacted the Arctic indigenous people's living conditions and well-being, but very few researchers examine Arctic indigenous peoples from a gendered perspective and how the impacts of climate change in many ways affect women and men differently in the Arctic region. It is a cause for concern that suicide rates in Arctic indigenous populations have been increasing and suicide rates are especially high among young males. The Arctic indigenous peoples are a part of the regions cultural diversity and their rights to be able to continue their traditional livelihoods must be respected.

In the coming decades the climate is going to keep on changing and the Arctic residents have to be able to adapt to future climate- and environmental changes. We have already seen how climate change has impacted the Arctic indigenous peoples in numerous ways. We as humans must see ourselves as part of nature and that we depend on the natural environment for survival. Future human-induced changes in climate will risk human security, not only for Arctic indigenous peoples but also for non-indigenous peoples living in the Arctic region and possibly

the rest of the globe. Substantial cuts in global greenhouse gas emissions around the world can possibly limit climate change risks but the impact that would make won't become visible until at least mid-21st century. However, climate change is one of the biggest threats for our future generations to come so it is more important than ever to act now.

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