Local Food Sustainability Planning in Moose Cree First Nation, Northern Ontario, Canada.

Celeste Ferreira

Supervisor: Dr. Michael Robidoux
Committee: Dr. Courtney Mason & Dr. François Haman

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School of Human Kinetics
Faculty of Health Sciences
University of Ottawa

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I began work with the IHRG in 2018 and life has not been the same since. I have been surrounded by kindness, enriched experiences, connections, support, laughter, and teachings. Throughout my undergraduate degree, I struggled to find academic passion until I decided to take a sociology of sport class taught by my supervisor, and I was able to gain a deeper understanding of the layers that health, sport, and physical activity carry, but most of all I was introduced to research with Indigenous communities. Michael took a chance on me after I finished his course and offered me the opportunity to get involved in research with IHRG. This involvement led to the opportunities to work with and learn from northern First Nations communities as they seek to rebuild local food systems. My fieldwork in the Moose Cree First Nation allowed me to participate in the creation of community gardens which gave me a whole new appreciation for working the land, and the effort involved in harvesting. I learnt perseverance, how to conduct research in a good way, to laugh more, the importance of functional tools, and the power of teamwork. On that same trip I was introduced to IHRG team member and University of Alberta Associate Professor Dr. Janice Cindy Gaudet, who is an absolute force. She taught me how to be a good visitor, humbleness, the power of reciprocity, and how to take up space as a female researcher. From this whole process, one of the most important lessons I learned is the famous saying that 'the more you know, the more you don't know', is in fact true. I realized I still have so much to learn in, and I look forward to the journey ahead.

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Student's Contribution to Research

My role in research for this thesis consisted of developing research ideas, conceptualizing the respective chapters (articles), and collaborating with members of the Indigenous Health Research Group (IHRG) to fully develop research project plans, the research approach and fieldwork. I conducted research, either independently or through collaboration with my supervisor and the IHRG. For the published article, my contribution to the research is the following: development of community relationships; collaboration in research design for fieldwork; lead in the creation and writing of the article. Fieldwork involved working with community and research team members to create two community gardens, assist with the Farmers' Market while in community, and participate/visit in community activities. The data for article two was collected analyzed by me, and then verified with the Local Food Developer (Anthony) to ensure all information accurately reflected the interview discussions. The first draft of the chapter was written by me as a sole researcher, then I relied on feedback exchanges between my supervisor and I to improve the flow of the document.

Table of Contents

PART ONE

Introduction

Food insecurity, an important determinant of health, is a growing issue in Canada (Collins et al., 2014, 2016; Kirkpatrick & Tarasuk, 2008; Tarasuk, 2001). In many Indigenous communities food insecurity rates are amongst the highest in Canada (Huet et al., 2012; Power, 2008; C. Richmond et al., 2020; Skinner et al., 2013; Teh et al., 2017; Timler et al., 2019). In Canada's arctic and subarctic regions food insecurity is especially high (Fieldhouse & Thompson, 2012; Huet et al., 2012; Skinner et al., 2013). At the 1996 World Food Summit food security was described as "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (World Health Organization, 1996). Food insecurity can negatively impact the risk of dietary diseases (Batal et al., 2005; Tarasuk et al., 2016; Willows, 2005). Food (in)security is a complex issue as there are many factors contributing to limited food access and food consumption patterns (Power, 2008). For Indigenous peoples in Canada, additional historical, cultural and political complexities exist as a result of European colonization and the forced dislocation from lands and local food (Berkes & Farkas, 1978; Krech III, 1984; Liebow & Trudeau, 1962; Skinner et al., 2013; Taylor, 1972). These changes have led to what has been referred to as a nutrition transition where Indigenous peoples were increasingly forced to rely on market foods instead of locally procured traditional foods. This transition meant moving away from land-based foods which carry important health and cultural properties and consuming lower quality market foods that are highly processed and energy dense (Samson & Pretty, 2006; Skinner et al., 2013; Sumner et al., 2019; Timler et al., 2019). Harvesting of traditional foods and consumption of store-bought market foods are the two main ways of accessing food (Stroink & Nelson, 2012). Although traditional food is still present in Indigenous diets in northern

communities in Canada, there is a strong reliance on store bought foods (Wein, 1995; Batal, et al, 2005).

Many communities are left struggling to address the ongoing food security crisis and there is increased attention on building local food capacity and sustainability. This thesis project builds on the University of Ottawa's Indigenous Health Research Group's (IHRG) efforts to work with remote Indigenous communities in northern Ontario, Canada and document local food initiatives to better understand the impacts these initiatives have on the communities in gaining better control over local food systems. This thesis applies a participatory action research approach and its purpose is to provide: 1) ethnographic description of the creation of local food initiatives in the Moose Cree First Nation (MCFN) of Moose Factory; and 2) online monitoring of the resilience of these local food initiatives during the COVID-19 pandemic, and analyzing the purpose(s) of local food initiatives. Fieldwork for this thesis was conducted in 2019 and a Zoom interview with the Moose Cree Local Food Developer was conducted in 2022. All research activities were approved by the University of Ottawa Research Ethics Board.

This thesis introduction will begin with a description of the community that was a part of this research project. It will be followed by a review of literature that explains concepts and events that are needed to understand northern food systems and local food initiatives that many Indigenous communities have in place. I will then explain the theoretical framework/lens and the methodologies that informed this research, and the methods that were used.

Community Profile

Moose Cree First Nation is the home of the Mushkegowuk people (Gaudet, 2016). Located on the island of Moose Factory, it is one of seven communities who are a part of the Mushkegowuk Council who have created a regional entity and have functioned as a co-operative political organization since 1984 (Dylan et al., 2013). Other than English, there are three different dialects of Cree spoken, Moose Cree, Swampy Cree, and Eastern Cree (Gaudet, 2016). Moose Factory is the second oldest Hudson's Bay Company (HBC) (Parks Canada, 2017). Moose Factory's name developed from the combination of the arrival of the HBC in 1673 and its location on the Moose River (Maberley et al., 2002). Moose Cree First Nation is located at the base of James Bay between 51.264 latitude and -80.597 longitude (Indigenous and Northern Affairs Canada, 2013, Louttit 2006). MCFN is in an ecological transition area, which means that it is located between the dense boreal forest of the south and the northern tundra. Wetlands cover approximately 75% of the area around Moose Factory. Moosonee is the nearest community to Moose Factory (Kuefler, 2010). In the warmer months, the community is accessible by boat taxis; when the water is frozen, it is accessible by winter road. Food can be purchased at the Northern Store, private grocery stores, and the local Farmers' Market.

Literature Review

The literature review provided here focuses on Indigenous peoples in northern and remote communities in Canada's arctic and subarctic regions as it is most relevant to the fieldwork completed. The literature review begins with historical context that highlights the impacts of colonialism on Indigenous food systems. Next, I provide an explanation of the nutrition transition that Indigenous peoples were forced to undergo. I will then discuss the concepts of food security and food sovereignty. Lastly, I will describe different food initiatives in northern Indigenous communities and their impacts.

Historical Context/ Colonialism

This subsection will explain the impacts of settler colonialism on Indigenous people's lifestyle and food systems in Canada, specifically the fur trade, the treaties, the Indian Act, residential schools, wage work, and forced settlement. Indigenous peoples in Canada were forced to undergo many changes as a result of European contact (Johnson & Miyanishi, 2012; Krech III, 1984; Rogers, 1963; Rogers & Black, 1976). Prior to European contact, northern Indigenous peoples lived semi-nomadic lifestyles relying on what the land and water provided for sustenance (Berkes & Farkas, 1978; Rogers, 1963). For inland populations, it involved following large mammal food sources (moose and caribou) throughout much of the year, but in the summer months settling near waterways relying primarily on fish (Liebow & Trudeau, 1962; Rogers, 1963). From the point of contact Indigenous peoples underwent gradual stages of lifestyle change precipitated by the exploitation of critical land based food and material resources, which led to an increased reliance on western materials, tools, technologies and food items (Bishop, 1970). Contact with Europeans also brought exposure to disease decimating much of the Indigenous populations throughout North America (Johnson & Miyanishi, 2012). These

stages of contact must be understood within the context of colonialism. This process involved the forced occupation of people through trading, settlement, and genocide which resulted in the control over other peoples' lands and goods (Berkes et al., 1995; Dunning, 1959; Starblanket, 2019).

The arrival of European fur traders in the 1600s introduced goods like copper, iron, guns in exchange for furs, (Johnson & Miyanishi, 2012), and increased availability of new food supplies (Taylor, 1972). As the fur trade increased, more diverse goods flowed into the country (Rogers, 1963). Indigenous peoples and their knowledge of the land, hunting, and trapping were central to the trade (Carlos & Lewis, 1999). Rogers (1963) explained that traders often pressured Indigenous peoples to spend much of their time trapping for fur bearing animals in the winter because that is when the furs are in their prime, which in turn led to overexploitation of resources. As the fur trade became more widespread Indigenous peoples became more settled around the trading posts, as they became more dependent on western goods (Johnson & Miyanishi, 2012; Rogers & Black, 1976). As early as the 1700s many Indigenous communities switched to mixed economies made up of sustenance hunting and fur trading (Berkes & Farkas, 1978). For some northern communities, the fur trade meant using the boreal forest as a natural resource and a commercial enterprise of furs (Johnson & Miyanishi, 2012). Dependency on traded goods increased, for example, the introduction of outboard motors. This made waterway travel more efficient, enabling people to travel quicker and transport heavier loads (Rogers, 1963). To acquire these new western technologies and supplies, Indigenous hunters were forced to participate in the emerging trade and wage-based economy. This ultimately led to the transition from semi-nomadic subsistence lifestyles to more permanent settlement existence located near trading posts (Rogers, 1963), where they increasingly relied on store bought goods and food supplies (Bishop, 1970).

Colonial government policies were also instrumental in the imposed lifestyles transitions Indigenous peoples faced, most notably the creation of the Indian Act in 1876, residential schools, wage work, and forced settlement (Burrage et al., 2021; Haig-Brown, 2002; Rogers, 1963; Starblanket, 2019). The Indian Act was an instrumental step of colonization which sought to assimilate Indigenous peoples into mainstream Canadian society (Milloy, 2008; Poucette, 2018). The Indian Act is Canadian federal law that controls what is considered Indian status, bands, and lands. The purpose of the Act was to enable the government to control and determine the land of Indigenous peoples, and regulate and have power over Indigenous lives and communities (Collis, 2021; Milloy, 2008). It also led to the erasure of Indigenous governance systems, and the assimilation First Nations, Metis, and Inuit to Western norms (Milloy, 2008). The deleterious impacts of the Act were swiftly felt as it criminalized cultural and spiritual practices, physically restricted Indigenous space and enforced Crown control over First Nations' governance, finances and infrastructure development (Collis, 2021). The introduction of treaties represented forced settlement, minimizing the rights of Indigenous people, and disregarding Indigenous claims to land (Starblanket, 2019). In northern Ontario specifically, First Nations were experiencing dire resource limitations, and community leaders aversely signed Treaty 9 in 1905 in hopes of protecting their communities, and increasing health care, education, access to food and safety (Gaudet, 2018; Long, 2010; Loukes et al., 2021). Originally treaties were meant to form nation-to-nation agreements and relationships between Indigenous peoples and Europeans, but ultimately led to permanent settlement, destroyed Indigenous claims to land and resources, thus allowing colonial expansion and ownership (Starblanket, 2019). These signings were extremely disruptive to many aspects of Indigenous ways of living, such as connection to land, intergenerational loss of knowledge, and kinship systems (Daschuk, 2013).

Another element of assimilation was the introduction of residential schools. These

schools were church led, government funded, and an extension of the Indian Act and colonial ownership (Bombay et al., 2011; Burrage et al., 2021; Haig-Brown, 2002; Mailhot, 2018; Valaskakis et al., 2009). Commencing in 1867 and onwards Indigenous children were forcibly and routinely taken from their homes, and parents were threatened with jail time or criminal charges if they tried to prevent officials from taking them (Truth and Reconciliation Commission of Canada, 2015). The residential school system attempted to culturally assimilate the children, and transform 'savages' into 'civilized' citizens (Burrage et al., 2021). Residential schools used religion as a weapon and pushed the children to believe their old life was a life of sin (Dyson & Rubenstein, 2020). These establishments used cultural attacks (Haig-Brown, 2002) and banned Indigenous languages which interrupted the transmission of intergenerational knowledge exchange (Grey & Patel, 2015). It also impacted relationships with food as traditional foods were devalued and replaced with, often scarce, inferior western foods which altered the children's food habits (Timler et al., 2019). It is important to stress that the survivors of residential schools described how hungry they were, and how they missed their traditional diets (Mosby, 2013). Many children had to steal from the kitchen or from the school gardens to survive (Truth and Reconciliation Commission of Canada, 2015). The food that was served to the children was food they were not used to, unappetizing, or moldy. At times the survivors reported that if they were served traditional food items, it was not prepared or cleaned properly (Truth and Reconciliation Commission of Canada, 2015). This traumatic process of cultural genocide is still being felt today by Indigenous peoples in many ways, as important life skills were no longer being learned, such as parenting, lack of intergenerational knowledge, and language (Bagelman et al., 2016; Truth and Reconciliation Commission of Canada, 2015; Valaskakis et al., 2009)

Another layer of government policies that further impacted Indigenous peoples was the emergence of wage work (sponsored by the federal government) and development of payments

through government welfare (VanStone, 1963). While such programs provided a minimal amount of economic security, it meant less time spent in the bush hunting (Rogers, 1963).The wage economy meant an alternative way to earn a living (Liebow & Trudeau, 1962; Rogers, 1963) and less time devoted to hunting and trapping, which in turn reduced access to wild food resources. This led to an increase in store bought foods as a replacement for traditional foods (Liebow & Trudeau, 1962). Additionally, government programs became increasingly restrictive towards the mobility of Indigenous peoples with the encouragement to build permanent homes and schools – and ensuring the families with school age children stayed in the community for education in the winter months (Rogers, 1963; VanStone, 1963). All these life changes meant a drastic nutrition transition for Indigenous peoples in Canada.

Nutrition Transition

It has been well researched that Indigenous people in Canada have undergone an extreme dietary transition (Kuhnlein et al., 2004; Rudolph & McLachlan, 2013). Nutrition transition, a term coined by Popkin (2003) referred to a change in a population's nutrition status that leads to increased rates of disease (Sumner et al., 2019). This transition is a phenomenon that is present in both industrialized and developing countries (Samson & Pretty, 2006). The nutrition transition is one where the local people were dependent on produce from agricultural, domesticated crops, and animals to increased consumption of processed foods (Samson & Pretty, 2006). A nutrition transition has impacts on agricultural patterns, health, and socio-economic factors (Popkin, 1998). Specifically for many Indigenous communities in Canada this meant a transition from traditional food to processed store bought foods (L. Chan, 2012; Samson & Pretty, 2006; Sumner et al., 2019; Young, 1979). Many external elements contributed to the nutrition transition such as the previously mentioned introduction of wage labour which impacted communities' flexibility to hunt, fish, and trap (Liebow & Trudeau, 1962). For example, Liebow

and Trudeau (1962) explained how the introduction of 98 radar bases in northern Canada after the second World War led to the employment of many First Nations men, which in turn limited their ability to get on the land to provide food for their families. A regular income enabled them to purchase food from the community store, but it meant replacing moose and caribou meat with spam, canned meat balls and other packaged foods (Liebow & Trudeau, 1962). Other factors impacting access to hunting and fishing include, depletion of wild food resources, a decrease in land-based knowledge, loss of taste for traditional foods, and economic barriers as a result of seasonal or precarious employment (Power, 2008). The gradual reliance on western staples such as flour, sugar, lard, and baking powder has led to a steady rise in dietary related disease previously unknown to Indigenous peoples (Berkes & Farkas, 1978). Food choices today continue to be constrained by government policies and marketing strategies that encourage the consumption of highly processed foods and the exclusion of traditional foods (Sumner et al., 2019). Despite this, many Indigenous communities are currently working towards restoring local food systems and building local food capacity to combat the dietary challenges they face as a result of Euro-Canadian colonization (Cidro et al., 2015; Morrison 2011; Shukla 2014).

The Important Relationship Between Food Sovereignty and Food Security

In a Canadian context, food sovereignty can be explained as the aim to reclaim food systems, environmental sustainability, and diversity (Desmarais & Wittman, 2014). At its core, food sovereignty is the right for people to define their own food and agricultural systems, to be self-reliant, and push for safe, healthy, and ecologically sustainable food production (R. Blanchet et al., 2021; Levkoe et al., 2019; Patel, 2012; Weiler et al., 2015; Windfuhr & Jonsén, 2005). The term food sovereignty has been increasingly used since the mid 1990s as an analytic tool and as a means of creating food system change (Grey & Patel, 2015; Windfuhr & Jonsén, 2005). It differs from food security as it goes beyond making healthy food available

and accessible. Instead, it pushes for sustainable food production, increases the revitalization of Indigenous food systems, and generational food knowledge (Grey & Patel, 2015). The relationship between food sovereignty and food security is important to understand for this research project as food accessibility and availability are important community objectives, but gaining greater control over the local food system is also significant. To start, food security incorporates food goals, food access, and pushes for people to have their dietary needs met (Calix de Dios et al., 2014).

That said, excluded from food security is where the food comes from, the producer of the food as well as the conditions in which the food was cultivated. This highlights the importance of incorporating food sovereignty as it advocates for an approach to achieving food security that considers other factors such as sustainability and gaining control over local food systems (Calix de Dios et al., 2014).

The introduction of food sovereignty in Canada stemmed from the work of the National Farmers' Union (NFU) and the Union Paysanne, and the two Canadian members of La Via Campensina (Desmarais & Wittman, 2014; Millner, 2017). The NFU is different from other Canadian farm organizations as it is the only national, voluntary farm organization in Canada that has been created by an act of Parliament. As the NFU is a founding member of La Via Campensina, they were a part of the debates in the early 1990s regarding the emergence of food sovereignty (Desmarais & Wittman, 2014). It was not until the 2007 Nyéléni International Forum for Food Sovereignty, where a wide range of different organizations got together, that the food sovereignty movement began (Desmarais & Wittman, 2014). This led to the pan-Canadian People's Food Policy Project's (PFPP) development of a food sovereignty policy for Canada.

Although there were Indigenous peoples involved in the participation of the PFPP, there

was a clear need to develop and deepen their own Indigenous food sovereignty frameworks (Desmarais & Wittman, 2014). Specifically, Indigenous food sovereignty activists highlighted the importance of decolonization, self-determination, and the incorporation of traditional means of procurement (Desmarais & Wittman, 2014). La Via Campensina defined food sovereignty as the rights of local people to organize and shape their own agricultural and food policies to sustain local needs, have stable access to land, water, and seed (Desmarais & Wittman, 2014; Larder, 2016; Wittman, 2011), as well as the rights to healthy and culturally appropriate foods created through ecological and sustainable methods (Kepkiewicz & Dale, 2019). It is important to mention that Indigenous food sovereignty builds on notions of land as relational based in four principles: sacredness, action-based participation, self-determination, and policy (Morrison, 2011). Sacredness is a responsibility to maintain good relations with the land, water and all beings (Kepkiewicz & Dale, 2019). Action-based participation is involvement with Indigenous food systems (Kepkiewicz & Dale, 2019). Self-determination is the right to define health, and what a culturally appropriate food system looks like (Kepkiewicz & Dale, 2019). Lastly, policy refers to the need for Indigenous communities to shape their own food-related policies (Kepkiewicz & Dale, 2019). As mentioned, food sovereignty can mean control over one's food system, and local food initiatives are one of the many ways Indigenous communities are seeking to achieve this (Windfuhr & Jonsén, 2005).

Food Initiatives in Indigenous Communities

In previous years there has been an abundance of research on local food initiatives in Indigenous communities (Dillabough, 2016; Thompson et al., 2018). In many Indigenous communities, local food initiatives can be a starting point to implement place-based food systems that would increase food security and food sovereignty (Sumner et al., 2019). Local food initiatives can be described as food related activities and plans that support the creation of on-

going local food system development (Egbers, 2009, Telford, 2008). Food initiatives have a formal structure that promotes programs which involve food that is grown and processed within the same geographical area (Egbers, 2009). For Indigenous peoples, the consumption of traditional food is extremely important, but unfortunately, it is well known that many northern Indigenous communities do not have enough wild food sources, the infrastructure, or the financing, to implement a system that makes traditional food regularly available to community members (Fieldhouse & Thompson, 2012; Robidoux et al., 2021). In response, there are many alternative food initiatives taking place in Indigenous communities in Canada and around the world (Dillabough, 2016; Ferreira et al., 2021; Fieldhouse & Thompson, 2012). Fieldhouse & Thompson (2012) discussed Manitoba's Northern Healthy Foods Initiatives (NHFI) and their efforts to address food insecurity through gardening, greenhouses, school nutrition, and food preservation. They noted that gardening, although it was done historically, is extremely popular (Fieldhouse & Thompson, 2012).

There have been many examples of successful garden projects in Indigenous communities (Chan, 2012; McLennan, 2016; Skinner et al., 2013; Sumner et al., 2019). Skinner et al (2013) noted that gardens have been proposed as a step towards food sovereignty and food security. These community gardens are advantageous as they are relatively inexpensive to set up and do not require extensive expertise to operate (Hansen, 2011; Sumner et al., 2019), and help communities move towards being more sovereign as they can increase control over food systems (McLennan, 2016; Hansen, 2011). Gardens are environmentally sustainable and aid in increasing food access, increasing gardening knowledge, healthy living, food sharing, healthy food habits and reduce reliance on southern food (Alaimo et al., 2010; Hansen, 2011; Lombard et al., 2021; Sumner et al., 2019). Community gardens are especially impactful in areas that face economic or structural barriers to accessing fresh fruits and vegetables (Alaimo et al., 2008,

2010). McLennan (2016) noted that community gardening encourages local food production and improves well- being and community empowerment. Especially for low-income communities, community gardens are useful as they are an alternative that provide locally grown fresh produce, instead of imported foods (McLennan, 2016). That said, community gardens do have their limitations and should not be romanticized as they can be labour intensive and can bring tension to a community. To elaborate, there has been research to demonstrate that community gardens can be difficult due to lack of community involvement, and because of the labour demands it takes to produce local yields (McLennan, 2016). Another limitation involved in community gardens is the limited access to a nearby water source to nourish the garden (Lombard et al., 2021b).

Despite these challenges, there is research that highlights how various local food initiatives have proven successful, for example traditional food harvesting, livestock, education on food production, and fostering local leadership (Fieldhouse & Thompson, 2012). In 2019, the Sioux Lookout First Nations Health Authority (SLFNHA) held a Food Security Environmental Scan addressing food insecurity in the north, where they listed food security initiatives. SLFNHA (2019) highlighted community gardening, community farming, indoor growing programs, livestock, food distribution planning, school nutrition programs, healthy food education programs, as well as hunting and fishing field trips. A common theme amongst many of these initiatives is intergenerational learning and gathering, especially as it relates to traditional land practices. In the following section I will elaborate on the methodologies that informed this research project.

Theoretical Framework

When working with North American Indigenous populations, one needs to be fully aware of the colonial legacy and ensure that engaging in research does not perpetuate colonialist thinking or relations. This thesis is informed by a decolonial framework. Decolonization refers to interrupting and divesting of colonial power, which involves acknowledging the impacts of colonialism, the domination of Western philosophy, and valuing and accepting Indigenous ways of seeing the world (Dankertsen, 2020; Muller, 2003; Smith, 1999; Thaman, 2003). A decolonial theoretical framework is a process committed to unlearning, unpacking, and deconstructing historical and on-going colonial impacts (Battiste, 2017; Gaudet, 2018). This framework is largely informed by practices of moving away from forms and knowledge of historical colonization, healing from colonial influence, and moving towards political, and social sovereignty (Battiste, 2000; Mignolo, 2011; Mukavetz, 2018; Trout et al., 2018). A decolonial framework highlights the ways in which Westernized knowledge production is layered in colonial power, which creates domination of Western knowledge (Manning, 2021). A decolonial framework centers Indigenous experiences and voices (McGuire & Murdoch, 2021, Smith, 1999) and helps move towards a space that values Indigenous ways of knowing, interpreting, caring, and sharing (Mukavetz, 2018; Trout et al., 2018).

A decolonial theoretical framework formed my thinking and how I approached working with the community during my fieldwork. A decolonial lens is valuable and applicable for this research because as a researcher I want to work from an approach/lens that supports what is happening in communities while addressing the historical and on-going impacts of colonialism. This project goes beyond food accessibility and control over food systems. Food related research with Indigenous communities cannot be approached without understanding the historical and colonial disconnections between the people and the land, the ties that food has to colonial

processes, forced settlements and the ongoing trauma that many Indigenous communities endure. This lens shaped the methods that I used throughout my fieldwork trips and helped me to achieve the objectives of this project. To elaborate, a decolonial lens helped me as a researcher to understand subject matter, information shared with me in community, embody how to be a good visitor through listening, sharing, applying reciprocity teachings, and how to work with community. For the objectives of this research project, a decolonial lens was central as it pushed the purpose of this project to be beneficial not only for the researchers but also for the community. The decolonial theoretical lens aligns with the methodologies used in this research, as the use of Indigenous methodologies also looks to centers Indigenous ways of knowing and approaching research.

Methodology and Methods

The research for this project was informed by Indigenous research methodologies. The major component of Indigenous methodologies that is highlighted here is socially situating oneself as a researcher (Steinhauer, 2002). There is great importance in including positionality, genealogy, and ancestry in research (Steinhauer, 2002). Sensoy (2017) explained: "Positionality recognizes that where you stand in relation to others shapes what you can see and understand." (p.15). As a Black mixed-race, straight, able-bodied woman I must acknowledge my social location and not over emphasize Indigenous methodologies. Self-location is important in research, and within Indigenous related research because it means cultural identification and works towards anti- oppressive research by identifying the potential of power differentials in research. To take this further, my positionality is important to mention because it highlights where I am coming from as a researcher, what bias I might carry, and creates space for Black, Indigenous allyship in qualitative research. I began research with IHRG in 2019, I visited with the people of Moose Factory where questions surrounding local food initiatives arose, and community gardens were created. These experiences have helped shape the direction of this thesis which looks to understand local food initiatives and their impacts on reclaiming control over local food systems and increase access to traditional food through a participatory action-based approach.

In the research conducted in the Moose Cree First Nation, a participatory action-based approach was applied. Participatory action-based approach is a social research method and practice where researchers collaborate with organizations and communities, where research is done with and for the community (Chataway, 1997; Greenwood & de Leeuw, 2012; Rains & Ray, 1995; Whyte et al., 1989). This method involves the combination of community participation research and the actions involved in resolutions of community issues (Rains & Ray,

1995). A participatory action-based approach pushes researchers to question who the research is benefitting (Dickson & Green, 2001). The participatory action-based methods during my fieldwork were made possible by working with community leadership to determine project objectives and research outcomes. As part of this participatory action-based approach, information gathering was conducted through the following methods: 'learning by doing', 'visiting' and a semi-structured interview. The research for this thesis involved fieldwork at different times. To elaborate, for this research project PAR was applied during the fieldwork trip involved meetings with community leadership, understanding and applying community food goals, stages of garden development, and talking with and receiving feedback from community members. The fieldwork in Moose Factory occurred in two stages in May-June, and in September 2019. Originally, the final stage of this project was set to occur in the fall of 2021. That said, due to the COVID-19 restrictions the final stage of fieldwork occurred over a Zoom call with the Local Food Developer to understand how the local food initiatives have continued during the pandemic. In the following section I will describe what is involved in learning by doing, visiting, and semi-structured methods to better understand the impacts that local food initiatives are having in the community in their efforts to gain better control over local food systems.

Learning by Doing

Learning by doing is Anishinaabeg pedagogy, a relational process, an exchange of knowledge and has emerged as a way of thinking about and engaging in research (Absolon King, 2011; Ray, 2012). Learning by doing means to participate, take part, experience and reflect on activities that occur in the community (Absolon King, 2011; Flaminio et al., 2020). This method was central to all research activities I participated in, such as creating community gardens, and learning from local hunters. This method was useful as it helped me as a researcher be a part of

the learning, and connect with community through activities. Learning by doing created an environment that favored sharing and allowed both the researcher and the community to take part in all activities.

Visiting

The concept of visiting (keeoukaywin) is a part of Cree culture and it means unplanned sharing and exchanging knowledge (Gaudet, 2018; Flaminio, 2018). Keeoukaywin is practical, spiritual, social, a way to care for one another and has deep ties in Cree community culture (Gaudet, 2016). Simpson (2014) highlighted that visiting is a method of sharing in the absence of hierarchy and in the presence of compassion. Visiting is about respect of the one visiting and for the one who you are visiting, sharing and exchanging emotions, knowledge and food from the land (Gaudet, 2016). This method was applied in community while visiting with community members in their homes, family camps, ice fishing, while gardening, and eating with community.

Semi-Structured Interviews

Semi-structured interviews are a practical method of exploring data that integrates equally open-ended inquiries, theoretically driven questions, and probe questions (Bernstein & Lysniak, 2018; Galletta, 2013). Semi-structured interviews are useful as they provide in-depth information that offers opportunities to discuss and discover the participants experiences in their own words (Klandermans & Staggenborg, 2002). Also, Rabionet (2011), argued that semi-structured interviews are a valuable method as they allow researchers to respond to their research while listening to stories. Another important component of semi-structured interviews that was explained by Bernstein and Lysniak (2018) is that in research they clarify answers on proposed questions, sensitive issues, and allow for an in-depth explanation of the research question at hand. For this thesis, I used a semi-structured interview to follow up with the Local Food Developer to answer questions surrounding the resilience of their local food initiatives during

the COVID-19 pandemic and the purpose of the current local food initiatives (Bernstein & Lysniak, 2018, Galletta, 2013). The semi-structured interview guide (see Appendix A) provided to the participant incorporated: the Local Food Developers understanding of the current state of the local food initiatives and access to traditional and other healthy alternatives, barriers that the food initiatives faced during the COVID-19 pandemic, the purpose of the food initiatives, and the next steps for the initiatives. Once the interview was completed, it was transcribed and sent back to the participant to ensure that all the information was correct. Unfortunately, due to the on-going COVID-19 pandemic and travel restrictions the interview occurred online via Zoom.

Data Collection/ Data Analysis

Learning by doing, visiting and semi-structured interviewing were useful as methods throughout my fieldwork to collect my data. After both visiting and learning by doing, I typed up extensive, descriptive fieldnotes of what had occurred. These fieldnotes were my way of documenting informal conversations that occurred during my fieldwork. After being in community for the day, I typed up my notes while in my accommodation setting, to ensure that I could get as many details down as possible. I wrote down notes from informal conversations with community members, observations, and teachings that were shared with me throughout that day. The semi-structured interview was audio recorded, then transcribed, with the interview transcript to later be analyzed using thematic analysis. Thematic analysis is a method of analyzing qualitative data, which looks for themes, patterns, similarities, and relationships in the data (Braun & Clarke, 2021; Nowell et al., 2017). Thematic analysis is a useful technique when analyzing large amounts of qualitative data typically drawn from interviews, but also useful when analyzing descriptive notes and the conversation summaries within (Braun & Clark, 2021; Nowell et al., 2017). The thematic analysis in this study involved four steps which were carried out in the following order. Step one involved getting familiar with the data, which can be

approached in various ways but generally implies listening to the audio (if applicable) and highlighting the transcripts or fieldnotes while taking notes in the margins (Braun & Clarke, 2021; Nowell et al., 2017). The second step was theme development which was simply derived by identifying the main themes that either arose from descriptive fieldnotes on conversation summaries that were recorded in the fieldnotes (Braun & Clarke, 2021; Nowell et al., 2017). The third step involved theme refinement, which involved revisiting the themes and ensure that they responded to the research proposed research objectives (Braun & Clarke, 2021; Nowell & et al., 2017). The fourth and final step involved report writing, where I placed the analyzed data into a research report which served as the foundation for article 1 and 2 of this thesis (Braun & Clarke 2021; Nowell et al., 2017).

Thesis Format

This thesis is written in article format. Both papers presented build off the work of the Indigenous Health Research Groups efforts to work with remote Indigenous communities in Canada to move towards building local food capacity and sustainable local food initiatives. The first paper explores the local food initiatives occurring in Moose Cree First Nation, highlighting the challenges and opportunities the community is facing to gain greater control over their local food systems. The second paper is a follow up to the first paper, which remotely monitored the sustainability and resilience as well as the purpose of the local food initiatives in Moose Cree First Nation from a community leadership perspective. The research provided in these two papers is needed to highlight the importance and the challenges that come from local food initiatives and their impacts on control over food systems and food accessibility.

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PART TWO

Article 1 - Local food development in the Moose Cree First Nation: taking steps to build local food sustainability

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Local food development in the Moose Cree First Nation: taking steps to build local food sustainability

Abstract

It has been well documented that northern Indigenous communities in Canada have disproportionately high rates of food insecurity which is contributing to chronic health conditions such as obesity and type 2 diabetes. Indigenous communities face complex challenges getting regular access to healthy food, whether through traditional food harvesting practices or through imported market food items. In response, many Indigenous communities are seeking ways to develop locally derived solutions that increase local food procurement capacity and rebuild local food systems. The purpose of this paper is to further understand local food initiatives in Moose Cree First Nation, a remote northern community at the base of James Bay, Ontario, Canada. This paper builds on the Indigenous Health Research Group's focus on understanding and documenting the steps taken in support of building local food capacity, more specifically through a community garden project. With a deepened understanding of the challenges and opportunities the community faces in regaining greater autonomy over their food system, the findings presented here build on community-based participatory action approaches when learning and working with communities in support of local food efforts.

Keywords: Food security; indigenous; gardens; health; culture; local food procurement

Introduction

It has been well documented that northern Indigenous communities in Canada have disproportionately high rates of food insecurity (Huet, Rosol, and Egeland 2012; Council of Canadian Academies 2014; Teh et al. 2017) which is contributing to chronic health conditions

such as obesity and type 2 diabetes (Willows 2005; Damman, Eide, and Kuhnlein 2008; Seabert et al. 2013). Northern food insecurity is related to the complex challenges faced by communities as a result of European colonization and the forced occupation of land which disrupted, and in some cases, eradicated Indigenous food systems (Robidoux and Mason 2017). With great restrictions to land and land-based food sources, Indigenous peoples are currently struggling to get regular access to healthy food, whether through traditional food harvesting practices or through imported market food items (Stroink, Ramsey, and Nelson 2012). Imported goods are expensive (Rice et al. 2016) and reported to be sold for at least double the price they retail for in southern areas (Spiegelaar and Tsuji 2013). As a result, Indigenous communities are increasingly becoming dependent on cheaper, lower quality, energy-dense store bought foods (Batal et al. 2005; Sharma et al. 2010). While programs like Nutrition North Canada have made efforts to subsidize the cost of shipping nutritious food items to remote northern communities, they are achieving limited success as food prices remain high and there are inconsistencies with "eligibility, subsidy rates, eligible foods, and retailer accountability" (Galloway 2014, 17). In response, many Indigenous communities are seeking ways to develop locally derived solutions that increase local food procurement capacity and rebuild local food systems (see Robidoux [2017] for a detailed description of examples of community driven food initiatives). The purpose of this paper is to further understand local food initiatives in Moose Cree First Nation (MCFN), a remote northern community at the base of James Bay, Ontario. With limited research on MCFN's local food efforts, this paper builds on the Indigenous Health Research Group's (IHRG) focus on learning what steps are being taken to build local food capacity and the challenges and opportunities the community faces in regaining greater autonomy over their food system. We share our community-engaged learnings and processes that combine learning and working with

community members in support of their local food efforts. Giving voice to community led efforts shifts the mainstream deficit views and attitudes that neglect sovereignty held and fostered with Indigenous nations and within food initiatives. While food security or insecurity is a common focus in literature (Power 2008), a turn toward emerging research on Indigenous food systems and sovereignty centers Indigenous knowledge as foundational to structural and critical social change (Kepkiewicz and Dale 2019; Morrison 2008; Settee and Shukla 2020).

Research context

The research for this project took place in the Moose Cree First Nation (MCFN) of Moose Factory, an island community located at the base of James Bay, between 51.264 latitude and −80.597 longitude (Louttit 2006) (see Figure 1). There are 4,838 registered band members,

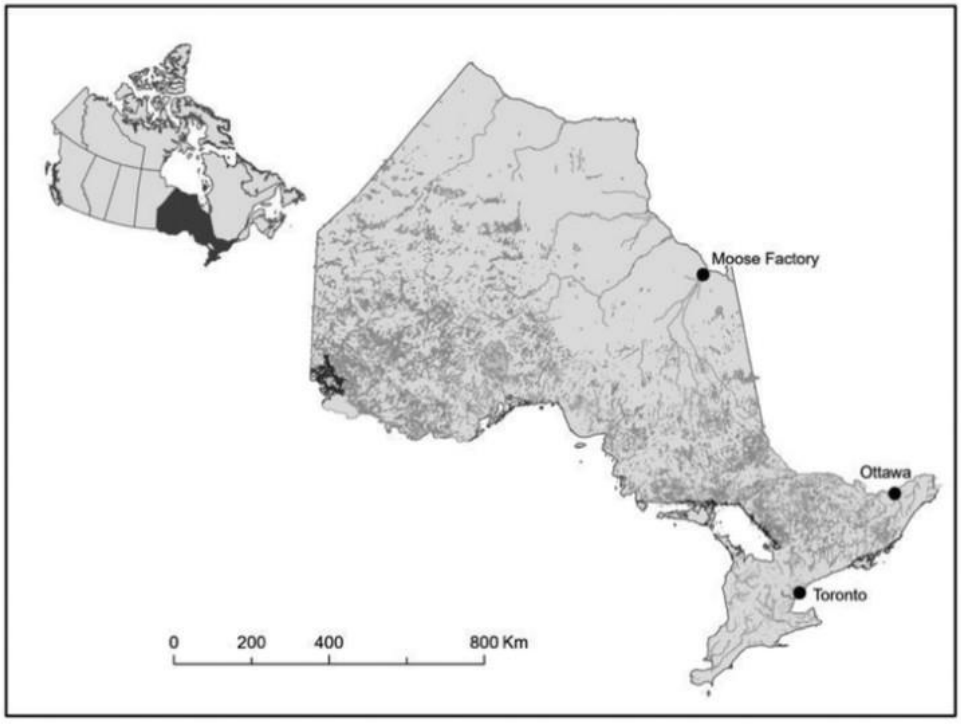

Figure 1. Map identifying the location of the northern First Nation community of Moose Factory in Ontario, Canada. Map created by University of Ottawa April 15, 2020.

with 1844 people living on the reserve (Indigenous and Northern Affairs Canada 2020). When the water is not frozen, the community is accessible by boat taxi, and during the colder winter months by winter road. Throughout the year helicopter service provides access to the island, which is particularly important during freeze-up and breakup. Prior to the arrival of the Hudson Bay Company (HBC) in the late seventeenth Century, the Mushkegowuk People, also known as Western James Bay Cree, lived semi-nomadic life- styles in small (10–15) kin-based hunting groups that followed land mammal food sources throughout much of the year, remaining more stationary in the brief summer months living by water sources that enabled a more steady reliance on fish (Steegmann 1983). Lifestyles were dramatically altered with the establishment of HBC forts along Hudson and James Bay which initiated the trade of fur-bearing animals in exchange for European goods (Swedlund and Herring 2003). By the early eighteenth Century, excessive pressures on fur-bearing mammals as a result of trapping and increased hunting to feed HBC employees quickly depleted critical food and material resources making it less possible to live entirely from the land. Semi-nomadic groups (recognized as kinship systems) began to centralize around these trading posts as people became more reliant on western goods (food provisions, tools and other materials). The signing of Treaty 9 in 1905 and adhesions to the Treaty in the 1930s (Long 2006) forced the Mushkegowuk People into permanent settlements and living more sedentary lifestyles. For the people living in Moose Factory, these forced lifestyle and nutrition transitions led to increased rates of malnutrition and dietary related diseases (Hoppa 1998; Kirby et al. 2007; Neufeld, Richmond, and Health Southwest Ontario Access Centre 2017).

In response to the food security and dietary-related challenges and increasing efforts of cultural resurgence, many Indigenous peoples throughout Canada are seeking to restore local

food systems to move beyond food security and become food sovereign (Cidro et al. 2015; Morrison 2011; Shukla 2014). As Morrison (2008) states food sovereignty is the "most innovative approach to addressing the complex issues impacting the ability of individuals, families and communities to respond to their own needs for healthy, culturally adapted Indigenous foods" (11). These efforts involve a combination of increasing traditional land- based harvesting practices and programs, and actively engaging in alternative food procurement such as community and family gardening. The Moose Cree have been engaged in multiple food initiatives that not only seek to increase nutritional food access, but attempt to address the cultural, social and spiritual needs of its community. These efforts are layered and involve a variety of food development initiatives, including aquaponics, Farmers' Markets, and traditional land-based food initiatives such as Project George and John R. Delaney Youth Center, Cultural Camps. The aquaponics system is a multi-million dollar investment that is currently being designed with an external company to farm fish and make use of fish waste to fuel year round indoor gardening. It builds off two technologies: recirculation aquaculture and hydroponics (Joyce et al. 2019; König et al. 2018). The system has been purchased and was intended to commence operations in the summer of 2020, but delays were experienced as a result of the COVID-19 pandemic and the stages of community lockdowns that were enforced. The Farmers' Markets initiatives have been running for several years and continued throughout the pandemic. They are designed to import fresh produce at more affordable prices for local residents. There are two markets held once a month (two in total per month). The first involves ordering fresh fruit and vegetables through a wholesale food distributor from Toronto, and selling it at a cost to community members. The second involves members of a Mennonite community near Timmins, Ontario (approximately 300 km south of Moose Factory) traveling by train to set up a market to

sell their organically grown meat, fruit and vegetables. In both cases, food items are more affordable and fresh than what is available in the two grocery stores. Our research team assisted in setting up both types of markets which were heavily attended and all food items were sold out within two hours of opening.

Local food efforts also involve making wild animal food sources more readily available to the population, in particular those who have less means to get on the land and harvest foods on their own. Project George is one such example, that was introduced in 2009 to bring at risk youth on the land and teach them hunting, fishing, survival skills, and Cree ways of life (Gaudet 2017, 2021). Project George creates a learning environment that promotes recovery and personal growth for the youth at risk of external stressors. The program brings the community together, contributes to knowledge exchange between Elders and the youth, and supports connections to the land. Although Project George asserts its success in improving the quality of life for their youth and their families, the piece-meal funding, the administrative burdens, and high costs of land-based excursions (including food) has limited the expansion of the program and structural changes to make healthy food more regularly available to community members. Project George like other culturally based camps, such as the Milo Pimatisiwin Project, organized out of the Moose Cree John Delaney Youth Center, integrates its values of self-reliance, knowers of their ecosystem, Cree knowledge, life-stage teachings, Elder wisdom, intergenerational learning, and land-based skills training (Gaudet and Chilton 2018). The aim to strengthen "healthy living" has focused primarily on regeneration and cultural resurgence due to the harmful effects of colonialism which severed relationships to the land, to kin systems, to Cree knowledge, to language and to life itself. The research being presented here, builds on these local food efforts and documents more recent initiatives to build local food capacity. Despite the cultural and

nutritional importance of local land-based food (Kuhnlein 2003; Gendron 2016; Martens 2018), animal food resources are limited and there are considerable challenges for many people to get on the land.

In addition to traditional food harvesting, there is a long history of gardening on the island, originally starting with the Hudson Bay Company Forts that were established in Moose Factory and forts along the coast in the late seventeenth Century (Moodie and Kaye 1969). Gardening efforts continued well into the twentieth Century by non-Indigenous and later Indigenous families developing successful family gardens on the island (Judd 1983). Today many families maintain family gardens that produce a wide variety of vegetables and fruit (primarily berries) throughout the summer, and there have been iterations of community gardening initiatives led by individual community members, but difficult to sustain once these individuals were no longer capable of taking care of the gardens for multiple reasons, such as employment commitments, health factors, and other time demands.[1] As a result, the community is seeking to develop a more formalized food sustainability strategy that combines traditional food harvesting with alternative food procurement (such as gardening) to increase access to more affordable and healthy food items.

Methodology

The research for this project builds on the longstanding relationships the Indigenous Health Research Group (IHRG) has with northern remote Indigenous communities. Given the long history of disempowering research methodologies within an Indigenous context, it was appropriate to engage in a participatory action-based approach that draws on Indigenous Research Methodologies (IRMs). It is important to state that not all the authors of this paper are

of Indigenous identity or heritage, and we recognize the importance of not overemphasizing the incorporation of IRMs given that they are based in Indigenous worldviews and epistemologies (Chilisa, Cram, and Mertens 2016; Kovach 2009). Research informed by IRMs does, however, enable research to be conducted as a translational strategy that creates connections between academics and communities, and is often aimed at reducing health barriers and inequalities (Wallerstein and Duran 2010; Frerichs et al. 2016). Our community-centered approach seeks to minimize power differences, promote knowledge sharing, community engagement, and theories in research to further allow fieldwork to benefit both the community and the researchers (Wallerstein and Duran 2010). A participatory action-based approach creates a cooperative environment that favors researchers speaking with the community instead of for the community (Arieli, Friedman, and Agbaria 2009). It focuses on the development of practical knowledge, where both the community and the researchers experience an ongoing participatory exchange, and highlights a collaborative gathering and sharing of knowledge (Kidwai and Iyengar 2017).

Although our time in the community was limited for this particular project, one of the researchers had worked with the community, Moose Cree Band Council and John Delaney Youth during her doctoral studies from 2012 to 2015. During this time, she spent four months over a period of three years in the community and has since continued to be in relationship with community members since then through publication processes, visiting and exchanging at each other's home, sharing resources, and discussing the ongoing research efforts of the land-based programming with youth. With community engagement as a core value, it is important to consider the significance of methods that not only build relationships but strengthen existing relationships and foster community capacity.

Methods

This project employed a participatory action-based approach which supports different forms of engagement as methods (Kindon, Pain, and Kesby 2007). It created a setting focused on the development of practical knowledge, where both the community and the researchers experience an ongoing interactive exchange that highlights a collaborative gathering of knowledge (Arieli, Friedman, and Agbaria 2009; Kidwai and Iyengar 2017). The research involved two stages of fieldwork conducted in Moose Factory in May and June 2019, and in September that same year. The participatory action-based approach was initiated after conversations with community leaders known by the second author on this paper. This led to dialog with the Community Economic Development Officer who asked that our research team assist and participate in the Food Sustainability Plan given the extensive research by one of the researchers (second author). Part of the research plan was to invest in and work with a newly hired Food Developer from the community as requested by the leadership. In so doing, researchers were able to learn from and with community members through two specific Indigenous methods: "learning by doing" and "visiting" – all of which involved extensive field note taking. In addition to assuring MCFN was engaged in the research activities and planning process, the project under-went a full ethics review and was approved by the University of Ottawa's Research Ethics Board.

Learning by doing

Learning by doing as a research method is focused on learning from one another by observation, listening and sharing knowledge in layers (Gaudet, Dorion, and Flaminio 2020). As discussed in the literature, this method focuses on kinetically learning inclusive of observation, listening and exchanging knowledge (Absolon 2011). It involved our research team working in

collaboration with community members to develop community gardens and participate in different community and family gatherings, one of them being the Delores. D. Echum Composite School (DDECS) cultural camp. We were invited to attend the DDECS cultural camp for one day and took comfort within the canvas walls of a traditional structure known described in the language as *sabtuan* (www. moosefactorystories.com). During that time, we learned from two local hunters about the techniques used to prepare wild game. We also visited a family camp for the day, helping to clear out brush, visiting, and sharing in their fish harvest. Participating in people's everyday lives generates unexpected learnings and deepens our understanding of a context that is too often unknown within our academic settings. In this way, we are able to privilege the depth of knowledge and wisdom embedded in the skills and knowledge needed to navigate the complex water system that surrounds the island. This includes the complexity of a vibrant and living ecosystem that includes the caring and cautious ways of co-existing with animals who share the island. Learning by doing requires researchers to show up. Although it may appear to be from the outside that we are simply "flying in" and "flying out," building capacity is multi-layered and involves fostering awareness with emerging students, researchers and continuously exposing our vulnerabilities as we work in community settings. Learning by doing also means that we roll up our sleeves and do the hard work, in this case, it was supporting the revitalization of community gardens. Dialog preparing and planning for this process occurred over several months. Spending time together, visiting, and sharing the knowledge we have, learning from one another is another form of active engagement and building capacity. Although our focus of this paper is describing the process of re-investing in community gardens by understanding the historical and current context of local food initiatives, there remains a

significant value to the investment of relationships given that culture around food brings community together.

Visiting

Visiting with one another further contributes to other Indigenous methods and is a key component of Cree culture. As an Indigenous way of life, visiting (*keeoukaywin/kiyoke- win*) maintains relational accountability through sharing and exchanging knowledge most often instilled in life roles and responsibilities. Also recognized as an Indigenous research methodology, the way of visiting holds great significance in the social, political, spiritual and kinship systems (Simpson 2014; Flaminio 2019). Visiting allowed for an unscripted flow of ideas without any pressure placed on either the community or on the researchers. The visiting way principles helped to guide the researchers' interactions (on being good visitors) with members of the community in their homes, their offices, their gardens, while using means of transportation around the community, and while participating in the DDECS cultural camp. This lived throughout this research project in many ways including sharing of food, visiting family camps, gardening and supporting the Farmers' Market. The researchers spent time with the Economic Developer, the Local Food Developer, members of the community, Elders and the Executive Director of the healing lodge. This approach was especially useful in the first few days in the community which involved meetings and introductions and visiting with members of the community, given that the second author on this paper had been engaged in Moose Factory's youth and land-based wellness research initiatives since 2013.

Re-investing in community gardens

We traveled to Moose Factory in the spring of 2019. The timing coincided with the hiring of Anthony a Local Food Developer (third author on this paper), funded in part by the Moose Cree First Nation, funds from our five-year Social Sciences and Humanities Research Council of Canada research grant with the Moose Cree First Nation, and funding provided by the Nishnawbe Aski Nation, a political organization that represents the 49 communities in the Treaty 9 region of Ontario. Through meetings and prior conversations with the Economic Development staff, it was decided that restoring community gardens would be an important means to mobilize the emerging food sustainability strategy. In his role as Food Developer, Anthony was interested in exploring the possibility of creating community gardens that would contribute to the community food sustainability plan he was charged with developing. It was clear from the rich agricultural history in Moose Factory that there was gardening capacity on the island, but would there be interest and support in community gardening as a food sovereignty strategy? Our research team was eager to explore this with Anthony and take part in whatever community garden efforts there would be.

With limited budget, our team worked with Anthony in first assessing various locations that might be suitable for garden development and what, if any, equipment would be available for us to commence land preparation. Two locations were visited where previous community garden efforts were visible. The first was directly across from the Elders' Complex, the other behind the Anglican Church. Both areas were completely overgrown with tall weeds and brush, but underneath was dark rich soil with demarcations of where previous gardens were. One of the obvious concerns revolved around water accessibility, as there were no water sources near the sites. Lack of water access is not a rare challenge when it comes to community gardening (Alaimo et al. 2016), and can negatively influence participation if watering becomes too onerous

of a task (Drake and Lawson 2015). It was also not certain if the land was available for public community garden development which required meeting with the Economic Development staff to learn about the previous garden operations and if anyone was currently involved in either space.

Based on the meetings and introductions to community members who were involved in the previous gardens, it was noted that the land across from the Elders' Complex had been managed by volunteer health officials but they experienced difficulties with establishing an equitable food distribution strategy which led to garden activities ceasing. The garden space behind the Anglican Church was run by volunteers from the Healthy Babies, Healthy Children Program (HBHCP) and the food grown in the garden was intended for the families involved in the program. In both cases, maintaining a steady team of volunteers proved difficult, which led to decreased involvement and the land eventually going fallow. Our team met with the primary gardener who was still very interested in keeping up the gardens but was physically not able to do it on his own. He explained that if this community garden project would move forward, he would offer us any help he could provide, whether it be sharing his knowledge, providing us with tools and machinery, and advise us as we moved forward with planting. He turned out to be instrumental over the course of the project.

With everyone in agreement about the locations, the next stage was to begin the laborious process of cleaning the sites of debris and clearing the expansive weeds and brush. With only hand tools at our disposal and only four of us doing the work, a decision had to be made about how much space would be cleared. The original garden across from the Elders Complex was approximately 100 m in length and 10 m wide. The HBHCP land was slightly smaller, but still a

considerable area of land to restore considering what we had at our disposal. With rakes, shovels, hoes, and pitchforks, the team began cutting weeds standing 1.5 m in height, digging out roots, removing rocks, and piling everything into mounds that were to initiate composting. There was a fence and fence posts that had been knocked down in the garden across from the Elders Complex which was set aside to be reconstructed at a later date. Slowly the space was transformed exposing the richness of the soil that would occasionally offer up potatoes, carrots, and onions that had remained in the soil since the previous garden. The soil was then rototilled which again

Figure 2. Moose Cree community garden being cleared out across from the Elders' Complex.

proved difficult because we only had access to older machines that were not functioning properly. We borrowed four machines in total, with the fourth being efficient enough to tear through the rough terrain. In less than a week, approximately 500 m^2 of garden space was cleared across from the Elders' Complex, which was about half of the original garden size. A space about a fifth of the size was cleared behind the Anglican Church which was less than half of the original size of the garden (see Figures 2 and 3).

Figure 3. Land for Moose Cree Healthy Babies Healthy Children community garden being cleared out.

Each day toiling in the gardens, more people would come to talk to us about what we were doing, often discussing previous gardens in the community and providing advice about what they felt might work best in the areas we were preparing. Despite the work being highly demanding, it was a positive and rewarding experience, especially seeing people's responses to the transformed spaces.

With the land prepared, the next stage to be considered was the planting of crops. In order to move forward with this, it was necessary to determine what types of crops to plant based on climate and growing season, but also on food preference. It had been decided that the garden produce would go to Elders in the complex and families who participated in the HBHCP; thus, it was important to plant items that would appeal to both groups. Based on conversations with participating groups, it made sense for this first year to plant potatoes, carrots and onions because they had been successfully grown in the past, and they were staples people liked to consume. The

other important consideration was the timing for planting, which needed to occur only after frosts were no longer predicted in the forecast. Despite being the end of May beginning of June, temperatures were still falling below zero overnight, which forced us to delay planting until the final days of the trip. With only two days left before the scheduled departure dates, the planting commenced. The area was once again raked over and the remaining weeds and rocks were removed. Multiple rows for potato planting were created with smaller sections left open where carrots and onions were to be planted. Potato plants were split and hardened overnight and planted in rows the following day. Once the potatoes were planted, the onions and carrots were planted along the bottom of the gardens with the help of one additional community member. Finally, one row of sun- flowers were planted along the river side of the Elders' Complex garden, which was in part to help beautify the space, but also to learn about the potential for growing other plants in and around the garden.

The research team remained in contact with Anthony over the course the summer who provided text and photo updates. It was apparent that the garden across from the Elders' Complex was a higher traffic area and it was necessary to erect a fence to prevent dogs from digging up the garden. The irrigation issue was not resolved which forced Anthony to run a 50 m hose from across the street and water the garden manually. The HBHCP garden was only rainfed. Despite this, both gardens performed considerably well and were ready to harvest in September.

One member of the research team returned to Moose Factory to assist Anthony in harvesting activities and help prepare the soil for the following season. The timing of the trip was not ideal because of unusually warm temperatures the region had been experiencing and were

expecting for the next two weeks. During this time, potatoes were harvested, but carrots and onions were left for further maturation, and soil preparation was not completed. The two gardens experienced very different levels of maintenance over the course of the summer. Despite repeated calls for volunteers to assist with looking after the gardens, Anthony and the Economic Development Officer were the only two individuals who were involved with regularly weeding and watering. They decided to focus exclusively on the Elders' Complex garden which was the larger of the two gardens. The rainfed HBHCP garden did not seem to be negatively affected by lack of water, but was seriously overgrown with weeds. Underneath the tall weeds, however, potato plants were still able to grow and after pulling some of the soil away, it was clear potatoes had grown. After a full day of weeding, it was possible to see the struggling plants. Plans to harvest were underway.

The harvesting started with the garden across from the Elders' Complex and was relatively straightforward. The mounds were gently pitchforked and potatoes were drawn by hand from the soil. In certain sections of the garden, the plants were much more robust and produced greater yields, which was likely a combination of sun and water exposure (See Figure 4). Red potato plants performed far better than white potatoes that were randomly planted. The potatoes were placed on a scale, weighed and then placed in cardboard boxes. In total, 180 pounds of potatoes were harvested from the site, which were then distributed to the elders in the lodge. The harvesting at the HBHCP garden was slightly more orchestrated with a date set for interested families to come together and harvest. Families were able to take home whatever they harvested. The event was scheduled for a weekday evening and it was uncertain how many people would attend. It was threatening rain which raised doubt that many people would show up. The harvesting was to start at 6:30pm, and shortly thereafter, trucks began pulling out with

Figure 4. Moose Cree community garden ready to harvest across from the Elders' Complex.

multiple generations of families arriving, grandmothers and grandfathers, mothers and dads and children (see Figure 5). There were approximately 20 people in attendance. Tools were provided

Figure 5. Families from the Healthy Babies Health Children Program harvesting potatoes.

to anyone wishing to pick and after some brief instructions from Anthony, the picking began. The event was filled with laughter, with children playing and discovering what the plants had provided. The fact that some plants produced more than others made it exciting every time a new plant was uncovered. Similar to the Elders' garden, some areas of the garden produced higher amounts than others, and the red potatoes were clearly more abundant than the white version. In less than an hour the entire garden was picked. The potatoes were put on scales and weighed, and families were given the potatoes they picked. In total, 100 pounds were harvested, this in a garden that was rainfed and left entirely alone for the entire summer.

Discussion

In describing the ongoing efforts that northern remote Indigenous communities are making to address the food and health challenges, it is important to consider the opportunities and challenges that are present in small-scale local food production initiatives. There are other examples of communities investing in larger scale food operations, for example sophisticated greenhouses (Armstrong 2016; Chen and Natcher 2019) and fisheries (Myers 2000; Thompson et al. 2014), but such initiatives not only require considerable budgets, they require multiple layers of resource capacity to maintain and operate them. There are advantages to smaller scale projects, such as what is taking place in the Moose Cree First Nation, as they do not rely on major funding dollars, require minimal expertise, and are not too time onerous to manage, which is a significant issue for many communities that are already under-resourced and have limited access to a trained workforce. The community greenhouse initiative was largely spontaneous and involved less than 2,000 USD of funding. Those involved had limited gardening experience, but were keen to learn about gardening potential in the area. As learners within this project, it is

important to highlight the successes that were encountered, the challenges that were faced and what opportunities there are for future development.

The first and most visible sign of success was the transformation of under/non-utilized spaces in the community into functional, productive and esthetically pleasing garden spaces. On multiple occasions, community members who were not attached to the project expressed how pleased they were seeing the gardens and the beautification efforts that surrounded them. Elders would often come visit with Anthony when working in the garden, asking if he would be doing this again next year and encouraging him no to "not to give up." Also successful were the yields that each garden produced with limited maintenance, irrigation and gardening experience. This in itself demonstrated the tremendous growing potential there is on the island which could be developed even further with increased community investment. If time permitted and if equipment was at our disposal, it would have been advantageous to conduct soil sampling to determine what if any soil amendments could be required for optimal growing, but also to learn what plants would grow most effectively under the current soil conditions. The fact that the land had grown fallow over the years likely enriched the soil and contributed to the surprisingly productive yields, especially in the HBHCP garden which was left unattended the entire summer. Finally, the success of this first phase of community gardening generated enough interest at the leadership level to initiate the development of a funding proposal to purchase supplies for hoophouse garden structures that would enable an extended growing season. The application was successful which led to the purchasing of materials and the construction of hoophouses in October 2019 (See Figure 6). The inspiration for the hoophouse design came from previous community-based work our research group conducted and continue to support in the Wapekeka First Nation (Thompson, Mason, and Robidoux 2018). Unlike elaborate greenhouse structures

that require considerable expertise and resources to manage, the hoophouse structure provides a simple and affordable means to optimize growing capacity, especially in northern regions where growing seasons are short.

The development of these two community gardens is an important step toward building a sustainable food model in the MCFN, but community garden projects do not come without

Figure 6. Moose Cree hoophouse structure built in the fall of 2019.

challenges. Milliron et al. (2017) evaluated a community garden initiative in an urban medical setting and discovered many barriers that discourage people from volunteering to participate in the garden. Some of these barriers include, not knowing enough about the garden site, lack of interest and time, transportation barriers, uncertainty of food distribution process, shifting priorities, and desiring more knowledge about gardening. This was a similar challenge with the Moose Cree community garden project. Despite several recruitment strategies Anthony employed, attracting volunteers to assist with maintaining the garden over the course of the

summer was a challenge to overcome. Posters were displayed at different strategic sites in the community advertising the garden initiative which did lead to people saying they were interested in participating, but no one actually turning up. There were also efforts to tie garden participation with existing programs being run in the community, such as the community youth center where youth are required to fulfill a minimum amount of volunteer hours, but again, without perceived success. Calls over the radio and social media platforms generated positive feedback, but did not materialize in volunteers getting involved at this time. This led to some frustration for Anthony who became overwhelmed trying to maintain the gardens while still fulfilling the other everyday demands in his role as Community Food Developer. At this point, it remains uncertain why these efforts did not translate into volunteer participation, nor is it clear what strategies might be employed to facilitate garden participation– again, something that is not unique to this community garden project context (Loopstra and Tarasuk 2013). With that being said, perhaps a volunteer model might not be sufficient to support the community garden project being envisioned as part of a food sustainability plan. If food sustainability planning is a priority for community leadership, dedicating funds to support paid staff to work in all stages of the garden (preparation/expansion, maintenance, and harvesting) would not only ensure successful garden operations, but would also signify the importance of this food strategy to community members and perhaps generate more collective investment.

Over and above the challenge of securing personnel to work the gardens, the issue of garden production capacity must be acknowledged. The yields that were recorded from the first year are commendable considering the limited planning and expertise. There is clearly more potential to optimize what the gardens are able to produce. For the community gardens to have a meaningful impact on making healthy food more readily available for a community of this size,

they would need to be dramatically expanded. As Skinner et al. (2014) and Thompson, Mason, and Robidoux (2018) have documented in other northern community garden contexts, garden yields are more symbolic of a food sovereignty strategy rather than literally addressing household food security needs or giving communities greater control over food systems. If gardens are to expand and intensify production a much more considerable investment (financial and in terms of human resources) is required for garden operations. Therefore, it is necessary to balance yield expectations with community capacity. At this point, it would seem prudent to follow the targeted approach of food distribution that Anthony devised, directed toward specific groups that might be most vulnerable to food insecurity, such as Elders and participants in the Health Babies Healthy Children Program.

In moving forward in the spring of 2020 and in years to come, the successes and challenges highlighted here are being taken into consideration to strategize the important opportunities that lay ahead. In his role as Food Developer the third author continues to seek more funding to build garden capacity, which involves both infrastructure and human resource support. The funding proposals are not only to support the enhancement of the two community gardens, but to work with individual families to help develop their own personal gardens. There are limitations/barriers associated with community gardens which to a certain extent can be mitigated, but looking at complementary gardening activities, such as family gardens, might be a more attractive option for those who are either not interested or face challenges participating in the community gardens. There are many families in the community who already have flourishing family gardens, and thus looking to support other families looking to start up their own gardens seems to be a promising strategy.

In addition to seeking ways to enhance and optimize garden production, it is also worth considering how to tie in local food production with small-scale economic development. As indicated earlier, there are currently bi-monthly Farmers' Markets that run throughout the year, but the markets source food from outside of the community. With this market model already in place, encouraging local food production that could be sold seasonally within the current Farmers' Market program might generate more interest in community and individual garden development. This strategy would also bring some economic return for growers. Making fresh locally grown fruit and vegetables available within this market context would enable those without the means or interest to develop their own garden to access healthier food options that are generally of lower quality, less available and at higher costs at the store. It would also valourize local food efforts and potentially contribute to the food sustainability planning the community is striving to achieve. Planning was currently underway for our research team to return to Moose Factory in the spring of 2020 to continue support these local food efforts and explore further opportunities for local production; however, the COVID-19 pandemic has made travel impossible. Our research team will continue to remotely support whatever activities the community is able to generate (if any) under the current social/physical distancing measures being enforced across Canada.

Conclusion

The ongoing challenges northern remote Indigenous communities face getting regular access to nutritious food have been well documented, prompting communities and researchers to develop strategies to move toward community engaged research that contributes to community capacity building. Many of these strategies are focusing on the augmentation of local food procurement either from traditionally sourced foods (hunting, fishing, wild edible gathering) or

alternative methods such as community and personal gardening. This paper describes the early stages of food sustainability planning by the Moose Cree First Nation under the leadership of their Economic Development Department and the newly assigned position of Local Food Developer. The community has a history of running land-based food/teaching programs and has more recently sought to introduce innovative growing technologies which are being consolidated in the more comprehensive food sustainability plan. As part of the local sustainability efforts, our research group was able to participate in the planning, creation and monitoring of two community gardens. This involvement provided firsthand knowledge of the successes, challenges and opportunities community gardening presents as a step toward food sovereignty. There are ample spaces on the island with rich soil that require little amendment to grow a variety of vegetables in the short but viable growing season. The investment in irrigation systems and rudimentary infrastructure to extend growing seasons would go a long way to increase garden productivity and plant diversity. Investing in positions to work and manage the gardens would also be highly beneficial and demonstrate the commitment community leadership has toward local food production. This investment could be supported through economic development around garden production and integrate yields into the existing Farmers' Markets the community already has in operation.

The potential contribution of locally grown food must not, however, be overestimated as yields offer a small fraction of what is required to feed a community throughout the year. Local food initiatives should not discount the importance of market (store) food consumption and the need to find cost-effective distribution strategies that would make healthy store food from the south more readily available and affordable for community members. Where there is likely greater opportunity with the limited yields from the gardens, is with vulnerable community

members as were targeted in this first year of garden planning. Working specifically with the small number of Elders living in the Elders' Complex and with families involved with the Health Babies Healthy Children Program, the Local Food Developer provided food to those who had limited means of acquiring fresh produce from the store. These choices further the Mushkegowuk kin-based and life-stage systems of taking care first for children and their Elders. This targeted approach is especially important in the earliest stages of garden development where volume and variety are low. It is hoped that increased involvement and investment in the garden activities will increase garden productivity and to the local food system. This project describes the first year of the Food Sustainability Plan and its gardening efforts with limited resources and expertise. The successes that were achieved despite these limitations are impressive and point to important opportunities moving forward as the community seeks to build local food capacity and gain greater control over its local food system.

Note

1. In 2017, the MoCreebec Council of the Cree Nation, a First Nations group that occupies a small portion of the island independent of the Moose Cree First Nation, developed multiple greenhouses and elaborate gardens through their EcoLodge busi- ness enterprise and with assistance from Health Canada. The funding has since ended and the project lead no longer lives in the community which has limited gardening activities at this site.

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Notes on contributors

Celeste Ferreira is the Indigenous Health Research Group Research Coordinator and conducts research on food security challenges in remote northern Indigenous communities in Canada. She has been involved in two years of field research documenting land-based food practices and helping support local food capacity building.

Janice Cindy Gaudet belongs to a strong lineage of Métis women's families located along the South Saskatchewan River and farming community of St. Laurent, Saskatchewan. She is an Assistant Professor at Campus Saint-Jean, University of Alberta and a Canada Research Chair in Metis Kinship and Land-Based Wellness. She is committed to a de-colonial approach in research, wellbeing and pedagogy by centering Indigenous women's knowledge, stories, and lived experiences.

Anthony Chum (Tony) belongs to the Cree people of the southern tip of James Bay on the "little island" of Moose Factory on the Moose River. He is a Local Food Developer for Moose Cree First Nation. He is committed to providing his community with healthy foods with a local Food

Market held twice a month. His work involves supporting Moose Cree food initiatives and helping build food sovereignty.

Michael A. Robidoux is a full professor in the School of Human Kinetics at the University of Ottawa who has led research programs studying land based food practices in rural remote Indigenous communities for over a decade. Working with northern Indigenous communities, he examines the impact of local food procurement on local dietary practices and studies how building local food capacity can address high levels of northern food insecurity.

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Article 2 - Understanding the Resilience and Purpose of Local Food Initiatives in Moose Cree First Nation

Author

Celeste Ferreira School of Human Kinetics, University of Ottawa, Ottawa, Canada; Indigenous Health Research Group, University of Ottawa, Ottawa, Canada

Understanding the Resilience and Purpose of Local Food Initiatives in Moose Cree First Nation

Introduction

Local food initiatives can be a powerful entry point to reclaiming local, place-based food systems that look to increase food accessibility, support the environment, and enhance food sustainability (Fieldhouse & Thompson, 2012; Spiegelaar & Tsuji, 2013; Sumner et al., 2019; Wesche et al., 2016). Local food initiative strategies are on the rise in remote Indigenous communities in Canada in response to the ongoing food security crisis (Blanchet et al., 2021; Datta, 2019; Dillabough, 2016; Fieldhouse & Thompson, 2012; Joseph & Turner, 2020; McGregor et al., 2018; Sumner et al., 2019). The challenges of food security in a northern Indigenous context are directly related to colonial impacts on Indigenous food systems and the forced transition from eating high quality land based foods to lower quality, energy dense, and expensive market food (Liebow & Trudeau, 1962; Popkin, 1998; Samson & Pretty, 2006; Skinner et al., 2013). The Moose Cree First Nation (MCFN) in northern Ontario, Canada is an example of a community who has for years worked to develop local food initiatives to respond to the food security challenges it faces. In addition to traditional food harvesting programs to support land-based food harvesting, the community has more recently hired a Local Food Developer to create a food sustainability plan, manage local Farmers' Markets, produce, and maintain community gardens, and assist in a new aquaponics system once it is constructed. The aquaponics system utilizes fish waste to power indoor gardening (Goddek et al., 2019; König et al., 2018). The two Farmers' Markets bring in fresh produce from a wholesale distributor located in Toronto, and fresh meat products from farms in northern Ontario at prices lower than what is available in the local Northern Store, and family-owned grocery stores. The creation of two community gardens was part of the local food sustainability plan to explore the growing potential

of gardens on the island and to provide fresh potatoes and carrots to young mothers in the Healthy Babies, Healthy Children Program, and to Elders at the Elders lodge.

This paper is an extension of the Indigenous Health Research Group's work on food sustainability planning with remote Indigenous communities. More specifically, this is a follow-up study to the first published chapter of this thesis, which documented local food initiatives occurring in MCFN (Ferreira et al., 2021). This follow up study involved working with community leadership (Anthony) and focused on two primary objectives: (1) to remotely monitor the resilience of the local food initiatives that were documented in Chapter One; and (2) gain a deeper understanding of the meanings associated with local food initiatives and their desired outcomes, whether it be in terms of improved food security, rebuilding local food systems, food sovereignty, cultural empowerment, community building, or a combination of things. Due to the COVID-19 pandemic, and the social distancing restrictions, staggered monitoring of the local food initiatives has occurred virtually since my last visit in the community through Facebook messenger and Zoom. This chapter will begin with an overview of local food initiatives in northern Indigenous communities, focusing primarily on community gardening. This will be followed with a description of methods employed for the study, and then a results-discussion section. All research activities have been approved by the University of Ottawa Research Ethics Board.

Local Food Initiatives in Indigenous Communities Responding to the Food Crisis

There is a broad array of food initiatives in northern Indigenous communities, but they typically involve supporting traditional food harvesting and developing alternative food strategies that can aid with the cost, quality and control over food (Barbeau et al., 2015; Datta, 2019; Lombard et al., 2021). The nutritional and cultural importance of traditional food are well

understood in Indigenous communities (R. Blanchet et al., 2021; Lombard et al., 2021; McGregor et al., 2018), but in most northern regions there are considerable challenges accessing enough of these foods to feed a whole community year round. Therefore, in addition to focusing on ways to improve traditional food access, communities are looking to increase access and control over alternative food options that are more affordable and higher in nutrition compared to what is available in local stores (R. Blanchet et al., 2021; Joseph & Turner, 2020; McGregor et al., 2018). It is well known that the current northern Canadian food import-based system in Indigenous communities is expensive, unreliable, nutrient deficient, and there is a need for local place-based food systems that allow northern communities to be more self-reliant and have more control over the food they consume (Barbeau et al., 2015; Stroink & Nelson, 2009; Tsuji et al., 2019). Local food initiatives help respond to the deficiencies of an imported market food system, not simply by providing more nutritious food, but fostering cultural connection, increasing community autonomy, and increasing awareness and pride in traditional food processing and harvesting (R. Blanchet et al., 2021; Joseph & Turner, 2020). There has been extensive research conducted on local food initiatives and food sovereignty initiatives and their impacts in improving food cost and quality (Barbeau et al., 2015; Fieldhouse & Thompson, 2012; Lombard et al., 2021; Loring & Gerlach, 2010; Thompson et al., 2018). Many Indigenous communities in Canada are experiencing a food movement that looks to increase control over local food systems, food accessibility, and decrease dependency on the unsustainable northern Canadian import system (Barbeau et al., 2015). Though there are many moving parts to this food movement, local food initiatives play a big role.

Although food procurement carries many benefits, it is important to highlight the challenges and shortcomings they have. Residential, recreational, industrial, and economic

colonial development impacts traditional harvesting practices. Colonial displacement has led to cracks in intergenerational transmission of knowledge and as a result more communities are heavily reliant on the imported based system (Morrison, 2008). Additionally, it is important to consider the high energy requirements that food activities entail; due to this some Indigenous communities in Canada face issues meeting minimal energy requirements through traditional food procurement activities (Robidoux et al., 2021). Other challenges to local food procurement strategies are the time they require, the financial demand, physical labour, and climate change. These activities require significant time, due to time demands for preparation and harvesting methods (Pal et al., 2013). Financial demand needs to be addressed when reflecting on limitations of local food procurement, due to fuel and equipment costs (H. M. Chan et al., 2006; Gombay, 2005; Hopping et al., 2010; Lambden et al., 2006) and intensive physical labour that is not accessible to everyone, thus creating a challenge in recruiting participants to aid with the food initiatives (Pal et al., 2013; Shirley, 2016). Lastly, climate change has impacted accessibility to food harvesting through environmental contaminants, unreliability of food resources and changes in migration patterns (Furgal & Seguin, 2006; C. A. M. Richmond & Ross, 2009; Wesche et al., 2016). All challenges considered, local food initiatives have proven to be worth the labour they require as they positively impact Indigenous communities for many reasons, food insecurity included (Gaudet, 2021; Kamal et al., 2015; Sumner et al., 2019; Thompson et al., 2018).

To appreciate the diversity of local food initiatives, it would be useful to provide successful examples in different regions in Canada. Sumner et al (2019) explained how Hopedale and Rigolet Innuit Community Governments in Newfoundland have made strides towards food security by using a community-led food assessment. This method involves community members addressing issues that impact food security and looking for new food

strategies to improve food access. In both communities, community gardens were created, and Food First Newfoundland Good Food Box programs was joined. The purpose of this program is to offer community members higher quality foods compared to local stores, and to buy in bulk to decrease shipping costs. Another example of food activities in Indigenous communities is the community gardens and food market that became a co-operative to provide food and employment for the community members of Flying Dust First Nation, Saskatchewan (Sumner et al., 2019). An additional illustration of a food initiative is in the Okanagan River system that looks to return the Okanagan Sockeye salmon. The aim of this food initiative is to reclaim control over food systems through the increase of salmon availability in the Okanagan River Basin. This was accomplished through restoring natural habitats, migratory pathways and controlling water levels; this initiative proved a success as fish harvesting increased for the community (R. Blanchet et al., 2021). Additionally, in O-Pipon-Na-Piwin Cree Nation, a northern Indigenous community in Manitoba, Ontario that developed a community-based food program called Ithinto Mechisowin (IMP) ('food from the land'). This initiative involves youth programs that consist of hunting, fishing, berry picking, traditional food preparation, gardening and learning about the health benefits of different traditional foods. IMP is important as it contributes to youth empowerment in the community (Kamal et al., 2015). Further, Indigenous Foods Celebrations in Squamish Nation, are a one-day long celebration that look to provide educational events to increase knowledge surrounding plant foods and medicines. Indigenous Foods Celebration day is community based, centered around resurging connection to plants and Indigenous foods in a wellness context (Joseph & Turner, 2020). The examples provided highlight the potential of local food initiatives to increase food accessibility, and control over local food systems in Indigenous communities.

There are also food initiatives that are targeted directly at community gardening, whether it be subsistence based or larger food to market operations (Hond et al., 2019; McKay & Godrich, 2021; Schramm et al., 2020; Timler & Sandy, 2020). The American Community Garden association defined community gardens as a site: "that can be urban, suburban, or rural. It can grow flowers, vegetables, or community. It can be one community plot, or can be many individual plots. It can be at a school, hospital, or in a neighborhood. It can also be a series of plots dedicated to "urban agriculture" where the produce is grown for a market*"* (Lovell, p. 2). Community gardens are sections of land, maintained through the efforts of local community members, where foods like fruits, vegetables, and herbs are cultivated (Egli et al., 2016; Guitart et al., 2012; Holland, 2004). Community gardens are operated by local communities and can be a place where people can socialize, build community, do physical activity, and improve food supply through producing fresh fruits and vegetables (Guitart et al., 2012; Holland, 2004; Lovell et al., 2014; Ohmer et al., 2009; Shan & Walter, 2015). They can serve as a place of learning, they provide an educational opportunity to learn about local ecological conditions, environmental consciousness, sustainable food ways, and collective organization (Shan & Walter, 2015). Gardens can improve community members wellness and physical health via taking part in garden labour, and increase small-scale farming knowledge (Datta, 2019; Hoover,

Figure 1: The wellbeing benefits of community garden participation (Egli et al., 2016)

2017). Community and informal family gardens can also increase variability in food consumption, and be a more economically friendly way of accessing different foods (Gerlach et al., 2014; Lampert et al., 2021; Wiebe et al., 2011). As well, community gardens can increase access to fresh fruits and vegetables that make them more palatable/desirable, and provide communities with greater control over what they grow and eat (Barbeau et al., 2015; Hoover, 2017; Lombard et al., 2021). Another advantage is a sense of community ownership over the gardens, bringing the community together to plant, visit and harvest (Barbeau et al., 2015). To elaborate, gardens can go beyond nutritional variation and access to food; they can bring cultural benefits to the community through land connection, asserting self-determination, and increasing community well-being (Datta, 2019; Hoover, 2017; Lombard et al., 2021). Datta (2019) argued that creating a sense of community is one of the noteworthy parts of a community garden. In an Indigenous context, community gardens aid in challenging colonial structured food desserts through the increase of food accessibility, augmented gardening, and healthy living knowledge, and increase communities' control over their own food systems by decreasing the dependency on local stores (Sumner et al., 2019). Like any community garden contexts, there are some clear benefits to community gardens in Indigenous communities, but there are also some unique challenges.

Local food procurement initiatives such as community gardens in Indigenous communities have been well documented (C. Blanchet et al., 2000; R. Blanchet et al., 2021; Coola, 1984; Joseph & Turner, 2020; Kamal et al., 2015; Morrison, 2008; N. J. Turner & Turner, 2008; N. Turner & Turner, 2007). There are, however, important challenges to consider when it comes to community gardening, that limit garden production, garden management and maintenance, and people's access to them. The amount of fruit and vegetables a community

garden produces can be a shortcoming; research highlighted that garden harvests are more of a representation of food sovereignty than a means of increasing food accessibility (Ohmer et al., 2009; Thompson et al., 2018). Literature emphasizes that garden management can be a challenge for community gardens, due to lack of community involvement (Lovell et al., 2014; McLennan, 2016). As well, physical accessibility can be a challenge due to the intensive physical labour they require (Egli et al., 2016; Lovell et al., 2014). Another accessibility issue is locating a sufficient and sustainable water source (Lombard et al., 2021). Other challenges encompassing community gardens include loss/lack of gardening knowledge and shortage of tools (McGregor et al., 2018). Although food yield is often the main purpose of many community gardens, numerous gardens grow modest amounts of food (Datta, 2019). Overall, despite their limitations many Indigenous communities are looking into community gardening as one part of their ongoing efforts to increase food accessibility and cultural recovery process that involves control over their food system (Hoover, 2017; Skinner et al., 2013; Sumner et al., 2019; Timler et al., 2019).

Methods

This project builds on relationships that the IHRG has been building for two decades with remote Indigenous communities in northern Canada to support local food development in an effort to address northern food security challenges (Gaudet, 2021; Robidoux & Mason, 2017; Thompson et al., 2018). For this article, I worked with community leadership to support local food initiatives. It involved conducting a semi-structured interview with Anthony to monitor the resilience of the current local food initiatives occurring in the community, and further understand the purpose and meanings associated to the community food activities. I used a semi-structured interview to ask Anthony open-ended and probing questions (Bernstein & Lysniak, 2018; Galletta, 2013) about the resilience of the local food initiatives and the underlying purpose of the

food initiatives in the community. The interview had two parts in one sitting. The first part was more descriptive in focus, looking to understand the resilience and status of the local food initiatives in the last two years and the impacts the COVID-19 pandemic had on them. The second half explored the community leadership's understanding of the purpose and value of the local food initiatives in the community. A general interview guide was provided to the participant ahead of time to reduce interview anxiety and allow him to think over any main points he wanted to address in the interview. Once completed, the interview was transcribed then sent back to Anthony to ensure everything was accurate. Next, the interview was analyzed using a thematic analysis approach. Briefly, the thematic analysis involved relistening to the audio recording, transcribing, and reading through the transcripts. Finally, the main themes that were pertinent to the research questions were highlighted, and other less relevant themes were removed (Braun & Clarke, 2006, 2021; Nowell et al., 2017).

It is important to state as a result of the pandemic and the multiple stages of lockdowns and travel restrictions, it was impossible to return to Moose Factory and conduct in person field research. The research for this article would have been more meaningful and fruitful had it taken place in person, being able to participate in gardening activities, and sharing in local food practices and knowledge exchange. While in person fieldwork was not possible, I was able to stay in touch with the local food developer and observe local food developments virtually over social media platforms. This virtual monitoring involved informal updates, informal check-ins, and following Moose Factory's food related Facebook pages (Moose Cree Farmers Market and Moose Cree Food Self-Determination). This continued contact set the foundation for the semi-structured interview that helped understand the ongoing food efforts that were originally documented in the first article of this thesis. While there are certainly limitations to not being in the field the content of the semi-structured interview was still purposeful, informative and created

the basis for this second article.

Results and Discussion

This paper explored two broad themes: 1) the sustainability and the resilience of the local food initiatives in Moose Factory; and 2) the purpose of the Local Food Developer's position and the local food initiatives. The results and discussion are centered around local food initiatives and their sustainability, resilience, their purpose, and impacts on food sovereignty and food security based on the two-part interview with Anthony. Part one describes the list of local food initiatives occurring in the community since the last stage of fieldwork in September 2019 and their sustainability. The second part outlines what Anthony understands to be the primary purpose of local food initiatives, and what role(s) they play in the community. Part two also explains the impacts the food initiatives have on food security and food sovereignty.

Part One – Sustainability and Resilience

To start, Moose Cree First Nation has taken several steps towards building food sustainability through local food initiatives, which include: employing a full time Local Food Developer; hosting bi-monthly Farmers' Markets; supporting community gardens; and investing in an aquaponics system. I will provide a brief description of these initiatives which will be followed by a discussion of the sustainability and resilience of the local food initiatives, and the challenges and limitations the food activities have faced.

The Local Food Developer in Moose Cree First Nation, who took part in this interview, Anthony Chum is an author on the first article (Ferreira et al., 2021) of this thesis and his position is aimed at helping community members get regular access to more affordable and nutritious foods. Though there were food developers prior to the current one, Anthony who took part in this interview began his position in 2018. While COVID-19 has impacted certain aspects of his job, he has been able to initiate and accomplish many local food initiatives such as the

Farmers' Market, community gardens, the creation of a hoop house, and the early stages of the aquaponics system. As a result of the many COVID-19 restrictions, contractors were not permitted to enter the community to set up the aquaponics system. Thus, the aquaponics system will not be a focus of this paper.

With the many challenges of the pandemic, the workload for Anthony increased, having to do the work that would be typically contracted to outside workers, or shared amongst a team of volunteers that could not be accommodated with local restrictions in place. For the Farmers' Market, this meant the community was pre-ordering produce from the Farmers' Market (which was previously in person), and Anthony had to prepare individual food boxes for the participating community members, for approximately two months alone. For each Farmers' Market, Anthony was preparing 30 to 40 boxes then delivering them to each community member's door. Door-to-door delivery became unsustainable, and Anthony switched to a curbside pickup system. These boxes include fresh fruits vegetables sourced through a food wholesaler from the Toronto area and meat products from a butcher in Cochrane. Prior to the pandemic, meat products were brought and sold to the community by a Mennonite agriculture business, but the Moose Cree First Nation has been able to have more control over meat selection and ordering working with a local butcher in Cochrane.

Since two community gardens were established during the fieldwork in 2019, the community garden across from the Elders Center has been running. A decision was made not to continue the garden behind the Anglican church and instead to invest in one large green space. Anthony managed the community garden, and by applying for external funds (Wakenagun Community Futures Development Corporation funding), was able to purchase and construct a hoop house structure over a section of the garden to extend the growing season. Discussions at a community committee meeting occurred to determine the food distribution of the garden. It was

decided that the food from the garden would be given to the Elders in the community. Since our last visit in 2019, the garden has been growing carrots and squash. Within the hoop house Tony was able to also grow corn, which was also distributed to Elders in the community. There were, however, challenges with the hoop house which were linked to ventilation. Anthony explained that the corn in the center of the hoop house did not grow as well as corn located near the edges, as plants along the edges received proper ventilation. In addition to maintaining already established food initiatives, Anthony has been working with community leadership on augmenting and developing new food initiatives. A priority for spring and summer 2022 is to build a community greenhouse, as well as work with local families to develop family/individual gardens. Lastly, Anthony highlighted that his long-term goal as a Local Food Developer would be to have their own produce store that carries both meat and fresh produce.

The creation of the Local Food Developer position has made food initiatives resilient and sustainable even during the pandemic. The fact that MCFN continues to dedicate annual funding to support this position is impressive in itself, a position that does not exist in other IHRG partnering communities. Having this position in place on a yearly basis has been critical in sustaining the food initiatives described above, and for continuing to look for more opportunities to increase local food capacity. The success of the Farmers' Markets are most notable because they operate year round and allow community members to buy and consume higher quality more affordable fruits, vegetables, and meat products throughout the year. While the Farmers' Markets cannot be the sole sources of market food, and there is a continued reliance on the Northern Store (and one smaller community store), it nevertheless contributes immensely to bringing affordable, fresher and higher quality fruits, vegetables, and meat to local residents. In terms of the community gardens, the community prioritized the success of one community garden which Anthony replanted and managed throughout the summer. By focusing on one garden, Anthony

was able invest more time in maintaining it, but also develop a 6 by 12-meter hoop house that was able to extend the growing season by approximately four weeks. As in the initial start-up year, Anthony was also responsible for the distribution of the community garden yield which went to the Elders and the Anthony's family. Again, while these initiatives cannot be the only food program in place, and the community is still reliant on food from the local store, they do have great value in assisting and benefitting the community in increasing access to and more control over fresh produce, and bring greater fruit, vegetables, and meat diversity to community members.

Part Two - Purpose of the Local Food Initiatives in Moose Cree

Anthony explained that although COVID-19 impacted certain aspects of his job, he has been able to initiate and accomplish many local food initiatives such as the Farmers' Market, community gardens, and the creation of a hoop house. In the formal interview conducted with Anthony, we discussed the purpose of the Local Food Developer position as well as the initiatives themselves (with a focus on the community gardens and the Farmers' Market). During our interview, he identified that the purpose of the Local Food Developer position in MCFN is to help make healthy food more affordable for community members. With the high cost of food from the local store, his work is centred around providing affordable alternatives to community members. When we spoke about the purpose of the community gardens, he stressed that that the community gardens bring more than food benefits to the community. They provide physical, mental, and educational benefits which he described by "keeping active, just being out there. I was reading and? smelling the ground. I mean, just the scent of the ground is good for your mind". The educational benefits include a learning opportunity for Anthony as well as the community to further their gardening and growing knowledge. As the gardens provide more than a food source, Anthony explained that community gardens are worth their laborious demands. Anthony's identification of

the value that these local food initiatives bring to the community is crucial to answering the second research question of this paper surrounding purpose. As previously mentioned, research has highlighted that many local food procurement activities do not provide enough food to nourish a community, but Anthony emphasized that although they do center on food accessibility, the food activities have so much more to offer. They demonstrate steps towards food sovereignty, control over what food is planted in the gardens, what food is ordered in for the Farmers' Markets and therefore increasing overall amounts of food in the community, food diversity, food and gardening education, and physical and mental health benefits. Another more indirect finding from the interview was how the local food initiatives can contribute to both food security and food sovereignty. Both food sovereignty and food security are complex, and it would be unrealistic to assume that was has been described will lead to the MCFN being food secure or food sovereign—at least in the near future (Hoover, 2017; Patel, 2012; Windfuhr & Jonsén, 2005). Anthony described that for him, food security means: "You eat well, right? Everybody eats well, just to have a good proper diet to maintain a healthy body". Food sovereignty on the other hand was described as having control over what he eats and control over his diet. For Anthony, the food initiatives do contribute to food security and food sovereignty because they increase food access through enabling community members to get groceries from the Farmers' Markets at a reduced cost twice a month, and Elders can get access to fresh produce from the garden in late summer and early fall. Certainly, these initiatives do not provide enough food for the community to live off of alone, and they do not diminish the reliance on an imported food system, but the Farmers' Markets do provide temporary alternatives to the high-priced lower quality food available at the store. Therefore, as the community continues to find ways to increase local food capacity, the goal is to increase food security and have greater sovereignty over their local food system. To elaborate, through the food initiatives, the community has buying power over what they order, they have more control over

what food they have access to and what food they choose to consume. For example, community leadership has control over what to plant in the community garden, what food is ordered for the Farmers' Market, whom they order from, and expanding into more diverse food sourcing options. As well, when considering family/individual gardens and their impacts on the community's food sovereignty Anthony said: "[There is] nobody telling [them] what they should be growing [or] what they should be eating. [People can] just […] grow what they want to eat". The creation of individual gardens is another layer of food sovereignty as it means each family/individual would be able to determine what they want to grow and eat from the garden, instead of community leadership deciding what will be grown. Anthony stressed that their local food initiatives play and an important in the community as they do contribute to lowering costs and increasing the community's control over what food is either grown or brought into their community. He firmly believes that the food activities are very much worth the effort, because at the end of the day, they contribute to decreasing food prices, increasing food accessibility, control over what food is available and consumed. The sustainability of these initiatives, through extremely difficult times, are evidence of their success and provide optimism moving forward as Anthony and community leadership look for even more ways to introduce additional local food procurement activities to increase food access and control over local food systems.

Conclusion

Local food initiatives have proven to be an influential method to increase food security, and control over local food systems (Fieldhouse & Thompson, 2012; Spiegelaar & Tsuji, 2013; Sumner et al., 2019; Wesche et al., 2016). This research highlighted the status of the local food initiatives occurring in MCFN, and their purpose/value according to the community leadership and their continued support for a permanent Local Food Developer. Overall, the Farmers' Markets and the community gardens initiatives have been the most sustainable since my last visit

to MCFN in 2019. Anthony explained that the local food initiatives, including his position play a big role in reducing the cost of food/groceries for the community and providing further access to fresh produce. As well, what the community garden offers is more than food to the community, and carries other benefits, such as mental health, physical health and learning opportunities. In essence, this research points to the relevance and importance of local food initiatives for remote Indigenous communities who are looking to improve health and wellness, increase food diversity, make fresh produce more accessible in terms of price and availability, and to work towards gaining more control over their own local food system.

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PART THREE

Thesis Conclusion

This research has pointed to the on-going food crisis that many northern Indigenous communities face due to the impacts of colonization (Huet et al., 2012; C. Richmond et al., 2020; Teh et al., 2017; Timler et al., 2019) and the efforts a remote community is making to increase food security and food sovereignty. Indigenous communities went through a drastic food transition that led to a shift from traditional diets consisting of eating off the land to increasingly consuming store bought, low quality and energy dense foods (Samson & Pretty, 2006; Skinner et al., 2013; Sumner et al., 2019). Though there are many layers to the food crisis, some of its impacts on community include, heavy reliance on the expensive import-based system, and minimal access to nutritious foods (Batal et al., 2005; Wein, 1995). In response, many communities have looked for ways to increase food security, and control over their own food systems through local procurement methods.

While both articles built off the work of the Indigenous Health Research Group, each article had different research questions and findings. Article one looked to understand the early stages of local food sustainability planning through local food initiatives in Moose Cree First Nation to deeper understandings surrounding MCFN efforts to increase control over their local food system. This article was informed by Indigenous research methodologies, and a participatory action- based approach. In the end, the planning, creation, and monitoring of community gardens was the main local food initiative that this paper focused on. The researchers worked closely with community leadership such as the Economic Developer and the Local Food Developer (co- author of article one). Ultimately, two community gardens were created from this project. One across the Elders' Complex and the other behind the Anglican Church for the Healthy Babies Healthy Children program. Although the community garden yields were modest, and do not produce enough to feed the community, they point to promising

opportunities for local food initiatives in the community. Since the community gardens do not produce enough harvest for the whole community, questions surrounding the purpose of the community gardens arose.

Article two provided a follow up piece that worked with community leadership to respond to two research questions. First, to remotely monitor the resilience and sustainability of the local food initiatives in MCFN since the researchers last visit in 2019. Second, to develop a deeper understanding of the purpose and meanings associated with the local food initiatives in MCFN. This article used a semi-structured interview and applied thematic analysis. This article highlighted that even during a global pandemic, the local food initiatives in Moose Cree First Nation were able to continue. The resilience of the local food initiatives was heavily reliant on the dedication of the Local Food Developer's position and his commitment to increasing making food more affordable and more accessible in the community. Anthony explained that the food initiatives in the community bring more to than food, they bring benefits to mental and physical health, educational benefits, and pave the way for future initiatives that look to increase food security and food sovereignty. Overall, Anthony explained that although the food initiatives require a lot of time and energy their benefits are worthy.

This thesis aids in understanding the impacts that local food initiatives can have on remote Indigenous communities' efforts that look to increase food security and food sovereignty. The importance these findings not only demonstrate that although local food initiatives are labour intensive and require immense amounts of work, they are also worth the time and effort they require as they do positively impact the communities access to foods and control over their local food system. To elaborate, they do increase the overall accessibility of food in the community, through making fresh produce and locally sourced meats more financially affordable, increasing control over what food is available through community leadership's buying power, and determining

what food is planted in the community gardens. Overall, this work is impactful as it contributes to knowledge surrounding increasing more affordable, and nutritious foods in remote Indigenous communities in Canada.

Another important piece to revisit is that this research demonstrates a decolonial theoretical lens within food-related research. A decolonial framework was utilized in this research through the methods, the purpose of the project, and by the author acknowledging social location, and boundaries within being a part of Indigenous-related research as a non-Indigenous person. The methods applied looked to apply culturally appropriate means of working with local communities to support local food efforts. The purpose of this research project centered on community leadership's goals, to ensure the project benefitted the community as well as the researchers. Lastly, reflecting on the impact that Indigenous methodologies had in informing this research, I understand the importance of including genealogy, from what perspective I am writing from, and what bias I might carry. I presented my social location as it is relevant to acknowledge that I am an outsider to the community, and do not share the same lived experiences. Moving forward, the inclusion of varied social locations such as my own, can create space for Black-Indigenous allyship within a food-research context. Another layer to being an outsider to the community, was not being able to enter the community during the data collection stage of the second article, which pulled me away from the original participatory action based research I sought to achieve throughout this project. To elaborate, the second article was limited due to the pandemic (social distancing measures in place) which significantly impacted the data collection as the semi-structured interview occurred online. That said, there were still intensive efforts made to push for anti-oppressive research such as: having a relationship with the participant prior to the interview, sending the questions ahead of time, including Anthony’s voice, ensuring to apply reciprocity teachings, and including time for next steps (how can IHRG best support upcoming food, garden and other food related research

projects). This thesis is an ongoing learning journey, an ongoing partnership, which will help inform our collaborative efforts moving forward with the Moose Cree First Nation.

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Appendix A

Interview Guide

Part 1: Activity list - What is going on in the community?

1. Were you the first Local Food Developer?
    a. What did you learn from the Local Food Developer before you?
2. When did you start your position as a Local Food Developer?
3. Why did this position get created?
4. What are the main roles of your job in the community?
5. What have you been able to accomplish during your time as a Local Food Developer?
6. What are the current food initiatives in the community?
7. How do you keep the food initiatives going? (how are they sustainable)
8. Who is involved with the food initiatives?
9. Do you still meet with a food advisory board?
    a. How often?
    b. Purpose of meetings?
    c. How many people show up?
    d. Who shows up? (Community leadership, community members?)
10. What is happening with the Farmers' Markets?
11. Are you still ordering from the same company in Toronto?
12. How often are the Farmers' Markets occurring?
13. How were the Farmers' Markets impacted during the pandemic?
    a. Curbside pick-up?
    b. Change in hours?
    c. Change incapacity?

d. Did that impact anyone's ability to access the food from the Farmers' Markets?

e. Are people still volunteering to help at the Farmers' Markets?

14. What is going on with the aquaponics system?

    a. Where do they come from?

    b. Have they been set up?

    c. Who takes care of them?

    d. Have they produced much?

    e. How is the food divided?

15. What is happening with the greenhouse/hoop house?

    a. Where did it come from?

    b. Who ordered it?

    c. What type of application did it require?

    d. How much time did it require to set up?

    e. Do people volunteer to help with set up and maintenance?

    f. What did you grow?

    g. How is the food divided?

16. What is the status of the community gardens?

    a. Are they still active?

    b. What did you grow in the summer?

    c. How was the food divided?

    d. Any volunteers?

    e. Any updates on the watering source?

<u>Part 2 - Purpose of Local Food Initiatives</u>

1. What does food insecurity mean to you?

2. What does food sovereignty mean to you?
3. What do the community and community leadership think of the food initiatives in the community?
    a. What sort of feedback have you gotten from the community about the food initiatives?
4. What is the purpose of the community gardens?
    a. What value do the community gardens bring?
    b. Do community gardens impact social, physical, mental, cultural, or economic life?
5. Do you think personal (individual or family) community gardens would be more successful than community gardens?
6. Are the community gardens worth the work they require?
7. What is your vision for food development?

Appendix B

Glossary of Terms

Term	Definition
Indigenous	"In Canada, the term Indigenous peoples (or Aboriginal peoples) refers to First Nations, Métis and Inuit peoples. These are the original inhabitants of the land that is now Canada." (The Canadian Encyclopedia, 2007)
Food security	"When all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (World Health Organization, 1996)
Food sovereignty	The right for people to define their own food and agricultural systems, to be self-reliant, and push for safe, healthy, and ecologically sustainable food production (R. Blanchet et al., 2021; Levkoe et al., 2019; Patel, 2012; Weiler et al., 2015; Windfuhr & Jonsén, 2005).
Traditional food	"First Nations traditional foods, also referred to as country foods, mainly consisted of animal and plant species that were harvested from the natural environment. They include foods such as wild meats, fish species, bird species, plants species, and berries. These foods were acquired by First Nations through traditional activities such as of hunting, fishing, and gathering throughout the different seasonal periods. These traditional harvesting activities also contributed to physical fitness and health, strong cultural identity and values, and their knowledge of the land, environment and way of life." (Assembly of First Nations, 2007)
Indigenous methodologies	Indigenous methodologist promote social values, relationships with the land, and community while placing emphasis on Indigenous voices and experiences while promoting deep relationships with the land (Gaudet, 2018). Wilson (2001) stated that Indigenous methodologies are greatly linked to relational accountability (Steinhauer, 2002).
Settler colonialism	"Settler colonialism is an ongoing system of

	power that perpetuates the genocide and repression of indigenous peoples and cultures. Essentially hegemonic in scope, settler colonialism normalizes the continuous settler occupation, exploiting lands and resources to which indigenous peoples have genealogical relationships. Settler colonialism includes interlocking forms of oppression, including racism, white supremacy, heteropatriarchy, and capitalism." (Cox, 2017)
Participatory action-based research	A social research method and practice where researchers collaborate with organizations and communities, where research is done with and for the community (Chataway, 1997; Greenwood & de Leeuw, 2012; Rains & Ray, 1995; Whyte et al., 1989).
Community-based participatory research	"Community-based participatory research (CBPR) is an approach to research that involves collective, reflective and systematic inquiry in which researchers and community stakeholders engage as equal partners in all steps of the research process with the goals of educating, improving practice or bringing about social change. At its core, CBPR questions the power relationships that are inherently embedded in Western knowledge production, advocates for power to be shared between the researcher and the researched, acknowledges the legitimacy of experiential knowledge, and focuses on research aimed at improving situations and practices". (Tremblay et al., 2018)
Store-bought / Imported market food	Lower quality, less available, energy-dense imported, foods that are available in stores located in Indigenous communities (Batal et al., 2005; Liebow & Trudeau, 1962; Sharma et al., 2010).
Indian Act	The Indian Act is Canadian federal law that controls what is considered Indian status, bands, and lands. The purpose of the Act was to enable the government to control and determine the land of Indigenous peoples, and regulate and have power over Indigenous lives and communities (Collis, 2021; Milloy,

	2008).

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