

Indigenizing the Healthy Built and Social Environment: A public health case study of O-Pipon-
Na-Piwin Cree Nation (OPCN)

By
Pepper -Mackena Armstrong- Pritty

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University of Manitoba
Winnipeg, Manitoba

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Abstract

Beginning around the 1800's, Indigenous peoples were environmentally dispossessed and moved to Indian Reserves to make space for European colonization, but O-Pipon-Na-Piwin Cree Nation (OPCN) was then again displaced with a flood diversion in the 1970s. This thesis documents the factors impacting affecting health in OPCN. Through in-depth interviews, participants (n=7) described changes and outcomes to their traditional way of life, health, economics and social aspects of OPCN, and the dysfunction resulting from colonial interference. This research links unhealthy aspects of the built environment (community design, housing, food, transportation, natural environments) to colonial environmental dispossession and identifies solutions. The healthy built environment framework was helpful to look at the aspects, but only after it was indigenized, based on Indigenous priorities of self-determination, reconciliation, policy, economics, traditional ecological knowledge reclamation, and de-colonialization that created the Indigenous Healthy Built and Social Environment framework, which addresses disparities in Indigenous communities.

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CHAPTER ONE: INTRODUCTION, STUDY RATIONALE, COMMUNITY PROFILE AND FRAMEWORK

1.1 Introduction

For basic needs to be met in modern society, humans require an adequate built environment. The built environment, including natural environment, community design, healthy housing, food systems, and transportation, is important to public health. This public health framework called “Healthy Built Environment” provides a way to explore the health impact of underdevelopment in Indigenous communities (Provincial Health Services Authority, 2014; Stout, 2018). Public Health standards of developed countries, including Canada, advocate that living conditions be safe, healthy and that basic needs such as sufficient food, water and shelter be met (Schneider, 2016). However, these basic public health tenants often are not upheld in Canadian Indigenous reserves. In fact, the built environment of many Indigenous Canadians consistently ranks lower or on par with that in developing countries (Anderson et al., 2016).

Indigenous people have some of the highest rates of illness and social disparities compared to the rest of Canada, and this gap continues to widen (Reading, 2018). The higher prevalence of poor health in many Indigenous people has been largely attributed to socio-economic and environmental factors that are unique to Indigenous communities (Reading & Wien, 2009; Reading, 2018). These public health inequities stem from socioeconomic, cultural and political factors that on the surface do not appear to be directly related to health but are key determinants of the well-being of people, particularly children (Czyzewski, 2011).

Long-standing inequities that persist between settler and Indigenous communities appear to be getting worse (Palmer, 2011). Addressing these disparities requires a holistic approach that not only improves the current status of communities but also the root causes of these

inequities. The root causes and priorities of Indigenous peoples are not being adequately addressed due, in part, to the long-standing and complicated relationship between Canada's Indigenous and non-Indigenous peoples (Reading, 2018).

This thesis tells the story from the perspectives of different community members in O-Pipon-Na-Piwin Cree Nation (OPCN) about the overwhelming health, social and economic impacts that persist as a result of colonial interference and intentional flooding of their territorial land by the hydro industry. Additionally, solutions to disparities from the priority and perspective of OPCN community members will be highlighted.

The term Indigenous is used in this document to encompass, and refer to generally, the federal governments' definitions of status First Nations, non-status First Nations and Metis. However, when discussing First Nation communities I am referring to specific geographical jurisdictions, and people who live on Federal Indian Reserves. Reference to Indigenous communities is a more general reference to on- reserve and/ or off- reserve in an urban or rural area with prevalent Indigenous populations.

1.2 Research Rationale and Objectives

The purpose of this research is to explore Indigenous perspectives regarding the areas of food, water, housing, transportation, community infrastructure and the natural environment, and to find potential solutions to issues that individual band members identify as priorities. This investigation aims to collect data that informs community planning and health and safety precautions that need to be implemented in the community. The results of the study may also assist the community's leadership to advocate for improvements to manage resources at a policy and community level.

The objectives include:

- 1) To explore how community members perceive the status of their core resources (natural environment, housing, food, transportation and community infrastructure).
- 2) To identify linkages between the current status and root causes of inequities in Indigenous communities.
- 3) To research potential solutions and opportunities to address disparities from the perception of individual band members.
- 4) To ascertain the institutional barriers and supports that impede or enhance the equitable distribution of core resources.

1.3 Community Profile: O-Pipon-Na-Piwin Cree Nation

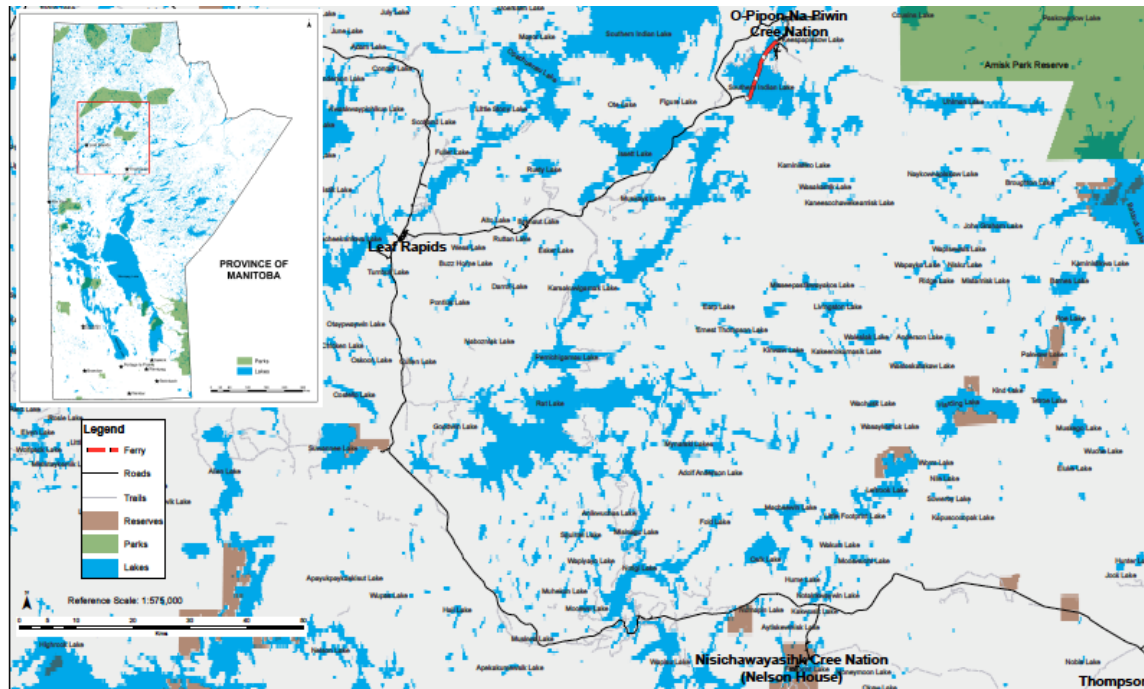
This research was undertaken with O-Pipon-Na-Piwin Cree Nation (OPCN). OPCN is an Indigenous settlement situated by South Indian Lake in Manitoba that was formerly part of the Nisichawayashik Cree Nation (Nelson House). According to the 2016 census data, 981 people reside in OPCN (Statistics Canada, 2016). The location of OPCN is about 315 km northwest of Thompson and 99.4 km from Leaf Rapids (See map 1).

People traditionally lived off the land by fishing, hunting caribou and other game as well as trading furs (Waldram, 1988). Starting in 1942, OPCN had a commercial fishery famous for quality fresh water fish (Waldram, 1988), ranking as the second largest fishery for white fish in North America. With an intact and vibrant culture and abundant wildlife and fish, community members had *pimatisiwin* (a Cree word meaning the good life) (Settee, 2013) and long-life expectancy, with many people living past one hundred years.

The community of OPCN is the most negatively impacted of all communities flooded by the Churchill River Diversion (CRD), as the OPCN community was permanently displaced by flooding (Waldram, 1988). In 1976, a hydro development megaproject intentionally flooded

OPCN and many northern Manitoba Indigenous communities. The traditional territory for hunting and fishing as well as the homes of community members of OPCN were obliterated by the CRD and the community was relocated (Waldram, 1988). The flow of a mighty river was diverted to make South Indian Lake (SIL) a water reservoir that would supply 40% of Manitoba's hydroelectric power without any on-going financial benefit to the community (Thompson, 2015). To compensate the displaced Indigenous people at South Indian Lake, the hydro electric company assured assistance and modern housing with electricity and running water to replace the loss of their old houses and livelihoods (Waldram, 1988). However, all the statistics – the high food insecurity rates, high unemployment rate, high occupancy per house and poverty – tell another story --- that the promises were not kept and the conditions in their community became worse.

OPCN, after being displaced, had their basic needs compromised. In 2009, OPCN had the highest food insecurity, at 100%, of 14 rural and remote northern communities (Thompson et al, 2012). The root causes of many of these disparities stem from colonial factors such as environmental dispossession and other impacts of colonization such as inequitable access to adequate food and water (Czyzewski, 2011). The impacts of developing hydroelectricity for the benefit of Manitoba undermined OPCN's peoples' environmental, economic and social welfare.



Map 1: O-Pipon-Na-Piwin Cree Nation (OPCN) and surrounding area

1.4 Framework

The framework I am using to analyze the data is the Healthy Built Environment Framework. The healthy built environment framework originated from a public health approach that promotes healthy living and healthy communities.

1.4.1 Healthy Built Environment Framework

The Healthy Built Environment Framework is a Public Health analysis of how the built environment either creates opportunities that support healthy living or barriers that obstruct it (Provincial Health Services Authority, 2014). The role of public health is to prevent disease, promote health and protect populations from current and future health threats (Schneider, 2016). Practitioners have long advocated for holistic approaches to health that address the social, economic, cultural and environmental aspects of community well-being. Many supportive frameworks have been developed to guide public health work; some broadly inclusive while others are more focused, usually on a particular area of public health (Sallis, Owen & Fisher,

2015). Recently, policy-makers, municipal planners and public health practitioners are finding success using the Healthy Built Environment Framework to explore inequities that impact health (Sallis et al., 2016). The built environment is conceptualized as man-made spaces and places where people live, work and carry out their activities of daily-living (Roof, 2008).

This framework focuses on five core areas as critical components of community functioning.

These pillars consist of 1) Community Design; 2) Housing; 3) Food Systems; 4) Natural Environments; and 5) Transportation (Provincial Health Services Authority, 2014). These foundational themes are of interest to scholars and policy makers and Public Health practitioners (Srinivasan, O'fallon & Dearry, 2003). Healthy Built Environment Linkages: A Toolkit for Design, Planning and Health from Provincial Health Services Authority (2014) provides strategic policy direction to address disease prevention and health promotion of communities in their framework:

Community Design Vision: *Neighbourhoods where people can easily connect with each other and with a variety of day to day services.*

Healthy Housing Vision: *Affordable, accessible, and good quality housing for all that is free of hazards and enables people to engage in activities of daily living while optimizing their health.*

Healthy Food Systems Vision: *A built environment that can support access to and availability of healthy foods for all.*

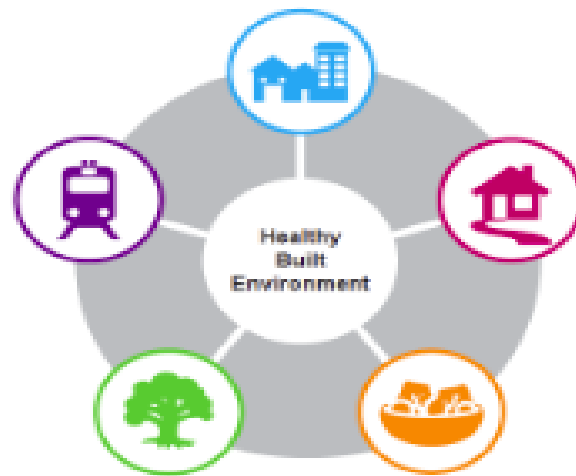
Healthy Natural Environments Vision: *A built environment where natural environments are protected and natural elements are incorporated, and are experienced by and accessible to all.*

Healthy Transportation Networks Vision: *Safe and accessible transportation systems that incorporate a diversity of transportation modes and place priority on active transport (e.g. cycling, walking and transit) over the use of private vehicles.*

(Provincial Health Services Authority, 2014)

**HEALTHY BUILT ENVIRONMENT LINKAGES
A TOOLKIT FOR DESIGN - PLANNING - HEALTH**

Provincial Health Services Authority, 2014 p.8



PROMOTING EQUITY - ACCESS - DESIGN FOR ALL AGES

From a community development perspective, impacts on these five core pillars of the built environment can have profound health and well-being outcomes. However, when applying this framework to Indigenous communities, the social and historical impacts of colonization must also be considered (Stout, 2018). The profound inequities that exist between Indigenous and non-Indigenous built environments require additional considerations when applying this broad framework. These differences are related to the extreme disparities between First Nation and non-First Nation communities in Canada, the political and jurisdictional variances and a

distinct cultural and historical context that differs from typical urban Canadian communities (Stout, 2018). This context also applies to non-First Nation communities with a high Indigenous population. Indigenous communities have a role in re-constructing the structures and analytical processes that guide decision-making of their public health services and community development, reflecting the distinct history, culture, geographical location and population needs. Indigenizing conceptual frameworks that support this understanding is one way that communities can advocate for self-determination that leads to better Indigenous health outcomes.

The development of Canada's built environment has undergone drastic changes over a few hundred years. The health, economic and social outcomes as well as the built environment situations are oppressively poor in Indigenous communities compared to non-Indigenous communities in Canada. This signifies the need to analyze how colonization has influenced these five core aspects. Semi-structured interviews with key members of OPCN, a displaced Indigenous community, will investigate these five core aspects of the Built Environment Framework. The built environment framework, as well as the colonial quagmire of Indigenous communities in Canada, will be further discussed in the literature review.

CHAPTER 2: LITERATURE REVIEW OF THE CANADIAN CONTEXT OF COLONIALISM AND THE IMPACT ON INDIGENOUS PEOPLES

2.1 Introduction

To understand the current realities and living conditions of the built environment of Indigenous peoples in Canada an understanding of Canadian colonialism is required, as it relates to the historical and current inequitable distribution of resources and prohibitive policies. These colonial histories provide the context needed to identify the disparities and degree of systemic poverty and related inequities that exist between Indigenous and non-Indigenous communities.

This history also provides insight into the relationships between environmental dispossession and long-standing oppression, exploitation, social, cultural and economic injustices experienced by Indigenous peoples that profoundly impacts their health and well-being.

Fundamentally, to advance reconciliation in Canada, the complex history of Indigenous peoples needs to be widely understood (Regan, 2010). Many settlers, and others, struggle with this acknowledgement; and feelings of guilt, shame and empathy are frequently cited as uncomfortable emotions triggered when hearing about the injustices Indigenous people have endured as a result of Canadian colonization (Regan, 2010). However, this understanding will provide a deeper empathetic appreciation for the current situation and support reconciling these harms.

2.2 Trick or Treaty: The Knotty History of Canadian Treaties

2.2.1 Indigenous Environmental Dispossession

Prior to colonization, Canadian Indigenous people survived on the land successfully for thousands of years in fully developed societies and lived prosperously in harmony with the land and each other (Palmer, 2011). When the settlers arrived on Turtle Island (North America), a complicated relationship between these settlers and the Indigenous people ensued. On one hand there was friendship, trading of goods, marriages, coexistence and mutual knowledge sharing; but on the other hand, there was rivalry, war, competition for resources, deception and massacres (Calloway, 1998). The underpinning of the conflict was fundamentally for access, control and claim to the natural environment of Canada.

Indigenous peoples occupied the desirable land with the abundant resources, which the Europeans' wanted to acquire for themselves (Houston & Houston, 2000). Attempts to eliminate Indigenous peoples went so far as to murder millions of Indigenous people through biological

warfare by “gifting” blankets that carried the deadly smallpox virus (Houston & Houston, 2000), which completely eliminated some tribes, consequently making them extinct (Stephenson & Acheson, 2004). As much as 90% of the Indigenous population was eliminated at the hands of the newcomers, according to estimates (Henderson et al., 1999). In an attempt to preserve the Indigenous way of life and to create peace, the First Nation Chiefs of the time agreed to share the land with the newcomers and enter into treaties that essentially outlined the terms of how the land and resources would be shared between the Indigenous peoples and the Government (Opekokew, 1984). Unjustly, the outcome of this partnership gave rise to deals that would result in the newcomers acquiring 99.8% occupancy of the natural environment of Canada (Indigenous and Northern Affairs, 1991), and ultimate legal authority over the entire country.

At the time of the initial treaty signing and the subsequent creation of Indian Reserves (mid –late 1800s), there was a great deal of conflict and competition for the land between the federal government, settlers and the Indigenous peoples of Canada (Banner, 2009). The desire to persuade the Indigenous people to formally and legally enter into these agreements was strong. Coincidentally, the legitimacy of circumstances and terms of these agreements have been consistently called into question (Palmer, 2011; Harmon, 2011). According to Cumming and Mickenburg:

Despite the insight and skill exhibited by their negotiators, it is clear that the Indians were not in an equal bargaining position with the Government. The Indians were a non-literate people and the concept of the treaty was foreign to their culture. Their negotiators apparently relied upon the advice of missionaries and the North-Northwest Mounted Police, neither of whom could be called disinterested parties (1972, p.149).

In fact, many scholars, spanning over decades, provide overwhelming evidence that questions the legitimacy of the treaties that were signed between the then Chiefs and the Federal Government, often due to language differences and the documents being written in English (Waldram, 1988; Morse, 1985; Opekokew, 1984; Banner, 2009; Harmon, 2011).

2.2.2 Implementation of Federal Indian Reserves

Hanson (n.d. para. 14), persuasively summarized the devastating impact that reserves had:

The creation of reserves had far-reaching implications for all aspects of Aboriginal life. The reserve system was, on a fundamental level, a government-sanctioned displacement of First Nations. At the stroke of a pen, reserves divided up not only lands but peoples and Nations that had existed for hundreds if not thousands of years. Families, houses and clans that had hunted and gathered together for generations were abruptly and arbitrarily joined up with other families and houses, disrupting social networks and long-established kinship systems that determined who could hunt, fish, and gather in particular areas.

By the mid 1800s, the federal government propelled First Nations peoples to abandon their wide-ranging traditional territories and to remain on dedicated plots of land (reserves) that were often tiny and lacking the resources that people would need to be self-sufficient (Optis, Shaw, Stephenson & Wild, 2012). The Chiefs were given the impression that living on the reserves, under these treaties, would provide safety from war, economic security, health, education and protection against famine for generations to come (Venne, 2011). Unfortunately, the reality of the situation was, "...that First Nations have gone from being the richest peoples in the world to the most impoverished, as their lands, resources, and ways of being were stolen from them" (Palmater, 2011, p.112).

The reserve lands provided to First Nations were isolated and often barren of the resources that people required to survive sustainably (Hanson, n.d.). Reserve policies regarding the freedoms and independence of First Nation people were strict and confining; people were prohibited from leaving their designated reserves, even to find food, without written permission from their Indian Agent (Reyhner & Eder, 2015). Under the authority of the colonial governments Indigenous peoples experienced a devastating loss of access to the land. To compensate First Nations peoples for not having the resources to be self-sufficient the federal government assured the First Nations people with promises of assistance (Reyhner & Eder, 2015). However, as time went on, new laws and more restrictions would further impede First Nations peoples' ability to be self-sustaining.

2.2.3 Colonial Land Policy

The colonial laws and policies that the Canadian and provincial governments implemented often intentionally restricted Indigenous peoples' access to natural resources (Tough, 2011, Gottesman, 1983). The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) was adopted by the United Nations in 2007. However, this UNDRIP declaration has yet to be fully adopted in Canada; and currently, Indigenous peoples do not have the authority to veto natural resources management decisions that could infringe upon their inherent and treaty rights.

The ingrained colonial influence into Indigenous communities has been so substantial that often people have lost connection to their traditional cultural ways of knowing (Fanon, Sartre & Farrington, 1963; King, Smith & Gracey, 2009). This deculturalization devastated communities, creating a disassociation from their stable social system, and shaped the maladaptive coping many Indigenous people have adapted out of necessity to survive (Freyberg,

Covarrubias & Burack, 2018). The social structure and the built environment of Indigenous people was dismantled and replaced with colonially imposed systems that created chaos among Indigenous communities (Fanon, Sartre & Farrington, 1963; Adelson, 2005).

Communities have identified decolonizing negative aspects of the built and social environment as a positive way to move forward (Thompson et al, 2014). Reclaiming traditional ways of knowing and being that reflects the philosophies and values of Indigenous peoples is an important element required for reconciliation in Canada (Regan, 2010). Decolonizing policies, systems and structures that support traditional social economies is one way that Indigenous people identify as repairing some of the poverty status that resulted from colonial capitalist market influence (Fanon, Sartre & Farrington, 1963; Palmater 2014; Settee, 2011). Reconciling Indigenous health, poverty and food insecurity can be addressed through the reclamation of traditional food and medicine systems that use land-based healing as the basis for leading a good life. There is great potential to reconcile the damage caused by colonization by ending the obvious disparities in the Indigenous built environments. Upholding traditional knowledge is another way to address reconciliation (Stout, 2018).

2.3 Colonial Built Environments

The built environment describes key elements of human-evolved societies that are known to play an integral role in effecting the lived experience and health of people. These components include the human manipulated places and spaces that impact ways in which people live, work, eat, play and move (Roof & Oleru, 2008). These core components include the natural environment, community design, housing, food systems and transportation (Provincial Health Services Authority, 2014).

Canada is among the world's richest nations, offering a high quality of life due largely to developing its built environment. However, obvious differences exist between the built environment of First Nations and non-First Nations (Stout, 2018). The colonial divide of Canada between First Nation and non-First Nation communities has a negative impact on health, education, economics and social functioning of First Nation families and communities (Kolahdooz, Nader, Yi & Sharma, 2015).

Capitalism and overconsumption also created disparities, as when someone takes too much, little remains for others (Fanon, Sartre & Farrington, 1963). Prestige and wealth motivated settlers and encouraged the over-harvesting of plants and animals (Carter, 1990) and destroying water systems for hydroelectric power (Waldrum, 1993). Clearly, the settler's economy based on over-consumption and personal advantage is not sustainable.

Indigenous peoples had a sustainable economic system that differed from the capitalist system (Fanon, Sartre & Farrington, 1963). Indigenous people valued the land and family connections and used a social economy that encouraged sharing and relationship (Settee, 2011). Indigenous people had a social economy (Settee, 2011) with its minimalist lifestyle centered on land-based living and respectful, sustainable harvesting of natural resources (Carter, 1990). Carter, 1990 (p.20) describes Indigenous people as having, "a different concept of wealth; once they had acquired shelter, enough food and clothing to allow for a comfortable existence, there was no need for further exertion for their own behalf." The shift from a nomadic lifestyle and social economy to a capitalist market system and reserve-living, created dysfunction and disrupted the socio-economic balance that Indigenous people had with the land (Settee, 2011; Palmater, 2014; Carter, 1990). The colonial influence on Indigenous people resulted in negative

health and social outcomes that have not benefited the on-reserve built environment (Stout, 2018).

2.3.1 Health of Indigenous Peoples

The way health is conceptualized is different between Indigenous people and non-Indigenous peoples. Non-Indigenous peoples' views of health and medicine dominate and obscure Indigenous health practices. Almost all studies of Indigenous peoples' health are from the viewpoint of non-Indigenous people without consideration how Indigenous people conceptualize their own health and wellness, as a distinct people (Parlee, O'Neil, Nation, L. K. E. D. F., 2007).

Pimatisiwin, a Cree word meaning 'The Good Life', describes an inclusive conceptualization of well-being that encompasses a holistic and comprehensive picture of a person's existence (Settee, 2013). Significant elements of *pimatisiwin* include a connection to the land, nature and culture in addition to acquiring basic socioeconomic needs such as food, water and healthy living conditions (Big-Canoe & Richmond, 2014). *Pimatisiwin* is a holistic way of conceptualizing the lived experience of Indigenous peoples (Craig & Hamilton, 2014), which also includes their movement across the landscape. These holistic approaches to assessing health and wellbeing have also been recognized by academics over the last two decades with an emphasis on the importance of social and economic factors as better predictors of health outcomes than solely focusing on the biomedical way of describing and treating health (Dunn, 2000; 2002; Kirmayer, Brass & Tait, 2000). Addressing the built environment of First Nation communities' advances Indigenous sovereignty and health.

Community development is a powerful force at the heart of Indigenous issues. It develops sovereignty that begins with a healing process for the Aboriginal individual and spreads to the community agencies and governance structures. In order for the healing transformation to be successful, the process of colonization must be confronted with the intention of dismantling its powerful forces (Settee, 2013, p.43).

2.3.2 Core Components of the Built Environment

The core components of the built environment have direct and indirect impacts on health (Jackson, 2003). This section focuses on the profoundly altered status and impact of the colonial built environment of Turtle Island that occurred in Indigenous communities after the arrival of settlers in Canada. The profound disparate outcomes that resulted from the changes to the physical and social environment is the focus for this section of this review.

2.3.3 Indigenous Disparities of the Natural Environment

Indigenous peoples' stewardship activities of traditional land-based living honored natural resources as the source of life (Ross, 2011). Respecting environmental resources for the benefit of seven future generations is considered a core value of traditional Indigenous culture. The Indigenous relationship with the land goes beyond a supply-demand relationship by recognizing the spiritual relationship between man and the *aki*, (the natural environment- including water, rocks, soils, and all things living and non-living in the natural world) (Simpson, 2014; Clarkson, Morrisette & Regallet, 1992).

Indigenous peoples' worldview is that all things are related (LaDuke, 2002). For this relationship to maintain balance and well-being, a reciprocity between man, land and the natural resources is required (LaDuke, 2002). This worldview impacts how Indigenous people steward Mother Earth and what development they see as acceptable (Carter,1990). Colonization has

reshaped the natural environment with agricultural production in the Canadian prairies, colonial hydroelectric power and residential development resulting in the attrition of forestry, wetlands, impacted soil quality, and animal habitat (Johnson & Miyanishi, 2012; Tough, 2011).

Indigenous people in Canada rely on the natural environment for food, water, shelter and for movement on the landscape. But, colonial restrictions denied them access to resources, by restricting mobility, limiting freedom and disrupting their knowing. The colonial substitutions for the Indigenous food, water, shelter and mobility on the landscape negatively impacted the social, economic and health aspects of Indigenous lives. Although many communities have overcome many of these barriers, other communities, such as OPCN, continue to struggle in recovering from these abrupt changes that negatively impacted the Indigenous built environment (Stout, 2018; Kamal et.al., 2015; Settee, 2011).

2.3.4 Community Design: Measuring wealth and health

The wealth of a country influences the availability of public services, quality of infrastructure, the design of communities and the priority agendas (Brandon & Lombardi, 2009). Societies in developed countries with a strong economic reserve, can afford modern amenities that not only improve the quality of life of nations but also have the capacity to significantly impact health status. This is the case for designing adequate community water and sewage systems.

Many measures to assess quality of life of a nation, including the Gross Domestic Product (GDP), global competitiveness scale and human development index exist. Often an economic term, such as GDP, is used as a standard indicator to assess the value of assets of a country (Marmot et al., 2008). The global competitiveness scale is another measure. Canada has been evaluated as one of the top countries in the world according to the Global Competitiveness Scale (Lall, 2001) and GDP calculations (Statistics Times, 2016). The United Nations endorses

the use of the Human Development Index as a more comprehensive tool for measuring the status of a country. This scale evaluates life expectancy, education and standard of living, not merely the economics of a country (United Nations, n.d.). Although this method may appear to be more inclusive, it actually paints a skewed picture of Canada's reality.

End Poverty in Canada (n.d. p. 2) explains, "While Canada officially ranks an impressive 4th on the UN Human Development Index, the statistics measuring poverty in Canada's Aboriginal communities would place us 78th—a ranking currently held by Peru." These discrepancies demonstrate disappointing disparities within Canada that place First Nations in a third world standard of living. Evaluations from the perspectives of Canadian Indigenous people on how they, as distinct peoples, assess and quantify well-being and wealth, have not been made. Similar to health, the way wealth is conceptualized is different between Indigenous people and non-Indigenous peoples. The degree of infrastructure available, specifically related to water and sewage sanitation design, also says a great deal about the position of a nation (Walters & Javernick-Will, 2015).

Differences in water quality and quantity exist between First Nations and other Canadian communities. Given that community design and infrastructure is dependent on economics, it is not surprising that in 2011, non-First Nations Canadian communities reported having sufficient water supply via tap water 99% of the time (EKOS Research Associates, 2011). This is contrary to the water situation in First Nations where, as of October 7, 2017, 144 drinking water advisories were in effect in 98 First Nation communities across Canada, excluding British Columbia (WaterToday, 2017) with some water advisories in First Nations being in place for several years. Water advisories at Neskantanga First Nation in Northwestern Ontario, for more than ten years occurred (Eggertson, 2006). With such a high incidence of water advisories in

First Nations, community people and regulators risk unsafe water becoming normalized (Patrick, 2011).

Communities designed with infrastructure for safe, treated water that is accessible in homes is a critical determinant of health (WHO, 2005). When homes lack access to safe drinking water, the spread of disease increases (Lee, Rosenzweig & Pitt, 1997). The implementation of chlorine into water systems in the early 1900s' was instrumental in limiting water disease outbreaks (Calormiris,1998); however, communities must be designed to have the capacity to manage reliable, regular water monitoring as a critical requirement to ensure safe drinking water.

When communities have no indoor plumbing, unsafe disposal of human excrement often occurs that is unmonitored and unreported (Coleman, 2011). With so many unreported household sources it is impossible for contamination of water to be detected quickly (Hrudey, 2004). Having adequate community design and infrastructure is necessary to ensure that communities are not put at additional risk for these non-point sources of water contamination. First Nation communities that lack resources and infrastructure to adequately design and monitor water quality are at increased risk for catastrophic water contamination (Lebel & Reed, 2010).

2.3.5 Indigenous Poverty Impact on Housing

Poverty and inadequate housing are interrelated (Crisp et al., 2017). The economic argument is that people who have adequate financial means can afford safe and healthy housing, whereas those in poverty situations do not have the financial resources to afford housing with adequate standards. The most suitable solution to poverty is income (Kendall, 2001), however, Indigenous unemployment rates are four times the national average (Statistics Canada, 2008) with on-reserve unemployment rates as high as 90% in some communities (Wilson & Macdonald, 2010). Prevalent discriminatory Canadian beliefs are that Indigenous people are to

blame for their destitute conditions due to a lack of desire to work (Kendall, 2001; Palmater, 2011). However, the Labor Force Participation Rates in First Nations don't support these perceptions. In fact, the rates are high and relatively similar to non-Indigenous Canadians (Mendelson, 2004), demonstrating that the lack of desire to work is not the issue and instead, lack of economic development in these communities is to blame for many of the housing disparities.

The link between economics, housing and child welfare is clear from different statistics. Manitoba leads First Nation child poverty rates at a staggering 76%. And its provincial capital city of Winnipeg leads the Canadian Indigenous child poverty rates in the country (Macdonald & Wilson, 2016). As poor housing conditions for children are the primary reason for child apprehension investigations, that Manitoba has the highest rates of Indigenous children in care of Child and Family Services (Fallon et al., 2015) links poverty, housing and child welfare.

Increasingly academics and public health practitioners are applying social and economic factors as predictors of health outcomes, which include assessing the impact of inadequate housing (Dunn, 2000; 2002; Kirmayer, Brass & Tait, 2000). Addressing the social determinants of health includes indoor as well as outdoor environmental factors (Jacobs, 2011). Adverse health effects can result from deficiencies in the physical condition of housing infrastructure including improper insulation or defects in the building envelop, which in turn profoundly impacts internal temperatures, rodent control and protection against humidity and moisture that can lead to mold growth and have significant impacts on health (Jacobs, 2011; Optis, Shaw, Stephenson & Wild, 2012).

First Nation communities are experiencing crisis level overcrowding and estimates predict the problem is getting worse. In 2011, there were approximately 120,000 on-reserve

households in Canada; these numbers are expected to grow as high as 208,000 by 2036 (Morency, Caron-Malenfant, Coulombe & Langlois, 2015). However, not enough homes are built to meet the needs of growing communities. In 2006, Canada had an on-reserve housing shortage of between 20,000-35,000 homes; and every year this deficit increases by approximately 2,200 (Patterson, 2006). By this calculation, the housing shortage will nearly double by 2020 with shortages of 50,800- 65,800 homes (Patterson, 2006). As First Nations are growing at a rate more than triple the Canadian average (Statistics Canada, 2008), clearly requiring a solid housing plan to not only meet current needs but to plan for the future. As well as housing shortages, supports need to be put in place to repair damaged homes (Optis, Shaw, Stephenson and Wild, 2012).

As key determinants of health are rooted in social conditions, healthy communities require adequate financial resources and living conditions, such as safe water and healthy housing (Hill, Nielsen & Fox, 2013). With the overwhelming prevalence of poverty, housing shortages, and an unemployment rate of more than four times the national average for Indigenous peoples in Canada (Statistics Canada, 2008), Indigenous people suffer the worst health outcomes of any demographic group in Canada (Riediger, Lukianchuk & Bruce, 2015).

2.3.6 Indigenous Disparities in Food Systems

‘Food’ for Indigenous people is more than merely a commodity; food is the relationship connecting people, the environment, and spirituality (Cidro et al., 2015). The land is a sacred place where spiritual connections between the plants, animals, people, and the Creator are experienced, so that land is a symbol for healing (Wilson, 2003; Carter, 1990). Indigenous people regard the land as sacred, so much so, that in the beginning of the Canadian agriculture

boom, many refused to participate in farming activities, such as the cultivating for, and swathing of crops, which was seen as violent to Mother Earth (Carter, 1990).

Maintaining the cultural integrity of traditional foods and securing sustainable access through traditional harvesting protocols are critical aspects of acquiring food for Indigenous people (Elliott et al., 2012; Power, 2008). Food security is related to cultural values that are intertwined with social, economic and health status of Indigenous peoples (Cidro et al., 2015). However, sustainable access and consumption of nutritious food is contingent on cultural foundations of Indigenous communities (Cidro et al., 2015).

Food Security has been defined at the World Food Summit as “when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2006, p. 1). The five pillars of food security are availability, acceptability, accessibility, adequacy, and action (Thompson et al, 2012). In the context of Indigenous communities, harvesting and sharing traditional food is recognized as a sixth pillar (Power, 2008).

The International Planning Committee for Food Sovereignty defines food sovereignty as “the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agricultural systems” (2007, p. 1). Food sovereignty therefore, demands that sustainability be added as an integral component of food security. To “Indigenize” food sovereignty requires adding to this rights based discourse, the relationship and cultural responsibilities Indigenous peoples have with their ancestral land and the need to revitalize Indigenous foods and traditional ecological knowledge to rebuild Indigenous food practices and systems (Cote, 2016).

Colonization and the forced settlement of Indigenous communities brought about a transition from being food self-sustained to dependent on retail markets that were foreign to Indigenous ways of life prior to exposure from the settlers (Palmater, 2014). While lawfully confined on reserves, many Indigenous people persevered and found enough resources to sustain themselves. In fact, up until about the last century, many northern Manitoba Indigenous communities were self-reliant by living off the land solely on traditionally local foods. However, over the past several decades the lifestyles and diets of Indigenous people have changed drastically and this shift has been held responsible for many of the health and social disparities that have emerged in the population. In Manitoba, there is evidence that Indigenous farming proved sustainable and successful in the late 1800s; however, restrictive colonial policies and government interference restricted Indigenous peoples' access and ability to compete with settler farmers by denying them tools and financial resources (Carter, 1990). Indigenous farming in most of Canada was branded a failure (Carter, 1990).

Food sovereignty is largely at the policies level, as policies can undermine food sovereignty. For example, the Indigenous education system, where wild foods are prohibited in lunch programs and during celebratory feasts, as the health regulations only allow commercial fish and meats. In communities experiencing high rates of unemployment and poverty, even recovering the expenses of hunting or trapping can appear to be difficult, because selling local fish or wild meat is not permissible by law (Thompson et al., 2011). Often hunting and trap-lines are located far distances from communities, making ventures expensive and without ability to recuperate expenses, often it is not economically feasible for disadvantaged people. To attain food sovereignty and improve food security, the decolonization of Indigenous food systems must

be addressed and communities must acquire more access to community-led food programs and to traditional foods (Socha et al., 2011; Thompson et al., 2012).

The long history and intimate connection Indigenous people have with the environment is firmly rooted in the ecosystem and the relationship with local foods (Kuhnlein et al., 2006). The methods people use to harvest and use resources are symbolic of their values and culture (Peters, 1997). The food system is an integral part of a community's foundation that extends beyond the health of individuals by also establishing social and economic status (Feenstra, 1997).

Community directed traditional food programs have a positive effect on livelihood assets (human financial, social, natural and physical) and enhance the food sovereignty of Indigenous communities (Thompson et al., 2012). Targeted, traditional food programs offer sustainable opportunities for enhancing the food security of communities decreasing dependence on the retail market system by promoting a social economy through sharing of resources.

2.4 Chapter Summary

The colonial built environment of Indigenous communities has been forever altered from the traditional way of life experienced prior to settler interference. The complicated history of the colonization of Canada created inequitable outcomes for Indigenous people that are evident in worse health, social and economic outcomes. Every aspect of the colonial built environment is designed to be inferior for Indigenous people compared to non-Indigenous people in Canada, and as population growth rate of Indigenous people increases, these inequity gaps in built environments are also increasing.

The oppression of Indigenous peoples' self-determination under the authority of the Canadian Federal Government is recognized as a fundamental cause of the loss of traditional ways of knowing and being. The outcome has been the creation of communities that have been

built according to the influence of the settlers, lacking insights into the culture, spirit and traditional ways of living that are more applicable to Indigenous people.

This literature posits that the colonization of Canada had a negative impact on the healthy built environment of Indigenous peoples. Reconciling these wrongs will require mitigating these negative impacts and finding solutions that decolonizes the social and built environment of Indigenous peoples. Indigenous people are appropriately positioned to assess, analyze, plan, implement and evaluate policies and programs in their communities that will lead to positive changes to the Indigenous built and social environment.

CHAPTER THREE: METHODOLOGY

3.1 Study Design and Methods

This qualitative study was interview based with semi-structured individual interview questions that were intended to guide, but not limit, the conversations so that participants could elaborate more broadly or to shift the conversation if the question didn't capture what was meaningful to them. Participants also had the opportunity to have their interview video-recorded that would be converted into clips to create a short video about the study findings.

Data was collected until saturation was achieved and seven people were interviewed.

In the semi-structured interview, 10 questions were asked of participants that address themes of access and quality of resources available in the community. These themes included perceptions of (a) historical experiences; (b) impacts of disparities on child health and safety; (c) identification of resource assets and barriers ;(d) institutional barriers and supports; (e) potential solutions that address disparities.

Questions included:

- a. What does a healthy environment look like to you?

- b. Has the access and quality of community resources changed over time?
- c. What are your experiences with accessing resources in the community, for example, food collection?
- d. What do you think is important for children to know about health?
- e. What resources should be available to support healthy child development?
- f. What traditional or healthy foods do you eat?
- g. What traditional or cultural practices do you engage in that is impacted by community resources?
- h. What are the most significant resource gaps that you rank as a priority in this community?
- i. What resources in the community need to be increased?
- j. Who is responsible for overseeing resource availability?
- k. What support or networks would enhance your community?

3.2 Participants and Community Engagement

The researcher worked with a community liaison and the community's Health Director to identify people currently living in the community who would be interested in participating in the study. In total, seven diverse, volunteer community members participated in the study. The participants were Robert, Valarie, Tommy, Fanny, Ross, Rene and a female youth participant over 18 that did not want to be identified by name and so will be named Youth. Participants were a mix of both men and women with varying ages including elders, youth and adults. Interviews were conducted by the researcher, who is also a Registered Nurse with experience interviewing community members in a First Nation setting. All participants agreed to have their interviews recorded so that a video could be produced that communicated aspects of the study.

3.3 Data Collection

During the winter of 2017, the researcher worked with the community Health Director and Community Liaison to conduct individual, in-person interviews with participants from OPCN. This collaborative approach ensured that residents were aware of who the researcher was, and

the purpose of the interviews. Once participants agreed to participate in the study, the researcher connected with each participant, discussed the study, answered any questions, obtained informed consent for the study and to record the interview and use the footage in a public video that would be produced at the end of the study. Each participant was asked to provide consent to use their name, photographs and/ videos in the study and in the dissemination of the research results. Each participant was provided a \$50 honorarium for their time, and interviews were usually conducted at the participants home. Each interview lasted between 60-90 minutes.

3.4 Data Analysis

Interviews were transcribed from the video recordings and the data was coded into categories.

From these categories, eight consistent themes emerged. They included:

- Colonial Government Interference
- Environmental Dispossession
- Natural Environment Destruction
- Lack of Community Infrastructure (particularly around water and sewage, grocery stores and community recreation)
- Inadequate and Unsafe Housing
- Food Insecurity
- Transportation Barriers
- Social Issues (political oppression, economics, social violence, racism, colonization, child health and safety)

The filmed footage from the participant interviews and b-roll footage from the community was compiled to create a video. The video was created by analyzing the themes that related to the

inequities community members identified as a result of the community being environmentally dispossessed and flooded.

3.5 Ethical Considerations

This study observed the Ownership, Control, Access and Possession (OCAP) principals for First Nation research. The research team worked with the community in the development of the study and obtained permission from the community's leadership for the study to take place. The community was provided an electronic copy of the final report and a link to the on-line video, when completed. A detailed proposal of the study was submitted and approved by The University of Manitoba's ethics board before any data in this study was collected.

CHAPTER FOUR: INDIGENIZING THE HEALTHY BUILT AND SOCIAL ENVIRONMENT FINDINGS AND DISCUSSION

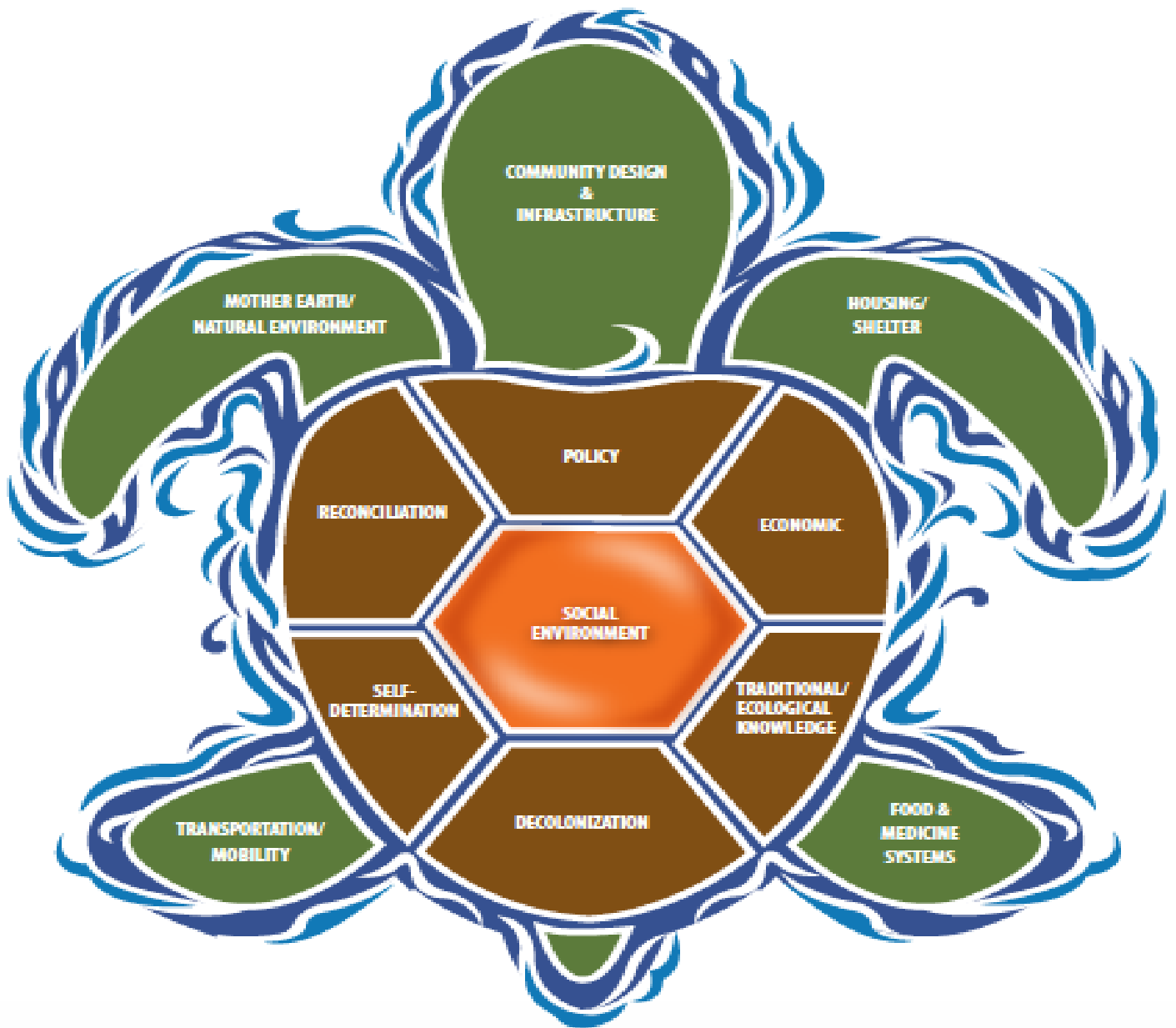
4.1 Introduction

The Healthy Built Environment Framework was adapted for Indigenous communities to reflect the importance of the social environment and other key concepts that are priorities identified by First Nation peoples. This was a way to indigenize this framework to reflect the Indigenous worldview and address the distinct priorities of Indigenous communities. The social environment is a centralized element radiating into the entire built environment, influencing policy, economics, Traditional Ecological Knowledge (TEK), decolonization, self-determination and reconciliation. The core aspects of the built environment were found through interview analysis to be: Mother Earth/ natural environment, community design and infrastructure, housing, food and medicine systems and transportation/ mobility. Indigenizing the built environment framework will reveal disparities between First Nations and non-First Nations and support the development of solutions to address disparities.

4.2 Indigenous Healthy Built and Social Environment Framework

Figure 4.2

INDIGENOUS HEALTHY BUILT AND SOCIAL ENVIRONMENT FRAMEWORK



This framework builds on the foundation of the Indigenous symbol for Turtle Island (North America), the turtle. The appendages of the turtle symbol depict the core pillars of the Indigenous Healthy Built and Social Environment framework; Mother Earth/ Natural

Environment, Community Design & Infrastructure, Housing & Shelter, Food & Medicine Systems, and Transportation/ Mobility. Social Environment was placed centrally to symbolize that the underpinning of the built environment is fundamentally driven by the social interest of society. The perimeter of the shell identifies Indigenous social priorities that impact the pillars (reconciliation, policy, economics, traditional ecological knowledge (TEK), decolonization, self-determination). The social priorities in the shell and the core built environment pillars are connected by water flowing through and around the diagram to illustrate how water, as the source of life, link the social and built environments to each other.

The framework was indigenized to reflect and emphasize the cultural differences and values of Indigenous peoples that define the healthy built environment, which differ from that of non-Indigenous peoples. This includes acknowledging that the natural environment also refers to Mother Earth and reflects the importance of the spirit of living things in nature for Indigenous culture. Food is often referred to as ‘medicine’ by many Indigenous people therefore ‘Medicine’ was added to the food systems pillar to highlight the importance of food as a source of healing and not just subsistence and nutrition. Infrastructure was added to the community design pillar to highlight the need to action design planning, particularly for safe and accessible drinking water and sanitation, which are often lacking in and the blight on First Nation communities.

Housing goes beyond the availability, quality and cost of structures to fully capture the function and feeling of home and place. Indigenous people have a deep emotional connection to place. The term ‘shelter’ brings in safety and security of a home to consider if you feel welcome in the context of socialized racism. Transportation systems are often narrowly considered in the mainstream healthy built environment framework as active transport (Timperio, Veitch & Sahlqvist, 2018). Reducing motorized transport in favour of active transport certainly applies to

Indigenous communities as well; however, there are other transportation issues that impact health. Isolation is a barrier that significantly impacts mobility and movement across the landscape. The added term, mobility, addresses the remote geographical locations of many First Nation reserves, some without road access to connect to urban centers, as well as the increased risk of travel and vulnerabilities that climate change poses such as with winter ice roads and other alternative modes of transportation commonly used in many First Nation communities requiring planes, boats, all-terrain vehicles and animals (dog-sled, horses).

The Indigenous Healthy Built and Social Environment framework has the following definitions for its core concepts:

Community Design and Infrastructure Vision: *Self-determined communities that are designed and adequately funded to provide people with adequate access to public services, amenities and healthy neighborhoods that supports pimatisiwin.*

Housing/ Shelter Vision: *Healthy, safe, affordable, energy efficient and sustainable housing to provide shelter, privacy, peace and belonging to support pimatisiwin from healthy child development through to healthy aging.*

Food and Medicine Systems Vision: *Access to Traditional Ecological Knowledge and policies that support the economic, cultural and health aspects of traditional diets that address food security and food sovereignty.*

Natural Environment/ Mother Nature Vision: *Reconciled Indigenous stewardship authority that supports policies that are self-determined and economically agreeable to Indigenous peoples. This vision is firmly rooted in environmental sustainability that honours and respects all our relations (animal, plant, water, mineral, etc.).*

Transportation/ Mobility Vision: *Safe, appropriate and accessible movement across the landscape to access resources and services that is safe, affordable and supports traditional cultural activities.*

4.3 Chapter Summary

The Indigenous Healthy Built and Social Environment framework considers the unique historical and cultural context of Indigenous peoples that have profound influences and impacts on the health of communities. The social environment is at the core of the built environment and to achieve a healthy, safe and equitable society, the underlying priorities of Indigenous communities (reconciliation, policy, economics, traditional ecological knowledge (TEK), decolonization and self-determination) must be addressed. These social priorities impact the built environment pillars (natural environment/ Mother Nature, community design/ infrastructure, housing/ shelter, food/ medicine systems and transportation/mobility).

Changes in core aspects of the built and social environment priorities can impact other pillars in the framework. This highlights the philosophy that all things are connected and interdependent and for communities to function harmoniously, planning and development need a holistic approach. Thus, improving social environment priorities to reflect the needs of Indigenous communities, can positively impact the core pillars of the built environment framework. Given that Indigenous communities are all unique, with their own priorities that reflect their individual needs, this framework is easily adapted to support Indigenous communities with varying interests.

CHAPTER FIVE: NATURAL ENVIRONMENT/ MOTHER EARTH FINDINGS AND DISCUSSION

5.1 Introduction

The Indigenous peoples were, and still are, profoundly impacted by the colonization of Canada in virtually every aspect of their lives. However, one of the most significant negative impacts can be attributed to the interference that settlers had on the Indigenous stewardship of the land and the subsequent destruction of the natural environment that people rely on for survival (Tough, 2011). Settee (2011) emphasizes the importance of land to Indigenous people, “For land-based people the natural environment is the heart of their economies and their very existence” (p.74). Participants in this study identified how colonial interference with the natural environment created disease and undermined healthy systems. The natural environment overlapped with food/medicine pillars of the Indigenous Healthy Built and Social Environment Framework. The priorities that emerged related to Natural Environment were self-determination, traditional ecological knowledge (TEK), economics and policy reform. Many participants felt that ecological restoration could not resolve the environmental damage in the community from the massive flooding that reversed the flow of the lake and river. However, others offered solutions to overcome the disparities that resulted from the flooding impacts.

5.2 Traditional Land-use

The traditional life of Indigenous people was strongly grounded in the constant day-to-day relationship that they engaged with the land (Settee, 2011). Tommy recalled his youth, before hydro development, when wild life was abundant, food was everywhere on the landscape and the land was used traditionally as the source of food.

When I was growing up sometimes I had to kill something before we ate. But I'm proud of it. I would get up in the morning, look out the window and I'd see ducks swimming around, muskrats and beaver, and rabbits running along the shore.

Robert also described how the land is depended on by animals, plants and other relations. He highlighted how weather and animal migration has changed in recent years.

Every year when I was young, in October, the caribou would start coming in. But these past few years, with all these funny things going on with our weather, the global thing, it seems to have slowed everything down, especially the caribou. We hadn't had caribou in seven years; that's a few years ago, but then they came back. It's not like years ago. Like they used to come every year when I was young.

The colonization of Turtle Island resulted in a massive landscape transformation, particularly in the past hundred years, to accommodate the over 35 million settlers who immigrated to Canada (Statistics Canada, 2017; Waldram, 1993) and the United States. As population growth continues, the natural environment is expected to become increasingly stressed (Johnson & Miyanishi, 2012), resulting in increased competition for resources between Indigenous and non-Indigenous peoples. Historical records have chronicled an evolution of the country from a natural, pristine, abundant environment to a highly developed civilized society surrounded by concrete and steel; often at the sacrifice of grassland and forest (Palmater, 2015; Waldram, 1993, Tough, 2011). The destruction of the natural environment has altered the traditional land use of Indigenous peoples. This has resulted on reliance on the colonial built and social environments that have had negative impacts on Indigenous peoples.

5.3 Natural Environment Sustainability

Before colonization, Canadian Indigenous peoples protected the sustainability of the natural environment for thousands of years (Paci et al., 2002). This protection extended to water, animals, plants, minerals, soil and other natural resources found in nature. Historically, Indigenous people had intentional strategies that prevented negative impacts on natural resources. This was demonstrated in sustainable animal harvesting that utilized all parts of the animals they harvested (Ballard, 2014) and family territorial arrangements to avoid over-harvesting of any one ecosystem (Young, 1979). These and other careful practices earned Indigenous people a reputation for being the original conservationists by environmental scholars (Nadasdy, 2005). Robert emphasized the importance of the practice of honoring the animals that give their lives so that humans can eat. He felt the senseless killing of animals by non-Indigenous hunters violated the sustainability practices Indigenous people value.

There were some guys that shot seven caribou and just piled them up in one place and never even touch them. And you know, that's not good. That's a bunch [of animals] wasted for nothing. But the second night after they were laying there, [someone from our community] went and cut off all the quarters, and then someone complained, "someone stole my meat". That's when they got caught. So, that's one way to get somebody to speak up.

Rene described how traditionally resources were sustainably harvested from the natural environment but now people are buying their supplies from stores. This switch to consumer culture has resulted in an influx of waste and garbage; with no recycling services in the

community, non-biodegradable products are causing drastic changes to the clean natural environment that was pristine a half century ago.

The store products are not environmentally friendly. For example, there are a lot of plastic bags in the community that are flying around. You see the impact that the northern store has had on the community if you just look at the landfill; everything is prepackaged.

The disposable nature of many developed societies has increased the amount of waste produced globally that is contaminating the natural environment (Thompson, 2012). Many Canadian municipalities are struggling to manage the volume of trash being generated as landfills reach their maximum capacity (Nichol and Thompson, 2007). Traditional practices of Canadian Indigenous peoples have teachings that address these issues (Oyengunle and Thompson, 2018). These careful and sustainable practices are similar to the recent ‘minimalist’ and ‘zero waste’ movement practiced by individuals and groups globally (Oyegunle, 2016).

Clearly the teachings have valuable instruction and relevance for how to address many aspects of environmental sustainability and preservation of the natural environment; however, Elders’ ability to adequately transfer this knowledge has been interrupted. Their knowledge goes beyond mere practical skills, such as utilizing tools and learning about animal and plant habitat. Powerful spiritual teachings and responsibilities require a deeper understanding, often taught as rituals, ceremonies, songs and dances, that teach the sacredness of Mother Earth, which encompasses the whole natural environment (Settee, 2011).

Many of the people who have the teachings are Elders, living on poverty incomes. The economic cost to take people out on the land for supplies, such as fuel and equipment, is too great for most people, particularly those that live on a fixed income. Tommy, an elder, described

how the knowledge still exists, but the problem is in the capacity to transfer that knowledge to others.

There's a lot of people, a lot of elders that can do it [teach the youth], but they can't afford to take even their own children and grandchildren out [to camp on the land].

Ross discussed how many traditional practices are fading, which increases the demand on the limited number of Elders who have the knowledge. Politics come into play when trying to enact programs that address culture in the community, particularly when this may not be the priority for those who have control of the resources.

You need to have somebody to take people out there [on the land] to teach them the ways. That's what we are trying to do. But there's no funding. We have a hard time to get funding, even from our own leadership [the Chief and Council].
We've tried.

The destruction of the natural environment and traditional Indigenous social structures have been replaced by a colonial built and social environment that have had negative impacts on Indigenous people. Reclaiming the cultural teachings that support the natural environment have been challenging. In part, this difficulty is due to the authority of colonial governments to suppress Indigenous cultural knowledge through historical laws that banned many cultural practices and the implementation of residential schools that aimed to abolish Indigenous cultural practices, many of which were land-based teachings (Waldram, Herring & Young, 2006).

Additionally, colonial legislation has created barriers by limiting access to the land such as through *The Indian Act*, *The Natural Resources Transfer Act*, *Migratory Birds Convention Act*

and regulations on accessing land-based resources such as fish and wild game (Waldram, 1993, Gottesman, 1983). These facts have been well documented in academic and grey literature and although concessions have been made over time to increase varying degrees of access and authority, policies in place further disadvantage Indigenous people. Ross, who is a life-long hunter, trapper and fisher described how colonial interference effects the ability to fully exercise his treaty rights to the land.

Now-a-days you got to go through all this fire arms safety [certification] and have to have a license and permits now. We never used to have to have that. I've got to have a fire arm certificate. I have to have a permit to buy a gun and shells now. If you don't have that you lose your gun automatically and get a fine if you get caught.

Ross went on to describe how, even after complying with the government sanctions and obtains all the necessary paperwork, additional limitations are placed on him. For example, supplementary regulations limit the number of shells that Indigenous hunters can purchase at one time. This prevents Indigenous hunters from being able to buy in bulk, which increases the number of trips they have to make back to far away urban locations to purchase bullets.

You have to have permits now even just to buy shells. Some stores will limit you; they'll tell you [that] you can't buy that many shells. I want at least five or six boxes of shells and they say we're going to limit you with three.

It is well known that Indigenous people in Canada rely on natural ecosystems to practice their traditional ways of life including hunting, fishing, trapping, and picking medicines, all of which contributes to their social, economic, spiritual, and cultural wellbeing. Many communities still live in close connection to their lands and waters on traditional territories; however, with

increased colonial interference, including prohibitive policies that control access to natural resources, traditional living is practiced less (Waldram, 1993; Tough, 2011).

5.4 Health, Social and Economic Impacts of Colonization

Colonization significantly transformed Indigenous society and altered how people live, eat, travel, work and interact with each other, impacting cohesive social functioning (Waldram, Herring & Young, 2006). Living in harmony with the land provided social stability, good health and rich economic freedoms that have been reduced since colonization and the reconstruction of natural environments (Palmater, 2011; Tough, 2011). The connection between Indigenous people and the natural environment was realized through the intimate relationship they had with their territories which involved managing the consumption of resources in a sustainable way (Ballard, 2014). The confinement to reserves limited Indigenous peoples' movement on the landscape, disconnecting them from their relationship with the land (Palmater, 2011).

The natural environment is linked to human health as a source of medicine for Indigenous people (Neufeld, 2017). Tommy explained how his health relied on traditional medicine from the land and that he would harvest those medicines in his community before it became impossible to access due to flooding, un-natural water fluctuations, and the erosion of the shoreline where many of these medicines were harvested.

We don't even have a shoreline today. It's 15 feet underwater. I would go down to pick medication for my health, but I have to go in land now to get the medicine.

Where I used to camp, the shoreline is 10 feet high I can't get off just anywhere I feel like. There's no more bedrock along the shore or sand beaches.

The diseases that have emerged in the community are associated with the drastic changes in the natural environment that people relied on for healthy living. Fanny recalled how before the flood people were healthy and within a few decades of the environmental damage the health of the community drastically deteriorated.

In the 70's when the community was flooded, a couple years after that I started to hear about all these diseases. Kidney, liver, diabetes, high blood pressure, after the flood is when all of these diseases developed [in our community]. I've seen a lot of love ones go through dialysis. My people are dying of cancer. Cancer was rare back in the day because of how rich we were, and how healthier lifestyle was. How much healthier our food was. You didn't even have to leave your island to get food. Food was always there. Food was always healthy. Today that has disappeared.

The decline of health, social and economic structures in the community are being blamed on environmental dispossession and the damage to the natural environment from hydroelectric development. Tommy expressed his disapproval of hydro development for moving forward with the flooding without the consent of the community and the subsequent destruction caused to the natural environment.

Don't say Hydro, I'm in a good mood. The whole community is against them. Everybody marked an X to say no [to the damming the lake and flooding out the community and territory]. Why did they go ahead and do it anyways? This lake used to produce one million pounds of fish every year. It was one of the most [self-] sufficient communities in Manitoba. They looked after themselves; nobody

looked after them. And I'm proud to say that. They used to catch 200 to 400 fish to a net. After the flood, you couldn't do that even with 30 nets. It's like night and day. There's 180 fishermen right now; they can't even produce 200,000 pounds of fish never mind 1,000,000 pounds. The lake has been contaminated with mercury and debris. Fish can't survive. Maybe they move someplace else. The feeding grounds are covered with debris. Even if they spawn, the eggs can't survive because it's covered with debris and all that stuff floating around. The bottom line is [the lake] has been destroyed. I don't need a scientist to tell me that. The lake has been studied to death.

Tommy discussed how the fate of his people has been forever changed because of the damage inflicted onto the natural environment by the flood. He described how some community members continue to try and make a living, however, the land can't meet the needs of the community anymore. With the population continuing to grow, future generations won't have access to this traditional life.

They [the next generation] can't do what our parents and our grandparents did. It's gone. Not because they're lazy, but because it's not there anymore. That's been destroyed. I feel sorry for the people here that are still trying to go out [fishing]. There's my brother-in-law there. Sure, he makes a few bucks but it's not enough for 180 fishermen here. There are guys that are out there trying to make a go of it they make a few dollars but you know it's not enough. It's insufficient for the community.

Robert recalled how prior to the flood, the community relied on each other for help and support, especially for the elders, and how poverty has created self-serving attitudes.

Everything was so good; most of the time anyways, and everybody lived so happy [before the flood]. Now we see people that run out of something like food and it would be nice to see people taking food to them. But now somebody asks can you help me with this, and people say, “how much you gonna pay me”? It's money first; it's crazy.

Rene also discussed how dependent the community now is on the colonial economic system in contrast to the social economy the community had when the natural environment was intact.

The economic impacts of what has occurred since the 1960s has really devastated this community, right down to the core of who we are as a people. The community had a really good sense of who they were, and where they were, in terms of their overall community. How they worked wasn't based on any money stores, it was based on hard work, pride and togetherness. And since the hydro came, that has all been destroyed. Now there's a heavy reliance on meeting your basic needs day today. So, that really has hurt the community.

Rene holds hydro development ultimately responsible as the root cause for the changes to the community's values. He believes that the loss of Indigenous stewardship of the land resulted in generations becoming increasingly disconnected to traditional life that connects them to the land.

Community members are losing sight of the benefits of going on the land and it's slowly losing its appeal. The shift in diet is creating a wider gap that is disconnecting people from having pride in going out onto the land. This is our way of connecting to family, community and the land itself. All that has been obstructed by hydro.

5.5 Colonial Accountability for Environmental Harms

Community members expressed disappointment with their electric utility that benefits from flooding their community. Community members feel that the government priority to acquire hydro power trumped their other responsibilities, which include safeguarding OPCN and the natural environment. Robert discussed how people were left without options to manage the dismal economic situation and questions the justifications they give for flooding the community.

You got this welfare going, I never cared for that, but you know, what can you do after the hydro started to come in and disturbed the environment and everything? And they're saying that they never done anything wrong. That this is the cleanest way. How can it be the cleanest way when your flooding the rivers?

Robert went onto talk about how the flood has impacted him personally.

It's really everything I care about. They [hydro development representatives] say they never did anything wrong. Look at all the beautiful grasses and all the sandy beaches that we had around the area, the places where the ducks and geese would go to eat. And the moose. Where are their green grasses? They're all gone.

Participants in this study felt strongly that their natural environment was disrupted most significantly by the colonial interference of the hydropower industry. The damage to the communities' food, water, shelter, medicines, livelihoods and transportation access were all negatively impacted as a result of the intentional flooding of the land. This in turn had negative consequences to health, social functioning and economic status of the community.

The colonial governance structure that allowed for the interference to occur in the first place, is fundamentally rooted in colonial law and policies that give colonial governments ultimate authority to over-ride community self-determination over natural environments and

natural resources. Deconstructing these paternalistic and intrusive policies is one avenue to address the decolonization of Indigenous communities that has the potential to reconcile the damage to Indigenous health, social and economic status in First Nation communities.

5.6 Solutions to Address Related Environmental Impacts

In no particular order, participants offered potential solutions that either directly or indirectly addressed the natural environment. The male participants were mainly focused on the actual damage to the land, animals, birds and fish as the priority. Women interviewed in this study were more focused on addressing the negative consequences that have resulted from the environmental destruction, such as the impact on food security and subsequent health disparities. These gender differences reflect the priorities that would have existed in traditional roles between men as hunters and women as domesticators.

Everyone in the study agreed that the economic damage is the primary priority, and that without access to a healthy, abundant natural environment, the livelihood of the entire community has been devastated. People linked flooding with profound social impacts including: poverty, increase in domestic violence, substance use, mental health issues and an overall loss in self-worth and purpose, particularly for the men who were seen as the providers. Many people agreed that the damage to the natural environment was the root cause of the issue and was unresolvable. These perspectives reflect feelings of being overwhelmed. Given that Indigenous people have not traditionally had to face the magnitude of damage caused by the colonial built environment, the Elders and communities will need to advance their own knowledge and work with non-Indigenous allies to generate new and innovative ways to overcome environmental impacts.

Prevent Further Environmental Damage – Recycling [and composting] education and services were recommended to address the surplus of garbage that is being brought into the community. Education initiatives provide a way to teach community members how to recycle but also as a means to reduce the amount of pre-packaged foods that comes into the community in the first place. Educating about pre-packaged foods being not only harmful to human health but destructive to the natural environment could reduce consuming this food. The implementation of recycling services could also increase employment opportunities for community members.

Traditional Land-use Programs- All community members in this study believed that significantly more programs need to be created and implemented in the community that address the lack of teachings that are being passed down through generations. Some suggestions were to have programs where Elders would take youth out on the land for long periods of time (weeks to months) to teach them how to care for, and live off the land. Additionally, programs are needed to reclaim traditional medicine teachings and access in the community. If the shorelines and other medicinal plant habitats cannot be restored, than alternative measures need to be taken to ensure that everyone has access to medicines, if they want it.

Increased Government Attention and Support- One participant noted that the federal government spends a lot of money caring for the needs of immigrants in this country but that there is less care and loyalty given to the First Nations who have inherent rights to this land. To demonstrate reconciliation, community members recommended that the needs of First Nations be prioritized before immigration.

Indigenous people should have greater involvement and authority into the decisions that impact natural resources and their livelihoods in their traditional territory. This includes the authority to veto development that impacts their traditional lands. Ultimately if consent is not

given by the First Nation government, any development should not be able to move forward. Governments need to take more steps to ensure that non-Indigenous poachers are unable to exploit resources, and deconstruct prohibitive policies, such as additional permits and restrictions on purchased gun supplies that impact Indigenous peoples' sustenance livelihood unduly. Before development or policy changes occur, adequate consultation or investigation with First Nations must be undertaken into the potential negative consequences on the community, particularly around health, social and economic penalties to the community members. More comprehensive impact assessments need to be done to safeguard communities.

Compensation - All participants in this study agreed that a concerted effort by hydro development is needed to address the economic devastation they wrought including the systemic poverty in the community. Participants offered the following strategies to address their priorities:

- 1) **Free Food** – As people associate the loss of traditional access to the land to the poverty they are experiencing OPCN members suggested that every community member be compensated with adequate amounts, and high quality food to sustain themselves and the community until the land is able to recover from the damage. As food was identified as the greatest financial monthly expense, this would significantly reduce the degree of poverty that the community is experiencing.
- 2) **Funding for Employment and Training**- Given that the primary occupations in the community prior to hydro development's damage were land-based, community members believe free, re-training for people in the community who need it should be available.
- 3) **Community Equipment**- One participant felt that governments and/ or hydro development corporations should provide the community with equipment now needed to travel further onto the land such as skidoos, motorboats, all-terrain vehicles and planes.

As an alternative to providing individuals with personal equipment which would be very costly, the community could instead be outfitted with a fleet of these vehicles and related equipment for sharing among community members, until the land has recovered to its original state.

- 4) **Colonial Accountability** – Participants struggled with the notion that many Manitobans might be in favour of what happened to their community given that the outcome was that the province has been serviced with adequate and reliable hydro power. Participants made comments about how access to hydro power is important for Manitobans but that there needs to be limits to how far development will go to achieving their goals. In the OPCN case where hydro development does completely devastate a community, there needs to be adequate compensation and real reconciliation. Tommy explained how electricity is needed but has come at an incredible price that only his First Nation is paying for.

I understand that people need [hydro] power. When I think of my grandchildren in the hospital, they need [electricity]. I don't dispute that fact. But the fact still remains that there's a lot of unfinished business here that needs to be taken care of. We are not here to stop development, but we need to be heard; and the needs and concerns of the community need to be addressed.

5.7 Chapter Summary

Colonial interference, specifically by hydro development, has been wide-spread in Canada, interrupting the Indigenous oversight of natural resources in traditional territories, particularly in Manitoba (Tough, 2011; Waldram, 1993; Settee, 2011). Local decision-making related to natural

resources in Canada have been over-ridden by colonial governments, with Indigenous people greatly under-represented in these decisions and isolated from participation in stewardship of the land that they are inherently responsible for (Doyle-Bedwell & Cohen, 2001).

Finding solutions to the current state of the natural environment will require more understanding of what is possible for restoring the land, in addition to ensuring that no further damage is caused. Community members acknowledge that without significant financial compensation the systemic poverty cannot be easily resolved in the community. Self-determination is a priority that will require changes in policy and process for the way that the colonial governments engage with Indigenous people. If reconciliation is truly a federal and provincial priority, then First Nations must acquire the right to veto decisions they feel is not in the best interest of their communities moving forward. Traditional land-use programs, which include promoting traditional medicines and cultural teachings are fundamentally the cornerstone for reclaiming the knowledge that Indigenous people need to address current and future threats to the natural environment.

CHAPTER SIX: COLONIAL COMMUNITY DESIGN AND INFRASTRUCTURE FINDINGS AND DISCUSSION

6.1 Introduction

The design of a community, including the availability of infrastructure that maintains public health services, are foundational to the structure and maintenance of a healthy society (Hennessy, et al., 2008). Ensuring that a community has the resources and services necessary for the sustainable and healthy development of a community requires expertise, resources, and intentional planning for both the short- and long-term needs of society. Access to adequate quantity and quality of water and to sewage systems are required. The World Health

Organization (2008) states that access to safe water is a fundamental requirement and that inadequate systems contribute to the mortality and morbidity of populations globally. Nationally, First Nations have the highest rates of water contamination compared to non-First Nation communities in Canada (Reading & Wien, 2009). Inadequate water system design, infrastructure and policy commonly observed in First Nations are inequitable compared to the rest of Canada (Walters et al., 2012), resulting in overwhelming disparities with implications to physical and mental health and family functioning.

This chapter examines the lack of community design and infrastructure issues as it is related to water disparities in OPCN from quality, access, and monitoring evaluations; and link how these disparities negatively impact band members living on reserve. Participants in this study focused mostly on water issues relating to no running water, lack of safe and accessible sewage systems, and problems associated with cisterns (a common alternative to piped water systems frequently used on reserves).

6.2 Current First Nations Water Status

Canadian First Nations water disparity issues are frequently recounted in the media (Dhillon, 2018) but under-reported in academic literature (Patrick, 2011). The statistics that exist, indicate these communities have water inequities that resemble poverty stricken countries, particularly for communities that have homes with no running water (Jones et al., 2012). A large portion of the community featured in this case study have no running water or plumbing of any kind in their homes. This means that there are no taps or toilets, and no pipes connecting the buildings to bring fresh water into homes or to take waste water away. When people wash their hands, dishes or cook, water is collected from a barrel or a bucket that is often kept in the house, usually at the entrance for easy access for the truck that delivers water. Alternatively, particularly for very

small houses, barrels are placed outside in the summer. People also try to fill as many vessels [jugs, buckets or big bowls] with water and those sources are often left uncovered and placed throughout the house. Valarie estimated that over a third of the houses in the OPCN community have no plumbing.

Probably at least 35 to 40% of the community don't have running water, and the majority of the community don't have water from the mainline. Anybody that has running water in this community, besides for a couple of places, are provided water through the water truck to fill cisterns if people have them, otherwise it is just to fill the barrels and buckets that people do use.

Ross also discussed the number of people that have no running water in the community and how families with young children are further disadvantaged, especially when multiple families share a home.

A lot of people are living three families in a house. Sometimes there's 12 little kids in one house. It's really frustrating [because] there's really a lack of housing and running water.

The other 65-70% of the community have plumbing in their homes, however, most of them still rely on cisterns to provide their water; and these tanks are small and often need to accommodate multiple families living in one home. Valarie described how the size of the tanks are insufficient to meet the demands of the community.

The majority of the houses in the community only have a 250-gallon tank. So, if you have a family living in one house, 250 gallons will last you maybe a day or two. If you're doing laundry or have kids going back-and-forth to the washroom and flushing, that only lasts for two days. There are people who have been out of

water in the community that I'm aware of sometimes for two- week spans because they can't seem to keep up. Either people are out of water, or sewage hasn't been picked up.

An important aspect of water access issues in most First Nation communities is the use of cisterns [holding tanks, barrels and buckets] as an alternative to piped distribution systems. Lebel and Reed (2010) explained that a common practice for water delivery in First Nation communities is by filling these vessels with water from a truck that collected its source from a water treatment plant. Other homes may have a piped distribution system that connects their homes directly to the water plant. If homes are placed in locations outside of the communities' core, or in areas that have very little soil before you hit hard bedrock geology they are often considered not suitable to be tied directly into the line; these homes are retrofitted with a cistern (Lebel & Reed, 2010).

These small water systems, which predominate in most First Nation communities, account for 93% of the maximum contaminant level violations and 94% of the monitoring/reporting violations (Moore, 1999). Comparing inequities between First Nation and non-First Nations water services, Walters et al. (2012, p.21) noted that there were “significant differences in service standards”. Inconsistent regulations of First Nations drinking water, leave small systems, such as these, at high risk for water quality failures (Hrudey, 2011). In fact, more than half of the water systems operating on reserves in Canada are considered between medium and high risk (Webster, 2015), signaling a systemic problem across the nation.

Agriculture and Agri-Food Canada (2006) described how Canadian cisterns, also called holding tanks, are available in a variety of sizes. A small on-site water tank will supply an average house with about two days' worth of water (330 gal.), for long periods of time (weeks to

months), larger tanks will hold 3900 gal. of water. In 2011, a water study determined that the average water consumption for an urban household was approx. 166 gal. a day (Gato-Trinidad, Jayasuriya, & Roberts, 2011). Given that the number of residents in a household can vary considerably, the American Water Works Association (1999) determined that the average, per person consumption of water is 69.3 gal/day. Based on the average urban household (2.4 occupants per household) the water tanks provided to many First Nation homes would only supply a typical average home with enough water for 1.5 days. However, the average number of occupants in First Nation houses is much more – at least twice that (Larcombe et al. 2011) -- with 4.9 people being the average household size in OPCN (Statistics Canada, 2016).

Valarie described the degree of reliance on the community's water trucks to service the community to provide a basic need by recalling what the community statistics were a couple of years ago, when she was involved with collecting population and housing data. She reports how, in her home of six people, they have been weeks without any water many times.

On many occasions, it has happened to us where we have waited almost a week or two weeks for water. It's because they can't keep up or control the capacity of the amount of people that require the trucks for the delivery of water. The vehicles need to be maintained and sometimes we have one water truck and one sewage truck that has to deliver water to 161 residences. So, it gets really really hard in terms of the water situation.

Ross also discussed how people frequently are without water; in many cases for homes with multiple families, water deprivation and rationing is a normalized occurrence. He described how when he runs out of water he has a back-up plan. However, he also acknowledged that buying

water is not economical: Ross pays \$5 for 2L of water; whereas, others can buy the same amount of fluid in a 2L of pop for \$1 on sale.

We got barrels and jugs for emergency or you can go to the store and buy 24 little bottles of water for \$30. In which you would just have enough to make your coffee and tea, and wash your face in the morning, that's about it.

Lebel and Reed (2010) examined Montreal Lake First Nation's capacity to provide safe water to their community members and found that residents, who relied on cisterns for water in comparison to a distribution line, experienced higher risks to health. Of the 167 homes in this community, 86 homes were supplied by water trucked to their cisterns in contrast to 81 receiving water through piped water services. One issue identified in the study concerning use of cisterns included that they were prone to testing positive for bacteria, resulting in frequent water advisories (Lebel & Reed, 2010). In Montreal Lake First Nation, monitoring of water quality in cisterns was only conducted twice a year instead of quarterly, as recommended by Health Canada (2004). Both the actual and the recommended testing is much less compared to the weekly monitoring that was conducted on the piped distribution system. When the cisterns were tested, frequently they were found to be positive for bacterial contamination (Lebel and Reed, 2010). Similarly, Indian Affairs and Northern Development (IAND) inspection report for the Montreal Lake Water System indicated that the main threat that arises from storing water in cisterns is that they are prone to bacterial contamination during the loading and unloading of water transported using water trucks (Indian Affairs and Northern Development, 2006; Smith, Guest, Svrcak, & Farahbakhsh, 2006; Public Works and Government Services Canada, 2000).

The occurrence of water advisories is a reliable measure of water quality issues (Baird et al., 2012), thus drinking water advisories represent the best available proxy indicator for the

safety of drinking water (Isfeld, 2009). Unfortunately, water advisories are 2.5 times more likely to occur in a First Nation community than anywhere else in Canada, and water borne infections occur 26 times more often than in the general Canadian population (Eggertson, 2006).

6.2.1 Public Health Risks

First Nation communities are disproportionately affected by infectious diseases compared to the rest of Canada (Richardson, Driedger, Pizzi, Wu & Moghadas, 2012). Contaminated water systems in First Nation communities have resulted in negative consequences to health (Phare, 2010). Many illnesses are controlled or prevented by basic hand washing and can turn deadly in the absence of proper hand hygiene, which requires access to clean water (Hennessy, et al., 2008; Curtis & Cairncross, 2003; Boyce, 2001). However, with adequate access to water and sewage infrastructure, rates of pneumonia, influenza, respiratory, gastrointestinal and skin infections decrease (Watson, 2006). Rene, as the Community Health Director, observes the degree of illness in the community on a daily basis and feels prevention should always be the primary priority.

We deal with a lot [of sickness] that are as a result of no running water in the homes of our community; where basic hand washing is a major issue. Many of these conditions are easily preventable, we know this. If we just had proper infrastructure, people would have the ability to be healthier.

Valarie also agrees that having access to adequate amounts and quality of water would have a significant impact on the Public Health of OPCN that would have avoided past outbreaks and could prevent future ones from occurring.

There was a breakout of shigella and a breakout of scabies that was due to cleanliness. People were unable to do it [have proper hygiene] so it spread family

to family because it's contagious. So, when there's a breakout the local community has to face it. It's preventable, but what do you do? We're very helpless. Where do you go? What do you do?

Health impacts of unsafe drinking water routinely cited in the literature by policy makers and public health advocates include acute gastritis, dermatological conditions, *Helicobacter pylori* infections [bacterial infection of the gastrointestinal tract that can be transmitted through water], stomach ulcers, birth defects, respiratory infections, neurological dysfunction, and death (Uemura et al., 2001; Jones et al., 2012; Takoak et al., 2014; D'Itri & D'Itri, 1978).

The highest incident rates of *Helicobacter pylori* infection [*H pylori*] occur in rural populations with low socio-economic status, overcrowded homes and contaminated drinking water (Eusebi, Zagari & Bazzoli, 2014). Wasagamack First Nation has similar characteristics to OPCN as described by Sinha et. al., (2002, p. 77) as, “[a] northern community [that] follows a traditional lifestyle and has crowded housing, primitive toileting and lacks running water”. Investigations conducted in this community determined that 95% of those who were screened, tested positive for *H pylori* (Bernstein et. al., 1999); and community members were as young as six weeks old (Sinha et. al., 2002). Contaminated water frequently found on reserves puts Canadian First Nations people at high risk for contracting water borne pathogens that are more commonly found in developing countries (Jones et al., 2012).

The general health status of populations, particularly in developed countries has drastically improved over the past hundred years, as result of strides made in Public Health. Wide-spread disease, epidemics and outbreaks have all been reduced, which is attributed to implementation of water and sewage infrastructure that supports good hygiene (Hennessy et al.,

2008). Authorities on health confirm that having safe, treated water that is accessible in homes is a critical determinant of health (WHO, 2005).

When homes lack access to safe water, the spread of disease increases (Lee, Rosenzweig & Pitt, 1997). This correlation is strongly evident in the literature; however, there is a gap in understanding how the water disparities frequently seen in First Nations is contributing to chronic diseases such as obesity and diabetes in the First Nations population.

Valarie described how when there isn't enough water available, or when the water isn't safe to drink, people will ration their water consumption and drink juice or pop instead, as it is cheaper than buying water.

Sometimes you just feel safer letting the children sip on Pepsi because there isn't water to go around. You might want to make Tang where you can control the amount of sugar you put in the jug, but if you don't have water or you can't drink it, what other choice do you have? People around here don't have money to buy water. If you have a chance to see it [the high prices], then you could maybe have some compassion for these families that have to face it.

Rene is a health leader in the community, and as such, fully aware to the extent of ill health of First Nations in Manitoba. He warns that failing to address these issues advances the realization that Indigenous health will only get worse.

The population is only growing, and the problems are going to grow as well if they're not properly addressed. The government will have a harder time resolving the issues. They say that in 2025, Manitoba will be bankrupt in health alone because of First Nations health issues. The government needs to invest a lot more resources into communities like OPCN because in the long run, these issues that

plague the community will only magnify. It comes down to building capacity of the community. The capacity to elevate all of their living standards in food [and water], social, environmental [and] housing.

6.3 Diminished Dignity and Inequitable Treatment

In addition to the serious health implications, human rights lawyer Rebecca Coleman, in 2011, explained the impact that poor sanitation has on the human spirit:

Sanitation, more than any other human rights issue, evokes the concept of human dignity; consider the vulnerability and shame that so many people experience every day when, again, they are forced to defecate in the open, in a bucket or plastic bag.

This demonstrates the profound emotional and psychological impacts that inadequate sanitation infrastructure can have on people. Valarie explains the process that her community members are subjected to in order to manage their excreta (waste discharged from the body, mostly urine and feces) and to achieve body hygiene.

We don't have running water. We don't have the luxury of having a toilet that you could flush; or a proper bath. We don't have in-door plumbing. Instead of a toilet we use a honey-bucket, which is a 5 gallon pail that you build a box around, and you put a toilet seat overtop of it, and that's your toilet. That has to be taken out at least three to four times a day depending on the usage. And during the summer because of the heat and stuff like that, we try and use the outside toilet instead of using the washroom inside the home.

Without running water the entire family has to find another means for cleaning their bodies. This generally means relying on other people.

It takes a lot of work not having running water in your community; having to go back and forth to a family member who has a washer, and who has running water to see if you can do a load of laundry. To take a shower or a bath, we go to the water plant facility, that's where the majority of my family goes, because my husband works as the water plant operator. My mother is picked up by the homecare nurse to take her to the nursing station twice a week to go for a bath.

Valarie expressed additional concern for the hard existence they have when she described what life was like not having sanitation in the home for her elderly mother. Valarie was disappointed that her mother was in the winter of her life and instead of things progressing and getting better she was being subjected to constant humiliation.

[My mother's] sewage disposal pit was right behind her house and someone had made insulting remarks [because she is beside the community hall]. So, I had said we should just put all our honey buckets on the doorstep of the community hall and see if anything is done about it. Because that's how I look at it; 200 yards it's not very far and her pit is right there. You have community meetings. You have people gathering. You have feasts. And that's all you can smell sometimes, especially in the summer, is sewage from these pits. It's such a disgrace.

You know: why is it so hard for the community to get proper holding tanks here? Get the sewage trucks to pick up the sewage instead of just burying pit after pit and re-digging another one and contaminating the soil. With the kids, the basketball court is right there, about 50 yards from where a sewage pit is.

Beyond the health risks of not having access to running water, there are added stresses and resentments that occur among residents who are living in close quarters and have to manage

the chores that deal with other peoples' excrement on a constant basis (Coleman, 2011). This is particularly humiliating when sharing homes with non-family members or when wanting to go to someone's house for a visit, and need to use their honey bucket. Fanny described how having to manage these situations has caused a great deal of tension between her grown sons and her husband; and how much worse things are made when people are sick, such as when they have diarrhea and vomiting.

In our house, my husband and I are 51 years of age, and my sons are 30, 28, 25 and 24. We all live in a small three-bedroom house with three beds, two couches and with no running water. I wake up in the morning and hear my husband and my sons arguing whose turn is it to throw out the [honey bucket], and who's turn is it to boil the water to wash up. Whereas other people just get up, turn the water on and flush their toilet. And when one person gets sick, everybody gets sick. How do you deal with that [with no running water]?

The United Nations acknowledges the disproportionate smaller allocation of drinking water and sanitation resources that exists for Canadian First Nation compared to non-First Nation populations (United Nations Committee on Economic, Social, and Cultural Rights, 2006). First Nation homes are 90 times more likely to be without running water than other Canadian households (United Nations Department of Economic and Social Affairs, 2009), whereas only 1 per cent of the overall Canadian population lives without safe drinking water and adequate sanitation systems (UNICEF & World Health Organization, 2013). First Nation communities are much more likely to experience high-risk drinking water systems and long-term boil water advisories than non-First Nation communities (Polaris Institute, 2008). In 1977, the Canadian Federal Government guaranteed to provide First Nation communities with water and sanitation

services comparable to similarly situated non-First Nation communities. Despite some progress, thousands of First Nations people, living on reserves across Canada, still lack access to running water or flush toilets (Boyd, 2011).

6.3.1 Racism and Class Systems Tied to Equity

The water crisis of Canadian First Nations has been long standing and over the past several decades, agencies have attempted to address the situation. Reed (2013) published a comprehensive chronological account of initiatives by the federal government to address water funding and actions. The report noted that despite some attempts to resolve water issues, current living conditions of many First Nation communities resembled those in developing countries, and that not enough has been done. National Chief Bellegarde's declaration upon the release of the Federal Government's 2015 budget said that "First Nations people are treated like second class citizens living in third world conditions" (Assembly of First Nations, 2015) and this definitely applies to water access and safety, as well as more generally.

Rene implicates racism when he highlights that given the richness of their land, the community should be socially classed differently. However, because of who and where they are, the community is impoverished. Not only does the hydro industry not appear to be remorseful for displacing the OPCN community to flood the land their livelihoods depend on to make hydro, but exemplify their settler entitlement by selling this stolen hydro back to OPCN.

It has been said that there is a hundred billion dollars flowing down from our lakes, [in profit for hydro] yet we are using honey buckets. [It's] very ironic, especially with the high bills; some families in this community pay \$1200 [monthly] in hydro bills.

Not only the profound inequities between First Nations and non- First Nations occur but between First Nation community members. Fanny described how there is a class system among her people where certain community members, generally those who have political authority or ties to those in power, fare better. She considered herself not fortunate, living her life in what she described as squalor.

Most of our houses don't have running water. Not the whole community, but I live in a house that doesn't have running water. Would you be able to survive in a home with no running water? Having to live this way all my life, I got used to it. You can wish and you can dream, but will they come true? There are only certain areas and certain people who have running water. They live in a big house where you can fit the family. I think as a community we should all be treated equally and that everybody should have water; but we're living like we're in a third world country. And that's very unhealthy. We [Indigenous peoples] are not being recognized as human beings. I think the government has a lot to do with our living and how we are being treated. We went through so many prime ministers and so many chiefs in our community and still we are suffering in the hands of government; and in the hands of [our] leadership, we are still suffering.

Fundamentally, all levels of government should be involved in addressing water disparities in First Nations (Reed, 2013). Many sources weigh in on this issue, attributing the water disparity between First Nation communities and non-First Nations as the lack of accountability on part of the Federal Government (Assembly of First Nations, 2015), as well as the absence of support and resources by the provincial and other levels of governments (Reed, 2013; Phare, 2009). First Nation water systems are not required to follow the regimented

provincial guidelines that protect people from water quality failures. These critical differences in water management have direct human health implications such as the guidelines (or lack thereof) related to water quality monitoring, which can result in on-going drinking of unsafe water. These circumstances place additional reliance on the local Chief and Council to advocate and support the capacity of the community to provide sanitation, however, this responsibility is often not met (Lebel & Reed, 2010).

MacTavis and colleagues theorize that the disparities seen in First Nation communities are systematically occurring: “due to racism and local socio-economic factors rather than institutional forms of neglect” (MacTavis et al., 2012, p.208). As a result of different water standards for First Nations than everyone else, First Nations people are at a significantly higher risk for water-borne illnesses compared to the rest of the population (Reed, 2013). Allan and Smylie (2015) noted that the health status of Indigenous people is linked to historical and current racist perceptions of non-Indigenous Canadians, noting that:

Indigenous peoples have been managing racism and its impacts on health and well-being for hundreds of years, demonstrating resilience in the face of violence, cultural genocide, legislated segregation, appropriation of lands and social and economic oppression (Allan & Smylie 2015, p.10).

Foundational causes of these disparities are deeply rooted in prejudice towards Indigenous people by non-Indigenous Canadians and the two-tiered government system, where Indigenous communities do not receive the level of services of other communities. It is important to understand how these prejudices are influencing access to resources. Policy experts and advocates have several theories on the topic, however the literature lacks input from First Nations people who are directly impacted.

6.4 Healthy Child Development

For years, the Canadian government has ignored First Nation communities by failing to set water standards and put monitoring guidelines in place, which Phare calls “the regulatory gap” (Phare, 2013, p.13). Water is a resource that has to be managed better in First Nations to meet the water quality and quantity needs of the growing First Nation population (Gleick, 2000). Although poor water systems affect people of all ages, there are significant risks to the healthy development of children during formative physical and cognitive development in childhood (Hanna-Attisha et al., 2016). Participants in this study highlighted the overwhelming health and social costs that children pay for living in a community with no running water.

Rene described how the lack of running water in the community has flagged many homes as unsuitable for child welfare. He describes his experiences in trying to advocate for families who may not have what the authorities describe as a “suitable home”, but who are otherwise are loving and fit families:

We deal with a lot of children who are in-care due to a lack of running water. It's because they are not able to maintain themselves, parents are not able to maintain [the hygiene of] their children. An example is, we've had numerous calls from the school basically asking us [the office of the Health Director) to do basic hygiene presentations to the school; or even to family groups because the child has been coming to school not clean. Hair and nails dirty; and they said that if you guys do not intervene, this child is going to have to come into care. [It's] because the teachers have been complaining a lot about the child, and how the child looks. That's a huge problem because why should a child end up in care for something that's completely out of his hands, or even the parents' hands? It's a huge issue in

the child ends up in the system, in our system, and it's really hard to try to get that child back to the parents because of the parents' situation with no running water.

Ross warns that children are at risk in many homes due to the make-shift water systems that people have adapted out of necessity. Many homes have deep narrow barrels full of water and he warns that this is an accidental child drowning waiting to happen.

Some families are allowed two barrels in the house and you never know if someone is going to fall in there, especially with the big family you know, kids playing around. It's pretty dangerous.

Valarie and her family know all too well how dangerous these unregulated water systems are. She describes how with so much sewage from the honey buckets that the community had to find a solution to manage all the excrement. The practice that was decided on, and that is still used today, involved digging deep pits (sometimes 5 ft. deep and 6 ft. wide) in their own back yards.

I get very sad; I lost a grandson about seven years back. And to this day I still have angry feelings because there is no proper disposal of the sewage, and not having the running water. Like I said, we've got a pail for the dishwater, and honey bucket in the washroom. Therefore, my husband had to dig up a pit to dump the sewage. And I had a grandson, he was only two years old, he was outside maybe two minutes without supervision. We looked out the window and he was standing there.

I called the mother and I said, "Could you please go get him?". By the time she went out, the little boy was gone. We ran for 20-25 minutes around the houses, thinking he went to the neighbours, or maybe across the street to Grandmas.

About 25 minutes later, we found him in the pit; he drowned. To this day we still carry-on [with] just pits. There's no proper disposal, and I raise the issue that it's going to happen to somebody else, you know? It was very very hard; and to this day nothing has been done about it. And it is still the same concerns. Why are there just pits behind the houses and people don't have running water?

Inadequate water and sewage is the primary cause of child death globally, second to respiratory related illness (WHO, 2003). In Manitoba, lack of access to running water or sewage systems in residential communities appears to be isolated to First Nations, and even then, few published accounts exist in the academic literature (Sinha et al., 2002). First Nation leaders have stated that governments, at all levels, have failed in their responsibility to provide Indigenous people with basic needs (Assembly of First Nations, 2015; Nepinak, 2014). Clearly, having a safe water and sanitation service is a right that generally speaking, Canadians do not worry about – that is, unless you live in a First Nation community (The Canadian Press, 2014; CBC News, 2015).

6.5 Solutions to Address Water Inequities

In no particular order, participants offered solutions that address immediate needs, as well as long-term solutions that reconcile the water and sewage disparities. Establishing permanent infrastructure for water and sanitation is the unanimous priority. Both men and women in the study discussed the confounding negative impacts that inadequate sanitation has on children. The women in the study also highlighted the domestic impacts to family cohesiveness and to activities of daily living such as bathing, laundry and cooking that need immediate solutions even if they have to be short-term due to lack of funding. The deep concern felt for the children in the community by both men and women reflect the traditional shared parenting approach that

is highly regarded in Canadian Indigenous culture. Indigenous men were considered integral, equal partners and highly involved in all aspects of the parenting relationship, which is unique to Canadian Indigenous families.

6.5.1 Community-Wide Access to Hygiene Services

Immediate solutions are needed to meet the urgent needs for water and sanitation that community members are experiencing. Some participants felt that achieving the ultimate goal of reliable water and sewage access for all was not going to happen quick enough. Building a community shower and bathing facility would allow community members to have access to amenities that they are desperate for. This was seen as a short-term response to a crisis situation; however, others felt that this might send the wrong message to governments that the community could manage without better solutions, and that this could end up being the long-term outcome. Others felt that going to a public cleaning station was demoralizing. Others agreed that access to hygiene is critical but questioned if it would be creating another problem if the facility spread illness. Another concern was for the sexual safety of women and children in a public showering facility. So, although no participant was completely against this as a potential solution, there were many questions and concerns that would need further exploration.

6.5.2 Community Laundry Services

Previously in the community, a coin-operated laundromat was available to the entire community. Community members relied heavily on this service and want it resurrected. Some community members who don't have family in the community or who have over-stayed their welcome to use friends and family's washer and dryers have to go to Thompson to do their laundry at the public facility there. This requires a car, which many people do not have, and a whole day to drive there and back just to do laundry.

6.5.3 Establish High Quality Long Term Infrastructure

Participants identified an overdue demand for meaningful investment in their community.

Tommy has first-hand knowledge of the promises that were made when the government moved their community and flooded their land and believes that the community is entitled to running water and sewage for everyone.

The town was supposed to be built 35 years ago and it's still not here. People are still throwing out slop pails. We were promised housing, water and sewage, compensation. Where is the compensation?

He believes that no matter the cost of investment, all levels of government have profited off the devastation of their community and should be held accountable for reconciling these disparities. From this prospective he wasn't asking or suggesting that this be done, but rather demanding it as a form of modest compensation given the insurmountable damage that was done to the land and people of OPCN.

6.5.4 Increased Awareness and Ally Support

Participants believe that the rest of the province could not possibly be aware of what has been done to their community. They felt that if people knew the history and the human cost that is being paid by OPCN that they would feel different about their hydro services. Participants wanted non-Indigenous people to know about the sacrifices that were made to give them hydro power and feel that they also have a responsibility as users of the resource to advocate that First Nations be converted from their poverty situation. Fanny described how this land is some of the most valuable on the planet and it belonged to their community; instead of using honey-buckets and living off of Kraft Dinner and Pizza Pops they should be living like the Sheikhs of Arabia.

6.5.5 Sanitation Policy Reform

Participants felt that the disparities that exist in First Nation communities would not be tolerated in non-First Nation residential cities or towns. The provincial and municipal governments oversee water and sewage systems in Manitoba and under this leadership, the rest of the province is enjoying good services and adequately maintained and monitored infrastructure. Community members suggested that the provincial government should become more involved and treat OPCN with the same attention as other municipalities. All colonial governments, regardless of the jurisdiction, have benefited from the land losses of First Nations people and therefore should have accountability to reconcile the disparities that it has caused.

6.6 Chapter Summary

Safe water and sewage systems prevent serious, and sometimes fatal, negative health consequences (Hwang, Wilkins, Tjepkema, O'Campo & Dunn, 2009). Without appropriate infrastructure, the community cannot advance their health status but also face significant risk for potential illness and disease. Northern remote First Nation communities encounter a lack of adequate community design and insufficient implementation of planned infrastructure that have profound impacts on the health and social functioning of the community. The geology of the land in north makes laying pipes to homes difficult due to landscape. In addition to these barriers, communities are also funded differently than the rest of the country. First Nation communities rely on federal funding from Indigenous Services Canada for capital and operating resources (Smith, Guest, Svrcek, & Farahbakhsh, 2006). Whereas, non-First Nation Canadian communities receive their funding through a combination of provincial and municipal resources (Reed, 2013).

Non-First Nation communities are protected by highly controlled and professionally monitored water systems regulated by provincial governments and generally, people rate their

water quality as very satisfactory (Dupont, 2005). In contrast, First Nation communities rely on water systems that are overseen by the federal government (Simeone, 2010; White, Murphy & Spence, 2012), which lack enforcement of guidelines. This difference in regulation, funding and enforcement results in inequitable water security protection (Reed, 2013).

The highlighted themes were consistent among participants in this study and included public health risk, diminished dignity, unhealthy child development and equity issues such as racism and social class discrimination. Priorities included reconciling water access, policy reform, and increased accountability from all levels of government. Lastly, participants offered immediate and long-term solutions to address water and sewage design and infrastructure in OPCN. Strategies recommended by community members include not only large investments in indoor plumbing for everyone in the community, but also to address the inequitable sanitation delivery. Policies legalize substandard safe water and sewage in First Nations but not in other jurisdictions in Canada. Racism was strongly implicated in this study and participants felt there needs to be more awareness about the sacrifices that First Nations people have made to provide better lives for the rest of Manitoba. Non-Indigenous allies were identified as good partners to support this advocacy work in addition to governments having more accountability.

Through non-First Nation stakeholders, including government, consulting directly with community members lies an opportunity to work together towards solutions that reduce inequities and improve water disparities. In the spirit of reconciliation, Robert Harding (2006) suggests more education to settlers regarding Canada's colonial history and how it is perpetuating inequities for First Nations. All of these issues are complex and confounding, requiring a strategy that includes a multitude of stakeholders working in concert with each other.

However, for solutions to be meaningful, initiatives must be supported by many stakeholders with self-determined First Nations leading the next steps.

CHAPTER SEVEN COLONIAL HOUSING/ SHELTER FINDINGS AND DISCUSSION

7.1 Introduction

Housing conditions have been linked to negative health outcomes and poverty since at least the 1800s. Freidrich Engels called attention to the topic when he published evidence that overcrowding of people in poverty stricken communities was associated with epidemic rates of fatal disease (Engels, 1872). Nearly half of the homes on Canadian reserves contain mold contamination and other prevalent deficiencies that include structural damage, inappropriate insulation, inefficient ventilation systems (Opis, Shaw, Stephenson & Wild, 2012,) and significant issues related to electricity (Rezaei & Dowlatabadi, 2015) and plumbing (Boyd, 2011).

The presence of contaminants in a house can have profound health impacts especially in children, who have weaker immune systems than adults (Ahluwalia & Matsui, 2011).

Unfortunately, many children are misdiagnosed as having rhinoviruses because the symptoms of mold exposure are similar to those of the common cold (Optis, Shaw, Stephenson & Wild, 2012). Prolonged exposure to inadequate housing conditions, such as those described by participants in this study, can lead to permanent respiratory health conditions that can result in premature death, including cases involving children (Ahluwalia & Matsui, 2011).

Beyond the physical harms that unhealthy housing has on children, extensive social damage is caused by poverty-level housing conditions. Participants identified the housing crisis in their community as the primary cause of the evident health and social disparities in OPCN.

Consistent themes emerged from the interviews regarding the impacts of overcrowding, housing safety and security concerns, as well as the linkages between social dysfunction and housing disparities with economic conditions. Most of the housing inequities reported by participants could be traced back to the systemic poverty that exists in the community. Priorities included economics, policy, self-determination, reconciliation and solutions focused on community empowerment and capacity building.

7.2 Unhealthy Housing

A newspaper article in 2008 reported mold contamination rates as high as 69% in one First Nation community forcing more than a quarter of homes of a community to be condemned (Drew, 2008). Five years later, the First Nations housing status was at a crisis level and worsening (Webster, 2015). The community of OPCN was promised modern homes as part of a compensation assurance, and two generations later, families are still living without adequate homes and lack basic sanitation service. When homes have poor construction, or have not been maintained adequately, issues with plumbing, insulation, vapour barriers, windows, doors, roofs and proper ventilation can lead to unhealthy living conditions (Optis, Shaw, Stephenson & Wild, 2012).

Adverse health effects can result from deficiencies in the physical conditions of housing infrastructure that may include improper insulation or defects in the building envelop which in turn, profoundly impacts internal temperatures, rodent control and protection against humidity and moisture that can lead to mold growth (Jacobs, 2011; Optis, Shaw, Stephenson, & Wild, 2012). Rene described how he felt overwhelmed with the inadequacies of his community and described how he and his health team found it difficult to promote health when people were living in such unhealthy homes.

There are roughly 1200 people in about 200 homes. And I'll be bold and say that 50% of the houses are not livable. They should be condemned due to fire hazards, mold issues, overcrowding, being unsanitary because there's no running water or sewage systems. Just the way the houses were built [insufficient building materials] makes them not livable.

Valarie echoes these concerns and describes how she has reason to believe that her home could be classified as unsafe for human occupancy. However, she feels that the community members are not kept informed of what is wrong with their homes because of the conflict around who is responsible for reconciling the problems. She also described how even small repairs seem impossible to undertake given the lack of community infrastructure and no hardware stores or services available in the community.

I know that my house needs major repairs. [For example], I know this summer they came and took a bunch of insulation out of my roof, and I [still] don't know if it carried asbestos. Plus, there's no where you can go to get supplies for repairs. Like I mentioned before, we don't have a hardware store where we could pick up anything to fix simple things like a broken switch or lock for a door.

Rene also discussed the lack of security of homes and the consequences of not having proper locks, doors, windows and alarm systems for homes in the community. Given that some people frequently leave their homes unattended when they travel to go buy food, this attracts opportunistic people who are also in search of food with less means of acquiring it.

I know that there have been cases in the community, where a family will leave the community to go shopping [anywhere from 4-10 hours away], and when they

come back their house has been broken into. The cupboards are completely raided. These are big issues.

The social impacts of the substandard housing on reserves are well known problems for First Nations in Canada. Often surrounding these discussions is who is responsible for funding the disparities. Housing on reserves falls under the jurisdiction of the federal government, however, when disparate housing causes broader social issues, such as crime, child apprehension, substance addiction and unemployment assistance, these programs are generally funded through provincial resources demanding greater attention at all levels of government.

The physical health consequences of poor housing conditions are well documented in the literature and include destruction of the immune system, weakness and fatigue, allergic rhinitis, concentration interference, asthma (Park & Cox-Ganser, 2010), and skin conditions such as eczema (Portnoy, Kwak, Dowling, VanOsdol & Barnes, 2005). There are communicable diseases that inequitably impact First Nations. In the Canadian provinces of Manitoba, Saskatchewan and Alberta, in particular, tuberculosis rates are on the rise, aggravated by overcrowding in isolated First Nation communities (Clark, Riben & Nowgesic, 2002). Although the Canadian Public Health Agency declared controlling the rates of tuberculosis as one of their greatest historical accomplishments, infection control in First Nations and the socioeconomic factors that exacerbate them, have been neglected with people living in these communities still six times more likely to be infected (Canadian Public Health Agency, n.d.).

7.3 Overcrowding

The overall national average of Canadian Indigenous people is 4.0% and growing (Statistics Canada, 2011). The majority of Indigenous Canadians are living in the west and from 2006 to 2011, this population increased at a rate almost four times the national average with Manitoba

being the province with the highest total population (16.7%) (Statistics Canada, 2011). First Nations families on-reserve have a birth rate 3.5 times higher than that of the national average (Statistics Canada, 2008). In fact, the statistical projections forecast that by 2036, about one in five Manitobans will be Indigenous (Morency, Caron-Malenfant, Coulombe & Langlois, 2015). Almost half (46.2%), of the national Indigenous demographic is under the age of 25. The very young demographic of First Nations has approximately half (49.6%) living on reserves (Statistics Canada, 2011). All of these statistics, when combined and analyzed from a housing perspective, are concerning when examined in the context of the current housing crisis.

Crowded houses create environments that promote transmission of organisms, viruses and bacteria with higher rates of contracting stomach cancers (Barker, Coggon, Osmond & Wickham, 1990) and respiratory conditions (Ahluwalia & Matsui, 2011). The control of fatal communicable diseases, like tuberculosis, is attributed to reducing overcrowding (Centre for Disease Control and Prevention, 1999). However, in Canadian First Nation communities, tuberculosis continues to be an on-going concern, linked to the high prevalence of overcrowding in homes (Richardson et.al., 2014).

Overcrowding has a myriad of health and safety concerns. Participants discussed how overcrowding is influenced strongly by confounding issues such as community infrastructure. Valarie described how she saw first-hand the degree of overcrowding worsened water issues when she worked collecting census data in the community.

At one time, I did the census for the community and it was a population of close to 1500 people. If you look at the numbers, there was 161 houses in the community so you could take a look at how overcrowded those houses [were]. There was one house that had four bedrooms in total. There were 22 people, with

no running water again. I had raised the issue again in terms of running water, and that we have small holding tanks. Can you imagine 22 people in one home, how often they were without water? The water truck would have to go to that house at least three times a day in order to maintain the capacity for everyone to get the proper cleansing and just basic making a meal for 22 people.

The health and safety of community members was also a major concern of Rene who discussed his fears of having so many people living in small homes that have poor quality building materials such as mobile home trailers. He also described how people are often without their own hydro power and will run extension cords from neighbors in an unsafe way. These threats become increasingly scary when these homes are the ones with no running water to extinguish a fire should one start.

We have major issues with fire hazards, especially when we have like 15 people in a house that can go up in smoke, like paper. It is a really dangerous situation. Especially with the amount of children that we have living in these houses. We are so overcrowded.

In 2006, on-reserve homes were almost nine times more likely to be overcrowded than off-reserve homes, and six times more likely to be in need of major repairs (Statistics Canada, 2008). Five years later, the situation had worsened with on-reserve overcrowding rates increasing from 26% in 2006 to 27.4% in 2011 (Statistics Canada, 2011). According to Hanson (n.d.),

As a part of the Crown's responsibilities for its new Indian wards, government officials sponsored the construction of housing on reserve. These houses were designed with the Western nuclear family unit in mind, and could not accommodate larger, more extensive Aboriginal families. Often shoddily built on

a small government budget, housing became yet another foreign and divisive experience imposed by reserves.

The federal government's investment has failed to adequately accommodate population growth. Overcrowding causes additional stress on existing homes, creating extra wear and tear that decreases the housing lifespans of on-reserve houses to 20 years before major repairs are needed (Assembly of First Nations, 2013). The housing crisis on First Nations has persisted for years but the total amount, going to communities for housing decreased by 3.5% (Assembly of First Nations, 2004).

7.4 Housing Disparities and Child Health

Providing children with safe, healthy housing is a critical necessity for healthy child development. Children who are living in overcrowded housing situations have been identified as at risk for food insecurity, which can have developmental impacts on healthy child development (Ruiz-Castell et.al., 2015). Overcrowding also impacts the development of coping skills and mental health, which is evident in the overrepresentation of suicide attempts in First Nation youth that have been linked to poor First Nation housing conditions (Webster, 2015). The youth participant in this study described how the housing situation is so unbearable, children often don't want to be at home but that there are no safe alternatives.

There's nothing for these younger kids to do around here, so they just resort to drugs and drinking even if they're 12 or 13. They have nothing to do and there's nowhere to go for them. If they had somewhere to go they wouldn't resort to wanting to get high and stuff.

Rene also expressed concern for the health and safety of the children in the community. He explained that all the social problems in the community, including the housing conditions, stem

from the disconnection of the land. Before the flood, families were bonded and lived together on the land; families were safe and people lived cohesively. The housing crisis from his perspective was a symptom of the larger issue of being environmentally dispossessed. He describes the impact this situation has had on the children in the community.

The children are unfortunately trying to survive day to day. Growing up as a child is really not an option; seeing the violence that they're exposed to, due to a lack of housing. We have three families living in one house which creates a lot of stress and frustration and anger, and sometimes the children witnessed that. They're exposed to a lot. They are sometimes caught in the middle of it. They are sometimes caught in family feuds, which they have no idea what the feud is about.

Valarie described her first-hand knowledge of Child and Family Services (CFS) actively investigating homes and families for child protection complaints. The social issues, plaguing the community, can be linked to the horrible housing conditions, especially the alcohol and drug addictions that are having a profound impact on children. The additional stress that people experience because of the living conditions can lead to ineffective coping mechanisms, such as drugs and alcohol to escape mentally when you have nowhere to go physically. These behavioral problems that stem from poor housing often manifest as child neglect. She describes her involvement in removing children from homes.

I had the opportunity to do on-call work for Child and Family Services.

Sometimes you get really frustrated, especially if there's money in the community.

There's a lot of people who abuse drugs and alcohol, so I would be attending maybe six or seven calls a night for a small community. I've had to, a couple of

times, take kids and put them in a place of safety. I would like to see more support programs in the community [for] kids to stay home with families. You know a person can change if they have the support but because they have no support they go back to doing what they were doing. And it gets really sad having to see these children taken out permanently.

Rene also acknowledges that the community itself is not safe for children. So many confounding disparities create a vicious cycle that Rene feels the community can't break free from in its current housing and economic state.

The children are at risk here. But then again, it's a social issue because how can you as a parent be expected to care and nurture, love and provide a safe environment for your child when you can't even provide that for yourself. So, it's a revolving door of problems, after problems, after problems.

Indigenous children are more likely to be investigated by Child and Family Services compared to non-Indigenous children and more likely to be apprehended from their homes and communities (Fallon et.al., 2015). Poor housing status of a family increases the justification of an investigation into child neglect accusations; and the eventual removal of children, is linked to the lack of supportive programming available, particularly in remote communities (Fallon et.al., 2015). Addressing inequitable housing conditions will mediate individual and community level poverty in many meaningful ways (Shenassa, Stubbendick & Brown, 2004) and its dysfunctional role in the healthy development of children.

7.5 Housing Related Politics and Policy

In order to address housing disparities, it is critical to acknowledge that there are different standards, policies, regulations and ownership issues on-reserve compared to off-reserve

housing. In this context, adequate housing, and not just four walls and roof, is imperative.

Jacobs, 2011, p.115 defines housing as having:

Adequate privacy; adequate space; physical accessibility; structural stability and durability; adequate lighting, and ventilation; adequate basic infrastructure, such as water supply, sanitation, and waste management facilities; suitable environmental quality and health related factors; and adequate an accessible location with regard to work and basic facilities... adequate housing also means that it is affordable.

Community members frequently discussed that hydro development is to blame for inadequate healthy housing. Hydro development has had a negative impact on virtually every aspect of their lives; and not only has decent compensation not happened, community members feel like hydro is further gouging First Nations with high hydro electricity bills. Tommy explained how because the homes are so poorly built with cheap materials, poor insulation and inadequate windows and doors, and being geographically located in northern Manitoba, the heating costs are atrocious. Community members have applied pressure to hydro to assist the community in addressing some of the issues that were caused by their flood, such as the lack of employment; however, Tommy described how hydro's policies further disadvantage the people who have been hit hardest by their damage.

I just don't see myself paying someone \$400 a month [in hydro bills] after they've destroyed my environment, my livelihood, my way of life, my culture and my language. And I'm not dissing the welfare, because a lot of people need it [to pay their bills]. But what about able-bodied people here that could go to work? Where can I go to work? Our way of life is trapping and fishing. Hydro posted a job;

[requiring] grade 12 education just to wash dishes. You're talking about trappers and fisherman here, give me a break! I'm 68 years old; what am I supposed to do, climb that hydro pole to get a job [to pay for the electricity bill]?

Valarie also discussed how hydro bills further impoverishes people in the community, who are mostly on social assistance and have poverty incomes to begin with. The additional expense of exorbitant hydro bills is out of reach for most people.

I've witnessed people losing their meters [hydro removes access to the source of electricity] because they're unable to pay for them; because they only live on welfare. The weather in the winter gets very cold and you're looking at about a \$700 hydro bill in the winter. People are only entitled to get so- much deducted off their welfare cheque to pay for hydro, so they end up with no power. Some of the houses, if you've had the opportunity to drive around the community, only have plastic on windows [no glass] and again, it's the lack of housing.

Rene described the injustice that the electrical utility has financially profited from destroying the community, while continuing to make money off the people by extorting the meager welfare incomes to pay for hydroelectricity that was created off their sorrows.

Some families in this community pay [as much as, or more than] \$1200 a month in hydro bills. I have a senior coworker who's always having issues with his hydro bill and is constantly having to have his electricity shut off because he can't pay it.

Addressing these, and other root causes of housing conditions on-reserves, is out of the immediate control of the community members who are subjected to living in these conditions.

Housing disparities has not resulted simply from poor building construction or the location of the reserves. Long-standing economic neglect and political controls are at the core of these issues (Optis, Shaw, Stephenson, & Wild, 2012); if any progress is to be made, policy changes need to happen.

7.6 Solutions to Reconcile Housing Disparities

Although all participants agreed that housing disparities were an urgent priority to be addressed, some felt that that these issues were a symptom of colonialism. Few gender differences were noted when discussing housing issues in the community, with both men and women identifying housing repairs, inadequate plumbing, safety and security of doors, windows and fire threats as major priorities. Health risks were also a concern of both genders with everyone in the study identifying housing disparities as a critical issue that impact the health, safety and social aspects of children. The youth in the study highlighted the lack of options and coping skills that young people have as they try and manage life in a community with poverty housing conditions. Men traditionally provided basic needs for their families, therefore in this study linked unemployment and poverty to the current housing issues that the community is experiencing. In no particular order, participants offered potential solutions that would have a positive effect on the housing crisis.

Build More Houses- To address the housing shortage an accurate assessment should be done of how many nuclear families exist in the community and where independent homes are wanted and how many homes need running water and sanitation, as well as a count of overcrowding.

Single Person Dwellings and– A great concern was that single people in the community had no other choice but to cohabitate with others due to it not being feasible to give a whole house to a single person. This significantly disadvantaged single people, and widowed elders, for example,

from being independent and restricted their privacy. Apartment buildings should be built to provide housing for single people, the elderly and for temporary shelters.

Safety Shelter In domestic disputes no temporary housing was available to support people to remove themselves from socially dangerous situations. A temporary shelter or apartment building were suggested as a way to provide community safety.

Repair Existing Homes- As many as half of the homes on the reserves were identified as needing to be condemned and the other 50% were in need of major repairs, which agrees with Statistics Canada findings that 65% are in need of major repairs as they don't have a condemned category (Statistics Canada, 2016). The required repairs include major over hauls such as retrofitting homes with plumbing to have access to sanitation services but also structural repairs such as foundations and replacement of insulation, doors, windows and proper wiring for electricity. Most of the work required in the community needs to be carried out by highly trained professionals, and would need funding by all levels of government. Community members hold the hydro industry fundamentally responsible for the disparities in the community.

Trades Training Programs- Community members believed that given the high rate of unemployment and the degree of work that was needed to reconcile the housing disparities, that trades programs offered in the community that trained and employed local people to address these issues. Trades training was believed to offer a prevention aspect to safe guard against a future housing crisis, as the community would have skilled workers who could do this work.

Hardware Store and Skills Workshops- Given the overwhelming need for housing repairs a local hardware store was seen as required. One participant liked the model that some of the larger chain hardware stores in urban centers use, where the building supplies store had

knowledgeable workers who can explain and teach people how to complete ‘do it yourself’ projects for basic repairs such as changing a lock or hanging a new door.

Running Water for All- The lack of plumbing in homes was considered the greatest priority. It was noted that having plumbing in a house that was attached to an empty cistern, due to limited service by the water truck, was inadequate as the outcome is still that homes have no water. Community members believe that the amount of water that is needed to supply homes of multiple families needed to be directly piped to the water treatment plant. Beyond the health concerns for hygiene, prevention of communicable disease and the social conflict and stress that no running water brings, homes that are at high risk for fire having no water supply to extinguish fire was unacceptable.

Indefinitely Deferred Hydro Bills- Overwhelmingly, people in this study felt exploited that the hydro industry would require their community to pay for hydro services. At the very least, participants believed that indefinitely deferring hydro bills as a form of compensation, would be a gesture that would be easy for hydro to make. Not only are the bills not forgiven, when community members cannot pay the hydro, they are disconnected, often without sufficient notice. One participant described how while he was out on the land hunting, hydro came to the community and disconnected his electricity supply so that he lost a season’s worth of his family’s caribou meat in his deep freeze. Community members felt that the hydro utility should provide the community with free hydro indefinitely as a modest form of compensating the community for what they destroyed. Additionally, one participant recommended that the Chief and Council should ban hydro workers from entering the community to remove hydro services without consent.

Increase Employment Opportunities- Participants felt that for the community to be sustainable, in general, while stabilizing the current housing crisis, the community needs a doable plan to be self-sufficient again. To be sustainable, new, innovative strategies and substantial investment is required from all levels of government to reconcile the damage to livelihoods that were caused by the hydro flood.

Address Poverty-level Income Assistance- Until the community can recover from the economic devastation of the hydro flood, monthly income compensation is owed to the entire community to reconcile the poverty status they are currently in, which includes the current poverty housing conditions. This does not mean living on standard welfare dollars, which provides no dignity and is restrictive and also does not deal with the root issue of the flood. People are unable to provide for themselves because of intentional destruction to the source of their businesses and so the community is owed compensation money. This should be significantly more funding than provided by provincial welfare funding. People could afford to provide themselves with better housing if they had comparable income to what they would have had if they still had their thriving fishing industry that was destroyed by the hydro development. Participants feel that if it was so important that the province use their land to provide everyone with on-going hydro power, then it is reasonable to expect on-going compensation for the community that was sacrificed to give them that.

Addressing Inequitable Child Apprehensions- Realizing that time is needed to resolve the housing poverty that are linked to unsafe homes for children, the participants have recommended that Child and Family Services work with the community to support families and be more flexible with parents to keep children in homes.

Government Accountability – Most of the solutions that were proposed by community members require cooperation and significant financial investment from various levels of government. Without this, participants do not see that their situation will improve. In fact, participants felt that things could get a lot worse, particularly with the growing population, without positive change and support from government.

Address Colonial Entitlement and Racism- Participants believe that the decision to flood their community and ancestral lands and the subsequent treatment of their community would not have been considered or accepted if OPCN was a non-Indigenous community. The social environment and the atmosphere of where people live is a critical component of feeling safe and secure at home. Participants feel more public awareness regarding the damage caused by the colonial powers to their community is needed. The community feels that action towards reconciliation starts with awareness and empathy: if more people could understand the harm that was caused to OPCN, and that the rest of the province benefited from hydro services at the expense of First Nations.

7.7 Chapter Summary

Home is intact land and not merely a building structure (MacTavish, Marceau, Optis, Shaw, Stephenson & Wild, 2012). For many Indigenous people, home and housing represent personal safety and shelter. However, participants in this study felt that their homes created security risk, safety threats, illness and pushed them deeper into poverty. Additionally, people perceived their current situation as an outcome of racially charged decisions that were prejudiced against First Nations.

Feelings of hopelessness were described when people spoke about the magnitude of the housing disparities. 65% of houses need major repair issues and installing plumbing is not easy

but some small steps need to be taken including installing a lock on a door, was out of reach given the lack of disposable income and the fact that there are no hardware stores in the community. In addition to addressing immediate and root causes of housing inequities, programs and supports need to be put in place to educate and train community members on how to repair damaged homes. Training community members in trades will better protect against future housing failures while focusing on prevention strategies, which offers protection and empowers First Nation peoples (Optis, Shaw, Stephenson and Wild, 2012).

Basic human needs, such as safe, adequate housing and indoor plumbing are standards expected for every community in a country as affluent as Canada. The federal government has been unreliable in addressing on-reserve housing issues by failing to attend to the seriousness of these housing disparities (Auditor General of Canada, 2006). The United Nations affirmed that the living conditions seen in Canadian First Nations were inequitable compared to the rest of the country and not representative of a developed nation like Canada (Mackrael, 2011). The federal government therefore needs to address these disparities and work with First Nations leadership on a sustainable strategy for housing on-reserves.

Research explicitly links housing inequities on reserves to specific social economic factors which include: disenfranchisement from traditional territory, high unemployment rates, inadequate capacity training, lack of home ownership, and insufficient federal funding for on-reserve housing and social economic improvements (MacTavish, Marceau, Optis, Shaw, Stephenson & Wild, 2012). If creating strategies that mitigate housing disparities are to be sustainable, then the federal government must prioritize improving the socioeconomic conditions on First Nation reserves (Optis, Shaw, Stephenson and Wild, 2012). However, to ensure that

solutions are meaningful, First Nations leadership should self-determine the direction and decisions of the federal government housing strategy.

CHAPTER EIGHT: COLONIAL IMPACT ON TRADITIONAL FOOD AND MEDICINE SYSTEMS

8.1 Introduction

Traditional foods found locally on the land and the hunting and gathering practices used to acquire that food are an integral part of Indigenous culture, food security and food sovereignty. From the interviews central priorities were identified to address unhealthy aspects of their food systems. Themes identified by community members included traditional vs. colonial food systems, food access issues, health and disease prevalence, as well as social impacts of food disparities in the community. Overlapping with transportation and mother earth areas highlight the need for an integrated and holistic approach to understand these complex systems. Community members offered solutions and discussed current interventions that should be implemented to address the current unhealthy food system.

8.2 Pre-colonial Traditional Food Systems

Prior to settler contact, Indigenous people relied on traditional diets comprised of local resources from the land such as meat from animals, a variety of fish, birds and vegetation such as berries and other plants (Kuhnlein et al., 2006; Paci et al., 2002). Community members described feelings of loss when they reflected on the traditional food systems their ancestors experienced but that present generations cannot. Seniors also recalled what food was like as children before the community was significantly changed. Fanny, remembered healthy food from the land was shared,

I always think of my traditional way of life that I was brought up on. Where food was healthy at one time in [OPCN]. Where food was rich. Where people shared food. Healthy food. Food from the land. Food from the water. Food was healthy. Today it's very different.

The privation of food resources in the community was seen as an outcome of colonial interference with the land, particularly from hydro development and the flood of the 1960s-70s. Life for many Indigenous tribes before settlers colonized was nomadic, and this lifestyle allowed for hunter/ gathers to live harmoniously with the land. Multiple families would gather together at specific times of the year such as during the migration of certain animals so that they could hunt together, share feasts, culture and stories (Settee, 2013). They then would separate back into smaller groups to live off the land the remainder of the year (Stephenson & Acheson, 2004). This was a sustainable system that balanced resource availability with resource consumption during an era where only active transportation modalities were available such as on foot, dogsleds and canoe (Berkes, 2012).

Community members clearly linked the changes they've observed to changes in migration habits due to reduced wildlife habitat. These environmental changes significantly influenced the community's ability to feed themselves. The environmental changes, coupled with the drastic changes to society limited where Indigenous people can travel to access food and forced the community to seek alternative food systems in order to survive.

8.3 Post-Colonial Consumerism of Food

Colonization changed the social construct of Indigenous life. The implementation of reserves isolated people into a segregated and confined location, which they could not leave and often

without adequate resources for the amount of people. This confinement and domination by settlers undermined Indigenous peoples' ability and authority to steward their traditional territory (Thompson & Pritty, forthcoming). Over time, food became scarcer and more often community members would rely on foods imported to the community and sold at the local store. The quality of this food, compared to traditional food, was vastly inferior in quality, nutrition and affordability. Participants reflected on the impacts of this colonial food system.

Tommy describes that getting food from the land and water in the past required less effort than acquiring the cash to buy from the store.

People are hungry for what they've lost. You know it was so easy to get things before the flood. You could just go paddle along the shore and get some food. Set a net down at the bank. It's a lot harder now. And everything cost 10 times more than it used to be.

Valerie states how the only store promotes junk food over healthy food through differential pricing.

We only have one northern store in the community and you walk into the store, the first thing you see advertised on sale is pop and chips. But then you go towards the produce area to get a bag of oranges and I think there was about six or seven oranges to a bag. I took them to the till and it would've cost me \$19.99 for a bag of oranges. But turn around I could buy 2 litre pop for a dollar. So, it's not very healthy products that we do get, even when we do get them. There are times where I've gone to the store and I've seen stuff sitting on shelves that are expired and they're still continuing to be sold.

Fanny states that the only store in the community is limited to fast-food store, which is unhealthy and inedible to many.

Today it's very different. Foods are not healthy. There's too much fast-food in our stores. The healthy foods are very, very pricey, and nobody can afford them. It's hard for people especially our Elders in our communities who are not used to fast-foods. Today when people want food there isn't very much selection in our store. Basically, what we have is a fast-food store. The prices are very costly.

The introduction of purchased foods in northern Indigenous communities' dates back to the 1950s with a small inventory of items, such as sugar and flour (NFPSC, 2003). The expeditious increase of retail food consumption went from those few basic items to consumption being as high as 25% and by the mid-1960s consumption rose to 60%. By the 1970s many Indigenous communities had wild meat consumption largely replaced with canned meat and staple foods consisting of white bread, pasta, and polished rice (Young, 1979).

The purchase of unhealthy convenience foods readily available in retail markets is less expensive compared to healthy unprocessed foods; this is due to the high sugar content and preservatives that lengthen their shelf life (Thompson & Pritty, forthcoming). The cost of nutritious foods in northern communities are four to five times higher than southern areas, especially for perishable food like potatoes, fruit, vegetables and dairy products. Often community members will consume large amounts of convenience or 'junk' food, due to its easy availability and accessibility, combined with the difficulty in access, and exorbitant pricing of healthier alternatives.

Urban centres have a greater selection and more competitive prices than those found in northern, remote communities. Thompson, Manitoba is the closest city to OPCN and where

possible community members travel eight hours round trip by road, or two hours round by air, to shop for food and other necessities. There is also a large grocery store in a small town (Leaf Rapids, Manitoba) with better selection and slightly better prices than OPCN, which is 90 minutes away return by road. However, the prices, selection and quality are not as good as what can be found in Thompson. Either way, the larger stores off-reserve offer better quality food that is healthier than the highly preserved options found in OPCN, if people have access to transportation.

When shopping locally, people often gravitate to the unhealthy options, such as potato chips and pop, which have long expiry dates and so can be trucked in on winter roads and stockpiled for long periods of time, which is common especially in remote communities. This processed food reduces the overhead of the business and when businesses incur increased costs, those fees are recovered by increasing the price of items that are sold to customers. The current food system has many areas that need prioritization. Participants identified several critical areas that are responsible for many of the disparities in OPCN.

Valerie felt that shopping was a big chore as it required travelling great distances to get adequate products.

The closest place to go shopping from [OPCN] is Leaf Rapids, which is still an hour's drive [one way], but the Co-op there is also very expensive. The only other place that you can go is Thompson, which is a four hour drive. So that's probably a 10-12 hour day just for you to go shopping just for proper products.

Robert explains how without transportation he has no choice but pay high the local prices at the only store in the community.

You know, it's a little cheaper to go little further down south; but then, I don't have a truck. It's the transportation, eh? That's where it hurts.

Fanny highlighted the difficulties of getting cheaper food prices without owning a car, which further exacerbates inequities.

The cost of transportation means that other needs will be sacrificed. For myself, I don't have a vehicle and I don't have a license. So, for me to go shopping in Thompson or Leaf Rapids I have to charter a vehicle [pay someone to drive me there and back]. It costs \$400 [return by road]; and with that \$400, we could have bought so much more food.

Ross illustrated how the costs associated with travelling long distances for supplies can have additional unexpected risks.

For me I don't have a vehicle anymore and it costs me \$400 for a charter. I've had vehicles and I've drove [in the past]. But then you can get yourself into a situation. One time I took my truck to Thompson and it broke down, and it cost \$1800 to fix; but then an additional \$800 to tow it into Thompson. So, now I would rather spend \$400 and have someone else take me to Thompson and let it be his responsibility. If he breaks down, I have nothing to do with it. Because I've gone through that situation where it cost me over \$3000 for that day trip.

Rene favors land-based living as this is eco-friendly compared to the shift to packaged and retail foods is causing environmental degradation in addition to unhealthy dietary patterns.

We all know that prepackaged food is not nutritious. So, it really affects the community, especially the younger generation because they don't have an option

and they grow up used to eating package food. Half the time it's chips and pop. They're not really exposed to the value of nutritious food. You see the impact of the northern store on the community if you just look at the landfill. Everything is prepackaged.

Ross believes that a significant reason that prices are so high for food in the community is due to the remote geographical location of the community.

Everything is expensive on account of that they deal with freight over there [at the northern store], that's why. Just imagine if you have to use a plane instead of a semi- truck; you can put a lot more in the semi- truck [and then it is cheaper].

Rene explained how the social disparities of the community justifies the northern store to raise food prices higher to recover their revenue losses.

There's a lot of issues regarding security and extra staffing in the northern store, so that also increases the prices of the food here. If children have no food at home, they steal. They [management of the northern store] don't allow students in the store during school hours, they have to be accompanied by a parent or relative because the theft is so high. It's because they're hungry, and they have no other means but to go to the store and steal a sub-sandwich or whatever they're hungry for.

Rene discussed that stealing food has also been an issue for the food program run by the community.

At the food program broken into several times where people have taken the meet the fish the berries a whole goose and who knows what they do with it; Who sell it to buy something else like drugs or alcohol or maybe to buy food.

The switch from independent food acquisition to dependence on the retail market is complicated with strong colonial influences that impacts the economic, political and social areas of Indigenous life (Willows, 2005). Colonization forced the reduction in traditional foods and created a destitute dependence on processed and retail foods (LaDuke, 2002), resulting in a dangerous cycle of increased dependence on retail market foods and the acculturation of non-Indigenous food practices (Thompson et al., 2011). A nation of nations that were once healthy and self-sufficient, now struggle with very high incidences of food insecurity, poverty and disease (Thompson et al., 2011).

8.4 Nutritional Health Implications

This colonial transition in diet has been linked to negative impacts on human health (Kuhnlein & Chan, 2000). The transition from traditional diets to retail market food has resulted in unhealthy lifestyles and more acute and chronic diseases in Indigenous populations. Participants expressed feelings of hopelessness when they discussed how difficult good nutrition was to obtain in OPCN. Fanny blames the food environment for chronic disease in her community.

Not very many people can afford the food that we have. This is where diabetes, high blood pressure and so many diseases have come forward because of that. Because of the change of the environment.

Valerie explains how now every home contains people with diabetes, unlike a generation ago.

30 years ago, you didn't see every home with diabetes. Today every home in this community has an individual who is living with diabetes or some other health condition, you know? My husband has diabetes. I have diabetes. My mom has diabetes; and so, as adults, we try to control what we're eating. But then you can't stop the kids from having their cereal, so you take the box and throw a piece of cereal into your mouth, which isn't healthy, but you can't resist it.

Rene, the Community Health Director, explained how accessible nutritious food is a matter of life and health but very costly or not available in their community.

All aspects of health are impacted, the social, environmental and [physical] health because they can't get nutritious food. But they don't have any other options. They have no choice. And usually when they do have a choice, it costs them an arm and a leg because the prices are so high. Therefore, battling diabetes and heart disease is hard, and it's increasing. We're going to have higher cancer rates [and] higher mortality rates as well. It's really grim.

Prior to colonization, infectious and chronic illnesses were rare or non-existent, specifically for cardiovascular disease and cancer (Young, 1979). In fact, Indigenous health has been well documented as being superior to the settlers in many areas, particularly no history of communicable diseases such as small pox, influenza, tuberculosis or pertussis (Waldram, Herring & Young, 2006). The radical dietary shift generated a greater dependency on retail foods and less reliance on traditional foods, which began to create a culture shift from active food acquisition to a sedentary lifestyle (Kuhnlein & Chan, 2000). Chronic diseases began to emerge

around the same time that Indian Reserves were created, followed closely by the subsequent implementation of retail market food (Young, 1979). Community members associate the shift in their diet to the change in the environment and link this to the current negative health status of the population.

When available in the community, healthy food is often out of the affordable reach of most people. Valarie described her concerns about how these dietary behaviors are impacting the children in the community.

I can see a lot of decay in the children's teeth probably because of all of the sugar they're eating all of the time. I don't know if you had an opportunity to go into the Northern Store in the community, but the majority of it is junk and junk-food you know? And the obesity in the children -- it's definitely noticeable.

Valerie associates the high prices and community-wide poverty with the compromises that parents are forced to make when trying to acquire enough food to feed their children. However, lack of adequate water also contributes to chronic illness when the lack of its supply impacts a healthy diet (Mabhaudhi, Chibarabada & Modi, 2016). When safe water isn't available, people will supplement it with other beverage options such as soda pop, high sugar juices. In many cases the issue isn't just about the quality of nutrition children are getting, it's often sheer quantity and children are hungry; this includes the nourishment for even for babies' diets. Valerie discusses how store exorbitant prices and poverty creates hunger, particularly in large families.

In terms of the poverty in our children, yes, I definitely see that. I've witnessed my own family where we've had to split groceries just to make sure that the children are eating

because it's very expensive in the northern store. We've had to take bags of groceries to families just feeling sorry for friends who have a lot of children; [we say] here's a case of Kraft Dinner so you can feed your children. You go to the northern store to buy a pound of hamburger and it'll cost \$11. Go to the northern store to buy a jug of milk cost you \$10. A dozen eggs cost you close to five dollars and the same thing with a loaf of bread; it's just basic needs that you need every day, and it's so costly. If you've got children in the house, of course you have to have it. I can't imagine how some of these parents do it with their children. You are using either fresh milk or formula to feed. How they survive it just amazes me. Do you think those children are hungry? They are hungry; I know they are. Their parents can't afford it and where else would they get it? Did they reduce the formula instead of mixing it properly because they can't afford? Definitely. Definitely.

It is important to understand how these inequities impact the daily living situations, health and well-being of people affected, which is not well documented currently in the literature, from the perspective of First Nations people. Tommy also has seen drastic changes to child health in the community due to poor nutrition and sedentary lifestyles that is resulting in childhood disease.

Kids are having diabetes now because of junk-food. When I was growing up I never heard of such a thing as diabetes. It's gone from 1% to 90% after the flood because the lifestyle has changed. Not just the food. We used to go out camping people were active all of the time. They didn't have the remote to put the TV on.

Dental disease is consistently used as a reliable indicator to determine nutritional health, therefore is frequently the center of discovery when examining human remains (Waldram, Herring & Young, 2006). Historical data discovered by archaeologist revealed that the traditional diet of Indigenous peoples prior to colonization contributed to their good health (Steckel & Rose, 2002), which included absence of arthritis and good dental health (Price, 1939). Recent studies have identified that the dental health of Indigenous children between age 3-5, 85% are identified having dental decay and 80% of children 6-11 are diagnosed with dental caries (Mathu-Muju, McLeod, Walker, Chartier & Harrison, 2016). Since the 1970s, high carbohydrate foods have been primary food sources for Indigenous people (Young, 1979), these foods have been identified as a leading cause of dental caries (Weir, 2002). In discussing the impact of colonial diets on Indigenous peoples, Price reports, “No era in the long journey of mankind reveals in the skeletal remains such a terrible degeneration of teeth and bones as this brief modern period records” (1939, p.11). Community members noted first-hand accounts of their health disparities as a result of changes in diet and a poverty lifestyle.

Profound inequities interfere with the ability to be food secure that go beyond the control and capacity of many people (Laraia, Siega-Riz, Gundersen, & Dole, 2006). Poverty has an undeniable link to disease and premature death, both of which are at epidemic rates in the Canadian Indigenous population. Many of the disparate health conditions that are plaguing Indigenous populations disproportionately, such as obesity, diabetes and cardiovascular disease, are linked to the consequences of ‘cheap’ food due to the limited access and high cost of nutritional food for people in poverty (Adelson, 2005).

8.5 Social Impacts of Food Related Disparities

Deviating from a traditional diet not only impacted health and nutrition of people, but also devastated the social and economic status of the community (Thompson et al, 2012). The extreme poverty that this triggered, and exacerbated, an array of social disparities in the community that includes substance abuse, domestic violence and child neglect. Colonial interference has disrupted essentially every aspect of social order in Indigenous communities.

Participants disclosed witnessing examples showing the seriousness of these social inequities. Valerie spoke about lack of food in the household indicated that a lack of well-being of children due to poverty, which could lead to the children being apprehended by CFS [Child and Family Services].

When I worked with CFS, I did some of these calls where you take a look at the well-being of a child. I've had the opportunity to go and assess these homes, to look and open the cupboards and see that they are absolutely empty. How long did these children sit before the call came in? When was the last time they ate? When you go into a home and see empty cupboards, and I mean empty, there wasn't a loaf of bread, or box of cereal. They were empty. And the parents just received welfare maybe two or three days ago. So definitely poverty; and I feel and hurt for our children in this community.

Robert reported seeing children stealing food due to hunger.

There is great hunger. I've seen children going around stealing on account of they are hungry. And they go and they'll sell stuff [to get food].

Rene expressed his concern about the ability for children to learn when they are going to school hungry.

Without food to eat learning is [and will continue to be] really hard for the students; you can't go to school on an empty stomach and expect children to do well.

Canadian rates of childhood poverty for on-reserve children are the highest of all demographics in the country; there has been an increase from 51.0% to 60.0% in 2010, which is almost double the rates of new immigrants (32.0%) and non-Indigenous children (30.0%) and almost triple that of visible minority children (22.0%) (Macdonald & Wilson, 2016). To reduce poverty, income is required (Kendall, 2001), however employment in Indigenous communities can be scarce (Statistics Canada, 2008); and in some cases, only 10% of community members are able to secure employment (Wilson & Macdonald, 2010).

Community members described detailed accounts of situations they witnessed in the community that have complex ties to food insecurity. Fran described how peoples' self-determination or independence was undermined by the shift from a sustenance culture to market economics in an area of regional poverty.

I know at one time in our history, and in our culture, we lived independently and everything was free. People shared what they had. This is what we had. We don't have that anymore. Everything is dollars these days especially in the northern communities where everything was shared, now everything has to be paid for.

Historically people participated in social economies that fundamentally relied on sharing. The loss of collective community practices coupled with food and resource scarcity, has created an individualistic mind-set for many people in the community. When animals were abundant and easily accessible people did not have food as an expense. However, when the environment was altered people were required to travel further and further away to find food; this required planes,

skidoos and motorboats that most people did not have. Without these resources people came to rely on the colonial economic system that demanded a new currency (money) to survive. This new way of living disrupted the cohesiveness of the community. Community members described how not only was there extreme poverty after the flood, but the community was divided and many people abandoned their traditional ways of camaraderie. Rene explained how people going on the land and acquiring enough food to feed the community brought a sense of pride and honour to the hunters; but now the barriers of the flood and high costs to go out on the land limit this.

The economy impacts the whole community, there's really no economy [anymore] so they mainly live off government subsidies. It's not working because it's not meeting the community's needs. There's a lack of resources to maintain the lifestyle that brought pride to the community and to the individual people themselves. Now there is a disconnect, a loss of self and that sense of pride. There was a time [when] people went out on to the land, they all went out together to try to offset the costs of going on the land. Now it's probably cheaper to go individually versus going as a community or as a social group. That has really devastated community bonds.

Tommy described a lifestyle that involved living on the land the majority of the year and returning only in-between harvesting seasons and holidays. People worked as part of a lifestyle but now with high rates of unemployment and poverty people are not willing to do any work unless there is compensation involved.

Before the flood, you wouldn't see anyone in the community they were all out camping, working, fishing, trapping. You'd come here [back to the community], on holidays to

celebrate Christmas and New Year's. In the spring, they are all out trapping. First of June fishing until October. November, December and January they're trapping, and a January 1st start fishing again until April 15. It's like night and day [after the flood], people helped one another before that. And then when compensation kicked in, everybody wants compensation. It changed how we did things. Even your own kids and your grandchildren. You can't get anybody to bring a stick of wood without giving them five bucks. It's the new system, [hydro development] destroyed us.

Valarie acknowledged that people without family supports in the community had additional disadvantages and few other places to go for help. She also stressed the importance of hunters in the community to address food insecurity.

Aside from the northern store there's nothing else besides relying on family. And sometimes there are families that are not there for their own families you know? We're very lucky to have a lot of men that still do hunt. We are rich in that area. We will always have wild meat and it's healthier than buying the food off the stores.

Rene identified having supportive family and community cohesiveness as important indicators that contribute to well-being in his community.

A single person has a really hard time surviving in this community. They turn to alcohol, violence and theft, just to be able to survive. I know for a fact that there are community members that go from house to house just to be able to survive; meanwhile the person's house that they're going to are in the same situation. So, imagine the stress, anger and the violence that comes with that pressure of trying to survive. It's really stressful, and

everybody, not just for the individual but to the whole community; because when this person is going through these experiences, there's generally more than one person that's involved.

Prior to European colonization, Indigenous communities had their own governance structures, laws and economies (Palmater, 2011). The literature refer to the pre-contact economy as 'Aboriginal economy' (Jamieson, 1993) 'traditional economy' (Altman, 1987) and 'social economy' (Kuokkanen, 2011), all of which describes an 'Indigenous economy' that managed the transfer of goods and services. This concept of a non-monetary exchange utilizes goods and services for trade and emphasizes resource use and stewardship from local sources (Amin, 2013). Lester Lafond, 1993 notes:

The economy of Aboriginal peoples has appropriately been described as "traditional"; that is, the economy was based upon the land and its capacity to provide a continuous supply of natural, renewable resources. The variety and abundance of the resource provided a degree of self-sufficiency, so that people were able to provide for their basic needs such as food, clothing, shelter, warmth, and safety. (p.61)

This Indigenous economy brings meaning to Indigenous peoples (Brascoupe, 1993) because it connects the values and beliefs of the land and culture as a foundation for trade whereas the mechanism for capitalism is distant and abstract. Economic development rooted in social economies would align better with Indigenous values that emphasizes people over material goods and culture (Settee, 2011).

This economic approach emphasizes ‘survival’ and collective community benefit as the main motivation for economic prosperity, rather than profit (Kuokkanen, 2011). This way of life connects people not only to the land, but also to each other by personalizing the importance of each person’s contribution to maintaining the survival of the family and community (Berger, 1985). Laying the foundation for a successful Indigenous economy is based on two principals - sustainability and reciprocity (Kuokkanen, 2011); the stability of this economy is therefore dependent on nurturing the relationship between man, the physical environment and natural resources.

8.6 Addressing Food Infrastructure and Solutions

Each participant provided potential solutions to address food disparities in the community in no particular order. Some responses were common; however, some approaches to solutions varied by the participant’s gender. Male participants were more focused on wanting to reclaim and preserve traditional practices and to address root causes of economic disparities by way of land-based interventions; whereas the women offered solutions to address the political system and increase access to nutritional, affordable food locally. These differences reflect traditional roles of men and women previously discussed. All participants offered solutions that addressed child health. The youth participant focused on the occupation of people with an emphasis on recreational opportunities. Participants that were employed in the health and social services sector suggested policy changes that would benefit people at the population level of the community; whereas those who were unemployed tend to focus at the individual and nuclear family level.

The community currently had some food programing to address disparities, however, many community members had concerns and critiques of those operations A common program

that came up was the country-foods program called Ithinto-Mechisowin, which has shown to have positive impacts for some community members, however not everyone benefits. The community has attempted to address food related disparities but gaps in programming exist that need to be addressed. Participants offered solutions to address their priorities.

Employment Disparities – Participants acknowledged how hard living without a working income was for young families and that more options for employment were needed. Local jobs were wanted so men didn't have to leave home to find work. These local jobs should create self-sufficient community food resources and remediate and restore the land.

Increase Income Assistance- Given the main source of income in the community is welfare, recommendations were made to improve the income-assistance system. This suggestion was strong particularly in the context of single mothers with young children. Participants advised that an increase in the allowance for people on income assistance is needed.

Food vouchers were necessary and essential to support families but the process for administering the food vouchers in the community needed to be re-evaluated as some families, particularly those struggling with substance addictions, exchanged the vouchers at a reduced asking price to obtain cash for drugs, alcohol and cigarettes.

Capacity Building- Participants observed that some community members lacked the skills and knowledge to feed their families on a poverty income. Participants felt that if the community had shopping and cooking education they could learn how to stretch their budget and make better health choices in the process. If people learned how to stretch their money and make food from scratch or how to bulk up meals to feed more people (e.g., community kitchen classes where people cook together and take the food home with them) the problem of hunger may be reduced.

Participants also suggested that Elders be funded to take youth out onto the land and teach them how to hunt, fish, trap and survive in the bush. Participants were concerned that these teachings and experiences are not being widely passed down to successional generations. Elders have the teachings and want to help the youth, but economic, political and social barriers to do that are only getting worse. Providing funding to these skilled teachers is foundational for building and maintaining the capacity of the community to traditionally harvest food from the land and was a priority recommendation. Having these programs available will increase the amount of traditional food available in the community and reduce the degree of food insecurity if that food is shared.

Other participants also described the importance of having skilled Elders to guide the young people to live on the land. Often community members have to travel for hours and sometimes days into the bush. With no cell service, risks to safety occur. Having experienced and knowledgeable teachers to support the youth is essential.

Increased Recreation Opportunities- Substance abuse is a major expense that competes with the funding for food for adults, youth and their children. As a means to combat the high rates of substance abuse issues in the community participants suggested that alternative activities to drinking and doing drugs were needed in the community. Healthy activities, such as a swimming pool, mini-movie theatre, on the land activities and more team sports for all ages, would provide alternatives to destructive behavior. If a variety of healthy recreation options were available and warning at a young age of grade 3 and 4 about gangs and drugs, substance abuse would be reduced.

Increased Non-Indigenous Ally Support – As mentioned previously more public awareness, support and advocacy is needed to force government interventions to reduce the cost of their food and fund on the land programs.

Public Transportation- All participants noted the lack of transport to urban centres and suggested that public transit system be implemented in the community. This would allow Elders and others to go to near-by urban centres to access less expensive grocery shopping options. A community bus or a van with regular return trips from OPCN to Thompson as a free service was recommended.

Communal Buying- Given that so many people live day to day, saving money to buy in bulk is difficult. Suggestions were made for the Band or Welfare office to organize the community to get together and pool resources make bulk purchases, particularly for meat, and provide community kitchens to supply bulk food.

Expand and Increase Food Programs Locally- Ithinto-Mechisowin is a country-foods program, sponsored by the Band, that delivers traditional food (usually enough for one meal) to a person who meets the criteria once a week. Although the program intentions are good, participants felt that the coordinators need to do a better job in ensure reliable service.

Participants described how there is often intermitted access due to a lack of reliable workers to run the program. As a weekly service, the portions were minimal signaling this was a modest subsidy. Additionally, the eligibility criteria for the program was criticized for being very narrow, only servicing Elders with diabetes, and that there was a need for expansion to others in the community.

Although there may be opportunities to expand the program to further benefit the community through proposal-based government and research funding, it was acknowledged that proposal

writing and administrative skills are considered a strength of the community. Therefore although there are opportunities, the barriers may be too great to take advantage of them when they arise.

Local Food Bank – Participants noted that often children are removed from homes and placed in child protection due to the lack of food in a home. Having an emergency food resource could offer the community an alternative to removing children from families. One participant suggested that the Ithinto-Mechisowin program expand and perform this service as an added function instead of having to create a whole separate program. Recommendations were also made to take proceeds from community enterprises, such as a community owned store, and re-invest that money back into the community to help those in the worst need.

Community Owned Store- Participants unanimously recommended that the community work towards creating a locally owned and operated store. Having only one store in the community, controlled by outsiders, created an unhealthy monopoly; and the lack of competition enabled exploitation of the community through exorbitant prices and sub-standard quality. Having a locally-controlled store could make space to offer wild foods and be a place to teach the community about health, food choices and cooking. The proceeds could be reinvested into community food programs.

Improving food security requires that priorities be placed on recognizing that food-focused community economic development is a mandatory prerequisite for improving food sovereignty (Thompson et al., 2011). Investing in agricultural programs will improve access to traditional foods and will result in enhancing access and local supply in Indigenous communities (Elliott et al., 2012; Thompson et al., 2012). Ensuring local production of foods will offer better access to affordable, safe, culturally significant, healthy food that fosters local autonomy over food supply, and safeguards sustainability (Barbeau, Oelbermann, Karagatzides, & Tsuji, 2015).

A primary reason for poor policy integration of food security programs is due to the perceptions of the food security status from non-Indigenous perspectives (Power, 2008), which disregards the significance of hunting, gathering and fishing and other subsistence economies. Therefore, industrial development and government regulation produce barriers that neglects the priorities and needs of these communities, which is responsible for negative environmental and health impacts (Thompson et al., 2011). Supporting traditional health practices and Indigenous health promotion requires a move towards reclaiming traditional health practices and Indigenous knowledge (Hunter, Logan, Goulet & Barton, 2006).

8.7 Chapter Summary

Reclaiming a traditional diet includes preserving and promoting traditional behaviors and health practices that sustained healthy populations, prior to colonization, based on Indigenous knowledge systems. Land and food are regarded as sacred and provide a source of health and healing for Indigenous people. A traditional diet is in harmony with Indigenous values and culture, having the restorative power to heal the root cause of health disparities and food insecurity. Inequitable access to traditional foods and the overabundance of processed food in First Nation communities, particularly when a monopoly or geographical barriers exist that make options for healthier choices impossible. This public health threat is contributing to the high mortality and morbidity rates prevalent in First Nations populations demanding policy, programming and interventions.

To attain food sovereignty and improve food security, Indigenous communities must acquire more access to community-led food programs and to traditional foods (Socha et al., 2011; Thompson et al., 2012). Community directed traditional food programs have a positive effect on livelihood assets (human financial, social, natural and physical) and enhance the food

sovereignty of Indigenous communities (Thompson et al., 2012). Targeted, traditional food programs offer sustainable opportunities for enhancing the food security of communities by promoting the sharing of resources and decreasing dependence on the retail market system. However, in order for these programs to address community-wide disparities, access needs to be equitable; therefore, the programs need to support everyone who is experiencing disparities.

CHAPTER NINE: CONCLUSION

9.1 Introduction

Community infrastructure, food, water, housing and transportation are fundamental requirements for healthy living and were lacking in OPCN. While the Canadian government has advanced the rest of the countries' built environment constructing a strong, successful developed nation that ranks in the top four on the planet (End Poverty in Canada, n.d.), First Nations are undeniably neglected with a built environment comparable to some of the most under-developed countries in the world (Anderson et al., 2016).

In fact, First Nation communities have not been merely neglected on the public health front but been sacrificed for settler development. In the case of OPCN they were targeted for the pursuit of hydro development with inadequate compensation provided (Thompson, 2015). OPCN community members' experience of racial discrimination was painful and in the spirit of reconciliation, participants would like public awareness about the harm their community suffered in order to provide the province with 40% of their hydro-generation. The solutions that were offered by community members would require significant investment from all levels of government and increased support from non-Indigenous allies.

A growing body of research echoes what Indigenous peoples have recognized for generations; health and well-being are inter-connected and inter-dependent states directly

impacted by social, economic, cultural and environmental dynamics (Reading, 2018; Stout, 2018). Health is not autonomously determined by physiological factors alone, but rather is an outcome of the interaction between individuals, society and environment (built, natural and social).

The built environment of communities creates lifestyles that have the potential to greatly influence health (Jackson, 2003), thus making the health disparities between First Nation communities and non-First Nation communities in Canada completely preventable. The Healthy Built Environment Framework highlights the core areas that are integral for health; however, when applied to Indigenous communities the social context also must be considered in the framework, specifically issues related to colonization.

Indigenizing the healthy built environment framework to create the Indigenous Healthy Built and Social Environment framework was necessary to reflect the values, culture and built environment situation of Indigenous peoples, which are distinct from non-Indigenous peoples. The core aspects are similar to the Healthy Built Environment framework (Provincial Health Services Authority, 2014) but defined more broadly as: Mother Earth/ Natural Environment, Community Design & Infrastructure, Housing & Shelter, Food & Medicine Systems, and Transportation & Mobility. By using the term Mother Earth this new Indigenized model acknowledges that the natural environment reflects the importance of the spirit of living things. Food is often referred to as 'medicine' by many Indigenous people therefore Medicine was added to the food systems pillar to highlight the importance of food as a source of healing and not just subsistence and nutrition. Infrastructure was added to the community design pillar to place importance on the lack of implementation and action that commonly persists in First Nation communities, specifically around core infrastructure related to safe and accessible

drinking water and lack of sanitation plaguing many Canadian communities. Applying this framework to OPCN made clear how unhealthy the OPCN built environment was but that the unhealthy built environment is merely a symptom of a bigger inequity.

9.2 Natural Environment/ Mother Nature

The underlying conflict between Indigenous people and Canadian settlers is rooted in the lack of access to and control over resources and governance in their traditional territory. This lack of power over resources and government effectively undermines Indigenous peoples' ability to create a healthy built environment. Prior to colonization, Indigenous people had full access to the environment, now they occupy less than one percent of the land and the settlers control 99.8% of Canada. To reconcile past and on-going wrongs, First Nations want adequate compensation to advance their quality of life and standard of living to meet the expectations of a developed country, such as indoor plumbing, safe water, healthy food, adequate housing and transportation. Additionally, Indigenous people want the authority to veto environmental decisions that negatively impact their present and or future generations. OPCN clearly said no to hydro development and yet government flooded their community and displaced them without compensation. This environmental injustice, clearly, should never have happened.

Historically Indigenous people have been the stewards of the land and under their authority, the natural environment of Canada was balanced and sustainable between Mother Nature and Indigenous peoples. The pursuit of development by the settlers have forever changed the land and waters and the outcomes have been devastating to Indigenous peoples' livelihoods and to the natural environment itself (Thompson, 2015). Participants have prioritized reclaiming land-based knowledge as a key element to reconcile the wrongs that have been caused by colonial forces and for tools and resources to be provided that eases the financial burden of

accessing the land. Policies and economic expenses that impede First Nations' access to land-based resources interrupts the traditional knowledge transfer to the youth. This knowledge transfer is at risk if educational funding for land-based education is not considered part of core educational funding. Economic security of the community was obliterated by flooding the land and reversing the river flow and participants recommend that until the land recovers from the damage to again provide for the community, compensation, that is comparable to what their losses have been, needs to be made.

9.3 Community Design and Infrastructure

First Nations public services are far below those in non-First Nation communities in Canada (Anderson et al., 2016). Water quality is an indication of health status of a population and in 2015, over 20% of First Nation communities in Canada (excluding British Columbia) were under a boil water advisory (Health Canada, 2015). The federal government has a fiduciary responsibility to care for First Nations people and under their management, many households in First Nation communities are suffering without running water nor piped sewage or community services, such as laundry mats. Community members want indoor plumbing with adequate supply and quality of water for all homes in the community with a special consideration for how that will be achieved according to the number of people living in homes.

The lack of action from government agencies to support adequate water infrastructure in OPCN is so different than what occurs in non-Indigenous communities. This disparity between First Nation and non-First Nation communities implicates racism as a major factor in the Indigenous built environment. Participants would like to see more awareness given to non-Indigenous people about their current and historical situation in hopes that more allies would be gained to help them advocate for better conditions and compensation.

The housing disparities in First Nation communities compared to non-First Nation are undeniably apparent. Overcrowding of homes was identified as a critical issue in OPCN and other First Nations in Canada. Some homes are housing multiple families, and this study identified that as many as 22 people are struggling to share one home with no running water.

9.4 Housing/ Shelter

The health and social consequences of overcrowding can lead to an increase in the spread of communicable illnesses (Clark, Riben & Nowgesic, 2002; Centre for Disease Control and Prevention, 1999). Conditions such as influenza, tuberculosis, shigella and scabies were noted by participants in this study to be of significant concern. Chronic illnesses can also arise as a result of prolonged exposure to inadequate housing that exposes people to moisture causing long-respiratory illness which is particularly complicated when children are exposed.

Public Health knowledge and policy implementation has advanced significantly over the past hundred years and is responsible to the reduction and prevention of many illnesses that impact skin, digestive systems and respiratory disease (Centre for Disease Control and Prevention, 1999). However, First Nation communities continue to be outliers in improving the built environment to prevent disease (Clark, Riben & Nowgesic, 2002). Addressing housing disparities requires a collaborative effort between Indigenous leaders, all levels of government and other stakeholders who can effect change. This includes partnerships to offer training of local trades for new builds and repairs to existing homes.

Adequate, safe housing is a priority for families but also single people and widows, particularly elders for OPCN. One bedroom apartments were suggested as a way to ensure that individuals are not out-casts and are eligible to acquire housing. Temporary safe housing for

people experiencing violence is also a need for the community requiring supports for a single parent with many children.

9.5 Food/ Medicine Systems

The built environment impacts dietary behaviors of people in a significant way (Huang, Moudon, Cook & Drewnowski, 2015). In Indigenous communities, the food choices that people have access to are often unhealthy impacted by policies, economics, culture and the availability of Traditional Ecological Knowledge and practices. Land-based living provided economic security for OPCN prior to the flooding of their community but after the community struggled to access intact land that necessitated a switch to a colonial diet of processed retail foods.

The cost of food was identified as the greatest monthly expense for most families who are living on poverty level incomes. Food was free in OPCN when community members lived off the land. When the flood destroyed their commercial fishery, the community not only lost their income but had to pay for food at exorbitant prices at the northern store or travel a full day return trip to Thompson for cheaper, better-quality food. However, travel to Thompson required personal transportation or a \$400 charter to access. Participants in this study described how the high cost of food, especially nutritious food, in the community was unreachable for many people who were living on poverty-level incomes. Community members suggested that public transportation be offered by the band to take people to Thompson to buy groceries, particularly for Elders. However, having a community-operated food store that reinvested profits back to the community would be more sustainable and benefit the community more.

The most sustainable recommendation to address food security and food sovereignty from this study was to return to land-based living. This would require investment into land-based education programs to support the Elders in the community to teach others how to live

sustainably following their TEK and practices. Since the flood, access the land is not as easy as it once was with longer distances and more equipment required to travel across the landscape such as motorized boats, skidoos and planes. Although challenges were identified the health, economic and social benefits that are associated with Indigenous land-based living validate the investment and make it critically important to the *pimatisiwin* of OPCN.

9.6 Chapter Summary

Addressing participant recommendations, in a meaningful way, has the potential to reconcile the unhealthy colonial built environment that resulted in inequitable health, economic and social outcomes for Indigenous peoples. Failing to address the disparities between Indigenous and non-Indigenous people will only increase the gaps and increase the long-term financial costs to health. Applying an Indigenous Healthy Built and Social Environment Framework to community development identifies priorities for Indigenous communities to support health. Canada has an opportunity to put reconciliation into action, and write a new history that not only supports *pimatisiwin* of Indigenous people but positions communities to thrive independently, self-determined in a decolonized society that honors and respects the beautiful, traditional ways of knowing and being that can sustain the natural and built environment for Indigenous people and the settlers who now share this land.

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APPENDIX A: INTERVIEW CONSENT CONSENT FORM

Research Project Title: Sharing the feast of Ithinto Mechisowin (Food from the Land) and Grow North: food-based community development at O-Pipon-Na-Piwin Cree Nation and Northern Manitoba communities

Principal Investigator and contact information: Dr. Shirley Thompson s.thompson@umanitoba.ca

Sponsor: Social Science and Humanities Research Council (SSHRC)

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

PURPOSE: The purpose of this research study is to look at food opportunities for community development and the community needs. The information gathered from these videos may be used as educational material. Upon your consent, we hope to use your name to accompany the presentation if we use a substantive portion of your video with audio.

STUDY PROCEDURES: If you choose to participate in this study, you will be asked to answer some questions related to food access or traditional foods and/or food-based community development. The interview will be participant led – but the theme will be discussed beforehand. Your story and answer to questions will be videotaped. Sections of your story or answer to questions may be spliced with other images to create a video about healthy food and traditional methods of food collection. Images with your voice over may be used, such as a picture of plants that you are discussing and cooking demonstrations. The anticipated time required for your videotape session will be approximately one hour. A graduate student or researcher will be the technician using the video. This student has signed a confidentiality agreement to not discuss the information gathered during the interview.

RISKS: If you consent to have either your audio and/or visual data, you will be identifiable in the video and so should only discuss information that you wish to make public.

BENEFITS: You will be helping create an educational video about food-based community development and traditional methods of food collection that will benefit the communities in Northern Manitoba. The educational material will benefit the communities involved by being returned in DVD format to them and to their schools, screened in their communities and being available to them on You-tube. The video dissemination and education process will be similar to what was done for “Harvesting Hope in Northern Manitoba”.

CONFIDENTIALITY: Information gathered by this educational video interview are not considered confidential. Copies of the video will be provided to communities and potentially shown on You-tube. The unpublished sessions edited out will be stored on Dr. Thompson’s computer and back-up drive and provided to the community as an archive at the end of the process.

FEEDBACK: You will have the opportunity to review the video before it is released. This opportunity will typically be by a You-Tube non-public link that is not searchable by the public and/or by showing of the draft video in the community.

