

Communicating Climate Change: Arctic Indigenous Peoples as Harbingers of Environmental Change

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Through various science-related and media channels Arctic indigenous peoples and western society have moved closer to a balanced account of Arctic environmental change. Focusing on the role of polar scientist and Inuit media makers, this article articulates the process through which a cross-cultural exchange of environmental knowledge is beginning to occur. At the intersection of Traditional Knowledge with western science and new media technology, a nascent but significant shift in practice is providing pathways to a 'trusted' exchange of Arctic climate change knowledge. Potentially, both could influence our global understanding of climate change.

Introduction

While the influence of Arctic indigenous voices on our Western understanding of climate change is not readily discernible in mainstream media, advances in media technologies, decades of indigenous political organization and shifting attitudes toward Traditional Knowledge (TK) and its relationship with Western scientific research have greatly contributed to the broader lexicon of environmental knowledge.

However, in so far as the current global climate change discourse favors Western-based scientifically driven evidence, the complexity of environmental knowledge has demanded inclusion of contextualized knowledge. In the Arctic specifically, research regarding environmental change is

increasingly likely to result from the collaboration of Western scientists and local communities. In aggregate, this suggests that Arctic indigenous peoples are attaining a higher degree of recognition as primary producers of environmental knowledge.

Relevant in many different respects is the involvement of Arctic indigenous peoples as political actors at the international, national, regional and sub-regional level. For example, since the founding of the Inuit Circumpolar Conference (now Council [ICC]) in 1977, the ICC is considered as an influential political voice in regional, national and international fora. In this regard, Jessica Shadian (2006: 250) aptly states, “the ICC has grown not only into a powerful political actor in Arctic governance but has further acquired the legitimacy to help determine the very definition of the region as a whole.” From inception, the ICC linked the environment with indigenous rights, stating that “international and national policies and practices should give due consideration to protection for the Arctic and subarctic environment and to the preservation and evolution of Inuit culture and societies” (*Inuit Circumpolar Council: Charter*). Equally relevant are the numerous other entities that Inuit have formed over the past decades. For example, Inuit Tapiriit Kanatami (ITK) represent the interests of Canada’s Inuit at the federal level while the Alaska Eskimo Whaling Commission represent the specific interests of whalers. Moreover, the self-governing territory of Nunavut, Canada came into existence in 1999 and Greenland moved closer to independence from Denmark with the Self Government Act in 2008.

At the same time, a nascent but resolute community of indigenous media makers have adopted the tools of Web 2.0 to produce, control and transmit autobiographical materials in a culturally authentic manner (Wachowich, 2010). Video-sharing sites such as YouTube and Inuit-owned Isuma.tv provide a medium through which the narrator can engage with the broader society without the mediation of outside institutions or governments. Yoshai Benkler, a renowned expert in the networked public sphere, characterizes Web 2.0 as essential to decentralized collaboration and transformative to democracy. Indeed, this networked public sphere is an egalitarian mode of communications, creating social ties that potentially reach a “salience that drives political process directly” (Benkler, 2000: 213). Benkler’s insight is illustrated by the 2011 launch of the interactive web portal Digital Indigenous Democracy, hosted by Isuma.tv. With the use of live call-in shows and Skype, Inuit filmmaker Zacharias Kunuk created the portal to “promote region-wide community discussion in Inuktitut on the Baffinland development.” Together with human rights lawyer Lloyd Lipsett, Kunuk urged the Nunavut Impact Review Board (NIRB) and Baffinland Mary River Iron Mines Corporation¹ “to use 21st century media to increase Inuktitut information and participation at the community level, to meet today’s constitutional and human rights standards of informed consultation and consent.” At the suggestion of Kunuk and Lipsett the NIRB incorporated new media technology to “inform, consult and connect Inuit communities in its Final Hearing Report on Baffinland’s Mary River Project” (*Isuma Productions, 2012*).²

The purpose of this article is to challenge customary modes of environmental knowledge rationale that are embedded in a scientifically driven Western society to demonstrate that Arctic indigenous peoples possess invaluable knowledge that significantly shifts the conventional manner of knowing. Inuit accounts of environmental change are already influencing perceptions of environmental

change in scientific and institutional frameworks. Indeed, increasing collaboration between Western scientists and indigenous researchers demonstrate that the gap between TK and Western scientific knowledge is narrowing. In addition, I will show how Arctic indigenous peoples have adopted new media technologies to bypass mediated accounts of indigenous knowledge. Increasingly, people far and wide have local stories to tell which through the power of new media has the capacity to bring many cultures into one place. Together this suggests an opening of pathways through which Arctic indigenous knowledge gains a wider audience.

This article will primarily focus on Inuit as a growing constituency of activists who are infusing the climate change discourse with compelling primary knowledge. However, I wish to acknowledge that indigenous peoples from across the Arctic region are also engaged participants in the environmental and political activities of the region.

Storytelling: How Narratives Enhance Meaningful Coexistence

Because I heard storytelling from my grandmother I received the strength to live and survive. If there were no stories to go by, to survive or to learn to hunt and live, there would be nothing to learn from. My grandmother also gave me the gift of storytelling.

- Eli Kimaliardjuk from Chesterfield Inlet (*Kiviuk's Journey*)

Although an inherent tension seems to exist between the narratives of indigenous knowledge and western scientific philosophies, throughout society at-large narrative has made an “astonishing comeback” (Hinchman & Hinchman, 2001: xiv) as a legitimate expression of truth. In non-indigenous ‘modern’ societies, disenchantment with grand narratives that were thought to furnish a universal ‘truth’ are found not to provide salience and context in the public imagination (Lejano (n.d); Hinchman & Hinchman, 2001: xiii). Likewise, polar scientists and decision makers increasingly see indigenous knowledge as a ‘legitimate’ form of knowledge providing context that meta-narratives cannot. Lejano et al explain: “Rather than be seen as an inferior form of knowledge, these narratives instead display a rich integration of multiple ways of knowing – including scientific, normative, and cultural dimensions” (Lejano, n.d.: 1).

To understand the significance of indigenous storytelling we must first take a brief look at narrative analysis. From the perspective of Western societies, modernity sought to define society through a universalist narrative which was thought to “furnish legitimacy and social cohesion” far and wide (Hinchman & Hinchman, 2001: xiii). This philosophy privileges the scientifically-driven meta-narrative as the legitimate source of ‘truth’, largely discrediting the local narrative as insignificant to the endeavor of Western knowledge creation.

Postmodern theorists such as Michel Foucault sought to deconstruct these assumptions of ‘truth’ by arguing that there is no one true view or interpretation of the world. Notably, Foucault addressed the relationship between power and knowledge, neither of which could be disassociated from the other. These “great systems of knowledge” led to domination of others who did not subscribe or fit into the dominant structures of society (Foucault, 2000: 291). Thus, in Western society we “indirectly constituted ourselves through the exclusion of some others” (Foucault, 2000: 403). The

politics of exclusion and meta-narrative that provided the normative context in which Western society operated plainly did not represent the cultural norms of others.

In contrast, for Arctic indigenous peoples, the customary practice of storytelling established narrative as fundamental to knowledge creation. Known as Traditional Knowledge, it is broadly defined as a “shared, collective body of knowledge incorporating environmental, cultural and social elements” (*Beaufort Sea Partnership*).³ Transmitted orally, TK is passed down through the generations and constitutes a cultural identity through which community members exchange intimate knowledge of the land and the sea. It can be seen as a means of understanding a changing environment and adapting community practices to meet current conditions (Sakakibara, 2008: 462). TK helps to explain various aspects of the environment through which community members can make sense of the whole. Some have referred to this as the knowledge-practice-belief complex, where practice is the “essence of indigenous Knowledge” (Lejano, n.d.: 4).

Specific to indigenous knowledge associated with the environment, the term Traditional Ecological Knowledge (TEK) expresses the relationship between community members with that of the natural environment. According to Huntington (1998, as cited in Huntington, 2002: 64), TEK “is a way of organizing one’s understanding of the natural world, and as such it includes spiritual aspects of the proper relationship between humans and their environment.”

Indeed, TK and TEK should be seen as a means of capturing the essence of all human life in relationship to the environment. For it is the personal narrative that documents the fabric of our lives, constructing context that grand narratives omit. Accordingly, TK “offers a view of the world, aspirations, and an avenue to ‘truth’, different from those held by non-Aboriginal people whose knowledge is based largely on European philosophies” (Department of Culture and Communications, Government of the Northwest Territories as cited in Bielawski, 1991: 11).

Consider the perspective of Zacharias Kunuk, a Canadian Inuk filmmaker and co-founder of Isuma Productions who built a career based on narrative as a means of spreading ideas based in TK (discussed further below). Similar to most Inuit children of Kunuk’s generation, the government compelled, and even coerced, Inuit parents to send their children to English-speaking schools run by the federal government. He was indoctrinated into Western thought, through media such as John Wayne movies depicting U.S. soldiers in battle with the “Indians.” But, Kunuk says, “When I began to see myself as an Aboriginal person and a filmmaker I learnt there are different ways to tell the same story” (*Isuma*, The art). With the founding of Isuma.TV, Kunuk says, “we want to show how our ancestors survived by the strength of their community and their wits, and how new ways of storytelling today can help our community survive another thousand years” (*Isuma*, About us).

Such views are echoed by Jim Cheney (2001: 337), an environmental philosopher, who regards narrative as an attribute grounded in geography, the place we call home, illustrating a shift in the perceptions of western science. The “contextualized narrative [can be understood] as the means for locating oneself in a moral space out of which a whole and healthy self, community, and earth can emerge.”

To the extent that narrative has formally reentered the lexicon of knowledge making, even the presupposition that scientific research is not communicated through narrative has been subverted (Landau, 2001: 104). As one of many examples consider a 2013 panel that convened at Social Media Week in New York City called “Telling Stories with Scientists” (Nature, 2013). As panelists pointed out, the lived life is woven together by a series of stories and the means of relating scientific data must be meaningful in that context. The decisive point of the panel was to show how successful communications of scientific data requires storytelling in order to make sense of research that is incomprehensible to a lay audience. Anthropologist Misia Landau (2001: 117) even questions the viability of communicating scientific research in a manner “that does not involve storytelling.”

Western Science and Traditional Ecological Knowledge

But if we are to successfully navigate the future of the Arctic, we must build a bridge between the traditional knowledge of the people who live there, and the new realities of the present.

- Address by Canadian Minister Leona Aglukkaq at Arctic Frontiers Conference, January 21, 2013, Tromsø, Norway

As the Cold War was nearing an end, Mikhail Gorbachev, in 1987, articulated the view that the Arctic should emerge from the period of tensions as a “zone of peace.” In the same speech he affirmed that “special attention” should be paid to “the interests of the indigenous peoples of the North” (as quoted in Axworthy, 2013). In 1991 the Arctic Environmental Protection Strategy (AEPS) was born, as a result of collaborative input from representatives of the circumpolar nations and three indigenous peoples organizations – the Saami Council, the Inuit Circumpolar Council and the Association of Indigenous Minorities of the North. This initiative led to the creation of the Arctic Council in 1996 and included the AEPS representatives along with others.

At the same time, polar scientists and Arctic indigenous peoples were seeking ways to build mutually acceptable relationships, displacing former polar science research practices that did not take into account indigenous ecological observation. Could such seemingly different groups find the means to conduct collaborative research? To some it seemed that Western science and local indigenous knowledge were divergent concepts: each spoke a different language; each came from a different philosophical tradition; and neither seemed to have any use for the other’s knowledge (Bielawski, 1992). In Canada, the government sought to correct this fundamental disparity and perhaps mutual misinterpretation of one another’s knowledge systems as a means of finding common ground for the co-production of research, which in turn would facilitate better policy-making.

Yet, the terms of engagement were changing. Inuit had developed a new political ethos leading to what I would call a ‘lived rebellion’. Beyond formation of Inuit political organizations such as the ICC and IITK in the 1970s, Inuit in Canada and Greenland had moved closer to self-government. In Canada, discussions between IITK⁴ and Ottawa starting in 1976 eventually resulted in the creation of the Inuit self-governing territory of Nunavut in 1999.⁵ In Denmark, the Home Rule Act of 1979 granted Greenland semi-autonomy; a 2008 Greenlandic referendum led to a greater degree of self-government. Greenlanders were recognized as a separate people under international law. These

earlier events in the 1970s had paved the way for more equitable terms on which the exchange of Inuit knowledge and Western knowledge would benefit *both* parties. However, knowledge in itself is potentially political and scientific inquiry was no exception. Indeed, Mark Nuttall (2012: 4) notes that “it is almost impossible to separate science from politics.”

In a wider context, Foucault associates the intersection of politics and Western scientific knowledge systems with the political economy of truth: “‘truth’ is centered on the form of scientific discourse and the institutions that produce it; it is subject to constant economic and political incitement (the demand for truth, as much for economic production as for political power)” (Foucault, 2000: 131).

It is unlikely that Inuit, like most of civil society, would have perceived Western thought in the same manner as Foucault, however it is highly evident that Inuit leaders understood the relationship between power and knowledge. Inuit would engage but on terms far different than the colonial years. Decisions that led to political organization were perhaps the largest of the many hurdles to come that would influence future relations with Western society.

A second hurdle had to do with the process of integrating indigenous and scientific perspectives. In 1992, Ellen Bielawski (1992: 12), a research associate of the Arctic Institute of North America (AINA), articulated the view that indigenous knowledge and science “both contribute to understanding the Arctic.” However, “no one quite knows how” to integrate the two.

By the early twenty-first century collaboration between research scientists and Arctic indigenous peoples was increasingly seen as mutually beneficial. Several organizations had developed formal codes of ethics “to ensure that the research is being undertaken in a locally acceptable fashion”; research needed to benefit not only Western science but also the indigenous communities that were providing local knowledge (Pearce et al., 2009: 13). Foremost, forging strong trusted relationships were essential for scientific researchers and community members alike (*ibid*; Gearheard et al, 2006).

The collaborative approach to environmental research is well illustrated in a 2006 article by Shari Gearheard, a scientist with the University of Colorado's National Snow and Ice Data Center. A comparative study of environmental and sea ice change conducted in Barrow, Alaska and Clyde River, Nunavut was the result of a collaborative effort which comprised the knowledge of Western scientists, Inuit and Inupiat researchers. The team included non-indigenous researchers Shari Gearheard, Henry P. Huntington, James Maslanik and Roger G. Barry; Inupiaq researchers Warren Matumeak, Joe Leavitt, Darlene Matumeak Kagak; and Inuit researchers Ilkoo Angutikjuaq, Geela Tigullaraq. Joeline Sanguya, an Inuk from Clyde River, influenced the paper's title.

Significantly, the degree of success relied on the trusted relationships that developed over time; each of the non-indigenous researchers had ten to fifteen years of local experience prior to the collaborative study. Gearheard has worked with Inuit in Nunavut since 1995 and established residency in Clyde River in 2004 (Gearheard, 2006: 206). Gearheard, who authored the paper associated with the study said: “collaborative research and firsthand experience are critical to generating such new knowledge” (*ibid*: 204).

For polar scientists, increased recognition of indigenous-based TEK has enriched Western research, filling gaps that scientific research could not. In that an inherent advantage of TEK is based in local observation that takes place over time and space, and passed down through the generations, this approach has added invaluable data and perspectives to Western-based science.

Arctic Indigenous Media Makers: Broadcasting and Climate Change

With the turn of the twenty-first century, distinct shifts toward collaborative knowledge creation in polar science have occurred separately yet in tandem with development of new media technologies. Together this represents a fundamental departure from ‘value-laden’ methods of the past which privileged a Western narrative (Wilcox, 2013: 129). For Arctic indigenous peoples new media comprising the tools of Web 2.0 has significantly contributed to the reclamation of indigenous knowledge. Indeed, a great advantage of Web 2.0 is that it bestows agency to the individual, bypassing the power dynamics and colonization of indigenous knowledge often embedded in Western research (Srinivasan, 2013: 205; Wilcox, 2013: 129), and challenges preexisting notions of ‘truth’ (Ginsberg, 2008; Srinivasan, 2013).

Faye Ginsberg (2008: 139), an analyst of self-generated indigenous Web content emphasizes the potential for social and political transformation as a result of new media:

Increasingly, the circulation of these media globally ... has become an important basis, for nascent but growing transnational network of indigenous media makers and activists. These activists are attempting to reverse processes through which aspects of their societies have been objectified, commodified, and appropriated; their media productions and writings are efforts to recuperate their histories, land rights, and knowledge bases as their own cultural property.

Indeed, for Canada’s Inuit, adaptation of Western media technologies is closely associated with furthering Inuit self-determination (Huhndorf, 2003: 823) by renegotiating the conditions under which Inuit content is created and distributed. An early example is based in the 1970s expansion of Canada’s communication satellite system that decades later indirectly led to the creation of Inuit-based Isuma.tv. For disconnected yet similar reasons, both Inuit and Canadians sought to reclaim their cultural identity through media.

Briefly, in 1972 as an aspect of the nation’s “cultural defense against the encroachment of mass media from the United States” (White, 2005: 54), Canada’s Far North was the site of the world’s first domestic orbital satellite system. However, with this expansion of the nation’s communication capabilities, southern-based programming “invaded the North” (White, 2005: 54). This was largely seen as a cultural encroachment just as Ottawa had perceived U.S. mass media. In 1975 when the Canadian Broadcasting Corporation (CBC) began broadcasting in the Far North it depicted “southern attitudes, values and behaviors” (*Inuit Broadcasting Corporation*). This was understood as a threat to Inuit heritage and Inuit were challenged “to find a way of adapting this technology to their own ends, using television as a vehicle for the protection of their language rather than as an agent of its destruction” (*Inuit Broadcasting Corporation*). When the Inuit Broadcasting Corporation (IBC) was

launched in 1981, programming was in Inuktitut and promoted Inuit culture and language. Shortly after, Zacharias Kunuk joined IBC in Igloolik, having acquired a small format video camera in 1983. Funding was limited at IBC but for the most part Kunuk felt that management was open to his ideas (White, 2005: 57).

However, by the time Kunuk left in 1990 he was highly critical of the organization's management practices and creative constraints. He said: "I saw IBC as a dogteam. Inuit producers as dogs, the sled as the Ottawa office and people who sit in the sled as the board of governors. I didn't like what I saw so I broke away" (as quoted in White, 2005: 58). That same year, he and fellow IBC coworker Paul Apak started Igloolik Isuma Productions along with Norm Cohn and Pauloosie Qilitaliq (White, 2008: 58).

Yet it was new technology that spearheaded a spatially expansive extension of Inuit-created media content. New technology and Inuit political activism, which flowed through a wide variety of political and cultural avenues, fomented what was to become a vibrant community of Inuit filmmakers. According to Ginsberg, Kunuk had the vision to turn these technologies into vehicles for cultural expressions of Inuit lives and histories" (Ginsberg, 2008: 134). Indeed, Srinivasan (2009, 2013) interprets Ginsberg's analysis to suggest that indigenous new media use represents "entrepreneurial, organizational, social, or political initiatives that incorporate technology authorship into their larger missions"(209).

By the turn of the twenty-first century, Web 2.0 and digital video had added a new layer of communications technologies, opening the way to increased circulation of self-produced content. For cultures that had been marginalized, there is no doubt that technology could provide the tools for community and individual content control. With that in mind, in 2008 the Isuma partners created the first Inuit-owned multi-media website Isuma.tv. The website explains: "Isuma's mission is to produce independent community-based media – films, TV and now Internet – to preserve and enhance Inuit culture and language; to create jobs and economic development in Igloolik and Nunavut; and to tell authentic Inuit stories to Inuit and non-Inuit audiences worldwide" (*Isuma*: About us). Today, the Isuma website hosts a wide variety of indigenous content including over 5,000 films in 50 plus languages. Kunuk has produced numerous films including *The Fast Runner* for which he received numerous awards including the coveted Cannes Camera d'Or award in 2001. In 2010 Kunuk and Ian Mauro produced *Qapirangajuq: Inuit Knowledge and Climate Change*, which the Toronto Globe and Mail described as "groundbreaking" (Dixon, 2010).

Arctic Indigenous Narrative: Qapirangajuq Inuit Knowledge and Climate Change

Southerners don't want to understand Inuit ways. They're ignorant about our culture, don't consider our opinion and treat us like we know nothing. Inuit culture is oral and we keep knowledge in our minds. Even without text, our culture is full of wisdom. It brings me joy when Inuit gather and I listen to them. I hear Inuit are rising slowly, but there's a long way to go.

- Rita Nashook of Iqaluit in *Inuit Knowledge and Climate Change*

Kunuk (Director) and Mauro's (Co-Director) production, *Qapirangajuj: Inuit Knowledge and Climate Change* (IKCC), depicts what I would consider an exquisite exposé of Inuit perspectives on observed changes to the environment and culture as a result of global warming. Although the film is locally rooted, it is globally relevant.

The film opens to the heartbeat of drums, immediately accompanied by keyboards then throat singing. The tempo and rhythm gather speed to set a contemporary and stimulating tone. The camera follows suit. A close shot of flickering flames pans out to the expansive morning sky, the rising red sun beating in harmony with the soundtrack. Fifty-four seconds into the film, an unidentified Inuk speaker states matter-of-factly: "by observing the sky the weather is predicted. Cloud formations indicated wind direction. Now it is different. First they form one way then they quickly change, telling you a different story."

IKCC delivers a profound understanding of the local realities of climate change intermingled with glimpses into contemporary Inuit culture. Filmed entirely in Inuktitut (with English subtitles), residents of Resolute Bay, Pangnirtung, Igloodik and Iqaluit – totaling thirty-five in all – describe changes on a wide range of issues including vanishing glaciers, to a bridge collapse that disconnected towns people from the local health facilities, to the overall change in animal health and behavior. Collectively, the stories suggest that climate change in the Arctic affects not only Inuit but also a global population, regardless of location.

Indeed, although scientists are yet to make a direct link between Arctic warming and storm surges elsewhere, in the wake of Superstorm Sandy on the East Coast of the United States in 2012, Mauro noted: "those changes that are happening in the Arctic are now starting to happen further south and it should be a wakeup call for every citizen" worldwide that we need to respond (CBC, 2012). As an environmental scientist, Mauro's work focuses on the human dimension of climate change precisely because statistics and scientific models are difficult to understand even for scientists, as Mauro admits.⁶ The human dimension, which is often overlooked by decision-makers, offers a "compelling message" that the science does not. Yet, like science it is the specificity of TK that ascribes strength to the message.

Consider the format of IKCC. As the film opens, the initial scene comprises a series of comments by unidentified speakers introducing the viewer to the land and Inuit traditional life. Hence forth, each speaker is identified by name and location. Lasulusie Ishulutaq from Pangnirtung, the first identified speaker, describes his childhood memory of awaiting the return of the community hunter's dogteam. "One at a time we'd go out to listen. When we came in we were singing." The child that came in "smiling" meant that the dogteam had been heard and all "the children [would] rush out."

As children, the elders encouraged the values of listening and observation; both were necessary attributes that taught the future generation how to survive on the land and respect the environment. Dora Pudluk from Resolute Bay and Elijah Nowdlak from Pangnirtung, give us a glimpse into Inuit values passed down through the generations: "our parents and grandparents taught us how to live,

survive the land and be a good person.” Elijah Nowdlak adds: “we were taught to care for wildlife and harvest only what we required. We only hunted animals when we needed food.”

Life was not dependent on money but knowledge of the environment was invaluable. “In 1940 it was extremely cold,” notes Jamesie Mike from Pangnirtung. “The temperature went down to -60 Celsius. Even stove fuel turned to slush when it was this cold. I’ve seen this happen twice, once in 1953.” Simon Idlout from Resolute Bay noted that, “Ten years ago, it was very hot, everything melted. For two straight weeks it was +35 Celsius. For the first time we were in shorts with no tops, working outside. During that period, and now they keep melting since that time it was +35 outside. There are only a few glaciers left.”

Sheila Watt-Cloutier, Nobel Prize nominee, explains: “the warming of our climate is connected to the sun. According to my knowledge and research, pollution is like a blanket over our earth. Our earth is having a hard time breathing and then overheats. The blanket is the pollution in our atmosphere.”

Mary Simon, national Inuit leader states, “[climate change] is dangerous to people worldwide. Not only in the Arctic but everywhere. However, it’s most noticeable in our homeland. We’re a hunting culture and animals are our livelihood. It affects both Inuit and Southerners. Scientists talk about climate change with studies on pollution and toxins. Whereas Inuit discuss the effects as they occur within our lives. The whole world is changing. What alarms me is the potential and global damages. On the topic of environment, Southerners focus on borders, which prevents them from getting connected. When Inuit talk environment we are one.” As the IKCC comes to a close Elisapee Ishulutaq states: “Our environment is changing. And so are Inuit. All of us are changing.”

Kunuk and Mauro’s film IKCC depicts a view of Arctic warming that draws on local knowledge of environmental change to both examine local perspectives and to link that knowledge to the larger debate on climate change. By juxtaposing Mike’s comment on extreme cold with that of Idlout’s observation of extreme heat and melting glaciers, the viewer is made to understand that warming has occurred rapidly over the short span of a lifetime. While Watt-Cloutier’s metaphorical explanation of warming elicits a visual description of pollution as a factor of warming, Simon draws on the differences between Inuit and ‘Southerners’ to make the point that Westerners are disconnected from the global implications of pollution and climate change. However, in stating, “when Inuit talk environment we are one,” Simon gives the impression that all Inuit think alike on issues resulting from climate change.

To the contrary, although Inuit leaders have successfully achieved unity on issues such as self-determination, the intersection of climate change and resource development gives rise to contentious debate (Wilson & Smith, 2011). For instance, in an assessment of competing Inuit perspectives on resource development, Wilson & Smith (2011) delineate three different perspectives. Broadly, the first perspective equates climate change with economic opportunity to secure further autonomy. In particular, this perspective reflects the view of Greenland’s former premier Kuupik Kleist who defended the right of Greenland to develop resources “at a scale that will secure Greenland’s economic base and our future livelihoods (Kuupik as cited in *ibid*: 916). The second

perspective recognizes the likelihood of resource development and “does not equate climate change with opportunity”, a view that is reflected by Simon (*ibid*: 917). Thirdly, is the perspective most closely associated with IKCC and the view favored by the authors. Wilson & Smith (*ibid*: 919) note that this voice “is much needed in a world that privileges economic growth over environmental wellbeing.”

Though these internal divisions on the challenges and benefits of climate change are significant, this debate was not the intention of Kunuk and Mauro’s film. Centered on climate change, it is notable that the environmental observers are acknowledged by name, a quality also demonstrated in the Gearheard et al study. This represents a grand departure from bygone years when photographic representations of indigenous individuals and groups went by the sole identifier of “Eskimo”: “Eskimo Man reading a copy of the Saturday Evening Post, 1913”; “An Eskimo man enjoying some music on a record player, 1922”; and “A beautiful Eskimo girl, 1929” (“Vintage”, 2012). While the photos alone represent aspects of changing communities, this colonial practice objectified individuals as nameless beings with no voice of their own.

IKCC, however, transcends the constraints of Western thought production, thereby embedding an authentic, if unfamiliar, account of Arctic change articulated by Inuit. There is no room for cultural misrepresentation, marginalization or for status-quo political ideology. Indeed putting a human face and name to each participant redirects the commonly held view that the Arctic is heading toward unmitigated corporate development in a land thought to be largely absent of identifiable human life. Just as the Arctic cannot be reduced to nothing more than an economic frontier, the impact of climate change on the human experience cannot disregard the accounts of Inuit knowledge-makers.

Yet the antithesis persists, which is the reason why Kunuk advocates self-generated Inuit knowledge. “Over the years,” he notes, “nobody has ever listened to these people. Every time [the discussion is] about global warming, about the Arctic warming, it’s scientists that go up there and do their work. And policy makers depend on these findings. Nobody ever really understands the people up there” (Dixon, 2010: 11). Kunuk’s remark is a stark reminder that to the extent that some scientists have made a great effort to recognize and respect the knowledge of Arctic indigenous peoples, there is still a long road ahead. But it is not scientists alone who are responsible for bridging the gap; policy makers, industrialists and academic’s alike must be held to account. That said, there are indications that western thought production is taking a modest turn towards locating Arctic indigenous peoples as significant actors on the circumpolar stage.

As echoed by Ferris (2013: 24), much of the research which has focused on Arctic indigenous peoples as victims “may miss the broader picture. Some [academics] have argued that the focus should be on the ‘agency’ of indigenous communities – their ability to shape the future”. A 2013 report to the U.S. Congress concurs. Quoting the Arctic Human Development Report it states, “the rise of solidarity among indigenous peoples organizations in the region is surely a development to be reckoned with by all those interested in policy issues in the Arctic” (O’Rourke, 2013: 38).

As such, IKCC could be seen as an agent of change in the global debate on climate change. It's as if the film's participants have turned the tables on the viewer and said: "this is our story. What is your story? What are we all to do about this? Is there a collective solution?" Media plays an important role in educating the public about the implications of climate change. And it shapes public perceptions of how climate change might affect our future (Lowe, 2006: 436). A study by Lowe found that "the intangible large-scale effects of climate change which are so often reported to the public become 'real' only when put in more local terms" (ibid: 454).

Indeed, *Inuit Knowledge and Climate Change* is an exceptional example of how media can break through cultural differences and political barriers to depict a reality of climate change told by people to people. It's local and it's 'real'.⁷

Concluding Remarks

Communicating Arctic environmental change in a manner that breaks through political and cognitive barriers is not an easy task. However, as this article has argued, barriers that once inhibited knowledge exchange are on a gradual decline. Whereas TK and Western science seemed like incompatible philosophies, shifting perceptions and effective political action have perforated past obstructions. Likewise, new media technologies have provided tools that Arctic indigenous peoples have adopted for their own purposes, thereby bypassing processes through which cultural property had been appropriated and decontextualized without consent of the producer. Side-by-side, this represents a nascent but nonetheless significant departure from prior years.

In this regard, *Inuit Knowledge and Climate Change* could be seen as a mode of knowledge exchange that serves three purposes. Like the western-based scientist, participants' stated their observations, documenting specific changes to the environment that contribute to an accumulated body of knowledge. Second, authorship was unmediated by 'foreign' influences thereby ascribing agency to each of the participants. And third, by focusing on the human dimension, Arctic environmental change is no longer abstract. The clarity with which each of the participants spoke conveyed certainty in the face of uncertainty. Inuit and other Arctic indigenous peoples have documented changes to the natural environment for millennia, specifically because environmental changes directly affect daily existence. It presented another way knowing and speaking that can inspire a broader audience to connect with the challenges of climate change.

From the perspective of western science, we could also view the role of polar researchers as serving three purposes. Like indigenous environmental observers, the polar scientists mentioned here are conducting highly specific and localized studies, bringing context to Arctic research that meta-data cannot answer. As such, local knowledge contributes to a larger knowledge bank that informs humanity's future and survival. Second, in the process of conducting Arctic research these polar scientists are making forays toward rebuilding trust with indigenous communities whose past experience with westerners has resulted in appropriation of multiple facets existence. In turn, this practice will inform future Arctic research and other regions worldwide that are inhabited by

indigenous peoples. On a grander scale this could some day have an extensive impact on all of society. Though beyond the scope of this article, I must mention a third point which I think is critical to a broader understanding of environmental change. As a community, communicating climate science is fraught with political and cognitive hurdles that are not completely dissimilar to those faced by Arctic indigenous peoples. However, like Arctic indigenous peoples, scientists are attempting to renegotiate the space in which science circulates.⁸

The overarching goal of cross-cultural knowledge exchange should be to improve the global understanding of Arctic indigenous peoples and the environment to facilitate equitable decision-making. It can only enhance the many facets of human existence as we tackle the global challenges of climate change.

Finally, there is no need to ‘convert’ Arctic indigenous peoples to western philosophies; nor is there a need to overthrow the ‘foreigners’ to retain TK. Rather, each is beginning to draw on the other for a common cause: understanding rapid environmental change in the Arctic which has the potential to affect us all. These efforts may be small now but they are significant nonetheless. We need to build on these efforts.

Acknowledgments

I would like to thank Lily Ling and Sean Costigan for their support and insightful remarks.

Notes

1. Baffinland Iron Mines Corporation is planning to develop an open pit iron mine in the Mary River region of Baffin Island, Canada. Together ArcelorMittal and Iron Ore Holdings LP retain full ownership. For more information see: <http://www.baffinland.com/>.
2. For another example: As an aspect of ICC Greenland’s communication strategy, in 2012 the organization began to upload self-generated ICC ‘public information tours’ covering various issues concerning human rights and development. The purpose of the meetings and associated videos is to promote information sharing, start debate and increase participation of civil society. See: <http://www.youtube.com/user/ICCGreenland>.
3. This definition derives from the Traditional Knowledge Working Group, an advisory branch of the Fisheries and Oceans Canada-based Beaufort Sea Partnership.
4. Throughout the 1970s and early 1980s Inuit were becoming politically active in territorial politics.
5. In 1993, the Nunavut Land Claims Agreement was signed and adopted by Parliament and the Inuit self-governed territory of Nunavut came into official existence on 1 April 1999.

6. Like Huntington's definition of TEK, Mauro ascribes importance to the relationship between humans and their environment.
7. IKCC has been shown to audiences across Canada and the United States, and to decision-makers at the UN COP-16 international climate change meeting in Cancun, Mexico, and at Canada's Parliament Hill among others. At many of these venues Web tools allowed viewers worldwide to participate via twitter in the Q&A following the screening. When the film showed at the Museum of the American Indian in New York City, Mauro attended in person and Kunuk via webcam to discuss IKCC following the screening. The film is available on Isuma.tv for public viewing.
8. For further details see: Waltz, E. (2010). "Science & politics: Speaking out about science". *Nature*. 467: 768-770: Dissemination and end use of scientific research is often, if not most likely, implemented at the discretion of government; Revkin, A.C. (2007). "Climate change as news: Challenges in communicating environmental science in climate change". In DiMento, J.F.C. (Ed.). *What It Means for Us, Our Children, and Our Grandchildren*. Cambridge, MA: MIT Press: 139-159.; Moser, S. (2010, January/February). "Communicating climate change: history, challenges, process and future directions". Retrieved May 26, 2013 from *WTRE's Climate Change*, [http://www.climateaccess.org/sites/default/files/Moser_Communicating%20Climate%20Change.pdf]; Greenwood, C. (2013, February). Muzzling Civil Servants: A Threat to Democracy? *Environmental Law Clinic, University of Victoria*. Retrieved September 29, 2013 from, [http://www.elc.uvic.ca/press/documents/2012-03-04-Democracy-Watch_OIPLtr_Feb20.13-with-attachment.pdf], by the Environmental Law Clinic at the University of Victoria underscores the point. At the International Polar Year 2012 conference in Montreal scientists from Environment Canada were restricted from speaking to reporters. An accompanying letter addressed to Suzanne Legault, Information Commissioner of Canada states that the report shows that communication between media and federal scientists is particularly curtailed "when the scientists' research or point of view runs counter to current Government policies on matters such as environmental protection, oil sands development, and climate change."

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