Note

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Note de recherche / Research note

Should we turn the tent? Inuit women and climate change

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Résumé: Devons-nous tourner la tente? Les femmes inuit et le changement climatique

La majeure partie des publications en sciences sociales sur le changement climatique dans l'Arctique canadien a mis l'accent sur les connaissances et les expériences des hommes. En nous appuyant sur des recherches faites à Qikiqtarjuaq et Clyde River, au Nunavut, nous explorons les perspectives des femmes inuit sur les récents changements environnementaux, dont plusieurs sont souvent attribués aux changements climatiques par les Inuit ou d'autres personnes. Nous séparons les enjeux résultant des changements environnementaux en effets primaires et secondaires. Les effets primaires sont des changements environnementaux qui touchent, par exemple, la chasse, la pêche et les voyages. Les effets secondaires se produisent dans la communauté à la suite des changements environnementaux. Ces derniers sont notamment des changements dans l'utilisation et l'état des produits dérivés de la chasse, comme les peaux de phoque, et l'impact psychologique et social des changements environnementaux, notamment la diminution des sorties en dehors de la communauté en raison de la crainte de conditions dangereuses. Nous offrons également une discussion préliminaire sur le rôle des femmes dans les réponses au changement climatique, à travers leurs rôles économiques et politiques souvent dominants dans leurs communautés, sur le territoire, et par le biais de divers forums de gouvernance mondiale. Nos recherches indiquent que le sexe des individus joue un rôle dans l'élaboration des connaissances des Inuit sur les changements environnementaux, ainsi que dans les réponses sociales à la perception du changement. L'examen des perceptions des femmes sur

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les changements environnementaux a attiré notre attention sur les aspects sociaux de cet enjeu et met également en évidence comment les femmes peuvent contribuer à l'adaptation, non seulement à des changements physiques, mais aussi aux changements sociaux qui en découlent.

Abstract: Should we turn the tent? Inuit women and climate change

Most of the climate change literature for Arctic Canada in the social sciences has focused on men's knowledge and experiences. Drawing on research from Qikiqtarjuaq and Clyde River, Nunavut, we explore Inuit women's perspectives on recent environmental changes, many of which are often attributed to climate change by Inuit or others. We divide issues resulting from environmental change into primary and secondary effects. Primary effects are changes in environmental features that affect, for example, hunting, fishing, and travelling. Secondary effects occur in the community as a result of environmental change. These include changes in the use and condition of country products like seal skins, and the psychological and social impact of environmental changes, such as going out on the land less often due to fear of dangerous conditions. We also offer a preliminary discussion on women's role in responses to climate change, through their often dominant economic and political roles in their communities, the territory, and various wider global governance fora. Our research indicates that gender helps shape Inuit knowledge of environmental change, as well as social responses to perceptions of change. By examining women's perceptions of environmental change, we draw attention to the social aspects and also highlight how women can contribute to adaptation, not only to physical changes but also to the resulting social changes.

Introduction

In 2001, a Baker Lake elder observed that the prevailing wind had shifted direction in her area. For many years she had set up her family's summer tent on the land in the same location, with the same orientation, in part so that the prevailing wind would hit the back of the tent. In more recent years, however, it has been hitting the side (Tatayakputumiraqtuq 2001). How then to decide the best orientation of the tent, when factors other than the wind also influence the decision? This incident illustrates the complex nature of environmental change faced by Inuit: physical changes in the environment, some of which are brought about or exacerbated by climate change, and the social and cultural implications.

Climate change has affected physical and human Arctic environments (ACIA 2004; AHDR 2004). As a scientific and cultural phenomenon, it has become increasingly politicised (Jasanoff 2010; Martello 2008). Researchers in northern communities have noted that global discourses on climate change are introduced and circulate at the community level in a variety of ways, including through the media and in inquiries and presentations from visiting journalists, tourists, and scientists. Several

recent publications have noted the need to consider such politicisation in Arctic research design (Forbes and Stammler 2009; Morino and Schweitzer 2009).

Inuit and other Arctic residents have observed many environmental changes that they attribute to climate change; their observations are supported by, and also contribute to, broader scientific research on Arctic climate and environmental change (ACIA 2004). In Arctic Canada, Inuit observations have been documented with a greater focus on men's observations (e.g., of sea ice, glaciers, animals and seasonal changes), as well as impacts on male-centred activities such as hunting and travelling on land and ice (e.g., Ford et al. 2006; Furgal and Seguin 2006; George et al. 2004; Laidler et al. 2009). Men are the main hunters and navigators in most communities, spending their time largely in direct contact with the physical environment; therefore this male focus makes sense for gathering data about climate change impacts on the landscape and primary subsistence activities.

Although for the Arctic and worldwide the literature is dominated by men's experience and knowledge of environmental change, some researchers have attempted to redress the imbalance. There is general agreement in Inuit literature that traditional gender roles, though flexible, were also distinct, and that men and women continue to play distinct roles particularly in the subsistence economy (AHDR 2004). In an Arctic context, research by Robinson et al. (2009) on local knowledge and fisheries in Alaska's eastern interior shows that the gendered division of labour in fisheries has led to women holding distinct knowledge about the impact of environmental change on fish. As the primary processors of humpback whitefish, women are able to describe an increase in incidence of fish parasites, with important implications for how much of a catch is being consumed by humans, as well as potential health consequences.

In a global context, women and climate change were the focus of two special issues of the journal *Gender and Development* (2002 and 2009). Many of the articles in these issues were broadly comparative, making the case for the importance of gender analysis, and calling for further context-specific research. Arguments for gender-specific analysis of climate change point to the fact that labour is often gendered, with some work incurring greater exposure to certain environmental hazards than does other work (Lane and McNaught 2009). Women are typically the primary caregivers for children and elderly family members, play a key role in subsistence food production, and are often the ones who collect firewood and procure drinking water. These roles may mean additional work for women, particularly in drought-prone areas or areas with extreme heat or weather (Demetriades and Esplen 2008; Denton 2002; Hardee 2009). In areas where men control household or communal resources and are the predominant political decision-makers, women's marginalisation means they will have less control over responses to climate change (Hemmati and Röhr 2007; Masika 2002; Nelson et. al 2002).

Our research focuses on women's knowledge and experience of social and environmental changes in Nunavut. It includes how women engage with the environment and their observations of change through activities such as fishing, skinning, and berry picking. In addition, our research illuminates the interactions

between environmental and social changes, as seen through women's eyes. Inuit women, in many ways, are at the heart of community life. Johnson's doctoral research has centred on the political context of environmental knowledge at different levels of decision-making, including Clyde River (local), Iqaluit (territorial), and the Inuit Circumpolar Council (national/global). Her collaboration has enabled us to examine linkages between women's local observations, perceptions, and engagements with environmental change, and the broader economic and political context of debate on climate change policies. Inuit women are the primary wage earners for their households in local communities and in territorial and global governance contexts (Minor 2002). They also increasingly play a role in institutions at the community, territorial, and national levels, although their participation in institutional contexts is uneven. These roles position them to contribute to the development of initiatives that can help support communities in addressing the challenges of climate change.

In this research note, we present some preliminary information from women (elders, younger women, and women's institutions) with a view to unravelling the primary and secondary effects of climate change on their lives while pointing to areas that need further investigation. We begin with some of the women's observations of environmental changes, and the geographic specificity of their observations. We then discuss how such changes influence women's lives, first through their land-based activities, and then through the secondary effects of climate change in the communities, which are removed from direct interactions with the land. Lastly, we offer a preliminary discussion on women's special role in responses to climate change.

Methods

While avoiding the broad term "climate change" for observations of change at the local level, we distinguish between: 1) climate change, which is the change of global temperatures due to rising emissions of greenhouse gases as well as a discursive framework that shapes policy and action; 2) the "primary effects" of climate change, which are the environmental changes in Arctic ecosystems; and 3) the "secondary effects" of climate change, which occur in the context of families and institutions within Arctic communities. Women's observations may be regarded as key to portraying the secondary effects, which occur away from the land and in the communities, where environmental changes are felt through social networks such as food sharing and family relationships.

This paper draws on past and current community-based research in Clyde River (Kangiqtugaapik) by Gearheard (2000-present), recent fieldwork in Clyde River and Iqaluit by Johnson in the summer of 2009, previous research by Dowsley in Qikiqtarjuaq and Clyde River (2004-2005), and previous work in several Nunavut communities by Gearheard and Dowsley (2000-2009). During the first year of the project (2009) semi-directed interviews (n=40), focus groups, informal discussions and participant observation were conducted in Clyde River and Qikiqtarjuaq by Gearhead, Inksetter, and Dowsley in order to understand which environmental and social changes had affected women's lives. Research participants were recruited based on their

professional roles in the community, their knowledge of community activities, and their involvement in land-based activities. We sampled a representative range of ages.

The two study communities were selected for two reasons. First, both communities are on the Baffin Bay coastline, an area of considerable ecological interest for climate change and its environmental impacts (Heide-Jorgensen and Laidre 2004; Laidre and Heide-Jorgensen 2005; Stirling and Parkinson 2006). Second, Gearheard and Dowsley have worked in the two communities previously (and Gearheard is a full-time resident of Clyde River) and therefore had already collected climate change data using similar methods, although many of the participants were men (e.g., Dowsley 2007; Fox 2002, 2003). In discussing their earlier project experiences, Gearheard and Dowsley noted that while they did talk with women, there was a bias towards male participants both in their own work and in the work of colleagues, yet they had each heard and observed that women often had other, complementary experiences. This project seeks to rectify the marginalisation of Inuit women in environmental change discourse.

All quotes in the text are from climate-change-related semi-structured interviews with Inuit women of different ages. In Clyde River and Qikiqtarjuaq, many of the women were elders or older adults who either were currently active in land-based activities or had earlier spent considerable time on the land. Women were interviewed about territorial and global governance initiatives on the basis of their engagement in climate-change-related activities. Where the women have given permission, we give their names with any quotations. Otherwise we give a code that cites the interview transcript in the possession of one of the authors. More detailed discussions of research methods can be found in Fox (2002, 2004) and Dowsley (2008).

Inuit women's observations of environmental change

Inuit women and men traditionally worked together to provide for their families. This sexual division of labour did not mean the privileging of one gender over the other. Instead, it was similar to team work—tasks were divided up and assigned in order that all parties could together perform them efficiently, effectively, and safely. Traditional divisions of labour are still especially noticeable during travel on the land. Men typically drive skidoos and boats and are the main hunters, but women often take the lead in organising the camp, picking berries and other edible plants, ice fishing, and preparing food. This division of labour has led to different pathways through which women and men make observations and assess environmental change.

In most Nunavut communities, men are considered to be the expert holders of environmental knowledge. Our women informants, however, have made similar broad observations during their travels on the land and also hold their own detailed knowledge of environmental patterns and processes. In Qikiqtarjuaq, nearly all of them stated that the sea ice breaks up earlier now than it used to (mid June versus end of July), a finding that agrees with information previously recorded from men of the same community (Dowsley 2007). Freeze-up of the sea ice has also changed because weather is now more variable. When the ice starts to freeze, the weather is more likely to

change than in the past, and it often snows on the ice, which ends up becoming weaker (B-080609-EK). Previously, the weather changed very slowly, both season to season and day to day. Today it changes very drastically, quickly shifting from warm to cold (B-070609-MLK). Open water used to be colder in the ocean than in the fjords, but the last few years have seen such ocean areas become warmer (B-070609-MLK). Women in Qikiqtarjuaq have observed that it is more dangerous to travel on the sea ice now. In July the ice is so thin that people can fall through (B-170609-MK-MD). In the case of one Qikiqtarjuaq family that had been outpost campers a decade ago (living full time on the land, not in the community), they reported that they changed their travel routes around their old outpost camp because the old sea-ice routes were melting earlier (B-170609-MK-MD). Rebecca Iqalukjuak (2001) and Attakalik Palluq (2001; 2007) of Clyde River also described changes in spring conditions, sea ice, and snow cover, and how changes during the month of June (*Qiqqsuqqaqtuut* in Inuktitut: 'which concerns snow that has frozen again') have resulted in the traditional name for the season no longer being applicable:

> The sea ice has really changed. I used to travel both by dog team and skidoo to and from Pond Inlet. In my recent trip, the snow has changed. The snow on top and snow condition on top has changed. Normally, in the spring, the snow on the top will freeze at night. This process is called *qiqqsuqqaqtuq*. This frozen layer can be seen when the day just starts getting daylight; it is sparkling because of the recent freeze up on top. I noticed it wasn't like that anymore. This process, the freezing, isn't happening anymore (Palluq 2007).

Women's detailed knowledge of seals and seal skins, gained through their work preparing skins and sewing (Briggs 1974), is an example of where the knowledge of women can complement that of men and create a more complete picture of environmental change and impacts (Stuckenberger 2007). Seals bask on the sea-ice surface in the springtime and moult their fur during this period. At Clyde River, men and women alike described the earlier and quicker spring melt, with the sea-ice season shortened by four to six weeks overall (Fox 2004; Gearheard et al. 2006). The sea ice plays an important role in moulting, helping the seals to scrape off old fur as they lounge and move around on the ice. With the sea ice breaking up early, seals are forced into the water before the process is complete. When seals are harvested in summer, they often have patchy coats that have only partially moulted. Men have observed this change while hunting the seals and women have observed it while trying to work with these skins to dry them and prepare clothing. Women provide additional details by noting that some of the seals do not seem to be growing new fur, that the fur of many seals caught in summer seems to pull out more easily than normal, and that they have more skin irritations, dry skin, and holes in the hide (e.g., Palluq 2001, 2007). Women have also observed that climate change is making it more difficult to dry seal skins at certain times of the year. As Attakalik Palluq (2009) of Clyde River explained: "Before, the sun used to be less intense— more spread out. Even in early spring, the sun is too strong for the sealskins to be tanning outside —it burns it in April."

Climate change varies in its effects across the Arctic (Dumas et al. 2006; Laidre and Heide-Jørgensen 2005). Thus, detailed, place-specific information is important in order to adapt to climate change. This is especially true for the arrival of new species of flora and fauna, as ranges expand or shift northward. In Clyde River and Qikiqtarjuaq,

women have observed the arrival of more mosquitoes and other biting insects within the last 10 years. A Qikiqtarjuaq woman stated that although she had observed mosquitoes farther south, around the community of Pangnirtung, she had only seen them around her community in the past three or four years (B-090609-MOA). Canada and snow geese were also not seen as frequently in the past around Qikiqtarjuaq as they have been in the last few years (B-090609-MOA). Qikiqtarjuaq is on an island and has only a subset of the flora found on neighbouring Baffin Island. Women in Qikiqtarjuaq, who had moved there from areas farther south during the 1960s, were struck at that time by how brown the island was in summer. They report that both Qikiqtarjuaq and nearby areas of Baffin Island are greener now in summer than they were a decade ago (B-170609-MK) and that new plant species have appeared on the island.

Berry picking is one of the women's main land-based activities. In other literature, larger, more plentiful berries have been reported, as well as an increase in the occurrence of dried-out berries, berries growing in excessively warm temperatures, earlier ripening seasons, and berries sometimes not growing at all (e.g., Davies 2007; Furgal et al. 2002). The older women of Qikiqtarjuaq report that the berries are growing larger now than in their youth (B-090609-MOA, B-060609-OC-MD). There have been no changes in locations of berry patches, but some women report the berries are ripening earlier in August than previously (ex. B-080609-DA). At Clyde River, some women have also noticed that plants now tend to dry up more easily, and some like *qungliq* (sorrel) are fewer in places where they normally used to thrive (Palluq 2001; 2007).

These women's observations, highlighted in this section, demonstrate that detailed knowledge of environmental processes is not necessarily gendered. Although men are more often active hunters, women spend time on the land alongside men and on their own as they fish, and collect berries, seaweed, or eggs. Women travel on the land to their cabins and to family or relatives who are camping or working on DEW-line cleanup sites. And, indeed, some are hunters themselves. Women continue to play a more dominant role in processing the animal products that are brought back to communities, and they can offer observations about changes to animal morphology and physiology.

Another way that women take part in creating knowledge about environmental change is by processing information that enters the community once hunters or others have come home. Hunters routinely tell what they have observed on the land to family and friends when they return, or over the radio when on the land. Often, women are the ones on the receiving end when hunters come home or the radio announcements come in. Women provide access to Environment Canada weather reports by checking the Internet, television, or radio news so they can give updates when hunters call in by radio or satellite phone.[1] They play a critical social role in discussing environmental knowledge, processing it within the household and disseminating it to others. This social aspect is often overlooked in the literature.

[1] Thanks to the anonymous reviewer who suggested the example of the satellite phone, which the reviewer had observed in Arviat (Nunavut) and the authors in Clyde River and Qikiqtarjuaq.

Inuit women's perspectives on environmental change and community life

Secondary effects, which we define as those occurring in the community, include impacts on the use of country products and the social consequences of environmental change. Examples we have come across are effects on sewing and the psychological stress of having loved ones travelling in a less predictable environment.

Inuit women traditionally outfitted their families with clothing and later also took on the job of preparing animal skins for the fur trade. Later still, economic changes brought about by wildlife quotas, international politics, and availability of wage labour influenced access to hunting and wildlife. The sealskin product ban in Europe during the 1980s significantly affected Inuit communities, making it harder for women to raise funds that were increasingly needed to outfit hunters and to provide for their families (Collings 1997; Wenzel 1991). Inuit women's access to animal skins has continued to be modified through climate change. Oakes (1995) discussed the social implications as men procure fewer skins with the altered ice freeze-up and thaw cycles. Women have documented the difficulty in producing handicrafts for sale when no seal skins are available, the result being negative economic effects in some Inuit communities (Ford et al. 2008; Oakes 1995).

With less handicraft production, women also allocate less time to sewing groups (both formal and informal), thereby decreasing the training time for younger sewers and the many other social functions provided by sewing groups, such as peer and elder counselling. Thus, traditional women's work, such as sewing, has been transformed by social, political, and now environmental change. Because sewing has ceased to be women's primary economic role and has become a cultural and social activity with some economic benefits, environmental change is affecting not only the subsistence system but also the social and cultural spheres. Like Duerden (2004), we have learned from our informants that this damage to the already-frayed social fabric can further exacerbate social problems.

Psychological stress is another secondary effect that has increased for families that engage in a lot of land-based activities. This is paradoxical, because going on the land has been viewed as rest and relaxation for many Inuit (e.g., Condon et al. 1995). Many people with considerable land-based experience are increasingly fearful of encountering dangerous sea-ice conditions. This fear is fuelled by observations of unpredictable weather and harsh winds (ACIA 2004; Furgal et al. 2002; Laidler 2006). In our research, women report feeling more concerned for people going on the land in the spring. Now travel on the ice has become unsafe in June rather than in July, during the spring melt (B-170609-MK-MD). This change has thrown off the scheduling of annual events that used to be held in these months. Now the sea ice is less often safe for travel when the school year finishes. Families cannot take their kids to camp safely after school lets out; instead they may forego journeys or pull their children out of school early to travel while the ice is still safe. Families have to choose between community and country lifestyles, thus undermining the balance of values put on educating children for these very different environments. More generally, a Qikiqtarjuaq woman reported feeling greater fear when her son went out on the ice

because he had just started hunting on his own. She reported feeling stressed because the ice was so much more dangerous than just a decade ago, and with his limited experience he was unable to read new and possibly dangerous conditions (B-170609-GA-JI). Attakalik Palluq (2007) in Clyde River was also worried about young people travelling on today's changing sea ice: "When they are out on the water or ice; that is when I am concerned about them. The condition of the wind seems that it can start blowing even when it seems it wouldn't. I am concerned when the youth are out hunting or travelling." This increasing anxiety can discourage less country-oriented people from developing their skills through experiential learning on the land. It also reduces the pleasure of land experiences and their role as recreational activities.

Inuit women's roles in community and governance institutions

In addition to providing valuable observations and insights, Inuit women can also significantly shape social responses to climate change as volunteers and wage earners in institutional contexts. Indeed, women are the primary wage earners in many Nunavut families. These women often use part of their income to support subsistence practices (Gearheard's and Dowsley's field notes).[2] Although this role provides them with a certain amount of leverage, they report that it also adds stress to their lives because of competing demands on their time from their dual roles as caregivers and wage earners.

Institutions shape and direct collective action, and connect decision-makers across scales of governance. In Nunavut, community-based institutions are key to driving and facilitating adaptation in a context of uncertainty (Armitage 2005). They are particularly central to adaptation to climate change impacts (Agrawal 2008). There is a gendered division of community leadership positions and institutional participation, and this factor significantly shapes how younger generations are exposed to land skills in the context of a changing climate, as well as how family support systems respond to social and environmental change. At the local level, women participate as members of committees and employees of community organisations, with gender composition varying by institution (Johnson's field notes). In many communities, women hold the high-level leadership posts in institutions associated with education and family resources, but are less involved with hamlet councils, and hunters' and trappers' organisations.

In exploring gender and climate change, it is necessary to consider women's participation in political decision-making (Denton 2002). Within Canada, women are under-represented in positions of power in both provincial and territorial politics, as well as in the federal government (Eyzaguirre 2007). Globally, women are significantly under-represented both in the scientific work of documenting climate change and in political bodies such as the United Nations Framework Convention on Climate Change (Hemmati and Röhr 2007). An exception to this rule seems to be Inuit women's leadership on climate change at the global level, at least at the level of non-

2 In Nunavik, the income of female heads of household is a key factor in maintaining highly productive full-time hunters (Chabot 2003).

governmental engagement. At the recent Conference of the Parties (COP-15) of the United Nations Framework Convention on Climate Change,[3] held in Copenhagen in December 2009, Inuit women prominently represented Inuit and Canadian Arctic perspectives. Nunavut Premier Eva Aariak officially represented Nunavut as part of Canada's delegation. Mary Simon, President of the national Inuit organisation Inuit Tapiriit Kanatami, was one of 17 "prominent" Canadians to serve as special advisors to Environment Minister Jim Prentice (Cryderman 2009). Violet Ford represented the Inuit Circumpolar Council for Canada. Sheila Watt-Cloutier, the first Inuk Nobel Peace Prize nominee and prominent climate change activist, was a popular speaker at multiple events, including one on women's leadership in climate change initiatives. Janice Grey, an Inuk from Aupaluk, Quebec, was part of the Canadian Youth Delegation at Copenhagen (Johnson's field notes). Thus, Inuit women are key players at all levels of environmental policy-making, despite their relative absence from the climate change literature. Further exploration of their experiences with climate and environmental change, and their roles in political processes on climate change, from local to international levels, will help illuminate areas where their leadership is strongest, as well as where further capacity and support for women may be needed.

Conclusion

Inuit men and women have overlapping, but not identical, knowledge of the landscape and the changing climate. Our Inuit women informants corroborated the men's environmental observations. They also stressed the secondary effects of climate change and how environmental change and the resulting behavioural modifications have together altered the economic, social, and cultural fabric of Inuit communities.

Our picture of environmental change is incomplete if we only examine threats to hunters, food, or infrastructure. The ramifications reach far into social life. Women, through their traditional family and community roles, and their contemporary roles as wage labourers and leaders, are observing, adapting to, and mitigating not only environmental changes, but also social ones. They are faced with the metaphorical question of our title. Environmental change is affecting not only nature itself but also human interaction with it, and interactions among humans. How can Inuit women balance these effects on their environment and their society? We will continue this research over the next few years, and we invite other researchers to go beyond the human-environment interface and look into the social relationships.

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3 Also referred to as the United Nations Climate Change Conference.

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