

Chapter 23

Meaning and Means of “Sustainability”: An Example from the Inuit Settlement Region of Nunatsiavut, Northern Labrador

Rudolf Riedlsperger, Christina Goldhar, Tom Sheldon, and Trevor Bell

Abstract A diverse body of literature discusses the importance and application of concepts related to sustainability in the Arctic and Subarctic, with a considerable portion of scholarship being developed outside of Northern regions. However, rather than applying external definitions of sustainability to the Arctic and Subarctic, it is important to recognize Northern Indigenous methodologies and epistemologies, including inherently sustainable worldviews or philosophies and locally grounded tools, processes, or strategies to address sustainability challenges. We present a case study that highlights the relevance of Inuit approaches to sustainability transformation. *SakKijânginnatuk Nunalik* (the Sustainable Communities initiative, or SCI) is located in the autonomous Inuit region of Nunatsiavut, Labrador. The SCI informs best practices and provides guidance for community sustainability in the coastal Subarctic under changing environmental, social, and economic conditions. Its overarching goal is to ensure individual and community well-being in climate adapted communities. We discuss the preliminary successes and challenges of the initiative and conclude with an outlook on how approaches to meet sustainability challenges in the Arctic and Subarctic can contribute to non-Northern sustainability research and concepts.

Keywords Inuit • Nunatsiavut • Sustainability challenges • Sustainability transformation • Co-creation of sustainability • Sustainability indicators

R. Riedlsperger (✉) • T. Bell
Department of Geography, Memorial University of Newfoundland, St. John’s, NL, Canada
e-mail: r.riedlsperger@mun.ca

C. Goldhar
Nunatsiavut Secretariat, Nunatsiavut Government, Nunatsiavut, NL, Canada

T. Sheldon
Department of Lands and Natural Resources, Environment, Nunatsiavut Government,
Nunatsiavut, NL, Canada

23.1 Introduction: Sustainability and Sustainable Development in the Canadian Subarctic

The *SakKijânginnatuk Nunalik* (Sustainable Communities) initiative (SCI) is a transdisciplinary and community focused initiative aiming to inform best practices and to provide guidance for enhancing community sustainability in Nunatsiavut, northern Labrador. The SCI aims to improve the quality of life for residents in Nunatsiavut through addressing current concerns around housing, food, energy, and community development and planning, among other areas. The initiative is grounded in indigenous methodologies and epistemologies that support community-based tools, processes and strategies to address contemporary sustainability challenges. It promotes a holistic approach that takes into account social, cultural, environmental, and economic aspects of sustainability.

This paper is written from the perspective of four researchers and administrators who are closely involved with the project. We discuss the beginnings of the SCI and the early implementation phases of sub-projects currently underway. We give an overview of the successes and challenges of the initiative, before concluding with an outlook on how the challenges may be overcome, and how the SCI may provide guidance for building sustainable communities elsewhere in the North.

Northern regions are subject to significant environmental, social, and cultural changes, which are in part driven by processes and pressures originating elsewhere, including climate change, environmental pollution, global economic processes, and intense resource competition (Bock 2013). These changes cause various challenges. For example, climate change affects individual and community livelihoods through its impact on sanitation and water facilities, food security, transportation infrastructure, and the prevalence of infectious disease (Parkinson 2010). Environmental pollution causes contaminants to accumulate in the Arctic, threatening the safety of fauna and humans who depend on wildlife for food (Muir and deWit 2010). Resource developments cause environmental degradation and pollution and social stress within some Arctic and Subarctic communities (Parlee and Furgal 2012). Other detrimental effects of environmental change are more subtle, including social and cultural transformations that increase vulnerability to environmental and economic pressures. Examples include feeling a loss of control, the disruption of cultural continuity, a weakening of local knowledge systems, and a loss of the social capital necessary to thrive and survive within Arctic and Subarctic communities (Ford 2012; see also Crate's chapter in this volume). Furthermore, substance abuse, domestic violence, child abuse, suicide, and unintentional injury are associated with rapid cultural and social change (Parkinson 2010).

Most Northern regions are looking for long-term solutions that nurture the well-being of humans and their environments, while also placing an emphasis on sustained economic growth (Bock 2013). In sustainability science, a discipline that strives towards achieving sustainable societies, such processes pertaining to the transition of unsustainable to sustainable states and dynamics are referred to as "sustainability transformation" (Komiya and Takeuchi 2006; Miller et al. 2014).

One approach for framing sustainability transformation is through the implementation of sustainable development, a concept made widely known by the World Commission on Environment and Development, also referred to as the “Brundtland Commission”. Its report, “Our Common Future,” published in 1987, conceptualized sustainable development as development that “seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future.” (Brundtland et al. 1987: 51).

The Brundtland report provides a framework that brings together the natural or environmental limits of development and the potential for new directions in social development contained within those natural limits (Chance and Andreeva 1995). The incorporation of local knowledge, and the participation of local residents in the achievement of sustainable development are central tenets of the approach. However, at least on a global scale, action on sustainability has consistently lagged behind society’s concern over sustainability (Nel and Ward 2015). There is substantial criticism on the implementation of sustainable development, in part alluding to a realization that local engagement or participation may be limited in practice, and thus far may have produced little in the way of real change. Instead of providing a means for the local pursuit of social and natural well-being, Graf (1992: 553) argued that sustainable development, as advocated by the Brundtland Commission, “vindicates the hegemony of the classes and interests, which are the present beneficiaries of the international economic order”. In other words, those advocating sustainable development may not be primarily concerned with the well-being of humans and their environment, but with the prolongation of the status quo, which prioritizes economic performance and growth. Similarly, Crate (2006: 295) noted that the Brundtland report “confirms a dominant, western top-down economic worldview that bases ecosystem management on generalized prescription rather than specific contexts”. Referring to the top-down problematic of implementing sustainable development strategies, Keith and Simon (1987: 209) warned early on that sustainable development would be rejected and fail in the Arctic if it allowed the “[e]xclusion of local peoples from the decision-making process for both development and conservation initiatives.”

If an important aspect of sustainability pertains to how communities envision and pursue social and natural well-being (Miller et al. 2014), then a crucial factor in Northern sustainability is to recognize that its inhabitants have a right to drive their own sustainable futures. As Hugh Brody succinctly observed: “What must be defended is not the traditional as opposed to the modern but, rather, the right of a free indigenous people to choose the components of their lives” (cited in McCannon 2012: 256). Indeed, researchers have demonstrated that Northern sustainability may best be expressed through or begin with community goals and visions, and their importance for individual and community livelihoods (Kruse et al. 2004; Crate 2006). Among the enabling factors for accomplishing locally and regionally meaningful sustainability transformation is the increasing political self-organization of indigenous communities, which brings capacity and decision-making opportunities back to the North, and empowers communities and regions to address sustainability challenges first hand (Southcott 2009).

Importantly, however, Crate (2006) warns that without actions, visioning sustainable futures remains nothing more than a theoretical exercise. Our paper discusses how sustainability transformation may be fostered by gearing efforts to reflect the interests and perspectives of local residents. Using the example of the SCI, we reflect upon what is meant by “sustainability” in a particular Northern context, and illustrate how it might be conceived and acted on to achieve well-being. Among others, the paper may be of interest to researchers whose primary focus or audience relates to policy development and program delivery.

23.2 *SakKijânginnatuk Nunalik: The Sustainable Communities Initiative*

23.2.1 *Nunatsiavut: Homeland of the Labrador Inuit*

Located within the province of Newfoundland and Labrador, Nunatsiavut is part of *Inuit Nunangat* (Inuit homeland), representing one of the four autonomous Inuit regions of Canada. Prehistoric cultures occupied the region for thousands of years, while modern Inuit descended from Thule Inuit migrating from Alaska toward Greenland in the 1400s (Wenzel 2009). Settlers first arrived in Labrador in the early nineteenth century as professional trappers, fishers, and seal-hunters. They did not live in organized communities, but instead set up houses along the bays and inlets of the Labrador coast. Before then, in the late eighteenth century, the Moravian church began establishing missions in the region (Ben-Dor 1966). Prior to the establishment of Nunatsiavut, the two main governing bodies in the region were the Moravian church and the Governments of Newfoundland, which included the separate Dominion of Newfoundland until 1927, the British controlled commission government of Newfoundland from 1927 to 1949, and the Province of Newfoundland and Labrador from 1949 to 2005 (Anderson 2007). Nunatsiavut achieved the right to self-government through the Labrador Inuit Land Claims Agreement (LILCA) in 2005. Thirty years of negotiations between the Labrador Inuit Association and the federal and provincial governments preceded this outcome (Nunatsiavut Government 2012).

As a polity, Nunatsiavut operates on two interacting scales. The Nunatsiavut Government (NG) is the regional Inuit consensus-based democratic government. In addition, municipalities or Inuit Community Governments (ICGs) were established for each of the five Nunatsiavut communities: Nain (the administrative capital), Hopedale (the legislative capital), Postville, Makkovik, and Rigolet (Fig. 23.1). These communities have a total population of about 2500, 90 % of whom are beneficiaries to LILCA (Statistics Canada 2012a, b, c, d, e). Beneficiaries include all residents of Inuit descent and the *Kablunangajuit* of Nunatsiavut. The latter term is an Inuktitut word meaning “resembling a white person” and includes non-Inuit residents formerly referred to as settlers (Natcher et al. 2012). All *Kablunangajuit* who



Fig. 23.1 Map of Labrador including Nunatsiavut, which is indicated by the shaded regions on this map and comprises Labrador Inuit Settlement Areas (*medium gray*) and Labrador Inuit Lands (*dark gray*). Map produced by Charles Conway, Department of Geography, Memorial University, 2014

have lived in the region since before 1940, or who were born before 1990 and have ancestors who lived in the region since before 1940 can apply for beneficiary status. The term *Kablunangajuit* is commonly used to encompass all beneficiaries, including those who reside outside of Nunatsiavut. As of October 2014, the total number of beneficiaries was about 7200 (Nunatsiavut Government). They form the electorate of Nunatsiavut (Felt 2011).

23.2.2 *Situating SakKijânginnatuk Nunalik Within Provincial and Federal Legacies*

Before Nunatsiavut came into being in 2005, decision-making for the region largely took place outside of Labrador in the provincial and federal capitals of St. John's and Ottawa, respectively (Anderson 2007). As a result, Labrador Inuit had limited opportunity for meaningful participation within decision-making processes. Provincial and federal legacies also left a mark on Nunatsiavut, as illustrated here with three indicative examples related to military contamination, housing pressures, and food security.

The Second World War led to a growing militarization of the global Arctic and Subarctic, which in North America reached its full extent during the Cold War with the installation of the Distant Early Warning (DEW) Line and countless air force bases and military sites operated by the United States (McCannon 2012). The north coast of Labrador was of particular strategic military importance due to its proximity to Greenland and Europe. Negative environmental and social impacts of these sites are still felt today. In Hopedale, the operation of a US air force base (initially established in 1953 as part of the Pinetree Line and finally closed in 1968) is linked to areas of buried debris and soil contamination (ESG 2012). As a result, certain areas within the municipal boundaries remain closed for subsistence activities, such as hunting and berry picking, and expensive environmental monitoring and remediation projects are necessary to ensure the safety of residents (Aivek STANTEC 2014). The exclusion areas have also led to extreme pressure on available building land in the community.

Similar to indigenous groups in other parts of the Arctic and Subarctic, Labrador Inuit were resettled in the 1950s and 1960s “not exactly by force, but neither with their full agreement” (McCannon 2012: 257). The effects of these resettlements on Labrador Inuit have been documented by Ben-Dor (1966), Zimmerly (1975) and Kennedy (1982), among others. In some communities, such as Makkovik, populations doubled almost overnight, leading to immense housing, subsistence and social pressures. While perhaps not as pronounced today, residential housing shortages have remained an on-going concern in the region. Throughout Nunatsiavut, infrastructure deficits affect housing, as demonstrated by high levels of overcrowding, mould, and repair and plumbing problems (NG Regional Housing Needs Assessment 2012). Contributing variables include expensive yet inappropriate housing design that was intended for climates that are not subject to the same intense freeze-thaw cycles common in northern coastal environments (Goldhar and Sheldon 2014). Finding strategies to provide affordable, durable, and culturally appropriate housing is therefore an important contemporary challenge in Nunatsiavut.

Food security is an important component of socio-economic health. Throughout *Inuit Nunangat*, subsistence activities contribute significantly to the food security of individuals and communities (Ford 2009). Natcher et al. (2012) note that over 80 % of Nunatsiavut residents participate in subsistence activities, both directly (as hunters and gatherers) and indirectly (as recipients of country foods). Residents

commonly cannot obtain the quantities of food necessary to sustain a household (Egeland 2010). An Inuit health survey conducted in 2008 and 2009 found that 44 % of homes in Nunatsiavut were food insecure. The survey defined food insecurity as an inability to access a sufficient amount of healthy calories. Egeland further found that 16 % of households were severely food insecure, as characterized by disrupted eating patterns and reduced food intake. This is twice the national average for Canada (8 %). Reasons cited by Egeland include households without hunters and the prohibitive costs of gasoline and ammunition that are necessary today to “go off” on the land and ice, the local term for act of engaging in subsistence activities.

Similar to Southcott’s (2009) observations for other parts of Northern Canada, the establishment of the Nunatsiavut Government brought capacity, in the form of human and physical capital, and the opportunity for decision-making power in the region. The Sustainable Communities Initiative (SCI) is a concrete outcome of this capacity. Founded in 2012, the SCI is led by the Nunatsiavut Government and rooted in the communities. The Joint Management Committee of the Nunatsiavut Government (which includes the *AngajukKât* – community leaders or mayors from each of the communities – among other members) and Nunatsiavut’s Executive Council guide the direction of the SCI, thereby fostering local and regional representation (Goldhar et al. 2013). At the same time, the SCI is what Trencher et al. (2013) identify as a co-creation of a sustainability initiative: a project that involves various actors ranging from university to government to the private sector, with the aim of transitioning society from unsustainable to sustainable conditions. The SCI incorporates all of these stakeholders. Its overarching goal is to inform appropriate practices in community planning and development while providing guidance for community sustainability under changing climatic, socioeconomic, and environmental conditions. To accomplish this, the SCI seeks to put into practice locally developed tools, guides, and strategies that are adapted to the changing climatic and socioeconomic realities of Nunatsiavut (Goldhar et al. 2013).

The SCI holds as its foundation the importance of processes that are locally appropriate and that reflect Inuit philosophies and epistemologies, which are similar to approaches to envisioning sustainability being applied in other parts of the North (Healey and Tagak 2014). Specifically, all SCI processes are based upon principles that include transparency, respect, accountability, collaboration, and holism. These guiding principles were decided upon by the Joint Management Committee of the Nunatsiavut Government (Table 23.1; Goldhar et al. 2012). Their application is also expected from initiative partners, including community planners and architects, and university researchers. The Nunatsiavut Government Research Advisory Committee, chaired by the regional Inuit research advisor, is in charge of evaluating their application (Nain Research Centre n.d.).

Table 23.1 Guiding principles of the Nunatsiavut Government's Sustainable Communities Initiative

<i>Transparent</i> to community leaders, decision-makers and community members
<i>Respectful</i> of Inuit values, individual thoughts, community contexts, and priorities
<i>Accountable</i> to all residents of Nunatsiavut communities
<i>Collaborative</i> with community members, regional decision-makers, governments, industry stakeholders and university partners.
<i>Holistic</i> in its sustainability approach to consider the impacts of today's decisions on future generations.

Adapted from Goldhar et al. (2012)

Table 23.2 Emerging sustainability challenges in Nunatsiavut

Sustainability challenge	Description
(1) Infrastructure, housing, development	To enhance design, durability, cultural appropriateness, environmental suitability, and life span of the built environment.
(2) Food security	To support healthy families through improved access to diverse country and market foods that are affordable and high in quality
(3) Energy security	To improve access to and reliability of energy (diesel, oil, and wood supply) and support alternative/renewable energy and energy efficiency
(4) Transportation and emergency services	To improve critical transportation and emergency infrastructure, including airports and wharfs; establish public transportation in larger communities
(5) Safe communities	To advance human health and support a healthy environment by addressing concerns related to water, dust, contaminated sites, diesel generators, quarries and garbage dumps in and around communities.
(6) Valued spaces and places	To protect natural spaces, important buildings and landmarks, trails and roads (both traditional and modern), native vegetation and water bodies.

23.2.3 Understanding Sustainability Challenges of Nunatsiavut

The existence of various sustainability challenges, notably those listed in the previous section, are no secret to *Nunatsiavummiut*, the people of Nunatsiavut. To better understand the scope and interdependencies of these challenges, however, a series of workshops titled "Learning from the Coast" (LfC) invited community members to talk about community priorities, challenges, opportunities, and visions for the future (Goldhar et al. 2012). The workshops were organized by the *AngajukKât* and facilitated by principal research partner Trevor Bell. Approximately fifty community members attended a total of five workshops, from which six themes on sustainability challenges in the region emerged (Table 23.2).

Infrastructure, housing, and community development were among the priority concerns for Nunatsiavut communities. In addition to the housing problems

described above, the lack of culturally appropriate housing design, including the layout of houses and the size and location of building lots, inhibits well-being and quality of life in Nunatsiavut (Goldhar et al. 2012). For example, inadequate design limits the ability of Labrador Inuit to prepare, cook and store country foods (for similar challenges in Nunavut see Tester 2009).

Nunatsiavummiut also expressed concern about the availability of both country and store-bought foods, and promoted the development of community gardens, community freezer programs, and local food cooperatives to help support those in need and to improve food quality and diversity (Tester 2009).

Energy insecurity was identified as an additional source of stress. Limited energy capacity in all Nunatsiavut communities was a significant topic for workshop participants (Goldhar et al. 2012). Wood heat is the preferred source in the region (NG Regional Housing Needs Assessment 2012) and when access to firewood is compromised residents struggle to heat their homes. This is especially the case in mild winters when poor snow and ice conditions limit travel (Riedlsperger 2013). Firewood can be accessed relatively easily in the southern communities (Rigolet, Makkovik, and Postville), but residents in northern communities, where trees become less abundant, have to travel further to access wood (Riedlsperger 2013). While the use of woodstoves is cause for political debate in some Arctic and subarctic communities and towns due to air pollution (e.g., Fairbanks, Alaska; see Murphey 2013), such issues have not yet been documented in Nunatsiavut. This may be due to low population numbers and the coastal location of the communities. However, in the recent past individuals who preferred electric heat sources encountered real and perceived barriers because of a lack of electrical capacity in the communities (NG Regional Housing Needs Assessment 2012).

Challenges surrounding firewood illustrate transportation and emergency services as priority needs, including physical infrastructure such as trails, roads, wharfs, and airstrips, but also access to medical transport and medical personnel in the communities. Transportation infrastructure is linked to energy security through winter trail access to firewood sites (see above), and to food security through trail access to subsistence areas (Goldhar et al. 2012).

Safe communities were envisioned as built spaces that support human health and foster a healthy environment by addressing inadequacies related to water, dust, contaminated sites, diesel generators, quarries and garbage dumps in and around communities. Recreational facilities such as skating rinks, ballparks and playgrounds are also included as they offer youth safe spaces to play and grow.

To address some of the sustainability challenges, participants from all communities wanted to become more involved in community planning to ensure that local goals and values were respected and considered during decision-making processes. Specifically, residents wanted to preserve valued places, spaces and activities that comprised an integral component of quality of life in their communities and that in large part depends on outdoor and subsistence activities.

Table 23.3 Examples of ongoing SCI projects in Nunatsiavut

Project	Description
<i>InosiKatigeKagiamik Illumi</i> : Healthy homes in Nunatsiavut	Providing appropriate models for sustainable housing in Nunatsiavut
DISC: Digital Information System for Communities	Community mapping to aid municipal planning and craft development regulations
Adaptation planning for food security and climate change	Building resilience to ensure food availability, accessibility, and quality to positively influence the health of Nunatsiavummiut
<i>Aullak, sangilivallianginnatuk</i> : Going off, growing strong	Teaching subsistence skills and knowledge to youth
Regional energy strategy	Developing a sustainable energy strategy that meets changing demands for communities
SmartICE: Sea ice monitoring and real time information for coastal environments.	Generating observations of changing sea ice conditions combined with user-based satellite image classification of sea ice conditions
Sustainable water and wastewater management	Developing tools and community based strategies for water and wastewater management

23.2.4 *Towards Sustainable Communities in Nunatsiavut*

To address these sustainability challenges, the SCI is implementing various projects that explore solutions and establish best practices to foster resilient and sustainable coastal Nunatsiavut communities (Table 23.3). A key step in addressing these sustainability challenges was to recognize the complexity and interconnectedness of many of the community needs and hence the need to adopt a holistic approach in designing multiple projects. For example, the lack of available building land, in combination with inadequate housing design, results in overcrowding, which in turn may trigger physical and mental health problems (Ford 2012; Bourque and Cunsolo Willox 2014). A holistic approach means that sustainability challenges and solutions are evaluated for their environmental, cultural, social, and economic dimensions. An important early impact of the SCI is the adaptation of a framework by the Nunatsiavut Government Executive Council that allows government departments to effectively support cross-departmental programs and initiatives. The following sections highlight some of the most prolific projects at the moment, which address adaptation planning for food security and climate change, climate change hazard assessment and building constraint mapping, the development of an Inuit-based sea-ice classification system for on-ice travel, and the development of tools and strategies for sustainable water and wastewater management (Goldhar and Sheldon 2014).

23.2.4.1 InosiKatigeKagiamik Illumi: Healthy Homes in Nunatsiavut

Long-term solutions to current housing challenges must be approached through a holistic lens in order to be effective, as community development stresses are inherently complex. Examples of current housing problems in the region include poor construction, infrastructure failure, increased costs, overcrowding, and negative effects on physical and mental health. These challenges have in some cases led to outmigration, both somewhat voluntarily (if better housing options arise) and through the lack of alternatives (as is the case with senior citizens in need of assistive care). To address the precarious housing situations in the communities, a program called *InosiKatigeKagiamik Illumi* (Healthy homes in Nunatsiavut) aims to construct culturally relevant, affordable, climate adapted housing, thereby contributing positively to the mental and physical health and well-being of residents (Goldhar and Sheldon 2014). This program is directly contributing to, and a part of, the development of a broader Nunatsiavut housing strategy that aims to provide affordable and appropriate housing to all residents of the region.

23.2.4.2 DISC: Digital Information System for Communities

Housing and building land concerns are closely related, as functional houses depend on physically and culturally suitable areas of land for construction. The DISC (Digital Information System for Communities) component of the SCI addresses questions of appropriate building land in communities. At the core of DISC is the production of planning constraint maps that identify available, suitable areas for residential or commercial development across a range of land uses under current and projected future climate states. Each community database compiles digital information on community infrastructure and resources, landscape characteristics and hazards, regulated land areas, protected and valued spaces and places, climate scenarios and environmental modeling (Lee et al. 2014, 2015, also see Baikie et al. 2013). The planning constraint maps combine existing community information with Inuit knowledge gathered through participatory mapping based on map-biography methods (see Tobias 2009) and new geoscientific data in a georeferenced information database to support community infrastructure planning and development decisions. DISC is providing databases accessible to Inuit Community Governments to allow staff to access and update spatial information relevant to their communities.

23.2.4.3 Adaptation Planning for Food Security and Climate Change

Adaptation planning to ensure food security includes: the creation and support of community and regional networks of food security actors; the collection, collation, and synthesis of existing information on food security in Nunatsiavut; and the documentation and review of existing food supporting landscapes and seascapes in Nunatsiavut (Furgal 2014). Subsistence is about both obtaining country foods and

maintaining social relationships (Wenzel 2013). SCI has developed a program that addresses the socioeconomic as well as the sociocultural aspects of food security: the *Aullak, sangilivallianginnatuk* (Going off, growing strong) program pairs at-risk youth with experienced hunters and elders from the communities to learn about land skills and Inuit knowledge. Youth spend time traveling, fishing, hunting, trapping, learning about cultural traditions and customs, building *komatiks* (sleds) and smoke-houses, and delivering and sharing country foods with elders. There are early indications that the program is indeed improving the resilience of youth participants (Hirsch et al. 2014).

23.2.4.4 SmartICE: Sea Ice Monitoring and Real Time Information for Coastal Environments

Sea ice, an integral part of Inuit livelihoods, is fundamental in Nunatsiavut for subsistence, recreational, and commercial or industrial purposes. SmartICE (Sea Ice Monitoring And Real Time Information for Coastal Environments) addresses pressures associated with deteriorating snow and ice conditions that affect safe traveling and navigation on the ice through integrating adapted technology, remote sensing, and Inuit knowledge to promote safe travel in the region. The three main elements of SmartICE include *in situ* sensors to measure sea ice conditions, satellite imagery to map sea-ice conditions, and information technology to integrate information and generate outputs useful for various user groups, ranging from ice navigation managers to Inuit ice experts and recreational ice users. SmartICE, represents a Nunatsiavut Government-community-university-industry collaboration with a vision to provide a sea ice information service for Inuit by Inuit (Briggs et al. 2014; Bell et al. 2014).

23.2.4.5 Regional Energy Strategy and Sustainable Water and Wastewater Management

Two important aspects of safe communities relate to energy security and water safety. SCI is currently in the planning stages of an energy security strategy that seeks to ensure all communities have access to a sufficient, affordable source of sustainable energy to meet residential and economic development needs. The strategy seeks to: help the region to better project the short and medium term energy demand trends and requirements; document the impacts of current energy sources and constraints on social, environmental, and economic conditions; and identify options for energy demand reductions (Goldhar and Sheldon 2014). To address water safety, SCI is undertaking a project to develop tools and methodologies for the planning and design of sustainable water and wastewater management systems in Nunatsiavut. The underlying rationale is that sustainable community development in Nunatsiavut depends on the provision of safe drinking water. In Rigolet the cost of servicing a single lot for residential housing has risen to over \$200,000

(2013 values) due mainly to the requirements for water distribution and wastewater collection and disposal. High costs for water and wastewater infrastructure development limit the ability of the local and regional governments to adequately provide for other needs, such as appropriate wastewater management practices.

The novelty in the approach undertaken by the SCI to address these problems lies in the proactive inclusion of community members in the development of adaptation strategies. This is achieved through participatory activities that, for example, let community members rank and identify locally appropriate infrastructure design criteria. The overall aim is to develop and validate approaches, methodologies and tools that can be applied to the planning and design of sustainable water and wastewater infrastructure in all Nunatsiavut communities (Gordon and Farahbakhsh 2014). Specific objectives include the evaluation of current opportunities and risks, the identification of best management practices in northern communities, the development of water management and decision making tools, and the development of adaptation strategies and scenarios (Gordon and Farahbakhsh 2014).

23.3 Discussion and Outlook

SakKijânginnatuk Nunalik strives to be an example of sustainability transformation, where the notion of “sustainability” is inextricably linked to current local priorities, individual and community visions for the future, and Inuit philosophies and world-views. The SCI shows that meanings of sustainability must not necessarily be derived from southern ideas and/or governments that are distant in terms of geography and mindset. Instead, the meanings of sustainability as expressed by *SakKijânginnatuk Nunalik* ought to stem from individuals and communities and be directly applicable to their immediate environments. Similarly, the means to accomplish sustainability transformation should be rooted in local knowledge and local skills that result in local strategies with the aim of yielding immediate, applicable, and noticeable results.

Within academic circles, the SCI has already received recognition. Plenary and individual presentations and panel discussions at arctic conferences including the ArcticNet annual science meeting (Vancouver 2012, Halifax 2013, Ottawa 2014) and the International Congress of Arctic Social Sciences (Prince George 2014) were well received. For its knowledge mobilization and action plan, the SCI was a recipient of the 2013 Arctic Inspiration Prize (NLEC 2013). The prize is awarded for

multidisciplinary teams who have made a substantial, demonstrated and distinguished contribution to the gathering of Arctic knowledge and who have provided a concrete plan and commitment to implement their knowledge into real world application for the benefit of the Canadian Arctic, its Peoples and therefore Canada as a whole. (Arctic Inspiration Prize n.d.)

Such recognition is important as it provides a boost in morale for those involved with the SCI, and as the Arctic Inspiration Prize involves a sizeable cash award that supports their action plan on healthy homes in Nunatsiavut.

Despite its successes on the ground and in more distant academic circles, the SCI currently lacks awareness at the community level, as was apparent during a recent visit (August 2014) to two Nunatsiavut communities. While turnout and enthusiasm for local community mapping sessions contributing to the DISC project were good, mapping participants were not necessarily aware of the existence of the SCI or its overall goals. Neither were community-based researchers directly involved with specific sub-projects aware of the larger context of their important work. To move forward with and implement the projects listed above, the SCI currently strongly relies on a small group of key leaders from the Inuit Community Governments and the regional Nunatsiavut Government. For an initiative that is rooted in local communities this is a serious problem. While the SCI employs a mixed top-down/bottom-up approach, it may be useful to contemplate shifting more strongly towards the latter, to ensure the sustainability of the initiative. Scholars in other parts of the world have noted that sustainability initiatives do rely strongly on popular support or buy-in to ensure their prolonged effectiveness (Fraser et al. 2006).

There are two main additional reasons why it is important to create on-the ground awareness of the SCI in Nunatsiavut. First, even residents who may not be actively involved with or aware of the SCI at the moment may benefit from the overall initiative or a specific subproject in the future. It is important that residents who experience sustainability related problems know that an initiative exists that they can consult. Second, the guiding principles of the SCI (Table 23.1) imply the obligation of the initiative to proactively reach out to the people of Nunatsiavut. In order to remain accountable, the SCI must hear about concerns, including those of residents who may not be supportive of the initiative or specific subprojects. This can only be accomplished through visibility and dialogue. With respect to its guiding principles, the integration of Inuit values is indeed crucial for the SCI. However, there is a need to gain a better understanding as to how the realities of the SCI reflect local indigenous knowledge in action. While some projects, such as “Going off – growing strong”, provide positive examples, concerns related to limited engagement with community members may indicate that, going forward, local indigenous knowledge needs to be more carefully considered and operationalized. Some Inuit regions, Nunavut in particular, have captured the importance of specific indigenous philosophies through *Inuit Qaujimagatuqangit (IQ)*. *IQ* can be understood as a reflection of Inuit cultural expectations arising after the Nunavut Land Claims Agreement, taking the form of guiding principles for the Government of Nunavut (Wenzel 2004). *IQ* is a concept in progress. It emerged as an attempt to move beyond the narrower concept of traditional ecological knowledge. Tester and Irniq argue that

IQ can bring together generations of Inuit in a common challenge. That challenge is to hold in check relations that seriously threaten Inuit culture and, in so doing, put before us relationships between and among people, animals, and landscapes relevant to all of us that might otherwise be absorbed by a very different, totalizing logic. (2008: 59)

Similar to approaches taken in other parts of *Inuit Nunangat*, Nunatsiavut and the SCI may benefit from making their conceptualization of Inuit values more explicit. It is important to acknowledge that, despite its intentions, the research methods the SCI employs have their inherent biases and worldviews, which may not always be in line with Inuit values the region may wish to promote. To prevent research myopia, the actual levels of engagement with community members and the integration of Inuit values need to be evaluated on an ongoing basis.

These challenges prompt several key questions for the SCI to address going forward. How can we assess or track the direction of the SCI and its sub-projects, and evaluate the rate of change and success? How can we ensure responsiveness to the priorities, needs, visions, concerns, and values of community members? And how can we continue to explore complex, interrelated questions in an integrative, interactive manner?

One approach to address current challenges is through the implementation of a sustainability indicator framework. Such frameworks could help to measure phenomena important to the SCI and its sub-projects (for example, the number of single unit dwellings; proficiency in Inuktitut; subsistence harvesting characteristics), thereby gathering valuable data (Larsen et al. 2010). Indicators also aid in tracking the direction and rate of change (for example: how many youth engage in subsistence activities in any given year?), and they can become tools in informing policy and guiding decision-making (Fraser et al. 2006).

Sustainability indicators have been developed in local contexts, albeit at this point mostly outside of the Arctic (for example see Holden 2006). Exceptions include the Arctic Social Indicators project (ASI), which aimed at crafting sound indicators that allowed the tracking of trends in human development (Larsen et al. 2010). The ASI made use of domains such as health and population, cultural well-being and cultural vitality, contact with nature, and fate control, among others. These domains were populated with indicators in order to detect trends of development. As Rydin et al. (2003) noted, creating successful indicators relies on their integration into processes of governance. In other words, indicators have to be relevant for policy making. Hence, the intent of a second ASI project is to allow for the integration or implementation of arctic social indicators in community based monitoring programs (Larsen et al. 2015).

Sustainability indicator programs can enhance our overall understanding of environmental and societal problems in Nunatsiavut and can facilitate capacity building through the concerted engagement of community members with community challenges that goes beyond the collection of anecdotal evidence. These programs would benefit the SCI greatly in terms of staying on track and being able to feel the pulse of local residents. In other words, using sustainability indicator programs would benefit the balance between community level and regional governmental level steering of the initiative, which in turn may translate into policy and the development of purposeful projects. Not least, a sustainability indicator framework may open up the SCI for a more formal or rigorous comparison with sustainability transformation projects in other regions. While the specifics of such a program as part of

the SCI are being worked out, initial feedback from the Inuit Community Governments is positive.

23.4 Concluding Remarks

From a global perspective, “sustainability” may be described primarily as a reaction to the negative effects of western industrialized capitalism, going back as far as the Industrial Revolutions of Western Europe and North America in the late eighteenth and nineteenth centuries respectively. We note that this period was characterized by the reorganization of manufacturing and labour to allow for the mass production and shipment of goods, and accompanied by population increases and the growth of towns. The era also observed public reactions, spurred by intellectuals of the time, to the deterioration of living conditions, the destruction of the environment, and social ills detrimental to individual health and well-being, including increasing alcoholism and the suppression of leisure (de Vries 1994). The inherent tensions between “economic efficiency criteria, social justice and the equitable distribution of wealth, and environmental conservation in perpetuity” were well identified then (Lumley and Armstrong 2004: 71). “Sustainable development” as proposed by the Brundtland Commission in the late 1980s and promoted by the “Earth Summit” in Rio in the early 1990s continues to grapple with these constant tensions. As outlined above, some question the effectiveness of a philosophy rooted in the same processes that cause the problems it is trying to solve. The sustainability initiative discussed in this paper offers a fresh perspective on sustainability and sustainable development in a specific northern setting. We hope that those working towards sustainability transformation outside of the Arctic and Subarctic may benefit from lessons learned in northern communities through initiatives such as *SakKijânginnatuk Nunalik*, where local approaches are being used to address problems that extend far beyond their locality.

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