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# Increased Indigenous Participation in Environmental Decision-Making: A Policy Analysis for the Improvement of Indigenous Health

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# Increased Indigenous Participation in Environmental Decision-Making: A Policy Analysis for the Improvement of Indigenous Health

**Abstract**
Improving the physical environment and Indigenous participation in environmental decision-making is inherently related to the improvement of health among Indigenous Peoples. Improving the state of the physical environment necessitates increased involvement by Indigenous communities in decision-making and policy development. This involvement must integrate local traditional knowledge (TK) as an important tool in the decolonization of environmental decision-making, and a necessary step towards the improvement of Indigenous health. With a focus on the physical environment as a social determinant of Indigenous health, this article highlights the need for increased Indigenous participation in the decision-making process on environmental issues and proposes a framework to accomplish this outcome. Indigenous-centred policy frameworks should include the following five key principles: (a) the recognition of Indigenous knowledge, (b) the recognition of the inherent right to self-determination, (c) the use of an inclusive and integrative knowledge system, (d) the use of community-based participatory approaches, and (e) the use of circular and holistic viewpoints.

**Keywords**
environment, decision-making, Indigenous, health, policy

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# Increased Indigenous Participation in Environmental Decision-Making: A Policy Analysis for the Improvement of Indigenous Health

Determinants of health are those social, environmental, and economic factors that impact the well-being of individuals (Centre for Disease Control and Prevention [CDC], 2016). A causal relationship can be articulated between socio-economic and environmental conditions, and higher incidences of illness or health issues. The physical environment is one example of these determinants that has an important role to play in health and well-being. The physical environment, which includes water and air quality, as well as the level of environmental degradation, is also an important element of Indigenous life. Indigenous Peoples across the world have unique experiences, cultures, values, traditions, and perspectives that they have carried through their history. Though traditional and local knowledge varies by community, geographic location, and historical context, there is a common thread between traditional knowledge holders regarding the importance of the environment. Improvements to the physical environment can potentially have direct positive effects on Indigenous communities, but increasing the role of Indigenous Peoples in decision-making processes about the environments (including discussions about environmental management, for example) in their communities, is an important first step. To date, there has been little guidance on how to adequately increase Indigenous participation in and control over policies concerning environmental issues as a mechanism for the promotion of Indigenous health.

Policy frameworks that impact the physical environment in Indigenous communities need to take into account the unique experiences and perspectives of Indigenous People. It can be said, "public policy—both national and global—should change to take into account the evidence on social determinants of health and interventions and policies that will address them" (Marmot, 2005, p. 1099). Indeed, there remains a need for policies and programs to address the "rippling effect of environmental dispossession and colonialism on the quality of health determinants in these communities" (Richmond & Ross, 2009, p. 410). This article, with an emphasis on existing Canadian case studies, highlights the need for both increased Indigenous participation in decision-making and the incorporation of traditional local knowledge into policy frameworks. Key elements of a policy framework are presented, with an emphasis on the importance of the physical environment as a way to improve Indigenous health and well-being.

## Canadian Context

The kinds of governance structures that operate within Indigenous communities in Canada today were developed primarily through the Indian Act; as the main mechanism through which federal jurisdiction over Indigenous People in Canada is exercised, the Indian Act articulates the "manner in which Indian reserves and treaties are administered by the Indian Affairs Department and the limited control exercised by bands and band councils" (Bartlett, 1977, p. 581). While policies and programs that affect Indigenous communities exist under a patchwork governance structure that is shared by several different federal departments, they fall primarily under the jurisdiction of Indigenous and Northern Affairs Canada (INAC). In 1982, the Constitution Act recognized the rights of Aboriginal Peoples in Canada. However, there are several flaws with this act, and "precedents need to be created through certain Supreme Court decisions about inherent or treaty rights of Aboriginal peoples" (Uribe, 2006, p. 1). Recent court cases have affirmed and recognized both Aboriginal inherent and treaty rights (R v. Sparrow, 1990) as well as the fact that Aboriginal title extends to land itself (Delgamuukw v. British Columbia, 1997). Increasingly, Indigenous communities across Canada are calling for increased

autonomy and the recognition of a constitutionally protected right to make decisions regarding the resources within their lands. Yet, Indigenous people in Canada currently have little control over the use and development of adjacent lands and resources, despite the fact that they are directly affected by the activities on those lands (Patrick, 2011). Despite significant improvements in the relationship between Indigenous Peoples in Canada and the Crown over the years, there continues to be significant tension between both parties (Uribe, 2006).

Canada's colonial history has shaped Indigenous communities across Canada. Congruently, there is widespread agreement that the era in which Indian Residential Schools existed was a devastating and destructive time period for Indigenous populations in Canada, with far reaching consequences. These residential schools are a part of Canada's very recent history, with the last federally run school closing in 1996 (Canadian Broadcasting Corporation [CBC], 2008). In the mandate letters to ministers, Prime Minister Justin Trudeau urged that now is the time for a "renewed, nation-to-nation relationship with Indigenous Peoples . . . based on recognition of rights, respect, co-operation, and partnership" (Prime Minister of Canada, 2015, paras. 25-27). A nation-to-nation approach involves federal, provincial, territorial and Indigenous governments together, as First Nations are simultaneously citizens of Canada, a province or territory, and their Indigenous Nation.

Today there are 1.4 million people (4.3% of the total population of Canada) who identify as Aboriginal in Canada, with 60.8% identifying as First Nations, 32.3% as Métis, and 4.2% as Inuit (Statistics Canada, 2011). According to the recent National Household Survey, roughly one-quarter of all Indigenous people live on reserve, with 49.3% of First Nations people living on reserves, and 73.1% of Inuit populations living in northern and remote settlements (Statistics Canada, 2011). Indigenous Peoples living on reserve face higher rates of unemployment and suicide, as well as reduced access to safe drinking water and the basic necessities of life (Aboriginal Healing Foundation, 2007; Macdonald & Wilson, 2016) .

## The Physical Environment: A Social Determinant of Health

Social determinants of health have been defined as the conditions in which we live and work that impact our health and well-being (Irwin & Scali, 2010). Ranging from income distribution and education level to physical environment, these determinants of health relate to the social environment or social characteristics that contribute to one's state of health (CDC, 2016). In Indigenous communities in particular greater focus is placed on reducing health inequalities by addressing socio-economic conditions, as well as the physical, mental, emotional, and spiritual dimensions of health (Adelson, 2005; Reading & Wien, 2009). Indigenous Peoples face unique challenges related to health, and, in the Canadian context, there is an increasing recognition of the value of Indigenous knowledge and practices in terms of their potential contribution to improving the health and wellness of Indigenous people (National Aboriginal Health Organization [NAHO], 2008).

The physical environment and connection to the land is a critical element of health in Indigenous populations (Richmond & Ross, 2009). The physical environment has been defined as (adapted from Public Health Agency of [PHAC], 2016):


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- Levels of exposure to contaminants in the air, water, food, and soil, which can cause a variety of adverse health effects including cancer, birth defects, respiratory illnesses, and gastrointestinal ailments.

- Factors in the built environment related to housing, indoor air quality, and the design of communities and transportation systems, which can significantly influence both physical and psychological well-being.

Elements such as access to quality housing, shelter, clean water, and sanitation have been identified as basic human rights (United Nations Economic, Scientific, and Cultural Organization [UNESCO], 2006). Indigenous communities in Canada face higher levels of inadequate housing, unsafe drinking water, and boil water advisories than non-Indigenous communities in Canada. According to a recent survey, 37.3% of First Nation households require major repairs, with half of First Nation adults reporting mold and mildew present in their homes (First Nations Information Governance Centre [FNIGC], 2012). Degradation of the physical and built environment directly impacts Indigenous Peoples and threatens their way of life (McGregor & Whitaker, 2001). Most notably, "poor sanitation and waste management, unsafe water supplies, and lack of community resources represent physical conditions that jeopardize the health of Aboriginal peoples" (Reading & Wien, 2009, p. 8). It has been argued that simple, affordable, and effective ways of improving Indigenous health include the provision of clean drinking water and adequate sanitation (Gracey & King, 2009).

The long-standing effects of colonialism and the resettlement of Indigenous Peoples onto reserves have dramatically impacted Indigenous Peoples lives. It has been found that "regulatory regimes nested in colonialism . . . have been shown to produce health disparities" (Patrick, 2011, p. 387). Similarly, Frohlich, Ross, and Richmond (2006) found that health disparities:

> Manifested from a long history of oppression, systemic racism, and discrimination, and are inextricably linked to unequal access to resources such as education, training and employment, social and healthcare facilities and limited access to and control over lands and resources. (p. 136)

The connection of Indigenous Peoples and their health to the land is a "fundamental component of Indigenous culture, and central to the health and wellness of Aboriginal societies" (Richmond & Ross, 2009, p. 404). Reading and Wien (2009) have argued that Indigenous communities have:

> Witnessed a rapid transition from a healthy relationship with the natural world to one of dispossession and disempowerment. Aboriginal peoples are no longer stewards of their traditional territories, nor are they permitted to share in the profits from extraction and manipulation of natural resources. Finally, contamination of wildlife, fish, vegetation and water has forced Aboriginal peoples further from the natural environments that once sustained community health. (p. 20)

It has been argued that one of the strongest links between the health of Aboriginal Peoples and their environments is traditional foods (Kuhnlein & Receveur, 1996; Richmond & Ross, 2009). Industrial development and other anthropogenic activities have resulted in the contamination of traditional foods

and medicines, thereby causing the degradation of Indigenous Peoples' physical and spiritual health (Kuhnlein & Receveur, 1996; Richmond & Ross, 2009). Furthermore, Richmond and Ross (2009) have argued that "contamination does not only pose significant risks for physical health, but it can present a risk to the health of local economies as well" (p. 404). Similarly, other elements of the physical environment, such as overcrowded housing conditions, poor sanitation, unsafe water supplies, and lack of community resources have been associated with decreased Indigenous health and increased stress (Canada Mortgage and Housing Corporation [CMHC], 2004; Indian and Northern Affairs Canada [INAC], 2003).

## Improving Indigenous Health Through Increased Indigenous Participation in Environmental Decision-Making

The Commission on the Social Determinants of Health's (CSDH, 2008) most recent report stated that "resources and control over decision-making processes often remain beyond the reach of people normally excluded at the local and community level" (p. 63). Colonialism and resettlement have been used to impose physical environments that are detrimental to health and well-being on Indigenous communities, (Reading & Wien, 2009). The Commission recommended "local government and civil society, backed by national government, establish local participatory governance mechanisms that enable communities and local government to partner in building healthier and safer cities" (CSDH, 2008, p. 63). The Commission pointed to three principles to guide the elimination of health inequities, including:

a. Improving the conditions of daily life (i.e., the social circumstances in which people are born, grow, live, and work);

b. Addressing inequitable distribution of resources; and

c. Measuring the problems related to health inequalities, evaluating the impact of policy actions, expanding the knowledgebase, developing a workforce trained in the social determinants of health, and improving understandings of the social determinants of health.

During the development of the CSDH guidelines, the Public Health Agency of Canada (PHAC) established the Canadian Reference Group (CRG) that would ensure Canada had an opportunity to contribute to the CSDH guidelines. This opportunity was subsequently extended to include the involvement of Indigenous stakeholders (PHAC, 2013). While there is widespread recognition of the importance of a population health approach within the Canadian context, there is no "universal Canadian approach to research and policy implementation" regarding social determinants of health (Native Women's Association of Canada [NWAC], 2007, p. 4). Raphael (2009) has argued that there exists a policy vacuum with respect to how to approach actions that address social determinants of health in Canada. However, the CSDH guidelines are important tools that help policy makers in Canada address the health and well-being of Canadians, particularly among marginalized populations such as Indigenous people living both on and off reserve. To address the social determinants of Indigenous Peoples' health requires increased Indigenous involvement in both the decision-making process and development of policy. Indigenous stakeholders continue to assert their right for increased control over decisions on policies that are either related to their lands or affect areas directly adjacent to their lands using the United Nations Declaration on the Rights of Indigenous People (UNDRIP), which


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the Government of Canada has committed to uphold (Government of Canada, 2016). UNDRIP advocates for Indigenous Peoples' self-determination and authority over the environment and the resources within their lands, as well as any activities that may threaten their lands (United Nations General Assembly [UNGA], 2007). Internationally, the Brundtland Report[1] has emphasized the importance of the community participation in resource development decision-making (United Nations World Commission on Environment and Development [UNWCED], 1987).

Traditionally, Indigenous Peoples have been protectors of the environment through close, interconnected relationships with the land. It has been argued that colonialism destroyed this relationship (Gracey & King, 2009). The impact of colonization is one of the critical social determinants of health impacting Indigenous communities (CSDH, 2007; Gracey & King, 2009). Specifically, in the context of the physical environment, the impact of colonialism has resulted in a diminished relationship between Indigenous Peoples and the land, the inability both to protect the environment and to continue to ensure long-term sustainability of their resources, including water. In their work, the CSDH found that some means by which to counter the effects of colonization include supporting the right to self-determination, the restoration of land rights, and the rehabilitation of degraded environments (CSDH, 2007).

Following the Haida, Taku, and Misikew Cree court cases that occurred between 2004 and 2005, the Supreme Court of Canada ruled that the Crown "has a duty to consult, and where appropriate, accommodate when the Crown contemplates conduct that might adversely impact potential or established Aboriginal or Treaty rights" (INAC, 2011, p. 1). This ruling means that the Crown (the Government) has a legal responsibility to consult with Indigenous Peoples prior to any action that may affect Aboriginal and/or treaty rights. In order to meet the requirements of duty to consult, a change from the status quo is necessary, including ensuring Indigenous participation in environmental decision-making. However, scholars have argued that this duty to consult does not sufficiently empower communities to achieve sustainable economic and social development on their own terms (McFadgen, 2013). McFadgen (2013) further argued, "only when the federal and provincial governments of Canada go beyond the minimal requirements of the duty to consult will First Nations communities be truly empowered in resource decisions" (p. 99).

The significance of the role of Indigenous people in environmental decision-making is evident in recent examples of environmental management in Canada. There exists a knowledge gap in Canadian public policy between how to engage meaningfully with Indigenous communities, and what exactly meaningful engagement entails. In the absence of any specific policies, Indigenous communities are included in discussions based on the triggering of a "duty to consult." There is no shortage of examples showing the negative consequences of inadequate consultation and engagement with Indigenous communities regarding activities that may impact their lands. In the case of Grassy Narrows First Nation in northwestern Ontario, a chlor-alkali plant pumped toxins, including mercury, into the river providing the community's fish and water supply. The impact of this plant was widespread and had socio-economic consequences for the community, including unemployment, changes in lifestyle, and an increase in significant health concerns (Wheatley, 1998). There are also very recent examples of

[1] The Brundtland Report, or Our Common Future, was published by the United Nations World Commission on Environment and Development (WCED) in 1987 and examines sustainable development internationally.

inadequate consultation that may potentially have significant impacts on Indigenous communities in Canada. The Mi'kmaq opposition to the Alton Gas plan in Nova Scotia (Campbell, 2014), for example, could threaten groundwater sources and affect local fish populations. Likewise, there has been widespread opposition to the proposed Site C dam in British Columbia from communities across Canada (Bellegarde, 2016). Many First Nations and other advocates have opposed the Site C hydroelectric project on the grounds that the project would be built across Treaty 8 Territory, located in British Columbia, resulting in the creation of a large reservoir with potential impact on treaty rights, archaeological sites, as well as other environmental impacts.

Increasingly, in the absence of significant federal policies and full and meaningful participation of Indigenous Peoples in decision-making, communities are developing their own policies, including development principles, in the face of natural resource development on or near their lands. The Tahltan Nation and the Wahnapitae Nation have, for example, developed community-based natural resource development policies that outline their approaches to negotiations on mining, emphasizing development principles that require projects to not threaten irreparable environmental damage (Whiteman & Mamen, 2002). Similarly, when the Wahnapitae Nation was faced with the potential environmental impacts from the closure of a nickel mine, the community developed its own natural resources policy. The development of community-based development principles was seen as a way of focusing the negotiations over the mine's closure to address community needs (Recollet 2000; Whiteman & Mamen, 2002).

## Inclusion of Traditional Knowledge into Environmental Decision-Making

The preservation, recognition, and inclusion of traditional or local knowledge all represent important elements of Indigenous health. Traditional knowledge (TK) has been broadly defined, albeit in various ways, as "a cumulative body of knowledge, practice and belief, evolving by adaptive processes, and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and their environment" (Berkes, 2012, p. 7). Traditional ways of knowing and doing, and the incorporation of traditional knowledge into policy are viewed by Indigenous and non-Indigenous environmentalists as ways to encourage both sustainable environmental management, and a more holistic understanding of the environment (Berkes, Colding, & Folke, 2000; Huntington, 2000). Similarly, TK can offer "contributions to environmental decision-making from a broader scope of environmental values, practices, and knowledge" (Ellis, 2005, p. 67).

Scholars often discuss the difference between scientifically-based Western knowledge and experiential, spiritually-based traditional knowledge. A key distinction between the two kinds of knowledge is that Western knowledge is derived through hypotheses, acquired through experimentation, and transmitted through written records, whereas traditional knowledge is derived from examples and anecdotes, acquired through daily interactions with people and the planet, and transmitted through oral narratives (Miltenberger, 2010). Stevenson and Webb (2003) and Simpson (2004) have shown that Western knowledge plays a superior role in environmental management, resulting in TK being de-legitimized and ranked lower than science-based knowledge. In addition, Indigenous communities face very real concerns when confronted with sharing their knowledge, fearing "knowledge exploitation and appropriation as well as the issue of intellectual versus collective property rights" (Wilkes, 2011, p. 34).

It is necessary to understand both the differences between knowledge systems, and the importance of incorporating TK into policy and programs related to environmental management. It has been argued (Berkes & Henley, 1997; Ellis, 2005) that the inclusion of TK into policy development and implementation ensures the following: the recognition of inherent rights, the ability of Indigenous communities to participate fully and meaningfully in decisions that affect their people, and the transition to self-determination. In the political realm, decision-makers have attempted to integrate TK into policy. The Government of the Northwest Territories (NWT) was one of the first Canadian entities to recognize the importance of traditional knowledge in the development of their TK Policy in the late 1980s (Miltenberger, 2010). This inclusion represents a significant advancement in the recognition of Indigenous knowledge, and its incorporation into public policy. The importance of the role of TK has also been incorporated into other federal documents such as the Canadian Environmental Assessment Act (2012) and the Mackenzie Valley Resource Management Act (1998), both of which indicate that Indigenous and community-based knowledge should be used when conducting environmental assessments or monitoring the environmental impacts of development (Ellis, 2005; Miltenberger, 2010). Similarly, the Government of Nunavut has incorporated TK as a guiding principle, labelled Inuit Quajimatunqangit (IQ), into their mandate (National Collaborating Centre for Aboriginal Health [NCCAH], 2009). However, to date, there exists no cohesive framework through which to integrate TK into policy making.

Although researchers have developed greater understanding of the importance and the role of TK in environmental management, there is a lack of understanding from scientists, engineers, policy makers, and researchers about how to move forward with incorporating TK into environmental management while respecting the rightful knowledge holders. There is evidence that traditional knowledge has been used successfully to make resource management decisions (Miltenberger, 2010; Stevenson, 2005). Miltenberger (2010), however, has argued that despite widespread recognition of the role of traditional knowledge, "the extent to which traditional knowledge has systematically been incorporated into environmental management and decision-making, and the degree to which opportunities have been formalized to ensure an effective role" (p. 222) has been limited. He has also highlighted an important concern among Indigenous Peoples, "regulatory and management decision-makers will take traditional knowledge out of context" and use it to justify their own particular and political ends (Miltenberger, 2010, p. 214). Similarly, "misconceptions (if not outright racism) prevent Indigenous Peoples' environmental knowledge (which includes laws for resource conservation and use) from being incorporated into existing management regimes" (Walkem, 2006, p. 310). Further, Walkem (2006) has stated that decision-making around water, land, and resources is typically constrained and includes only a limited number of participants. Inadequate involvement in the decision-making process results in outcomes that are externally imposed onto Indigenous communities and that fail to consider unique Indigenous perspectives, as well as the specific community context; thus, resulting in solutions that are either not appropriate for, or not welcomed by, the community.

There are generally two ways in which TK can be applied to policy and decision-making: top-down and bottom-up (Ellis, 2005). In Canada, the top-down approach, typically used by those bodies that are responsible for regulation and legislation (i.e., the federal government) attempts to accommodate TK within its existing legislative policy framework. The result is that this knowledge is neither fostered nor sought out by policy makers (Ellis, 2005). However, in contrast, the bottom-up approach typically increases Indigenous Peoples' ability to incorporate local knowledge into policies and governance

procedures. Ellis (2005) argued that this bottom-up approach is "characterized by initiatives designed to encourage the learning and transmission of traditional knowledge at the community level, as well as developing the means to communicate this knowledge within the structures and processes of environmental governance" (p. 67). Ellis (2005) further argued that top-down approaches are of little use if TK "cannot be accessed and is not forthcoming" (p. 69). In contrast, bottom-up (or "participatory") approaches seek to build capacity at the community level, thereby increasing Indigenous Peoples' ability to participate more fully in decision-making. Bottom-up approaches tend to be community-based, and encourage learning and sharing at the community level.

To date, there exists no cohesive framework through which TK can be incorporated into policy development and decision-making. Policies that promote the inclusion of TK need to adapt "conventional environmental decision-making to [A]boriginal ways of knowing and doing, rather than the conventional converse" (Ellis, 2005, p. 75). Arguably, among the many challenges contributing to the lack of respect afforded to TK and its full incorporation into environmental management and decision-making is the critical "need to establish traditional knowledge as relevant and credible in regulatory processes" (Miltenberger, 2010, p. 224). Ellis (2005) has argued that TK can "offer contributions to environmental decision-making from a broader scope of environmental values, practices and knowledge" (p. 67). Initiatives that attempt to incorporate TK into environmental decision-making can typically only be effective if a concerted effort is made to adapt conventional decision-making to Indigenous ways of knowing and doing, rather than the opposite (Ellis, 2005). Ellis (2005) further argued:

> There must be a shift in the balance of power, a reformulation of the values, practices, and knowledge that underlie environmental decision-making processes. Power over land-based knowledge and the consequent power over land must be asserted by [A]boriginal peoples, taken out of the exclusive realm of science and Euro-Canadian institutions, and taken into a realm where traditional ways of knowing and doing share equal influence. (p. 75)

Increasing Indigenous participation in environmental management and the improvement of physical environments is an important step towards improving Indigenous health. The inclusion of TK is necessary to ensure the meaningful and fair participation of Indigenous Peoples. There are some best practices and lessons about these issues that have been learned to date, which this article discusses below.

## Australia

In 2004, the Government of Australia developed the National Water Initiative (NWI), a blueprint for water reform through which the Government agreed on actions to achieve a more cohesive national approach to the way Australia manages, measures, plans, prices, and trades water (National Water Commission [NWC], 2012). The NWI (2012) recognized Indigenous people as "legitimate stakeholders in water planning and management, and acknowledged the need to identify Indigenous water values and water requirements in water plans" (p. 1). While the initiative has received positive feedback, critics have argued that the National Water Initiative is essentially nothing but lip service. The Indigenous provisions within the NWI received very little attention from policy makers, water managers, and researchers, and there is a lack of appropriate policy infrastructure to ensure follow-through on the engagement of Indigenous Peoples in water planning and governance (Jackson, Tan, Mooney,


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Hoverman, & White, 2012). Jackson et al. (2012) have argued that this is a limiting factor to Australian water policy planning, explaining that "improved outcomes for Indigenous people will at a minimum require [Indigenous] direct participation in water planning as well as their informed contribution to water policy debates" (p. 58).

The study by Jackson et al. (2012), which looked at three regions in Australia with three distinct frameworks for ensuring the participation of Indigenous Peoples in water planning, drew several conclusions on best practices intended to encourage more effective participatory approaches. Their case study from the Tiwi Islands[2] highlighted the necessity for adequate and appropriate consultation, and the authors concluded that the more "experiential the learning during the community meetings, the greater its engagement qualities, interest and impact" (p. 59). They developed a set of participatory tools, such as workshops on traditional lands, large scale mapping exercises, and models and aerial photographs, which were then evaluated by community members. All tools received a significant amount of support from participants. The importance of meaningful participatory approaches was echoed in their work across the three regions.

From this work, Jackson et al. (2012) highlighted several key principles for good practice in water planning, including:

a. Drawing on available Indigenous knowledge that is typically underutilized and neither well-understood nor respected.

b. Involving Indigenous Peoples at all levels of the water planning process—from setting objectives and intents for a project to the final stages of continued monitoring.

c. Increasing capacity building within the community rather than having a select few "representatives" participating in the process. The authors argued that proper capacity building helps a larger number of individuals within the community to participate more effectively within all stages of the process, including when complex issues arise (Jackson et al., 2012).

In addition, the authors argued that technical assessments, such as water resource planning, need to take into account sociological factors, and that Indigenous water requirements should be made a priority in any water plan development (Jackson et al., 2012). This Australian work offers within a Canadian context unique insight into how the problematic history of a country vis-à-vis Indigenous Peoples might be addressed in and navigated by policy. Broadly, of greatest importance is that problem solving and decision-making around inherently technical problems needs to consider the specific socio-economic conditions and contexts of communities.

### Sustainable Forest Management Network (SFMN)

The SFMN developed a document describing the benefit and use of TK for sustainable forest management. The document highlighted the importance of TK, emphasizing its ability to overcome the

[2] The Tiwi Islands are part of the Northern Territory, Australia. The islands are located 80 km to the north of Darwin.

limitations of Western science to "deal effectively with environmental issues of increasing magnitude and complexity," and its use as a means by which Aboriginal Peoples could reassert their rights (Stevenson, 2005, p. 4). Stevenson (2005) has presented an alternative approach to decision-making, planning, and action in environmental resource management. Typical scientific methodologies reinforce Western approaches to managing environmental resources, whereas Stevenson's alternative approach suggests that any decision-making model must allow for the contributions brought by Indigenous Peoples and their knowledge.

In SFMN's proposed model, "TK is not forced into the Western scientific paradigm . . . but [are] re-contextualized to become part of a larger comprehensive strategy to achieve ecological, social, cultural and economic sustainability" (Stevenson, 2005, p. 8). The report highlighted key principles in the development of any decision-making and planning model involving Indigenous people, which were:

a. TK should not be incorporated into any model without the involvement of its rightful owners.

b. TK and Western science are culturally constructed knowledge systems.

c. TK informs Indigenous ways of knowing and doing.

d. Both TK and Western knowledge are needed in a successful model.

e. Indigenous Peoples possess not only TK, but also other knowledge required for successful environmental management (Stevenson, 2005).

### Indigenous Knowledge Translation Summit Steering Committee (IKTSSC)

The IKTSSC developed a policy-making toolkit in 2006 to provide assistance and guidance to community policy makers in the development of knowledge translation policy (Gaye Hanson & Smylie, 2006). This toolkit provided an overview of the importance of knowledge translation, the development of policy from a community-based approach, and examples of a process for policy making. The toolkit provided valuable definitions of key terms, and is intended to give an overview of a possible process for policy making regarding knowledge translation at the community level. The importance of understanding a "knowledge circle" within a community was highlighted; particularly, how knowledge is acquired, how it is stored, how it is translated and shared, and how it is used at the community level—and how this may differ from typical Western approaches. The most important elements of this toolkit are the questions that it suggests should be asked during the development of policy, such as: What processes are used to develop good policy that reflects the values and priorities of the community? Who should be involved and how do they stay engaged throughout the process (Gaye Hanson & Smylie, 2006)? These types of questions would be valuable for the development of any strategy for policy development and implementation.


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## Elements of Proposed Policy Framework to Support Increased Indigenous Decision-Making for Improved Indigenous Health

Improvements to the physical environment can support the betterment of Indigenous health; such improvements require Indigenous participation and control in the decision-making process. According to Rockloff and Lockie (2006), Indigenous interests in resource management have been marginalized through piecemeal participation, preference of scientific knowledge over TK, and disregard for moral and legal rights. The development of a framework to ensure the participation of Indigenous people in decision-making needs to acknowledge both the shortcomings of previous approaches, and the best practices or lessons learned from these approaches. It should also consider existing Indigenous research methodologies, which provide a framework for working and researching with Indigenous communities. Following from Chilisa (2012), these methodologies focus on four main principles: informing assumptions about reality, mobilizing knowledge and values with an Indigenous research paradigm, targeting local phenomena, and maintaining context sensitivity and being integrative.

Maori researcher Linda Tuhiwai Smith (1999) was one of the first individuals to bring attention to the concept of Indigenous approaches to research, which she termed "decolonizing methodologies," indicating that decolonization:

> Does not mean and has not meant a total rejection of all theory or research or Western knowledge. Rather, it is about centering our concerns and worldviews and then coming to know and understand theory and research from our own perspectives and for our own purpose. (p. 39)

One example of a framework that attempts to embody Indigenous research methodologies is OCAP®. OCAP® stands for Ownership, Control, Access, and Possession through which research can enable "a way for First Nations to make decisions regarding what research will be done, for what purpose information or data will be used, where the information will be physically stored and who will have access" (First Nations Centre, 2007, p. 1). In this context, ownership refers to the relationship of a First Nations community to its cultural knowledge, data, and information. Control relates to the right of First Nations people to exercise control during all stages of the design process, whereas access relates to Indigenous Peoples' right to all information about decisions, including the rationale, to ensure transparency, and possession provides ownership over the processes and outcomes. Other examples of Indigenous research methodologies are decolonizing approaches to environmental decision-making.

Research on decolonizing methodologies can be applied to environmental management in several ways. Primarily, the recognition of historical and colonial contexts and their repercussions must form the basis of any environmental decision-making framework. Work by Smith (1999) and the principles of OCAP® are important contributions to the discussion on increased Indigenous participation in environmental management. The important pillars of transparency and cultural sensitivity are the basis for increased Indigenous ownership and control over which activities occur on Indigenous lands and in the surrounding areas. The decolonization of environmental decision-making has been presented as a necessary and needed process for "improving relationships between Indigenous communities and various governments in Canada" (Wilkes, 2011). Wilkes (2011) focused on the decolonization of Indigenous environmental management through three critical elements within the framework. These

concepts have been incorporated into this article's proposed policy framework. The first concept is of worldview: acknowledging the unique relationship that Indigenous Peoples have with their lands, their collective responsibility to protect their lands, and the importance of Indigenous TK. The second concept presented is governance, including the recognition that Indigenous Peoples have inherent and legal rights, unique Indigenous governance systems, and the unique right to autonomy regarding decisions made regarding their lands. The final critical concept is participation, which means the process is democratic, full participation is encouraged, and culturally appropriate protocols are in place. Other important considerations include balancing the divide between Western and Indigenous ways of knowing and doing; increasing respect for Indigenous laws, governance systems, and knowledge; creating space to allow Indigenous communities to fully participate; and, finally, supporting unique cultural protocols as part of the process.

It is from utilizing the lessons pointed out in the above case studies, including from important research work and from the incorporation of Indigenous research methodologies, that we have developed a policy framework.

## Elements of a Policy Framework

The proposed policy framework is based on the notion that improved Indigenous health is inherently linked to Indigenous control and decision-making power on environmental management issues. The elements of this proposed Indigenous-centred policy framework include:

a. The recognition of Indigenous knowledge;

b. The recognition of Indigenous Peoples' inherent right to self-determination;

c. The use of inclusive and integrative knowledge systems;

d. Reliance on community-based participatory approaches; and

e. The use of circular and holistic viewpoints, as described below.

### Recognition of Indigenous Knowledge

Recognition of the role of Indigenous knowledge in the decision-making process is vital. Through the NWT policy developments (discussed above), we have a greater understanding of the importance of including TK in policy processes. Specifically, within environmental decision-making, the importance of local Indigenous knowledge has been recognized (Baird et al., 2013; Corburn, 2003; Miltenberger, 2010). Within this framework, we include the following principles:

a. Indigenous Peoples in Canada have intimate knowledge of their environments (Wilkes, 2011).

b. Indigenous Peoples have a close, personal relationship with water (Centre for Anthropological Research at the University of Western Australia [CAR], 1999).


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c. Indigenous Peoples believe water is a living part of their ecosystem (Chiefs of Ontario [COO], 2008; McGregor, 2012).

d. Indigenous Peoples honour and respect water through sacred and traditional ways (McGregor, 2012; UNGA, 2007).

e. Indigenous Peoples have a deep sense of responsibility to the water and the environment (CAR, 1999; UNGA, 2007; Wilkes, 2011).

f. Indigenous Peoples feel that the degradation of water quality directly impacts people and threatens their survival (McGregor, 2012).

g. Decision-making should recognize the role of spirit, culture, ethics, and practices (Wilkes, 2011).

The inclusion and respect of traditional knowledge is a necessary and important aspect of any decision-making framework (Miltenberger, 2010; Wilkes, 2011).

### Inherent Right to Self-Determination and Governance

Decision-making frameworks must recognize and carefully balance Indigenous Peoples' inherent right to govern themselves and exercise their right to ownership and control over traditional lands, territories, and natural resources. Indeed, Indigenous Peoples have an internationally recognized right (as set out in the United Nations Declaration of the Rights of Indigenous Peoples [UNDRIP]) to self-determination and therefore the power to make decisions, based on traditional laws and customs, on how to manage the land and water (UNGA, 2007). In addition, frameworks must also include the recognition and respect of Indigenous inherent rights and treaty rights. Indeed, the recognition of the right to self-determination and governance has been identified as a key principle for improved environmental decision-making in Indigenous communities (Simpson, 2004). Recognition of the right to self-determination also forms the basis of OCAP® and thus represents an important element of any policy development process.

### Integrated and Inclusive Knowledge Systems

Building on the importance of Indigenous knowledge, there also needs to be recognition within this framework of the importance of both Indigenous approaches and Western approaches to decision-making. Indigenous ways of approaching environmental decision-making may incorporate storytelling, talking circles, communal dinners, and get-togethers; Western approaches typically utilize conventional data collection and analysis techniques (Ribeiro, 2014). Simpson (2004) has argued that Indigenous knowledge should be treated with the same respect and authority as Western knowledge, and that any notion of the superiority of Western knowledge should be disregarded.

There is, however, an opportunity to utilize both Indigenous and Western knowledge systems, in a meaningful and productive way— the "key to success is respecting each other's methods and information, while assessing the conclusions in a cooperative fashion" (Emery, 2000, p. 18). How to successfully use both traditional and Western knowledge is a task that differs between approaches. One

example is the Two-Eyed Seeing approach, developed by Mi'kmaw Elder Albert Marshall. Two-Eyed Seeing has been defined as:

a. Learning to see with one eye the strengths of Indigenous knowledge and ways of knowing;

b. Learning to see with the other eye the strengths of Western knowledge and ways of knowing; and

c. Learning to use both eyes together for the benefit of all (Marshall & Bartlett, 2010).

Within the Two-Eyed Seeing approach, researchers used the concept of co-learning, from integrative science, to bring together Indigenous and Western scientific knowledge and ways of knowing for education, research, and other applications (Marshall & Bartlett, 2010). An important concept within Two-Eyed Seeing is the "importance of giving equal consideration to diverse Indigenous and non-Indigenous worldviews such that one worldview does not dominate or undermine the contributions of others" (Martin, 2012, p. 20).

Another example of an approach that uses both TK and Western knowledge is Turnbull's (1997) concept of third space, which occurs when different knowledge systems come together, or converge. A third example is lateral knowledge transfer practices that give recognition to the sources of knowledge and to the expertise that reside within communities, in contrast to typical top-down approaches (Wiebe, van Gaalen, Langlois, & Costen, 2013). Since policies relating to environmental management and the environment ultimately impact the health of Indigenous people, these policies must be inclusive of different knowledge systems.

### Community-Based, Participatory Processes

Community-based participatory processes in decision-making foster community-led prioritization of objectives, goals, and outcomes. Whereas typical environmental decision-making looks to make decisions based on Western ways of thinking, a shift to more community-based, participatory approaches to decision-making is necessary. At this point, it is important to note that this article has largely omitted the concept of consultation thus far. The reason for this is that the concept of consultation can be considered a Western approach to Indigenous involvement, whereby non-Indigenous groups are responsible for "consulting" with Indigenous communities. This concept implies a decidedly one-way flow of information and knowledge. Rather than strictly focusing on legal requirements and the duty to consult, fostering community-based participatory approaches to decision-making results in Indigenous communities becoming involved in every step of a process; in doing so, this makes clear that Indigenous people are stewards, and hence decision-makers.

The following concepts are important elements of our policy framework that have been adapted from UNDRIP, the principles of OCAP®, and Wilkes' work on principles of Indigenous autonomy as part of community-based processes (see Schnarch, 2005; UNGA, 2007; Wiebe et al., 2013; Wilkes, 2011):

a. Aboriginal people have the right to participate in decision-making processes using culturally appropriate means. Participants (both Aboriginal and non-Aboriginal) must come to the table in the spirit of deep and mutual respect.


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b. Participation with Aboriginal people is carried out through fair, open, and transparent processes.

c. The diversity of Aboriginal Peoples must be recognized. There must be recognition of diversity both within and between Aboriginal communities.

d. Aboriginal communities have the right to set priorities within their communities and identify areas of concern.

Similarly, nine proposed key elements to community-based research in Indigenous communities include (adapted from Kenny, Faries, Fiske, & Voyageur, 2004):

a. The opportunity for community input at all stages, with more sensitivity to local values and practice;

b. More time given to actual data collection;

c. The elimination of language barriers;

d. An emphasis on oral traditions (through interviews, focus groups);

e. Personal contact with participants;

f. The provision of deeper understanding of relevant issues;

g. The use of local, traditional, and other kinds of expertise (e.g., academic); and

h. Greater opportunities for training local people.

The recognition of these principles should form the basis of policy development from which community-based participatory processes can be carried out. Increased capacity, involvement, and representation increase Indigenous decision-making authority, and thus are important steps towards improving Indigenous health.

### Holistic and Circular Viewpoints

Environmental decision-making should look holistically not only at the present, but also the past and future. This considers both the historical context (adapted from both Western and Indigenous knowledge) of an issue or project as well as the future impacts of any environmental decision. Within Indigenous TK, the future impacts of any decision are sometimes evaluated seven generations into the future, not simply 25 or 50 years from present day (which is common in Western approaches) (Lavallee & Poole, 2010). Frameworks should encourage the adoption of longer viewpoints by investigating past, present, and future contexts. Through knowledge gathering, the environmental history in a community can be ascertained, which can help to frame future environmental decision-making. Loiselle and McKenzie (2006) have argued that the Aboriginal worldview is best portrayed by a circular or holistic vision. Likewise, Kenny and colleagues (2004) argued that a holistic approach to Aboriginal policy research needs to honour not only the past, present, and future, but also the interconnectedness of life,

and the spiritual, mental, physical, and emotional elements of human beings. As a framework, OCAP® promotes this type of holistic approach to research (Schnarch, 2005).

The proposed elements of our policy framework are presented graphically in Figure 1.

## Conclusions

Overall, the health and well-being of Indigenous communities worldwide is dependent on the ability to increase Indigenous decision-making power within communities, especially regarding activities that have a direct impact on environments within or surrounding Indigenous lands. The incorporation of traditional, local knowledge into environmental decision-making is an essential tool for working towards the improvement of Indigenous health. Similarly, addressing the on-going effects of colonialism and decolonizing environmental decision-making is inherently related to the improvement of Indigenous health. The decolonization of policies and programs ensures a holistic approach to addressing health concerns in Indigenous communities. As part of a decolonization process, it is essential to ensure full participation by Indigenous community members in all stages of the process, but most importantly during the actual decision-making. Policies and programs to address Indigenous health, in particular those environmental factors that have an important role in Indigenous culture, need to be Indigenous-led, where Indigenous Peoples are the key decision-makers on issues that affect their lands and, therefore, their livelihoods and well-being. The importance of recognizing Indigenous Peoples right to control their lands and the activities that surround their lands is reaffirmed in UNDRIP and other international agreements.

Following an assessment of best practices in Canada and abroad, and the literature, this article has identified and proposed the key elements of a framework to increase Indigenous participation and decision-making control in environmental management. Through a focus on the physical environment as a social determinant of health, the framework this article has proposed has five key principles to improve Indigenous decision-making control on environmental issues. These principles are: (a) the recognition of Indigenous knowledge, (b) the recognition of Indigenous Peoples' inherent right to self-determination, (c) the use of inclusive and integrative knowledge systems, (d) the use of community-based participatory approaches, and (e) the use of circular and holistic viewpoints.

Both the involvement of Indigenous people and the use of traditional knowledge in decision-making are vital parameters to improving the physical environment and the health of Indigenous people. Policy development and implementation must address disparities between populations that limit and stifle Indigenous participation in decision-making processes, particularly environmental decision-making that has a direct impact on Indigenous health and well-being.


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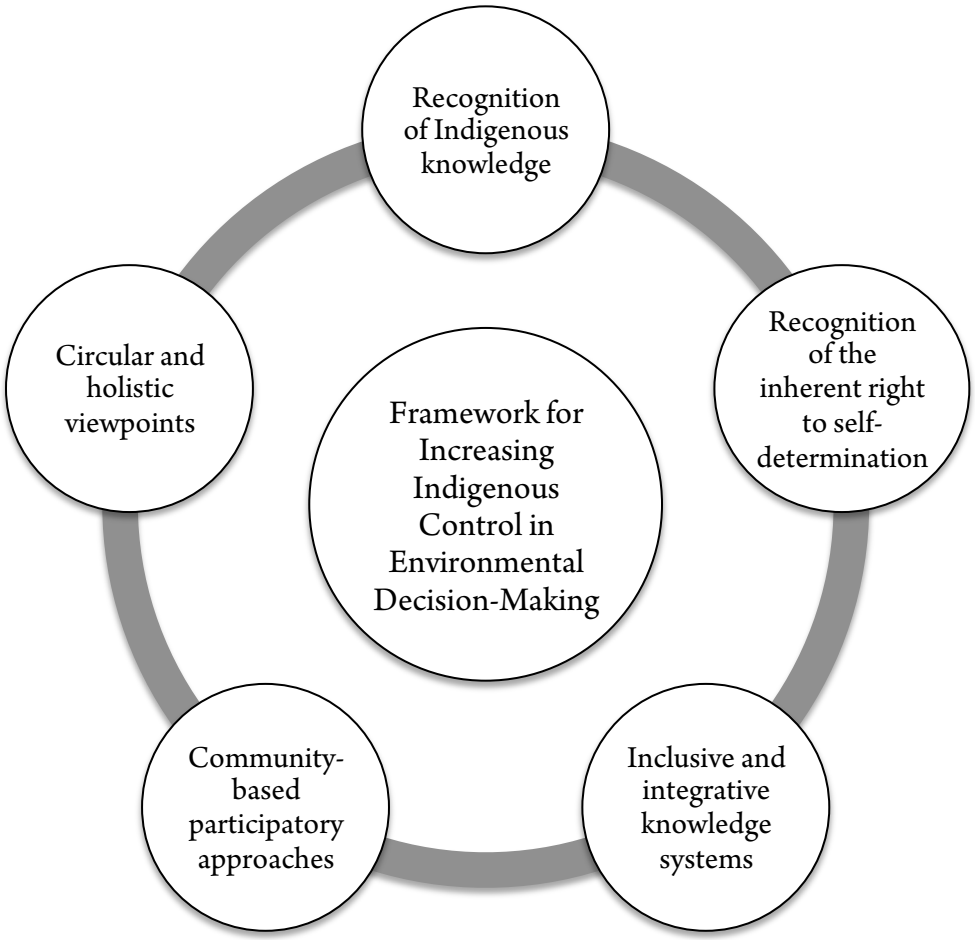


***Figure 1.*** **Elements of a framework to increase Indigenous participation in environmental decision-making.**

## References

Aboriginal Healing Foundation. (2007). *Suicide among Aboriginal people in Canada* (Aboriginal Healing Foundation Research Series). Ottawa, ON: Author. Retrieved from http://www.ahf.ca/downloads/suicide.pdf

Adelson, N. (2005). The embodiment of inequity: Health disparities in Aboriginal Canada. *Canadian Journal of Public Health/Revue Canadienne de Santé Publique, 96*(2), S45-S61.

Baird, J., Carter, B., Cave, K., Dupont, D., General, P., King, C. … & Varewyck, A. (2013). Gaining insights about water: The value of surveys in First Nations communities to inform water governance. *Indigenous Policy Journal, 23*(4). Retrieved from http://www.indigenouspolicy.org/index.php/ipj/article/view/144/132

Bartlett, R. H. (1977). The Indian Act of Canada. *Buffalo Law Review, 27*, 581.

Bellegarde, P. (2016, September 28). Site C dam approval another violation of First Nations rights. *The Toronto Star*. Retrieved from https://www.thestar.com/opinion/commentary/2016/09/28/site-c-dam-approval-another-violation-of-first-nations-rights.html

Berkes, F. (2012). *Sacred ecology: Traditional ecological knowledge and resource management* (3rd ed.). Philadelphia: Routledge.

Berkes, F., Colding, J., & Folke, C. (2000). Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications, 10*(5), 1251–1262. doi:10.1890/1051-0761(2000)010[1251:ROTEKA]2.0.CO;2

Berkes, F., & Henley, T. (1997). Co-management and traditional knowledge: Threat or opportunity? *Policy Options, 18*, 29-30.

Campbell, F. (2014, September 29). Mi'kmaq launch protest of Alton natural gas storage project. *The Chronicle Herald*. Retrieved from http://thechronicleherald.ca/novascotia/1240002-mi-kmaq-launch-protest-of-alton-natural-gas-storage-project

Canada Mortgage and Housing Corporation (CMHC). (2004). *2001 Census housing series issue 6: Revised Aboriginal households.* Ottawa, ON: Author. Retrieved from https://www03.cmhc-schl.gc.ca/catalog/productDetail.cfm?cat=43&itm=90&lang=en&fr=1475266060761

Canadian Broadcasting Corporation (CBC) (2008, May 16). A timeline of residential schools, the Truth and Reconciliation Commission. *CBC News.* Retrieved from http://www.cbc.ca/news/canada/a-timeline-of-residential-schools-the-truth-and-reconciliation-commission-1.724434

Canadian Environmental Assessment Act, 2012 (S.C. 2012, c. 19, s. 52).

Centre for Anthropological Research at the University of Western Australia (CAR). (1999). *Ngapa Kunangkul: Living water, report on the Aboriginal cultural values of groundwater in the La Grange Sub-Basin*. Crawley, AUS: Author.

Centre for Disease Control and Prevention (CDC) (2016). *Social determinants: Frequently asked questions*. Retrieved from http://www.cdc.gov/nchhstp/socialdeterminants/faq.html

Chiefs of Ontario (COO). (2008). *Water Declaration of the Anishinaabek, Mushkegowuk and Onkwehonwe*. Retrieved from http://www.chiefs-of-ontario.org/sites/default/files/files/COO%20water%20declaration%20revised%20march%202010.pdf

Chilisa, B. (2012). *Indigenous research methodologies*. Botswana: Sage Publications, Inc.

Commission on Social Determinants of Health (CSDH). (2007). *Social determinants and Indigenous health: The international experience and its policy implications.* Geneva: World Health Organization. Retrieved from http://www.who.int/social_determinants/resources/indigenous_health_adelaide_report_07.pdf

Commission on Social Determinants of Health (CSDH) (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health.* Geneva: World Health Organization.

Corburn, J. (2003). Bringing local knowledge into environmental decision-making improving urban planning for communities at risk. *Journal of Planning Education and Research, 22*(4), 420-433. doi:10.1177/0739456X03022004008

Delgamuukw *v.* British Columbia, [1997] 3 S.C.R. 1010.

Ellis, S. C. (2005). Meaningful consideration? A review of traditional knowledge in environmental decision-making. *Arctic, 58*(1), 66-77.

Emery, A. (2000). *Integrating Indigenous knowledge in project planning and implementation*. Retrieved from the Canadian International Development Agency website: www.acdi-cida.gc.ca/INET/IMAGES.NSF/vLUImages/ea/$file/IndiKnow-NP-e.pdf

First Nations Centre. (2007). *OCAP®: Ownership, Control, Access and Possession*. Sanctioned by the First Nations Information Governance Committee, Assembly of First Nations. Ottawa, ON: National Aboriginal Health Organization. Retrieved from http://www.naho.ca/documents/fnc/english/FNC_OCAPInformationResource.pdf

First Nations Information Governance Centre (FNIGC) (2012). *First Nations Regional Health Survey (RHS) 2008/10: National report on adults, youth and children living in First Nations communities*. Ottawa, ON: Author.

Frohlich, K., Ross, N., & Richmond, C. (2006). Health disparities in Canada: Some evidence and a theoretical framework. *Health Policy, 79*, 132–143. doi:10.1016/j.healthpol.2005.12.010

Gaye Hanson, P., & Smylie, J. (2006). *Knowledge translation for Indigenous communities: A policy making toolkit* (prepared for the Indigenous Knowledge Translation Summit Steering Committee). Retrieved from www.nccah-ccnsa.ca/docs/.../KT_Policy_Toolkit_Sept26%5B1%5D.pdf

Government of Canada (2016). *United Nations Declaration on the Rights of Indigenous Peoples.* Ottawa, ON: Author. Retrieved from https://www.aadnc-aandc.gc.ca/eng/1309374407406/1309374458958

Gracey, M., & King, M. (2009). Indigenous health Part 1: Determinants and disease patterns. *The Lancet, 374*(9683), 65-75. doi:10.1016/s0140-6736(09)60914-4

Huntington, H. P. (2000). Using traditional ecological knowledge in science: Methods and applications. *Ecological Applications, 10*(5), 1270–1274. doi:10.1890/1051-0761(2000)010[1270:UTEKIS]2.0.CO;2

Indian and Northern Affairs Canada (INAC). (2003). *Water quality and First Nations communities* (Backgrounder). Ottawa, ON: Author.

Indigenous and Northern Affairs Canada (INAC). (2011, March). *Aboriginal consultation and accommodation updated guidelines for federal officials to fulfill the duty to consult.* Retrieved from http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/intgui_1100100014665_eng.pdf

Irwin, A. & Scali, E. (2010). *Action on the social determinants of health: Learning from previous experiences* (Social Determinants of Health Discussion Paper 1, Debates). Retrieved from the World Health Organization website: www.who.int/social_determinants/corner/SDHDP1.pdf

Jackson, S., Tan, P. L., Mooney, C., Hoverman, S., & White, I. (2012). Principles and guidelines for good practice in Indigenous engagement in water planning. J*ournal of Hydrology, 474*, 57-65. doi:10.1016/j.jhydrol.2011.12.015

Kenny, C., Faries, E., Fiske, J., & Voyageur, C. (2004). *A holistic framework for Aboriginal policy research*. Ottawa, ON: Status of Women Canada.

Kuhnlein, H. & Receveur, O. (1996). Dietary change and traditional food systems of Indigenous Peoples. *Annual Review in Nutrition, 16*, 417-442. doi:10.1146/annurev.nu.16.070196.002221

Lavallee, L., & Poole, J. M. (2010). Beyond recovery: Colonization, health and healing for Indigenous people in Canada. *International Journal of Mental Health and Addiction, 8*(2), 271-281. doi:10.1007/s11469-009-9239-8

Loiselle, M., & McKenzie, L. (2006, May). The wellness wheel: An Aboriginal contribution to social work. Workshop conducted at the *North-American Conference on Spirituality and Social Work*, Waterloo, Ontario. Retrieved from http://www.stu.ca/~spirituality/Loiselle.pdf

Macdonald, D., & Wilson, D. (2016). *Shameful neglect: Indigenous child poverty in Canada.* Retrieved from the Canadian Centre for Policy Alternatives website: https://www.policyalternatives.ca/sites/default/files/uploads/publications/National%20Office/2016/05/Indigenous_Child%20_Poverty.pdf

Mackenzie Valley Resource Management Act (S.C. 1998, c. 25).

Marmot, M. (2005). Social determinants of health inequalities. *The Lancet, 365*(9464), 1099-1104. doi:10.1016/S0140-6736(05)74234-3

Marshall, A., & Bartlett, C. (2010, December). Two-Eyed Seeing: An old-new way of bringing together different perspectives & integrative science. Presentation at *the Aboriginal Peoples and the Environment Speakers Series*, Gatineau, QC.

Martin, D. H. (2012). Two-Eyed Seeing: A framework for understanding Indigenous and non-Indigenous approaches to Indigenous health research. *Canadian Journal of Nursing Research, 44*(2), 20-42.

McFadgen, R. (2013). *Beyond the duty to consult: Comparing environmental justice in three Aboriginal communities in Canada* (Master's thesis). Retrieved from https://dalspace.library.dal.ca/handle/10222/35396

McGregor, D. (2012). Traditional knowledge: Considerations for protecting water in Ontario. *International Indigenous Policy Journal, 3*(3). doi:10.18584/iipj.2012.3.3.11

McGregor, D., & Whitaker, S. (2001). *Linking traditional knowledge and SOLEC: Report Two: The experience of First Nations participants at SOLEC 2000.* Toronto, ON: Chiefs of Ontario and Environment Canada (Ontario Region).

Miltenberger, J. M. (2010). *Northern voices, northern waters: Traditional knowledge and water policy development in the Northwest Territories*. Paper presented at the Rosenberg International Forum on Water Policy—7th Forum, Buenos Aires, Argentina. Retrieved from http://ciwr.ucanr.edu/files/168775.pdf

National Aboriginal Health Organization (NAHO). (2008). *An overview of traditional knowledge and medicine and public health in Canada.* Ottawa, ON: Author. Retrieved from http://www.naho.ca/documents/naho/publications/tkOverviewPublicHealth.pdf

National Collaborating Centre for Aboriginal Health (NCCAH). (2009). *Inuit Qaujimajatuqangit: The role of Indigenous knowledge in supporting wellness in Inuit communities in Nunavut.* Prince George, BC: Author.

National Water Commission (NWC). (2012). *National Water Initiative*. Retrieved from http://www.nwc.gov.au/nwi

Native Women's Association of Canada (NWAC). (2007, June). *Social determinants of health and Canada's Aboriginal women* (submission by the Native Women's Association of Canada to the World Health Organization's Commission on the Social Determinants of Health). Retrieved on from https://www.nwac.ca/wp-content/uploads/2015/05/2007-Social-Determinants-of-Health-and-Canada's-Aboriginal-Women-NWAC-Submission-to-WHO-Commission.pdf

Patrick, R. J. (2011). Uneven access to safe drinking water for First Nations in Canada: Connecting health and place through source water protection. *Health & Place, 17*(1) 386-389. doi:10.1016/j.healthplace.2010.10.005

Prime Minster of Canada. (2015). *Prime Minister Justin Trudeau delivers a speech to the Assembly of First Nations Special Chiefs Assembly*. Retrieved from http://pm.gc.ca/eng/node/40159

Public Health Agency of Canada (PHAC). (2013). *Canada's response to WHO Commission on Social Determinant of Health: Canadian Reference Group*. Retrieved from www.phac-aspc.gc.ca/sdh-dss/crg-grc-eng.php

Public Health Agency of Canada (PHAC). (2016). *What makes Canadians healthy or unhealthy?* Retrieved from http://www.phac-aspc.gc.ca/ph-sp/determinants/determinants-eng.php

R. *v.* Sparrow, [1990] 1 S.C.R. 1075.

Raphael, D. (Ed.). (2009). *Social determinants of health: Canadian perspectives* (2nd ed.). Toronto: Canadian Scholars' Press Incorporated.

Reading, C. L. & Wien, F. (2009). *Health inequalities and social determinants of Aboriginal Peoples' health.* Prince George, BC: National Collaborating Centre for Aboriginal Health.

Recollet, P. (2000, February). Presentation on behalf of Wahnapitae First Nation. Paper presented at the Economic Renewal Forum: *The Potential for Partnerships: Mining Companies and the Aboriginal Community*, Thunder Bay, Canada.

Ribeiro, N. (2014, September). *Ekwa inniw-nisitootumowin: Using a Two-Eyed Seeing methodological approach to Aboriginal youth's risky health behaviors*. Paper presented at the annual meeting of the Congress of Qualitative Inquiry, Urbana, IL.

Richmond, C. A. M., & Ross, N. A. (2009). The determinants of First Nation and Inuit health: A critical population health approach. *Health & Place, 15*(2), 403–411. doi:10.1016/j.healthplace.2008.07.004

Rockloff, S. F. & Lockie, S. (2006). Democratization of coastal zone decision-making for Indigenous Australians: Insights from stakeholder analysis. *Coastal Management, 34*(3), 251-266. doi:10.1080/08920750600686653

Schnarch, B. (2005). *Ownership, Control, Access, and Possession (OCAP ®) or self-determination applied to research: A critical analysis of contemporary First Nations research and some options for First Nations communities.* Ottawa, ON: First Nations Centre, National Aboriginal Health Organization. Retrieved from www.naho.ca/documents/fnc/english/FNC_OCAPCriticalAnalysis.pdf

Simpson, L. R. (2004). Anticolonial strategies for the recovery and maintenance of Indigenous knowledge. *American Indian Quarterly, 28*(3-4), 373-384. doi:10.1353/aiq.2004.0107

Smith, L. T. (1999). *Decolonizing methodologies: Research and Indigenous Peoples.* New York: Zed Books. doi:10.1038/70963

Statistics Canada. (2011). *National Household Survey: Aboriginal Peoples in Canada: First Nations People, Métis and Inuit.* Ottawa, ON: Government of Canada. Retrieved from http://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-011-x/99-011-x2011001-eng.pdf

Stevenson, M. (2005). *Traditional knowledge and sustainable forest management.* Retrieved from https://era.library.ualberta.ca/files/37720f02t/SR_200405stevensonmtrad_en.pdf

Stevenson, M. G., & Webb, J. (2003). Just another stakeholder? First Nations and sustainable forest management in Canada's boreal forest. In P. J. Burton, C. Messier, D. W. Smith & W. L. Adamowicz (Eds.), *Towards sustainable management of the boreal forest* (pp. 65–112). Ottawa, ON: NRC Research Press.

Turnbull, D. (1997). Reframing science and other local knowledge traditions. *Futures, 29*(2), 551-562. doi:10.1016/S0016-3287(97)00030-X

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2006). *Water: A shared responsibility* (The United Nations World Water Development Report 2). Paris: Author

United Nations General Assembly (UNGA). (2007). *United Nations Declaration on the Rights of Indigenous Peoples.* Retrieved from www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

United Nations World Commission on Environment and Development (UNWCED). (1987). *Report of the World Commission on Environment and Development: Our common future.* Retrieved from www.un-documents.net/our-common-future.pdf

Uribe, J. (2006). *A study on the relationship between Canadian Aboriginal Peoples and the Canadian State.* Retrieved from http://www.focal.ca/pdf/Aboriginals_Uribe_Relationship%20Canadian%20Aboriginal%20Peoples%20and%20Canadian%20State_March%202006.pdf

Walkem, A. (2006). The land is dry: Indigenous Peoples, water and environmental justice. In K. Bakker (Ed.), *Eau Canada: The future of Canada's water* (pp. 303-319). Vancouver, BC: University of British Columbia Press.

Wheatley, M. A. (1998). Social and cultural impacts of environmental change on Aboriginal Peoples in Canada. *International Journal on Circumpolar Health, 57*(1), 537-542.

Whiteman, G. & Mamen, K. (2002). *Meaningful consultation and participation in the mining sector? A review of the consultation and participation of Indigenous Peoples within the international mining sector.* Ottawa, ON: The North-South Institute. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.199.2901&rep=rep1&type=pdf

Wiebe, P. K., van Gaalen, R. P., Langlois, K., & Costen, E. (2013). Toward culturally safe evidence-informed decision-making for First Nations and Inuit community health policies and programs. *Pimatisiwin, 11*(1), 17-26.

Wilkes, J. (2011). *Decolonizing environmental management: A case study of Kitchenuhmaykoosib Inninuwug* (Master's Thesis). Retrieved from miningwatch.ca/sites/default/files/WILKES_JAMES_2011_KI_Case_Study.pdf