

Enacting Household Food Security in Saskatchewan's Far North

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By

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ABSTRACT

Questions have been raised about the applicability (context specificity) and appropriateness (cultural relevance) of existing frameworks and the indicators used to measure and monitor food security in communities located throughout Canada's circumpolar region. Developed primarily for use in more urban areas located to the south and with non-Aboriginal populations such frameworks have arguably failed to take into account the unique food perspectives and practices of the Inuit, First Nation and Métis peoples who live in the north. A call for both improved food security concepts and measures that are relevant to and capture the local characteristics of northern communities and its people are required.

Taking a post modern ethnographic approach the purpose of the current study was to develop a holistic understanding of food security in Stony Rapids, a remote predominantly Aboriginal community in Saskatchewan's far north. Immersed in day to day life for a period of three months an ethnographic record of household food security was produced through participant observation (P-O) activities, interviews and photographs. These activities occurred both within the community and within three households that agreed to participate in the study.

Analysis occurred in two phases. The first phase was informal, occurred throughout the duration of the field work, and involved reading and rereading field notes and sharing of observations and insights with household participants and key informants. The second phase of analysis began after leaving the field and data collection had ended. In a formal process, thematic analysis grounded in the data was used to reduce, make sense, and derive meaning from the field notes and interviews.

Emerging from the analysis, findings suggested that food moves into and within northern households via three dominant pathways that originate from the sources of food that are available to and accessed by households in Stony Rapids. The movement of food vis-à-vis these three dominant pathways was found to be dependent on a constellation of regional and/or community level factors as well as structural factors that were unique to each household. These factors taken together not only influence the capacity of households to access food but also influence how food is utilised within the home. This study produced a novel way of understanding northern food security that has relevance for the measures that may be developed to capture this issue and thereby inform appropriate and effective intervention strategies.

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DEDICATION

I wish to dedicate this thesis to the most influential person in my life, my mom. Mom you are to be honoured for the tenacity you've shown in supporting my educational endeavours. You've been there from the start, holding my hand on the first day of school, helping me get through grade nine Language Arts, demanding my right to higher education, and forever encouraging me to learn. For that, I thank you. Love you mom.

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LIST OF TERMS

AHA	Athabasca Health Authority
FAO	Food and Agriculture Organisation of the United Nations
NGO	Non-governmental organisation
P-O	Participant Observation
POP's	Persistent organic pollutants
Aboriginal	A collective name for the original people of North America and their descendants. The Canadian Constitution (the Constitution Act, 1982) recognizes three groups of Aboriginal peoples — Indians, Métis and Inuit. These are three separate peoples with unique heritages, languages, cultural practices and spiritual beliefs. (www.ontario.ca)
First Nations	Refers to Status and Non-Status "Indian" peoples in Canada.
Inuit	Refers to original people of Arctic Canada. Inuit live primarily in Nunavut, the Northwest Territories and northern parts of Labrador and Quebec. (www.ontario.ca)
Métis	Refers to a person who self-identifies as Métis, is distinct from other Aboriginal peoples, is of historic Métis Nation Ancestry and who is accepted by the Métis Nation (www.metisnation.ca)

Chapter 1 Introduction

Food security remains an ongoing challenge in many Aboriginal communities located throughout Canada's circumpolar region. Households in these communities regularly experience food shortages, fear of food shortages, and lack of choice in food and diet (Chan et al., 2006; Ford & Berrang-Ford, 2009; Myers, Powell, & Duhaime, 2004). In 2007, Dieticians Canada reported that between 40 to 83% of northern households in Canada were food insecure.

Attempts to respond to such issues have been met with limited success. Food policy approaches, in general, have been simplistic and one dimensional (Pottier, 1999), and for the most part have failed to address both the extent and complex nature of food security (Renzaho & Mellor, 2010). The Food Mail program (FMP) is one example. Focusing primarily on improving household access to healthy and nutritious market foods the policy failed to take a comprehensive look at other structural factors related to food access and utilisation within northern households. The program typically had the unintended effect of further eroding traditional food practices and customs (Myers et al., 2004); creating further food inequities not only among northern households (Chan et al., 2006) but between northern communities (Darko, 2008) and reducing access to markets food considered culturally relevant (e.g. flour, lard), but deemed unhealthy under the policy (Darko, 2008).

The limited success of policy responses, such as the FMP, can be attributed in part, to how food security has been defined, understood and subsequently approached in Canada's circumpolar region. Questions are raised about the applicability (context specificity) and appropriateness (cultural relevance) of existing frameworks and the indicators used to measure and monitor food security in northern settings and with Aboriginal peoples (Power, 2008).¹ Developed primarily for use in more urban areas located to the south and with non-Aboriginal populations such frameworks fail to take into account the unique food perspectives and practices of Aboriginal peoples (Power, 2008).

Inherent to how food security is defined and conceptualised approaches to its study have also been guided by narrow conceptions of health. Such approaches have stressed the biological importance of food and focused on dietary intake, nutritional status and outcomes related to physical well-being (Fozzino & Loring, 2009; Loring & Gerlach, 2008; Wolfe & Frognillo,

¹ In keeping with the language used by the author, the term Aboriginal is used to refer to Inuit, First Nations, and Métis peoples.

2001). Problematic of such approaches has been the tendency to down play the role of food and food culture, and its contribution to other aspects of individual and community health including psychological, psychosocial and sociocultural health (Fozzino & Loring, 2009; Loring & Gerlach, 2008; Wolfe & Frognillo, 2001). As Fozzino & Loring (2009) point out, food and food culture in the north are linked to health across many levels of participation in the food chain; from food production and/or harvesting to preparation and consumption.

A more holistic understanding of food security in the north is required given these limitations. Both improved food security concepts and measures that are relevant to and capture the local characteristics of northern communities and its Inuit, First Nation, Métis peoples are required. To do so, means capturing the specific set of characteristics unique to and that play a role in household food security in the north.

Purpose of the Study

The purpose of this study then, was to develop a more holistic understanding of northern food security, where improved food security concepts that are relevant to and capture the local characteristics of northern communities and its peoples are required. Such concepts are important for the development of better measures that appropriately capture food security in the north and that can be used to inform appropriate and effective intervention strategies. Locating the study in Stony Rapids, a remote predominately Aboriginal community in Saskatchewan's far north, two main objectives were put forth. The first objective describes food security as experienced by households in this community. Research questions one and two, address this objective and directly examine how food moved into and within these households. The second objective, informed by research question three, proposes the development of a novel framework for understanding and measuring food security. Each of these objectives and corresponding research questions are considered below.

Research Objective 1: Describe the lived experience of household food security in the remote northern community of Stony Rapids, Saskatchewan.

1. How does food move into northern households?
 - What are the food sources available to households?
 - What types of food are available from these sources?
 - How do households procure/produce food? Which food sources are selected from and why? What types of food are chosen?

- What barriers/opportunities influence household access to and the availability of the food?
2. How does food move within northern households?
 - How do households manage resources to purchase or produce food?
 - How is the food supply managed within the household?
 - How is food prepared, distributed, and consumed within the household?

Research Objective 2: Develop a framework of food security that is relevant to and captures the local characteristics of Stony Rapids and its people.

3. How do the answers to questions 1 & 2 inform our understandings of food security and the measures used to capture food security at the community level?

Methods and Results

The study took a post modern ethnographic approach to understanding food security in Saskatchewan's far north. Living in the community of Stony Rapids, Saskatchewan for a period of three months (November-February) an ethnographic record of household food security was produced through participant observation (P-O) activities, interviews and photographs. These activities occurred both within the community and within the three nuclear households that agreed to participate in the study.

Analysis occurred in two phases. The first phase was informal and occurred throughout my time in the field. The analysis involved reading and rereading field notes, as well as sharing observations and insights with household participants and key informants field notes. The second phase of analysis began after leaving the field and data collection had ended. In a formal process, thematic analysis grounded in the data was used to reduce, make sense, and derive meaning from the field notes and interviews.

Emerging from the study, findings suggest that food moves into and within northern households via three dominant pathways that originate from the sources of food available to and accessed by households in Stony Rapids. The movement of food vis-à-vis these three dominant pathways was found to be dependent on a constellation of regional and/or community level factors as well as structural factors that were unique to each household. These factors taken together not only influence the capacity of households to access food but also influence how food is utilised within the home. This study produced a novel way of understanding northern

food security that has relevance for the measures that may be developed to capture this issue and thereby inform appropriate and effective intervention strategies.

Organisation of the Thesis

This thesis is divided into five chapters. Chapter one introduces the topic and purpose of this research, outlining the research objective and questions posed to guide and develop a more in depth understanding of food security in Saskatchewan's far north. Chapter two reviews the food security literature, and provides the necessary background knowledge to understand the significance of this research. Chapter three describes the methodological approach taken and the methods used for data collection and analysis. Chapter four is a presentation of the findings. Finally chapter five offers a discussion of the findings and proposes both a conceptual framework of northern food security and a framework for its measurement. Chapter five also includes a discussion of the strengths and limitations of this study and concludes with directions for future research.

Chapter 2 Literature Review

This chapter is divided into two sections. The first section explores existing ideas of food security, examining the evolving use of the concept and how the term is defined and used today. This is followed by a critical examination of an existing framework of food security, and the limitations it imposes for use in northern households and communities. An integrated health framework for approaching and understanding food security in the north is also proposed.

The second section of this review summarises what is currently known about food and food security in the north and supports the demand for alternative ways of understanding and approaching the measurement food security in the north. This section begins by describing the characteristics of northern food systems and their use within northern communities and is followed by an examination of the various stressors that influence food availability and household access to food.

Food Security: Evolution, Definition

The concept of food security is complex and multidimensional. In the last fifty years numerous definitions of the concept, have both evolved and emerged within the food security literature (Renzaho & Mellor, 2010) (Table 2.1). Food issues both on the global and local stage, along with changing ideas about food and its connection to human health have figured prominently in this evolution. More than 200 definitions and 450 indicators of food security have been identified (Hoddinott, 1999).

Early concepts of food security (although not formally recognised as such) were developed in response to the food restrictions and shortages experienced both during and following World War II. Focusing on human rights and emphasising “the right to food” and/or “freedom from hunger” (Fairbairn, 2010, Chapter 2), the concept of a secure, adequate, and suitable supply of food for everyone was internationally accepted in 1943 (Gross, Schoeneberger, Pfeifer & Preuss, 2000). Food aid figured prominently during this time and by the 1950’s agricultural surpluses from donor countries like Canada and United States were given to help feed the world’s growing population (Gross et al., 2000).

By the mid 1970’s the global food crisis, due in part to inclement weather and crop failures, decreased anchovy stocks to make animal feed, and the oil embargo forced international leaders to re-evaluate their accustomed approach to food and hunger (Fairbairn, 2010, Chapter 2). At the 1974 World Food Conference, the concept of food security made its

official debut. It was universally accepted that the wellbeing of people could be achieved through the establishment of a world food security system (Unspecified, 1974). The focus was to solve the world's food problems through better coordination and surveillance of the food supply (Gross et al., 2000).

Table 2.1. Evolution of Food Security Concept

Decade	Food Movement	Global Response	Conceptual Focus
1940-50's	Post World War II (food restrictions and shortages)	Food Surplus Disposal; Food Aid	Global/National; "Right to Food"/ "Freedom from Hunger"
1960's	Food Aid recognised as barrier to self-sufficiency	Food for Development; World Food Program (WFP)	Global/National
1970's	World Food Crisis (1974)	Food Assurance (coordination and monitoring of food supply)	Global/National; Food First Perspective
1980's	African Famine, Poverty and Famines (Amartya Sen; Nobel Prize)	Broadened Food Security (access, vulnerability, entitlement)	Household and Individual; Livelihood Perspective
1990's	Human Right to Food and Nutrition Reaffirmed	Freedom from Hunger and Malnutrition (crisis management and prevention)	Household and Individual; Sustainable Livelihood Perspective
2000's	Poverty reduction and Achievement of the Millennium Development Goals	Adequate food and nutrition	Individual Nutrition Security

Adapted from Gross, Schoeneberger, Pfeifer & Preuss, 2000; Weingärtner, 2004

Definitions of food security that emerged during this time emphasised the importance of national food stocks and storage mechanisms to offset fluctuations in the global food supply

(Gross et al., 2000) and emphasized the responsibility of the state (through national development and international cooperation) to ensure an adequate food supply for its current and projected populations (Fairbairn, 2010, Chapter 2). From the early 1980's the analysis of food security increasingly shifted its focus from international and national food security to individual and household food security (Maxwell & Frankenberger, 1992). The influential work, of Nobel Prize winner Amartya Sen placed emphasis not on the availability of a national food supply but rather on the economic purchasing power of households or individuals (Fairbairn, 2010, Chapter 2). Food emergencies and even famines were not only caused by shortfalls in national food production but were also the result of issues related to food access of specific groups, households or individuals (Fairbairn, 2010, Chapter 2; Gross et al., 2000; Maxwell & Frankenberger, 1992). In 1983 the Food and Agriculture Organisation of the United Nations introduced access as an additional dimension of food security (Renzaho & Mellor, 2010). The concept of food security encompassed household access, vulnerability, and entitlement (Maxwell & Frankenberger, 1992) and by the late 1980s was brought closer to the poverty agenda (Fairbairn, 2010, Chapter 2). In response, "donor organizations, local governments and non-governmental organizations (NGOs) began to incorporate more extensive socio-economic information in their diagnosis of food insecurity" (Frankenberger & M^c Caston, 1998, p. 30).

The concept of food security continued to evolve well into the mid 1990's. During this time food security initiatives became more focused on eradicating or reducing hunger and malnutrition (Gross et al., 2000). Ideas of food safety, nutritional balance, and food preference were considered important proponents in achieving this goal (Food and Agricultural Organization of the United Nations (FAO), 2003, Chapter 2). The expanded definition of food security reflected concerns about food composition and nutrient requirements, as well as social and cultural considerations related to food choice (FAO, 2003, Chapter 2; Renzaho & Mellor, 2010). As Maxwell and Frankenberger (1992) suggest, emphasis shifted from simple assumptions about household access and food systems to the influence of health and disease, caring capacity, environmental sanitation and the quality and composition of dietary intake on nutritional outcomes.

In the context of development, poverty reduction and the achievement of the Millennium Development Goals, food security for much of the 2000's has tended to focus on the dietary intake and resulting nutritional outcomes of individuals (Weingärtner, 2004). Food security is no

longer considered as an outcome but rather a means of achieving nutrition security. That is ensuring that all people have adequate food and nutrition for an active healthy life. This is largely achieved by addressing concerns of under nutrition and over nutrition at the individual level (FAO, 2000, Part 2). Under this guise the intake of micronutrients and calories including, their quality and balance, and other aspects of bioabsorption, and biodiversion have become important considerations of food “nutrition” security.

Food security is a concept that spans a spectrum from the individual and household to the national and global level (Maxwell & Frankenberger, 2000). The concept emphasises consumption, the demand for an adequate food supply, and issues of access by vulnerable people to food (FAO, 2003). It also stresses the importance of food quality and cultural preferences (Carletto, Zezza, & Banerjee, 2013) and the importance of nutritional balance and adequacy (Weingärtner, 2004). Food security is no longer a goal in itself but an intermediating set of actions that contribute to an active and healthy life (Clay, 2002). In accordance with the FAO (2003, Chapter 2) definition, food security is defined as “a situation that exists when all people, at all times have physical, social and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active healthy life”, p.47. In contrast, when people do not have adequate physical, social, or economic access to food as defined above, food insecurity is said to occur. Food insecurity may be considered as a consequence of a mix of food supply, access and utilisation factors and the influence of other economic, social and cultural factors on these dimensions (Innes-Hughes, Bowers, Chapman & Eden, 2010).

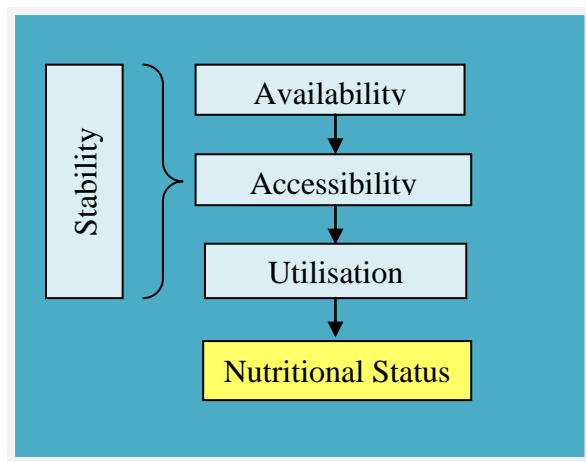
Conceptual Framework of Food Security

A multitude and diverse body of food security frameworks have been proposed and exist within the food security literature. Much of this diversity is reflected in how the term food security has been used. Food security frameworks may vary according to the level of analysis used (global, national, household, or individual), the geographical focus taken, or the conceptual starting point or programmatic priority (Maxwell & Frankenberger, 1992). Despite the approach taken, many of these frameworks reflect an understanding of one or more of the concepts defined by the term food security. These may include aspects related to food availability, access, and use.

Consistent with the definition of food security, a particular framework that seems to pervade the literature is one developed and used extensively by the Food and Agricultural Organisation of the United Nations (Figure 2.1). Their concept of food security is comprised of

four main dimensions and includes food availability, access, utilisation, and stability. Referred to as physical determinants, the dimensions of availability, access, and utilisation determine food flows at the global, national, household and individual level (Gross et al., 2000).

Figure 2.1. Conceptual Framework of Food Security (FAO, 2003)



In contrast, stability is referred to as a temporal determinant that exerts its effect across all three physical dimensions over time. Figure 2.1, illustrates the hierarchical relationship among these dimensions within the FAO's conceptual framework of food security. Notably, each dimension contributes to food security, but no one dimension on its own is capable of producing food security (Barrett, 2010; Renzaho & Mellor, 2010). For example, while availability of food is a necessary component of food security, it does not guarantee food access. Food security can be influenced by the household's purchasing power and its access to resources. Likewise access to food alone does not necessarily guarantee that a household or its members are food secure. Food must also be properly utilised; nutritious, evenly accessed and distributed within the household (Barrett, 2010; Renzaho & Mellor, 2010).

Apparent in this framework, is a focus on nutritional status as an outcome of food security rather than food security itself. The focus on nutritional status is consistent with shifting ideas about food security that have occurred in this decade (previously discussed). This framework while I recognise it here is later refuted given the limitations it places on understanding the influence of food security on other outcomes of health including cultural, psychological and sociocultural health (Loring & Gerlach, 2008). What is important to take away, is that food security is a multidimensional concept defined by food availability, access, utilisation and stability. Each of these dimensions is discussed in further detail below.

Food availability. The dimension of food availability addresses the supply side of food security and focuses on the global and local production of food, stock levels and trade (Innes-Hughes et al., 2010). It may also refer to the food supplies available at the community or household level (Weingärtner, 2004). The availability of sufficient quantities as well as the appropriate quality of food is, in part, determined by location and the availability of food, cost structures, level of competition and consumer demand (Innes-Hughes, Bowers, Chapman and Eden, 2010). Food availability is critical to ensuring food security globally, nationally, and at the individual and household levels.

Food access. In contrast, the dimension of food access is associated with household and individual food security and is concerned with the ease and difficulty of obtaining food from the market and or other sustainable food system(s). It may refer to physical access as in location and distance from an available food source, economic access or purchasing power, or entitlements that allow access to traditional land (Ministry of Agriculture and Co-operatives (MOAC), 2005). “Access is ensured when all households and all individuals have the resources to obtain appropriate food through production, purchase, or donation” (Gross et al., 2000, pg. 5).

Food utilisation. Food use and utilisation focuses on how much food people eat and also what and how they eat. Decisions are made concerning what food is to be purchased, prepared, consumed, and allocated within the household (Weingärtner, 2004). It includes two forms: physical utilisation and biological utilisation (Renzaho & Mellor, 2010). Physical utilisation reflects having the physical means to use food that is available. It may include tangible items like cooking utensils, adequate housing and/or cooking spaces, as well as the intangible such as intrahousehold distribution and family structure, cultural acceptance, cuisine patterns, cooking techniques and workload (Innes-Hughes et al., 2010; Renzaho & Mellor, 2010). In contrast, biological utilisation refers to the ability of the body to effectively use food (nutrients) once it is has been consumed. Factors such as illness or disease may impact food use and compromise food security at the individual, household, and/or community level (MOAC, 2005).

Stability. The dimension of stability (sustainability) is a temporal determinant that affects all three physical dimensions over time. Stability captures the susceptibility of a population, household or individual to food security due to interruptions in access, availability or utilization (Gross, 2000). The temporal aspect of stability distinguishes between chronic and

transitory food insecurity (Maxwell & Frankenberger, 1992). Chronic food insecurity reflects a long-term or persistent lack of access to adequate food, and is typically associated with structural problems of availability, access or utilization. Transitory food insecurity, by contrast, is associated with sudden and temporary short-term disruptions in availability, access or, less commonly, utilization (Gross et al., 2000; Maxwell & Frankenberger, 1992). In order to be food secure, stability must be achieved across all three physical dimensions: food availability, access, and utilisation.

Limitations of Existing Food Security Frameworks

How food security is defined, and conceptually understood influences the choice of indicators used to measure food security (Frankenberger, 1998). Serving multiple purposes ranging from assessment, monitoring, and evaluation; food security measures remain important for informing program and policy development, and the strategies that are used to respond to and address food security issues. The appropriate selection and use of food security indicators however, is not an easy task. Measurement problems are associated with how food security has been understood and approached, both generally, and more specifically, in a cross cultural context. This has direct implications for the success of public health policies and programs designed to address food security issues.

Applicability and appropriateness. Frameworks and indicators used to assess, monitor and evaluate food security, for the most part, have been developed and used in a non-Aboriginal context (Power, 2008). Questions are raised about their applicability (context specificity) and appropriateness (cultural relevance) for use in remote/northern settings and with Aboriginal peoples (Power, 2008). In Canada, for example much of the food security research has focused on low income households located in metropolitan and urban areas in the southern part of the country (Dieticians of Canada, 2005). Frameworks and indicators developed in these environments are neither context specific nor culturally relevant for use with northern and/or Inuit, First Nation or Métis populations. As such, they do not take into account the local characteristics of northern settings nor do they promise to capture the unique food perspectives and practices of Aboriginal peoples (Power, 2008).

Unique to Inuit, First Nation, and Métis households and in particular those located in northern communities is the use and consumption of food accessed from the market system and from the land (Chan, et al., 2006; Duhaime, Chabot, & Gaudreault, 2002; Ford, 2010; Goldhar,

Ford, & Berrang-Ford, 2010; Power, 2008). Integrated at the level of the household, movement between these two food systems is dependent on opportunities for participation in either system, and according to household and individual food preferences (Usher et al., 2003). In addition, food accessed from the land has specific practices tied to its harvest, preparation and consumption (Loring & Gerlach, 2008; Nuttal, 2004; Power, 2008). These practices are not only integral to cultural identity and the maintenance of culture, but also form the basis of social activity, social cohesion, and social integration within these communities (Chan et al., 2006; Lamden, Receveur, & Kuhnlein, 2007; Nuttal, 2004; Power, 2008). As Power (2008) suggests, food security for Aboriginal people must take into account both market and traditional food consumption, as well as capture the cultural and social meaning tied to its use. This is especially important given the legacy of colonisation which aimed to destroy Aboriginal identity (Adams, 1994; Hanrahan, 2008; Kirmayer, Simpson, & Cargo, 2003). Capturing such aspects acknowledges and affirms the importance of traditional food use and its connection to identity.

Inherent to how food security is defined and conceptualised (Figure 2.1), approaches to its study have also been guided by narrow conceptions of health. Such approaches have stressed the biological importance of food and focused on dietary intake, nutritional status and outcomes related to physical well-being (Fozzino & Loring, 2009; Loring & Gerlach, 2008; Wolfe & Frognillo, 2001). Primarily concerned with the physiological and nutritional importance of food and its association with physical health, most responses to food security have been targeted at supporting healthy nutrition environments (Fozzino & Loring, 2009; Renzaho & Mellor, 2010). Focus is placed on making healthier food more accessible and affordable and thereby making healthier foods an easier choice (Fozzino & Loring, 2009). Problematic of such approaches, however, has been the tendency to down play the role of food and food culture, and its contribution to other aspects of individual and community health including psychological, psychosocial and sociocultural health (Fozzino & Loring, 2009; Loring and Gerlach, 2008; Wolfe & Frognillo, 2001). As Fozzino & Loring (2009) further point out, food and food culture in northern Aboriginal communities are linked to health across many levels of participation in the food chain; from food production and/or harvesting to preparation and consumption. In these communities especially, culture has a strong impact on food behaviour related to food choice, methods of food preparation, and eating (Chan et al., 2006; Lamden, et al., 2007), as well as on customary systems of food-sharing and food distribution both within the community and the

household (Mead, Gittelsohn, Kratzmann, Roache, & Sharma, 2010; Nuttal et al., 2004; Puffal et al., 2012).

Misguided approaches and measures. How we understand food security in the north is also limited by the use of conceptual frameworks that fail to consider the multiple domains (availability, access, utilisation, stability) and range of structural factors (cultural, economic, political, social) influencing food security (Pottier, 1998). At the household level, for example, food security is often measured in terms of household access to food. Inter-linkages between other domains of food security such as food availability and/or utilisation are often not considered nor examined in conjunction with food access (Pottier, 1998; Power, 2003). Food access alone, however, does not translate into household food security. Household food security is influenced by food availability, household purchasing power and access to resources, as well as the distribution of and ability of all members within the household to utilise available food (Renzaho & Mellor, 2010). Many factors ranging from political and economic factors, cultural and ideological norms, to family structure and dynamics influence and decide the type of food that is available and purchased, how the food is distributed and prepared, and who will eat and not eat. As Renzaho and Mellor (2010) further point out, inattention to such details and an over emphasis on food access alone has led to failed attempts to appropriately identify and respond to household food issues. The authors cite food deserts and the connection made with household food insecurity as but one example. In such cases, direct linkages are made between impoverished food environments (e.g. greater occurrence of fast food outlets), decreased household access to nutritious foods, and poor nutritional status. Focusing on creating greater availability and improving access to nutritious foods, are responses to the problem that tend to ignore other social or cultural factors that are related to food access (e.g. food sharing) and utilisation (e.g. food preferences) (Renzaho & Mellor, 2010).

In general, policy approaches to food security issues, have also been somewhat misguided. Simplistic and one dimensional many of these have failed to address both the extent and complex nature of food related issues (Pottier, 1999; Renzaho & Mellor, 2010). In Canada's north, the failure of the Food Mail program (FMP) is but one example. Focusing primarily on creating household access to healthy and nutritious market foods, through shipping subsidies, the policy failed to take a comprehensive look at other economic, social and cultural factors related to food access and utilisation in northern households. The program typically had the unintended

effect of further eroding traditional food practices and customs (Myers et al., 2004); creating further food inequities not only among northern households (Chan et al., 2006) but between northern communities (Darko, 2008); and reducing access to markets food considered culturally relevant (e.g. flour, lard), but deemed unhealthy under the policy (Darko, 2008).

Diluting use of the concept further, approaches to household food security have generally been understood and measured in terms of economic access only. Consideration is given to the cost of market food within a particular geographic region, community, or neighborhood (e.g. market basket survey) and the availability of disposable household income to purchase food. Household annual income, for example, is commonly used as a key indicator of household food insecurity (Cooke, 2008; Kirkpatrick & Tarasuk, 2008; Willows, Veugelers, Raine, & Kuhle, 2008). As a key marker of vulnerability, however, annual income does not provide detailed information about household economic circumstances, changes in economic circumstances (Kirkpatrick & Tarasuk, 2008), nor does annual income account for the total variation in food insecurity (Cook, 2008). As suggested by Cooke, 2008; Kirkpatrick & Tarasuk, 2008; and Willows et al., 2008, other unexplored or unmeasured factors may be involved in household food security. They include but are not limited to housing, utility and transportation cost, the availability of social programs (food bank, school lunch programs), or support of family and friends.

Similarly, the use of household income as a predictor may not be appropriate for all households (Webb et al., 2006). This especially holds true in households that may produce their own food (Webb et al., 2006), or where food sharing is promoted within and among households (Renzaho & Mellor, 2010). Other structural factors such as social and cultural norms (e.g. sharing), and the physical environment (geographic remoteness) also play an important role in household food access. Again, such factors tend to be less studied and are not typically measured in household food security surveys.

Surveys used to assess and monitor food security have tended to concentrate on quantitative indicators measuring food cost and quantity, and adequacy of dietary intakes (Lamden et al., 2007). The United States Department of Agriculture (USDA) household food security module, for example, has been repeatedly used for such purposes. Focusing solely on financial means and access to market food, items on the survey do not cover access to traditional food systems (Egeland & Pacey, 2010; Gerlach & Loring, 2013) nor do items take into account

the use and importance of traditional foods, harvesting practices and food sharing systems (Huet, Rosol, & Egeland, 2012). Items on the survey also lack construct validity and are not relevant for use with Aboriginal populations (Huet et al., 2012). Better suited indicators might include levels of traditional food knowledge, access to traditional food systems, and the safety of traditional food (Power, 2008).

Reframing Food Security in Canada's North

Following from the review, there is an apparent need for a more holistic understanding of household food security in the north. Both improved food security concepts and measures that are relevant to and capture the local characteristics of northern communities and its Inuit, First Nation, Métis, and non-Aboriginal peoples are required. An integral part of this development, I argue is to situate this understanding within the context of a northern community. To do so, is to capture the specific set of characteristics that are unique to and also play a role in northern food security. This can be achieved by objectively and definitively observing a community and/or household over time (Wolfe & Frognillo, 2001), and/or by involving communities and their residents in a way that reflects their experiences or perspectives of food security.

Supported by the Inuit Circumpolar Council-Alaska (ICC-Alaska) a food security project is currently underway to address this need (Behe, 2013). Conducting semi directive interviews, community meetings and workshops in 14 Inuit villages, the project aims to provide an understanding of food security from an Inuit perspective, provide a tool to assess food security across cultural and environmental systems, and identify what will need to be monitored in order to create action plans. To date, several drivers impacting the accessibility and availability of food in these communities have been identified. Some of these are interconnected with changes brought on in the arctic by education, language, passage of knowledge and change in animal migration patterns, health and populations. As Behe (2013) suggests, understanding these interconnections is important for developing both an understanding of Inuit food security and a holistic view of Arctic ecosystems.

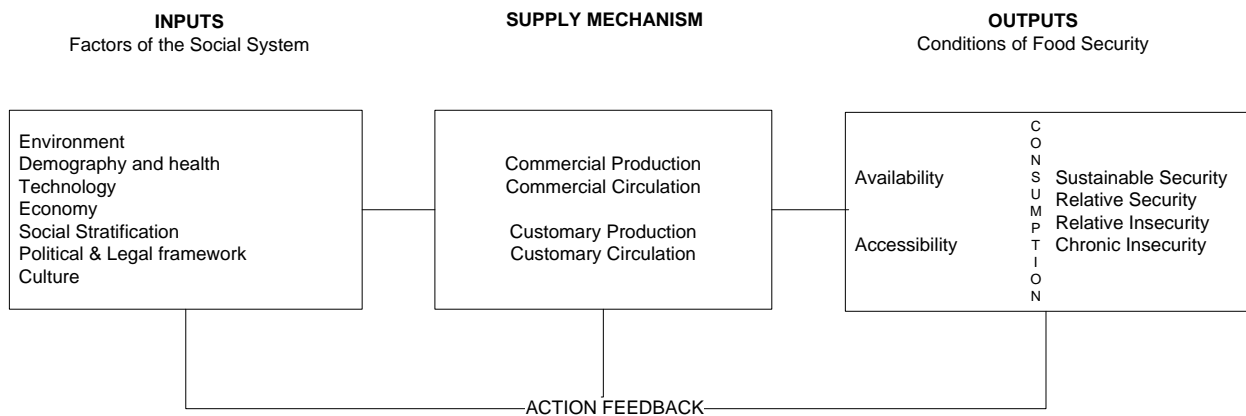
In an alternative approach, Duhaime and Godmaire (2002) propose an integrated conceptual framework of food security using published literature from the field.² The proposed framework integrates components of the food system, assumes multiple interrelations and allows an analysis of the state of food security. Developed for general use, the framework is applicable

² In the authors' analysis of the literature very few of the works dealt with the circumpolar arctic.

to all food security situations irrespective of geography and the variations that are found in given area or region. As Duhaime and Godmaire (2002) argue, the framework is intended to provide a systematic checklist that guides the examination of food security. Differences in latitude, temperature, local resources, and adaptations among different geographies are nothing more than useful variations indicating the relevance of the variables they illustrate (Duhaime & Godmaire, 2002).

In brief, the framework considers three elements: Inputs (factors of the social system), supply mechanism (commercial and customary), and outputs (conditions of food security). These three elements are linked together by multidirectional ties and interact with one another according to all possible combinations (Figure 2.2).

Figure 2.2. Sustainable Food Security System (Duhaime & Godmaire, 2002, p.19.)



Recognised within the framework are also the dimensions of space or level analysis and time. Different levels, for example, whether global, national, regional, local, household, and individual are interrelated and together exert their influence on food security. The state of food security at a given time and in a given geographical area may also be assessed by considering the multiple influences between these variables.

A potential drawback of this framework however, is its functionality and/or readiness for use in making actual assessments of food security. Little is known about which variables should be measured across the social system, supply mechanism, and conditions of food security. As Duhaime and Godmaire (2002) point out, much development work remains including:

- the identification of variables that influence the social system, supply mechanism and conditions of food security;
- examination of these variables and the various permutations that these variables may exhibit and
- examination of the interrelations between variables and of categories of variables.

Development of a more holistic understanding also requires reframing how we approach and understand food security. In the context of this research, I draw upon an integrated model of health proposed by Loring and Gerlach (2009) that links food security to sociocultural, ecological, psychological, and biomedical aspects of individual and community health. The selection and use of an integrated health model expands both the role of food security and discussion about the concept beyond nutrient intake, nutritional status and physical health. This is especially important in a cross cultural context, where participation in food related activities (e.g. harvesting, production, preparation, and consumption) play an important role in psychological, psychosocial and sociocultural health. For that reason, place-based social and cultural considerations of food access and utilisation must be incorporated in the relationship between food and health (Loring & Gerlach, 2008).

In support, Gerlach and Loring (2013) premise their food security work in Alaska using such a model. Unlike the limitations proposed by conventional methodologies and frameworks, a holistic approach as they suggest, allows for a greater understanding of the contemporary drivers (e.g. nutrition transition) and determinants impacting food, livelihoods and ultimately the health of northern people and their communities.

Northern Food Security

Much of what is known about Northern food security is taken from research conducted throughout the far north and arctic region: including communities located in parts of Alaska; Canada's Yukon, the Northwest Territories, and Nunavut; as well Greenland. Inhabited mainly by First Nations Dene and/or Métis, the Inuit and Saami peoples, respectively, what is presented herein reflects or captures the features of food security unique to the peoples who live in these communities.

I begin by characterising what is known about food security in the north; describing how place, practices, and processes link food on its path from production/acquisition to consumption within northern households. This is followed by a review of the economic, social, and environmental factors influencing both the availability of and a household's access to food.

Historical implications. Prior to European contact, Inuit and First Nations peoples in the north practiced a nomadic, hunter-gather way of life. Living off the land, in small camps, they practiced a seasonal round of food acquisition activities, and relied on a variety of wild plant, animal, bird and fish species for subsistence (Hanrahan, 2008). Over a period of several hundred years much social change imposed by the outside forces of explorers, missionaries, settlers, colonial, and post colonial governments were experienced by the Inuit, First Nation, and Métis peoples in Canada. Significant social changes were documented in a shift from a subsistence way of living to a market and wage economy, as well as a shift from a nomadic to settled way of life (Hanrahan, 2008). Forced settlement and resettlement (Hanrahan, 2008), along with structured schedules of employment, and formal education reduced time for hunting and gathering, and forced a greater reliance on store bought foods (Mead, Gittelsohn, Kratzmann, Roache, & Sharma, 2010). Similarly, aggressive assimilation measures such as the introduction of residential schools further eroded such practices by removing Aboriginal children from their families and their communities (Kirmayer, Simpson, & Cargo, 2003). At these schools the learning and use of traditional knowledge, and skills, and foods were limited or discouraged (Mead et al., 2010) and children were forced to become more like British Canadians (Kirmayer et al., 2003). The impact of colonisation resulted in rapid changes to culture, diet and health (Kirmayer et al., 2003). The northern diet significantly changed from the pre-contact to post contact period with a greater consumption of market (imported) foods compared to traditional food consumption (Duhaime et al., 2002). Today, a mix of food from the land and the market system are available to, accessed and used by households in the north (Chan, et al., 2006; Duhaime et al., 2002; Ford, 2010; Goldhar, Ford, & Berrang-Ford, 2010). Each of these food systems and their use among northern peoples is discussed in the sections that follow.

Food from the Land System

Characteristic of the natural resource base food obtained from the land may include a variety of marine and/or terrestrial mammals, fish and bird species, and a plethora of plants and berries, unique to each northern region and community. Bound by place, their use is highly

dependent on their seasonal availability and/or migratory patterns. Hence a diversity of species is used to make up the northern diet (Nuttal et al., 2004). In the Yukon First Nation community of Old Crow, for example, a variety of meat, fish and berries common to the area, including caribou, salmon, blueberries, salmon berry and low bush cranberries are consumed at various times throughout the year (Wein, Dickson, & Chan, 2011). These sources of food are often referred to as traditional or country foods. For the purpose of this review I will refer to them as traditional foods. This is in keeping with the idea that food is connected to the cultural and spiritual customs and practices associated with their use.

Traditional foods may be accessed by households through their own harvesting efforts, through intra food sharing networks with family and by trading (Chan et al., 2006; Goldhar, Ford, & Berrang-Ford, 2010). In their study of Igloodik households, Ford and Berrang-Ford (2008) found that 80% of household received traditional food through sharing with family members. In other arctic communities, traditional foods may also be purchased from local grocery stores, outdoor markets or directly from hunters in the community (Chan et al., 2006; Ford and Berrang-Ford, 2008; Goldhar et al., 2010). Traditional food may also be traded in exchange for goods and services such as in the use of fishing and hunting equipment, or in exchange services like sewing (Goldhar et al., 2010).

Preference. Traditional foods are the preferred option and part of the cultural heritage of many Inuit, First Nation, and Métis peoples. These foods connect people to the community, the land and the past through food harvesting and sharing practices (Mead et al., 2010; Nuttal et al., 2004; Puffal et al., 2011) as well as through the elicitation of stories and memories instilled by their use (Puffal et al., 2011). The physical aspects of traditional food such as taste, safety and quality, and greater variety also make traditional food a preferred option, over market foods purchased from the south (Lamden et al., 2007; Puffal et al., 2011) Among the Labrador Inuit, traditional foods such as wild meat were reported as tasting better than chicken, ham, beef; fresher; provided a greater variety; and safer to eat because of no additives, hormones or antibiotics (Puffal et al., 2011). Similarly, Yukon First Nation Dene and Métis woman (>20 years of age) reported appreciating the freshness, affordability and taste of traditional foods (Lamden et al., 2007). Among their favourites were caribou, moose, white fish, and rabbit.

While many northerners prefer traditional foods, generation differences between adults and young people have been reported in a number of studies (Pars, Osler, & Bjerregaard, 2001;

Puffal et al., 2011; Wein, Freeman, & Makus, 1996). Young people in particular are not eating traditional foods like they used to. In the Inuit community of Nain, residents cited that many youth preferred market foods like chips and pop over traditional foods (Puffal et al., 2011). Chan et al. (2006) noted similar patterns in several other Inuit communities where younger generations were consuming greater amounts of convenience and confectionary foods than traditional foods. In Greenland, changing food patterns have also been noted among Inuit communities. Pars et al. (2001) found that Elders consumed considerably more traditional foods than youth. Youths' desire for variation in diet using market foods was cited as one reason for this difference.

Consumption of traditional food. Despite a preference for traditional foods many northern households rely on a mix of traditional and market foods to support their food needs (Chan et al., 2006; Duhaime et al., 2002; Ford & Berrang-Ford, 2009). The ratio of market to traditional food use varies both among northern communities and among households. Various factors including geographical location, population size, road access, proximity to animal migration routes, cost and availability of market foods and prevalence of hunting have all been implicated (Myers, Powell, & Duhaime, 2004).

In communities that are geographically more remote, further north, and where a traditional lifestyle is maintained, more traditional foods are often consumed compared to those that are less remote or located further to the south (Pars et al., 2001; Schuster et al., 2011). As Shuster et al. (2011) suggests, less remote areas provide greater opportunity for employment, as well as offer lower food costs, and a greater variety of market food available for purchase. In more remote communities such opportunities are more limited.

The consumption of traditional and market foods within communities and households also vary. In Greenland, Pars et al. (2001) found differences in the amount of traditional food consumed among Kalaallit youth and Elders, and among Kalaallit men and woman. In this community both woman and youth tended to consume less traditional food, citing difficulties in access to traditional foods (Pars et al., 2001). Similar findings were reported by Ford & Berrang-Ford (2009) in their study of Igloodik households in Nunavut and by Chan et al. (2006) in the several Inuit communities they studied. In each case, respectively, males were more likely to receive more than one half of their food from traditional sources than females; while single, divorced and widowed Inuit women were observed to have lower intakes of traditional foods. This may be partly explained by Duhaime et al. (2002) in their findings related to the presence or

lack thereof, of an active hunter within the household having both the time and sufficient income to participate in harvesting activities.

Cultural identity. Traditional food use also imparts socio-cultural values important to maintaining cultural identity and community ethics and/or morals (Chan et al., 2006; Lamden et al., 2007 & Nuttal, 2004). These values are reflected both in the rules and customs associated with hunting and harvesting wildlife, and in the sharing of food based on kinship and community ties (Mead et al., 2010; Nuttal et al., 2004 & Puffal et al., 2012). Among Inuit communities in Nunavut core cultural values are related to “food sharing, respecting and honouring the spirit of the animals, utilising, every part of the animal, and the importance of family and community” (Mead et al., 2010, p.21).

Through participation in traditional food activities, these values are enacted and reinforce the connection that northern people have with the land, their community and the past (Nuttal et al., 2004; Puffal et al., 2010). At the same time, traditions are kept alive, community members are brought together and families are involved together in food preparation (Lamden et al., 2007; Mead et al., 2010 & Puffal et al., 2010). Suggestive of the wider community benefit such values connect people with the community, facilitate the redistribution of needed food to families, and overall promote the health of northern communities and households (Chan et al., 2006; Puffal et al., 2010). The health benefits of traditional food use and consumption are discussed in the following section.

Health outcomes. Traditional food is widely recognised as contributing to the health and wellbeing of northern peoples and their communities (Borré, 1994; Chan et al., 2006; Lamden et al., 2006; Mead et al., 2010; Puffal et al., 2012; Schuster et al., 2011). The act of hunting, gathering, processing and the sharing of traditional foods is important for physical, mental, and spiritual health. Participation in hunting and harvesting activities for instance, has been associated with both improved physical and mental health outcomes. The reported benefits of physical health are observed in improvements to fitness levels (Lamden et al., 2007) and in the maintenance of strength and endurance (Borré, 1994).

Participation in these activities also imparts important considerations for mental and spiritual health. Among Inuit hunters, a successful hunt earns respect from the community, as well as instils pride and confidence in being able to provide for the community (Lamden et al., 2006; Puffal et al., 2011; Van Oostdam et al. 1999). Spiritual benefits extend to maintaining the

body and soul in a healthy state (Borré, 1994). Hunting not only reinforces a hunter's connection to the land but strengthens the relationship between animals and humans (Borré, 1994; Puffal et al., 2011). This relationship is further extended to non-hunters in the community (women, children and Elders) through food sharing (Borré, 1994).

The consumption of traditional foods also provides nutritional benefits that are important to maintaining physical health and help to protect against chronic diseases (Kuhnlein and Receveur, 1996). Nutrient dense, traditional foods contain high levels of antioxidants, omega-3 fatty acids, monosaturated fatty acids, protein and other micronutrients important for health (Johnson, Nobmann, Asay, and Lanier, 2009; Kuhnlein, Receveur, Soueida & Berti, 2007). Traditional foods also have significantly less saturated fat, sucrose, and total carbohydrates.

The nutritional benefit of traditional foods is also perceived by northerners as being especially important to their health. Among the Yukon First Nations, Dene, Métis and Inuit women traditional foods are thought to be more pure and natural, and good for physical health (Lamden et al., 2007). In particular, Dene women perceive caribou, fish and moose as especially good for health while caribou, seal, and fish are perceived as more healthy among Inuit women (Lamden et al., 2007). Comments regarding the health benefits of these foods include: "fish is good for cholesterol; moose meat makes you strong; and caribou meat – low fat, no chemicals" (Lamden et al., 2007, p. 314). In addition, eating traditional foods is also believed to play a significant role in the prevention of illness and the treatment of sickness. Inuit Elders report that illnesses such as colds, earaches, or getting sick are less common when more traditional foods were consumed (Mead et al., 2010).

The perceived health benefits of consuming traditional foods also extend to their suitability for the northern environment. According to Inuit Elders consumption of traditional foods are important for maintaining satiety and staving off hunger, and for sustaining body warmth (Chan et al., 2006). In instances where traditional food use is limited or is unavailable, many northerners have reported a loss of energy, a decline in health and a decrease in personal wellbeing (Mead et al., 2010; Nuttal et al. 2004; Puffal et al., 2012).

Market Food System

First introduced during European contact and colonisation, and later through the introduction of settlements and the wage economy (Hanrahan, 2008) market foods have become an integral part of the northern diet. Today, many households throughout the north continue to

rely on market foods to feed their families. These foods are often used in combination with traditional foods and in some households make up a substantial part of the diet (Chan et al., 2006; Ford & Berrang-Ford, 2009; Mead et al., 2010). In Igloolik for example, 79% of survey respondents reported obtaining half or more of their food from the market system (Ford & Berrang-Ford, 2009). As with traditional food consumption, the amount of market food consumed tends to vary by community and by individual households.

Market foods are available for purchase from local stores (Chan et al., 2006; Mead et al., 2010) These stores provide a variety of food items for purchase including a selection of perishable items such as fresh fruit and vegetables, frozen foods, non perishable dry and canned goods, and a variety of confection items (baked goods, soda pop, candy and chocolate bars, and chips) (Chan et al., 2006). In addition, market foods are also purchased from stores in the south who offer more affordable food prices, variety and quality (Mead et al., 2010). Such purchases are often made during travel or trips made outside the community.

The availability of market foods locally, depends on transportation and local market infrastructure. Market food is transported into northern communities using air freight, barge, or both. Where both are used, barge services usually bring non perishable, heavy or bulk items, basic necessities and dangerous goods into the community (Mead et al., 2010). Air freight is used to stock and restock perishable foods, such as fresh produce, and other high selling items (Mead et al., 2010). Nonetheless heavy transportation costs are added to food products whether shipped by air or barge, given the distances from southern suppliers (Chan et al., 2006). Barge however, remains a more affordable option.

Availability is shaped by decisions made by the store about what to stock. These decisions are based on the season, ease of transport and shelf-life of food items, as well as requests from customers, media promotions and the requirements made by corporate offices (Mead et al., 2010). In some cases, the personal attitudes and practices of store managers may also be involved in these decisions (Chan et al., 2006).

Market food consumption and health. A growing concern among northern communities is the use and consumption of market foods that are unhealthy. These include confectionary items like potato chips and pop, as well as other convenience items which are of poor nutritional quality and contain high levels of fat and salt (Kuhnlein & Receveur, 1996). Individuals on income support (Mead et al. 2010) as well as the younger generation (Chan et al.,

2006) appear to be the most vulnerable to making these food choices. Convenience foods are more affordable than healthier options like fruit and vegetables and are often of better quality and have the ability to “fill kids up” (Chan et al., 2006). Low levels of nutrition awareness and education are also reported barriers that contribute to the use of unhealthy market items (Mead et al., 2010). There is cause to worry given the connection with emerging nutrient deficiencies and chronic diseases that are appearing in northern communities (Waldram and Herring, 2007, Chapter 4).

Factors Influencing Northern Food Security

A variety of factors influence northern food security. These include factors that influence the availability of food from both the land and market food systems as well as factors that influence the capacity of households to access food. Each is discussed below.

Factors influencing the availability of food from the land. Land use, resource and infrastructure development along with climate change pose special challenges for northern food security and human health (Thomson, 2007). The impact of these activities on food security are observed in the changing availability and distribution of traditional food sources, the capacity of households, communities or both to access these sources for food (Goldhar et al., 2010, Guyot, Dickson, Paci, Furgal, & Chan, 2006; Huntington & Fox, 2004; Nuttal et al., 2004) and in their safe use and consumption (Guyot, et al., 2006; Pufall et al. 2011). The overall impact points to the reduced availability of and access to important food sources, and a resulting decline in traditional food consumption. These limitations pose potential risks to physical health through both dietary change and reduced participation in traditional food activities, as well as undermine the mental and social wellbeing of individuals and communities where food, culture, and practice are inextricably linked (Van Oostdam et al., 1999).

The construction of roads, mining exploration and resource extraction have been shown to displace wildlife from critical habitats, decrease reproduction rates as well as impede the access of some species (e.g. caribou) to important migratory routes (Huntington & Fox, 2004; Nuttal, 2004; Wakelyn, 1999). Equally as disconcerting is the level of contaminants such as persistent organic pollutants (POP's) (e.g. PCBs, toxaphene, DDT), and heavy metals (e.g. methyl mercury, cadmium) found in northern waterways, soil, and fish and animal populations (Nuttal et al., 2004; Van Oostdam et al., 1999). Resulting mainly from the effects of global distillation, previous military testing, as well as recent increases in local resource and

infrastructure development, these contaminants have and continue to accumulate in local food chains; and are found in traditional food sources such as fish, and in terrestrial and marine mammals (Lamden et al., 2000; Nuttal et al., 2004; Puffal et al., 2011; Van Oostdam et al., 1999). High levels of mercury and cadmium for example, have been reported in fish and in mammalian organ meats; while higher accumulations of POP's have been found in the fatty tissue of many marine mammals (Van Oostdam et al., 1999).

Various health effects have been observed in local fish and wildlife populations exposed to these environmental contaminants. Physical deformities in fish (e.g. odd scales, soft flesh) and terrestrial mammals (e.g. lungs stuck to ribs in caribou), reduced animal size, and sicker animals have all been reported by Inuit hunters (Lamden et al., 2007). In experimental studies, high POP levels have been correlated with increased chromosomal defects in some species such as the glaucous gull, as well as impaired immune function and hormonal stress responses in both arctic char, and the polar bear (Gabrielson, Jorgensen, Evenset, & Kallenborn, 2003).

Dependent on these traditional sources of food in their diet, Inuit populations are also at risk of contaminant exposure (Myers, Powell, & Duhaim, 2004). Dewailly et al. (2001) demonstrated that the consumption of traditional foods was associated with high body burden of lead and mercury. This was evidenced in Inuit populations who consumed more traditional foods than store bought foods, and more specifically, in Inuit woman who consumed marine species on a daily basis (Dewailly et al., 2001). Similarly, in review of the published literature and government reports Chan (1998) found that contaminant levels in traditional foods often exceeded Health Canada's guidelines for safe food consumption.

Similar issues related to the availability of and access to important traditional food sources have also been linked to climate change (Boult, 2004; Goldhar et al., 2010; Guyot et al., 2006; Huntington & Fox, 2004; Nuttal et al., 2004; Power, 2008). In some areas, wildlife populations have noticeably declined or disappeared, others have increased in size and/or new populations of wildlife and plant species have been introduced. In the Yukon for example, residents have noticed a decline in their local rabbit and caribou populations, while invasive species such as beavers are notably on the rise (Guyot et al., 2006). Deer and lynx once uncommon to the area (Guyot et al., 2006) as well as sightings of new insects and birds have also been reported (Huntington & Fox, 2004). In Labrador, the Inuit here have noted declines in their local populations of moose, bears, porcupines, birds and fish (Puffal et al., 2011).

Also evidenced throughout the north are changes in wildlife behaviour. The unpredictability of some animal species (e.g. wolves), later hibernation (e.g. bears) (Huntington & Fox, 2004) and changing migratory patterns of animal (e.g. caribou) and bird (e.g. geese) species have been well documented (Boult, 2004; Guyot et al., 2006; Wakelyn, 1999). Migratory patterns have reflected changes both in the timing of (later or earlier arrivals) and routes used by migratory birds, animals and fish (Guyot et al., 2006; Loring & Gerlach, 2009; Nuttal et al., 2004). These changes have directly affected subsistence hunting and harvesting activities by hindering access to fish and wildlife, shortening the hunting season (Guyot et al., 2006), and creating competition among the timing of various harvesting activities (Huntington & Fox, 2004).

Alterations in the physical environment such as reduced ice cover, changing ice regimes, early or late freeze and spring break up, and unpredictable weather (e.g. late or early snowfall, drought, sudden and intense storms) have also created many challenges for northern hunters (Goldhar et al., 2010; Guyot et al., 2006; Nuttal et al., 2004). These alterations have impaired access to traditional food sources, increased the cost to participate in harvesting activities, increased the risk of travel safety on ice and land, and impacted the usefulness of traditional harvesting practices (Hinzman et al., 2005; Nuttal et al., 2004).

Changing climatic conditions have also increased the cost to participate in subsistence harvesting activities. These changing conditions have not only necessitated a greater capital investment to appropriately equip hunters but have increased the cost incurred by hunters to operate and maintain harvesting equipment. In some northern areas such as Greenland, unpredictable ice conditions (e.g. thawing) have demanded the replacement of entire dog teams with boats to compensate for limited access (Goldhar et al., 2010), while retreating ice and greater water expanses in Northern Alaska have not only added to the cost of fuel and maintenance, but have reduced life expectancy of equipment used to harvest marine animals (Nuttal et al., 2004).

In response to these changing climatic conditions, northern hunters and harvesters have attempted to improve food access by modifying the timing of harvesting activities, adjusting how harvesting is done, adjusting the types of species harvested, and minimizing the risk and uncertainty associated with these activities (Nuttal et al., 2004). Reducing the impact of these changes however, is not straight forward. Climate change raises issues related to the safety of

food access and consumption (Duhaime et al., 2002; Myers et al., 2004; Pufall et al., 2011), the increasing loss of traditional and/or cultural practices associated with traditional food use (Huntington & Fox 2004; Nuttal et al., 2004), and alterations in the nutrient composition of the northern diet (Guyot et al., 2006).

Factors influencing food access from the land. A number of challenges directly impact the ability of northern households to access and make use of traditional food sources. These include insufficient income and time, as well as household and family arrangements (Chan et al., 2006; Duhaime et al., 2002; Schuster et al., 2011). Duhaime et al. (2002) identified several factors that prevented Nunavik households from participating in traditional forms of food production. Included were the combination of an adequate income to purchase equipment and supplies, and having the time to partake in food production activities. Likewise Chan et al. (2006) found that high hunting costs incurred through the purchase of gun licenses, ammunition, gas, boats, and vehicles deterred many Inuit from participating in traditional food activities. Coupled with persistent high unemployment, the lack of employment opportunities and dependence on social assistance in some northern communities, the ability to partake in traditional activities is not always an affordable option (Boult, 2004; Myers, et al., 2004). For others, not having enough time to participate in harvesting activities was an obstacle to obtaining the traditional foods they preferred. In a Tlingit First Nation community, participation in the wage economy often limited the ability of working harvesters to get out on the land (Schuster et al., 2011). Chan et al. reported similar findings in the Inuit communities they studied.

Household and/or family arrangements coupled with an adequate income have also been shown to influence the use and consumption of traditional food. Duhaime et al. (2002) in his work demonstrated that northern households were more likely to consume traditional foods if there was a presence of a male head of household and the female head was employed in paid work. In such households the necessary conditions for the production and maintenance of the household's food needs are met: the male head of household theoretically has more time to fish and hunt and the female head secures the earnings to support harvesting activities (Duhaime et al., 2002). In households where the male and/or female head of household were employed (Duhaime et al., 2002) or where there was no presence of a male head of household the consumption of traditional foods was reduced (Beaumier & Ford, 2010; Duhaime et al., 2002).

Western style schooling, lack of interest in a marginalised activity and increased participation in the wage economy has led to a decline in traditional food knowledge and practices (Chan et al., 2006; Nelson, Natcher, & Hickey, 2005; Stroink & Nelson, 2009). Structured schedules of employment and formal education in schools has decreased the amount of time available for hunting and gathering activities (Chan et al., 2006; Mead et al., 2010)

Coupled with the prohibitive cost of hunting and fishing, fewer families are able to participate in traditional food gathering activities, which in turn have resulted in a further decline in traditional knowledge use and the practice of cultural values (Chan, et al., 2006; Nelson et al., 2005; Stroink & Nelson, 2009). Sharing among community members has been particularly impacted. High hunting costs and the decreased availability of wildlife (caribou) have made hunters in Igloodik more reluctant to share their harvest (Beaumier & Ford, 2010). Instead traditional foods are often sold within the community to help offset hunting costs (Beaumier & Ford, 2010). In other Inuit communities food sharing has shifted from communal to more selective sharing (Mead et al., 2010; Pufall et al., 2011). Food may be shared with only those in greatest need such as Elders and single parents, (Mead et al., 2010) or with those who know of an active hunter (Pufall et al., 2011).

The transfer of cultural knowledge from Elders to younger people has also decreased. As Nelson, et al. (2005) note younger hunters no longer “possess the same skills as their Elders, and do not appear to be learning them” (p. 294). Changing attitudes, values and the adoption of a less traditional lifestyle have been implicated (Pufall et al.; Stroink & Nelson, 2009). Dependence on the market system for example, has prevented many of the younger generation from learning about and using traditional food practices. As a result the younger generation are losing the skills to hunt and survive on the land (Chan et al., 2006; Pufall et al., 2011).

Factors influencing market food availability. Market food availability within northern communities is influenced by their geographical location and long distance from southern markets. Remote and isolated from major transportation systems such as roads and railway, many northern communities do not have easy access to southern markets. Market foods instead are largely imported to northern communities by air freight or in some cases by barge if connected to waterways that are easily accessible.

The availability and selection of market food items available in the community are often impacted given the sensitivity of the transportation process by air freight or barge. Weather

conditions coupled with longer transportation times, and inadequate handling often impact the arrival and quality of food items available in northern communities (Boult, 2004; Chan et al., 2006; Mead et al., 2010). Flight delays due to high winds, blizzards and fog are common in the arctic, during which fresh produce is often unavailable (Beaumier & Ford, 2010). Sea ice may also impede barge services resulting in lost or delayed shipments, while in winter foods may freeze during air transport, affecting fresh produce, dairy products and canned goods (Mead et al., 2010). In addition, some food items like baked goods, berries and eggs are more difficult to transport and often become damaged during the transportation process (Mead et al., 2010).

Stressors of market food access. Although the use of market food is on the rise in northern communities, reliance on this food source is not an affordable option for many households. Food costs remain substantially higher than those in the south. The cost of a food basket for one week, to feed a family of four in Nunavut costs \$327, double the cost of a similar food basket found in the south (Boult, 2004). High rates of unemployment, lack of employment opportunities, and dependence on social assistance, make it difficult for low income household to cover the cost of a healthy market diet (Boult, 2004; Lamden et al., 2006).

A variety of factors contribute to increased food costs in northern communities. These may include the cost to do business in the north, and the distance from southern markets. The cost to do business in northern communities is influenced by high costs of labour, building maintenance and repairs, and utilities (Boult, 2004). Heavy transportation costs are also added to food products given the long distances from southern suppliers and the need for air and/or barge shipping. Healthy and more perishable foods such as fruits and vegetables are typically more expensive to ship, compared to non perishable convenience or confection foods lighter in weight (Boult, 2004).

Summary

Frameworks and indicators used to assess, monitor and evaluate food security have been developed and used in a non-Aboriginal context (Power, 2008). Questions are raised about their applicability (context specificity) and appropriateness (cultural relevance) for use in remote/northern settings and with Aboriginal peoples (Power, 2008). There is an apparent need to develop a more holistic understanding of household food security where both improved food security concepts and measures that are relevant to and capture the local characteristics of northern communities and its Inuit, First Nation, Métis, and non-Aboriginal peoples are required.

An integral part of this development is to situate this understanding within the context of a northern community. To do so, means capturing the specific set of characteristics that are unique to and play a role in food security in the north. Development of a more holistic understanding also requires reframing how we approach and understand food security. In the context of this research, an integrated model of health proposed by Loring and Gerlach (2009) that links food security to sociocultural, ecological, psychological, and biomedical aspects of individual and community health is considered.

What is currently known about food and food security in the north also supports the demand for alternative ways of understanding and approaching the measurement of food security. Characterised by the availability of both market and land based foods, northern households rely on, access and use food from both systems to meet their food needs (Chan, et al., 2006; Duhaime et al., 2002; Ford, 2010; Goldhar, Ford, & Berrang-Ford, 2010; Power, 2008). Influenced by various structural factors (cultural, economic, environmental, physical, social) the extent to which northern households rely on and make use of these two systems varies according to the availability of land and market foods, and the capacity of a household to access and utilise food. A comprehensive understanding of these factors and resulting influence on household food procurement, purchasing and consumption of traditional and market foods is required to inform how food security in the north is understood and subsequently measured.

Chapter 3 Methods

This chapter describes and discusses the methods I used to conduct this research; a postmodern ethnographic discovery of food movement into and within northern households. It begins with the rationale for the qualitative approach and the type of design used and is followed by a description of the study community, my data collection and analysis procedures, as well as the methods used for verification.

Rationale for Study Approach and Design

Working within the Interpretivist paradigm, a post modern ethnographic study design was employed. There are several reasons why I considered a qualitative approach and the aforementioned study design. These reasons align with the aim of the study and/or its purpose and with the demand for a research methodology that was participatory, culturally appropriate, and capable of producing findings representative of resident and community perspectives.

The overarching purpose of this research was to develop a more holistic understanding of northern food security where improved concepts and measures that are relevant to and capture the local characteristics of northern communities and peoples are required. According to Creswell (1994), a qualitative approach is most appropriate when research or theory about a phenomenon is limited and there is a need to explore and describe a phenomenon in greater detail. This is supported by the current literature base where less tends to be known about food security in the Canadian north. Much of the literature focuses on urban and non-Aboriginal concepts of food security and proposes the use of tools (surveys) and measures based on these concepts. For example, market basket and household expenditure surveys, and indicators of income developed for use in non-aboriginal and urban contexts are often used to measure community and household food security in northern contexts. As Power (2008) suggests these concepts and measures are ill suited for, and difficult to generalise and apply to northern food issues. Within the larger scope of health research there is also a need and a demand by Aboriginal Peoples' for Indigenous definitions and indicators of health, wellness, and well-being (Bartlett, Iwasaki, Gottlieb, Hall, and Mannell, 2007). As an important determinant of health, food security concepts and indicators relevant to northern experiences are in need of development.

Taking a qualitative approach then provides an opportunity to learn in greater detail more about the experiences of food security in the north. The approach places the researcher in the

setting where real-world situations unfold naturally and deliberately. In this way food security is understood in the context of its local environment, and meaning is derived by becoming immersed in the day to day activities or events and through interactions with local peoples and their culture. Unlike quantitative approaches that are often fixed in their design (Patton, 2002), a qualitative approach provides the flexibility to explore new or emerging ideas. The process of exploration ideally continues until no new information is forthcoming. In this way, a more holistic account of northern food security is created; identifying a complex system of food security concepts that are not only relevant to the local community but are also representative of northern food experiences.

Interpretivist Paradigm

Interpretivists search for meaning through direct interpretation of what they observe as well as what is experienced and reported by participants. They share the belief that “what people know and believe to be true about the world is constructed –or made up-as people interact with one another over time in specified settings” (Schram, 2003, p.33). Meaning then, is constructed on the basis of socially available and shared understandings situated within specific social, political, cultural, economic and other contextual features, as well as through social processes where meaning is interactively built (Daly, 2007; Schram, 2003). Interpretivism recognises that there are multiple social realities, and therefore many possible interpretations are put forth in understanding social reality (Daly, 2007).

Within the paradigm “there is an acceptance that the researcher plays a significant role in the way meanings are created” (Daly, 2007, p.33). The researcher creates not only the parameters within which participants talk about their reality (the topic chosen, the questions asked, and the responses given), but is actively engaged with participants in a process of conversation, observation, and interpretation (Daly, 2007). The construction of meaning is shared between the researcher and the participants and the meanings that the researcher brings to understand, explain, and theorise about these every day realities (Daly, 2007).

Post Modern Ethnography

Following from an Interpretivist way of knowing, I chose post modern ethnography as an approach for this study. Ethnography resonates with how I might learn more about daily life in a northern community, supports the intent of the research, and recognises the authority of participants within the research process. Central to ethnographic work is the study of culture.

Culture “describes the way things are and prescribes the ways people should act” (Rossman & Rallis, 2003, p. 95). The role of the ethnographer then is to not only observe behaviour but to also inquire about the meaning of that behaviour (Spradley, 1980). Amidst the research setting the ethnographer attempts to capture an emic or insiders’ view of life as well as an etic view based on their own experiences.

Ethnography provided the means through which I could develop an insider perspective of life in a northern community. Placing me in the community, I directly experienced day to day life and the conditions surrounding food security in northern Saskatchewan. It also provided the opportunity for further inquiry where I could observe and ask participants about their daily lives. Through these interactions, I came to better understand the way individual beliefs and values, motivations and actions about food are expressed in and through life in Stony Rapids.

By taking an ethnographic approach it was possible to understand, in a more holistic way, the many perspectives and dimensions of life in Stony Rapids, along with the patterns of living and cultural themes that generate the ethnographic account of household food security (Daly, 2007; Schram, 2003). This was especially important to capture, given the limitations of existing frameworks used to explain food security in remote, northern setting and with First Nations, Métis, and Inuit peoples. As previously discussed, such frameworks have missed the mark by: largely ignoring the multiple roles of food and its important connection with other aspects of health including psychosocial and sociocultural health; and by failing to consider together the multiple domains and range of structural factors unique to northern settings that influence food security. These frameworks are neither applicable (specific to the local characteristics) for use in a northern context nor appropriate (culturally relevant) for First Nations, Métis, and Inuit peoples.

One of the key advantages of taking a postmodern approach is that it recognises the authority of participants in the emergence and interpretation of an ethnographic account (Daly, 2007). Historically this has not been the case in research with Aboriginal people and/or communities so it was important that I captured it here. Unlike traditional forms of ethnography that emphasised objectivity, postmodernism calls in to question what it means to play the role of scientist and research participant and specifically places the researcher in the same reality as the participants (Daly, 2007). There is a greater emphasis then, on reflexivity and critical self awareness, polyvocality, or the recognition of multiple and competing values and viewpoints,

and the abandonment of monolithic or enduring truths that tend to essentialise culture (Daly, 2007). As Daly (2007) notes, final texts must reflect “various levels of interpretation and meaning, be socially and culturally located, and most importantly not make any privileged claims about the experiences being described” (p. 90).

Researcher’s Background

A requisite of all qualitative research is to acknowledge one’s background and the values and beliefs that one brings to a study. In doing so, what I choose to share herein is a snapshot of who I am, and the key experiences that I believe are relevant to this body of work.

To begin, I am a non-Aboriginal person of European descent, a female, and university educated. For most of my adult life I have lived in large urban centres, wherein employment opportunities have been presented and where I have enjoyed the conveniences afforded by a middle class lifestyle. Access to food, as well as the availability of nutritious, safe and preferred foods has not been problematic.

In reflecting back on my childhood I grew up in poverty, in a lone parent home and experienced firsthand the social stigma and disempowerment associated with such conditions. I am aware of the sacrifices my mother made and her inherent resourcefulness to ensure I was fed, clothed, and formally educated. I consider myself fortunate, and I am forever grateful for the encouragement and support to reach beyond the constraints of poverty.

My mother’s actions have left a positive impression and are reflected in how I approach life, others, and the work that I do. My mantra is about respect, reciprocity and being responsible to our fellow citizens. I have been taught to value diversity and to embrace differences in others. Life circumstances, whether rich or poor, educated or uneducated, and so on, do not dictate the value of a person. I firmly believe we all deserve equal access, care, and attention, regardless of where we have come from.

My purpose in life is “to pay it forward”, to make social change possible, to reduce inequities, and to positively influence the lives of others. Prior to embarking on this research journey I had the opportunity to work with a variety of marginalised populations, including new immigrants to Canada, underprivileged children and youth, as well as adults with learning disabilities and/or acquired brain injuries. My work with these groups was to help improve their life circumstances and varied from providing advocacy, to designing and delivering education

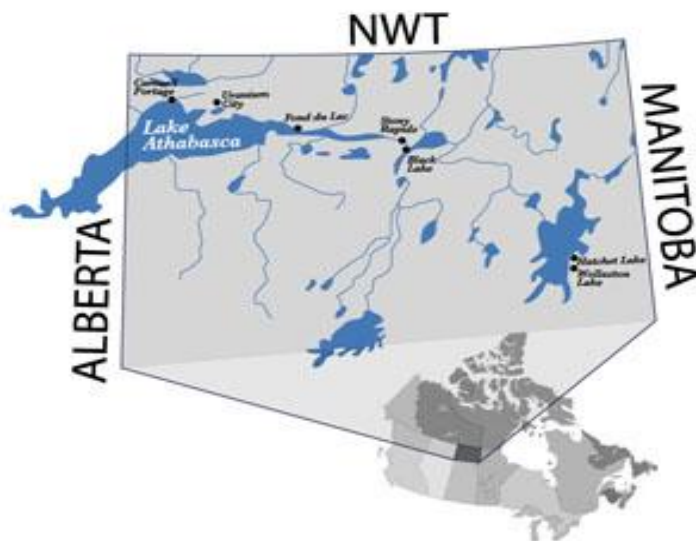
programs; and providing individualized support for daily living. I have worked and will continue to work with populations that sit on the margins or periphery of “society”.

My beliefs and values, along with my life experiences have in one way or another impacted this body of work. How I perceived and subsequently experienced daily life in the northern study hamlet, along with the meanings constructed about life in this community are as much a part of who I am and what I believe, as they are of the residents who live there.

Study Setting

The study took place in the Athabasca Region of Saskatchewan’s far north, in the provincial hamlet of Stony Rapids. The Athabasca region covers a vast area that extends south to Cree Lake, southeast to Wollaston Lake, west to Uranium City and Camsell Portage and north to the Territories border (Figure 3.1). Stony Rapids is centrally located within the region and sits on the south shore of the Fond du Lac River, the eastern terminus of the Athabasca water transportation system (Lat. 59°15’01.00”N, Long.105°50’29.000”W).

Figure 3.1. Map of the Athabasca Region in Northern Saskatchewan



Source: Points Athabasca, retrieved from <http://www.pointsathabasca.com/about-us/athabasca-region/>

Access to Stony Rapids and other communities in the region is by air, barge and seasonal roads. Airstrips and airports are found in Camsell Portage, Uranium City, Fond du Lac, Stony Rapids, Hidden Bay, and Wollaston Lake. Operating under the control of the Ministry of

Highways and Infrastructure, both regular and chartered air service is provided year round throughout the Athabasca region and to larger urban centres (La Ronge, Prince Albert, Saskatoon) in the southern part of the province.

The barge, operated by the Camsell Portage Freighting Company, travels on Lake Athabasca and the Fond du Lac river system to provide freight services to the communities of Stony Rapids, Fond du Lac, Uranium City, and Camsell Portage. The barge is used to transport freight between communities in the region, and also freight coming from more southern parts of the province (Figure 3.2). Stony Rapids is connected to the rest of the province by highway 905 and serves as an important hub for such activity (Figure 3.3). The barge operates during the summer months or until freeze up.

Figure 3.2. Barge Activity in Stony Rapids, Saskatchewan



The Athabasca Seasonal road, an unpaved road from Black Lake to Points North Landing also connects the region with the rest of the province's road systems (Highway 905). Although designed mainly as an overland winter road from December to March, the road is used year round by residents and businesses to transport food and other goods into Stony Rapids and the surrounding communities (figure 3.3). A more in depth description is provided in Chapter 4 based on my observations and experiences travelling this road. Ice roads, in the winter months also connect the communities of Fond du Lac, Uranium City, and Camsell Portage to Stony Rapids and highway 905 (Ministry of Government Relations, 2011).

age group falling between 25-44 years (35.2%) (Statistics Canada). The median age of residents was 28.2 years and the percentage of the population over the age 15 was 72.5 %.

In Stony Rapids, 82.3% of the population identified as Aboriginal (First Nation, Métis) with 52 % of the total population speaking English only and 45 % speaking another language (e.g. Dene). Of the total population of Stony Rapids aged 15 and over 35.1% were single. Of these 48.6% reported living in a common-law relationship. Married couple families comprised 38.4% of the total population in 2006, while 15.3% lived in lone-parent families.

Physical and natural environment. The climate in the Stony Rapids area is characterised as subarctic. Winters are long and cold, while summers are short and relatively warm (Shannon, 1973). Comprised of the Canadian Shield, the terrain is low relief and rugged. Most of the region is forested. Black spruce and jack pine predominate, with some white spruce, white birch, and aspen (Shannon, 1973). A variety of shrubs, berries, lichens, and flowers form the undergrowth (Shannon, 1973). The area is home to a variety of fish (lake trout, jackfish, northern pike and pickerel) and big game (barren ground caribou, moose, and black bear) as well as smaller game (rabbit, ptarmigan) species that comprise the local food base.

Businesses and services. The hamlet supports a number of businesses including two general stores (one privately owned, the other company owned), a gas bar, two hotels, a restaurant, two airlines, a post office, and a taxi cab company. In addition to food, one of the general stores carries a selection of clothing, household items and hunting equipment as well as houses the credit union bank. The other store is also a snowmobile outlet and hardware store. Two additional stores are located outside of Stony Rapids on the Black Lake First Nations Reserve. One store is located right in Black Lake, 19 kilometers away, while the other is located about 8 kilometers from Stony Rapids. Both stores sell a variety of grocery items ranging from fresh produce to canned and dry goods.

Stony Rapids School provides education programs from kindergarten to grade nine. Students continuing on to high school are bussed to Black Lake or attend school in Prince Albert or Saskatoon. The school is used by both students and community members, and has five large classrooms, a gymnasium, and an industrial arts shop. Northlands College also provides a satellite classroom. The college offers adult basic education; business and industry; career and support services; computer training; general interest; online training; SIAST & Institute programs.

The Athabasca Health Authority provides healthcare services to the community. The health facility Yutthé Dené Nakóhódí, located 5 km from Stony Rapids on the Black Lake First Nation provides acute, primary health and community care, palliative care, respite and long term care. A public health nurse also provides community health services one week per month, while a full time certified home care worker and a part time home care worker provide home visiting and home care services.

Employment. Employment opportunities in the Stony Rapids area are afforded through the sectors of healthcare and social services, business services, manufacturing and construction, as well as agriculture and other resource based industries such as uranium mining, milling and exploration; and commercial fishing and hunting (Statistics Canada, 2006). Major employers in the Stony Rapids area include local schools, stores, the Athabasca Health Authority, as well as Cameco and AREVA (mining companies) (Ministry of Government Relations, 2011). In 2006, 66.7% of the population in Stony Rapids was employed, with 7.7% of the population reporting unemployment (Statistics Canada, 2006).

According to Statistic Canada (2006) the median earnings for all persons who worked full time for one year in Stony Rapids aged 15 and over were \$38,528. The median income for all census families in Stony Rapids was \$65,408 and for lone-parent families \$38,528. Married couple families had substantially higher median income of \$91,904.

Not all households in Stony Rapids have the added benefit of dual incomes, or even the opportunity to participate in the wage economy. The hamlet supports a diversity of households comprised of pensioners/Elders, single parents, the unemployed and those unable to work because of a disability. These households depend largely on income support (social assistance, pension benefits) from the federal government as well as low income housing through Saskatchewan Housing.

Data Collection Methods

Data was collected over twelve weeks of fieldwork in the hamlet of Stony Rapids, Saskatchewan. While the majority of my fieldwork took place here, I had the opportunity to visit two additional communities in the Athabasca region. This included a day trip to the northern settlement of Camsell Portage as well as several short visits to the Black Lake First Nations Reserve. During these visits I was actively involved in ethnographic field activities.

Fieldwork was divided into two segments, with the first phase placing me in the field for a period of 9 weeks, followed by a 4 week leave in my home province of Alberta. I returned to the field for an additional 3 weeks to complete the second segment of my field work. Initially, I had planned to break my fieldwork into 2 -six week segments with a two week leave in between. Logistically this was not possible given the date of my arrival in the community and the interference of the impending Christmas holiday season. The holiday season in Stony Rapids begins around the 2nd week in December and extends in to the first week of January. During this time residents are busy preparing for the holidays (travelling south to buy gifts and stock up on food), visiting and spending time with family and friends, and taking in the festivities. I had been forewarned upon my arrival that it would be difficult to connect with the participating households or other residents in the community during this time.

Recruitment and Selection of Households

Given the short time frame of the study (12 weeks), it was not feasible to use a purposive sampling frame or to sample for maximum variation. Instead, I decided to take a case study approach and recruit one or two households into the study. The aim was to recruit households with differing sociodemographic and familial arrangements. These familial arrangements could consist of the following: couples with children and/or single parents, living in nuclear or extended families, and/or represent a traditional or non-traditional household. Households were excluded if they were located outside of Stony Rapids, the household had resided in the hamlet for less than a year, and if the household was occupied by a single occupant.

Recruitment of households to participate in the study was facilitated through the Athabasca Health Authority (AHA). The authority was chosen given their strong presence in the community (large employer and only health centre in the area), and because of their knowledge of and connections with many of the residents in Stony Rapids.

Upon arrival I was introduced to Jane (pseudonym), an employee of the Authority whose purpose was to help facilitate the process of recruiting households. As a long time resident of Stony Rapids, it was thought that Jane would be ideal in identifying and connecting me with households. An initial meeting was held with Jane to describe the purpose of the study and to review the terms governing household participation. During this meeting and several meetings later, Jane suggested households that she thought would be suitable for participation. Jane then

contacted these households by telephone to briefly introduce the study and to set up a convenient time for us to meet.

At the initial visit with each household, I was accompanied by Jane to help facilitate introductions. At these meetings I introduced the study; describing both the purpose of and the terms underlying their participation. I also spent some time getting to know household members (usually the female head of household). The initial meeting was for information purposes only and the household was not expected to make an immediate decision about whether they would like to participate in the study. An information sheet (Appendix A) about the study and a consent form (Appendix B) was given the head of household so they could discuss the study with other household members. Households were then invited to contact me directly if they were interested in participating.

Description of participating households. Three households in Stony Rapids expressed interest and participated in the study. These households were characterised as:

- Nuclear families consisting of a husband (male) and wife (female); married or common law, and their children. The age range of adults living in these households fell between 30-40 years of age.
- The number of children/youth residing in each household ranged from one child to three children/youth. Their ages ranged from infant to 9 years, and 12 to 14 years of age.
- Households were of mixed ancestry and included a mix of First Nation Dene and/or Cree, Métis and non-Aboriginal. Two of the households (one or more its members) were members of the Black Lake First Nation and held treaty status. The other household and its members did not.
- Two of the households (one or more of its members) had a strong historical/generational connection to the area with immediate and extended family members living both in Stony Rapids and the surrounding First Nation communities of Black Lake and Fond du Lac. Both of these households had resided in the community for a number of years. The other household originally from Southern Saskatchewan and had lived in Stony Rapids for approximately three years.
- The male and female heads of households were all employed in fulltime work outside the home

- Households were financially stable (meaning they had enough income to cover monthly living expenses)
- Households owned or rented a single detached dwelling (3 bedrooms) with a finished or partially finished basement.

Entering the field. Entering the field is a critical component of ethnographic work. A challenge often faced by researchers is becoming connected to “place”. Becoming connected to place is about forming relationships with the people and the environment in which they interact. As Bernard (2006) suggests, time is spent at the beginning of the study getting to know the physical and social layout of the field. For this study, mapping activities began with a 2 day pre-study visit to Stony Rapids. During this time I took note of what I observed in the natural environment (type of wildlife, the vegetation, climate, and the geography); the availability and location of food stores, services (gas station, hotels, restaurants), and other amenities; the infrastructure (condition of the roads, lighting on street ways, the type and quality of housing available -bungalows and old cabins); as well as attending to what residents were doing, and the activities or events in which they were participating (hunting for Spruce Chicken beside the road, chatting in front of the general store). These observations were documented along with comments about how I felt and what I wanted to learn more about. As Bernard (2006) suggests, these bits of information are helpful in starting conversations and seeking further information about the community and its residents.

Hanging out was also an important aspect of connecting with the residents of Stony Rapids. Hanging out provided the opportunity to build rapport and trust with residents and to learn more about the community in an unobtrusive way (Bernard, 2006). Equally as important, hanging out provided the context in which to ask questions; by directing what should be asked, who should be asked, and when a question should be asked (Bernard, 2006).

The first few weeks following my arrival in Stony Rapids were spent hanging out and becoming oriented to daily life. Jane who I had been introduced to upon my arrival was a critical connection into the community. Through her I was introduced to a number of employees working at AHA, as well residents who she knew of in Stony Rapids, and in the surrounding area (Black Lake). It was through these connections that I learned of upcoming events, and of other opportunities to hang out, connect with residents, and to some extent become part of the community. Early on, I was invited to played bingo and cards (Gin Rummy), attended the

Halloween social, and helped out at the Christmas Bazaar. As residents got to know me better I was invited into their homes. I sometimes shared an evening meal, participated in traditional food procurement and preparation activities such as setting and checking rabbit snares, cutting and preparing caribou meat for drying, and pounding dry meat for eating.

Each week day morning I also volunteered with the Breakfast program at the Stony Rapids School. Here I helped prepare breakfast for students from kindergarten to grade nine. During this time I was able to meet and speak with the principal and a number of the teachers who worked at the school, as well as the teacher's aides (locals) with whom I worked and came to more know more closely.

Shopping for groceries and other items in the community also afforded the opportunity to hang out at one or more of the local grocery stores. Here I could observe residents unobtrusively while I shopped for my own groceries, and have conversations with other shoppers and store clerks about food. Hanging out made me more visible in the community and also created much interest among residents as to who I was, and what was I doing in their community. By hanging out I was able to connect and form relationships with a number of individuals (e.g. Elders, store clerks, residents), some who later became key informants in my study.

Participant Observation (P-O). A significant part of my fieldwork involved data collection using participant observation (P-O). The method was used both within the community setting where I attended and participated in community events, volunteered at the school, shopped for groceries, and dined out, as well as during scheduled visits with each of the households participating in the study.

Participant observation is a standard qualitative method for collecting ethnographic information in the field. As the method implies, the researcher plays a dual role, observing activities, people, and physical aspects of the setting; as well as participating in activities appropriate to the situation (Spradley, 1980). The method requires the researcher to become more explicitly aware by increasing their awareness of things usually tuned out and to also approach social life with a wide angle lens to take in a broader spectrum of information (Spradley, 1980). By engaging as a participant observer, the researcher is fully involved in the activities that are being examined, and observes first hand, how people interact with one another, and navigate within their environment (Daly, 2007). More importantly, the researcher experiences both being an insider and outsider simultaneously. As an insider the researcher may

experience the emotions associated with an activity, yet at the same time view the same activity and themselves in it as objects (Spradley, 1980).

Participant observation- household visits. Household visits were conducted with each of the three households participating in the study. These visits were intended to learn more about how food both moved into and within each of the households by participating in and observing daily household activities. Initially household visits focused on developing relationships with its members. The approach I took included a preliminary meeting with the family member(s) most responsible for managing household resources and daily food needs. In all cases, this was the female head of household. This preliminary meeting served several purposes:

- To reacquaint the household member with the study (purpose, expectations regarding participation) and answer any further questions they might have about the study
- To identify other participating household members and to collect consent forms
- To develop rapport and get to know household member(s)
- To identify activities related to food that we could participate in together and to establish a schedule for meeting at mutually agreed upon times.

Initially I had asked households to participate in the study for a period of one month and had suggested meeting 3-5 times during the week. The expectation was to spend one or more consecutive week days (Monday –Friday), including one weekend (Saturday and/or Sunday) with each of the households. Depending on the activity, I would spend the entire day (6-8 hours) or three or four hours with a household. I felt that this was important to try and capture the essence of day to day life, and where possible document the food cycle and its management throughout the month. This preliminary meeting occurred in each of the households' residences and was often short in duration, lasting about 60 minutes.

As I soon discovered, most of the households were uneasy or uncomfortable with this proposition. Instead, meetings were scheduled according to the household's desire to have me over for a visit and/or to participate in their household events and/or activities, and according to their availability. Most often I had to wait for the household to contact me, despite my attempts to set something up. Even then, I was only able to sporadically participate in an activity and/or event that were related to the food cycle. When additional household visits did occur I accompanied family members (usually the female head of household) on shopping trips to the

grocery stores; partook in food processing activities such as making dry meat; helped prepare evening meals; and attended meal times with the household.

These one off events were short in duration and were often limited to the participation of the female head of household. Periodically, however, other household members including children, spouses, and grandparents were in attendance. Given this sporadic nature, there was little continuity or connection among the activities or events that I participated in, which made it more difficult to piece together what really happens on a daily, monthly or yearly basis. For this I needed to rely on further conversations with household members, or other residents in Stony Rapids.

Participant observation activities and/or events were captured in my field notes and included jottings, descriptive and analytical notes. Jottings consisted of short quotes, dates and names, or other important details about the activity that I was participating in or observing. In comparison, descriptive notes captured the finer details of the activity and/or behaviours (who was participating in the activity, what were they doing and why) along with the details about the environment in which the activity occurred. These notes reflected both how I perceived the activity or event, as well as included the explanations participants (household member) and other residents offered. From these collected jottings and descriptive notes I would compile my field notes. During this process (reviewing, organising and re-writing) new insights or understandings about the activity, its relationship to food and the realities associated with life in the north often emerged. These were recorded in my field notes as analytical notes.

My field notes were shared with household members (most often the female head of household). The purpose was to include each household as co-creators and to develop a shared understanding about how food moved into and within their household. At the start of each visit we would review and discuss the observations and/or interpretations from a past activity or event. During these discussions I would clarify what had been observed, seek additional information if needed, and ask for both their input and feedback regarding the interpretations I had made.

Visual ethnography. Visual ethnography was also used as part of my data collection methods. Photographs were taken of objects in the natural and physical environments, and of the various activities and events I attended both in the community and within the households. The intent was to capture visual images that represented and were part of daily life in Stony Rapids,

and that focused on the various dimensions related to where food is accessed, the type of food available, barriers or opportunities in food production and distribution; and of household food activities that documented the movement of food into and within the household (procurement, preparation and consumption).

From this collection of photographs, I would periodically (every 2nd or 3rd household visit) select a number of images to be presented and discussed individually with household members (in most cases with the female head of household). Selection of these images was deliberate and provided the context for further discussions to learn more about particular activity or event related to food as well as to capture the perspective of individual household members.

While not initially planned, photographs taken by the household also became an important part of my information gathering. In each of the three households I visited, photographs and/or videos were often presented and used to help describe or explain past social activities and events that had occurred in the community or household (fishing derby, holiday/cultural celebrations, picnicking), as well as other activities related to food procurement and processing (caribou hunt, making dry meat). These photographs/videos became the basis for having further conversations with household members about life and food in this northern community. The information collected through these informal discussions both planned and unplanned was added to my field notes and used to make further interpretations.

In-depth interviews. Semi-structured, in-depth interviews were also planned and used as part of my data collection methods to help verify and fill in any gaps in the data I had already collected, and to capture any new information important to understanding household food security. I chose to conduct semi structured interviews for several reasons. A semi-structured interview allows for a more relaxed and conversational approach to interviewing. It also “encourages two-way communication between the interviewer and interviewee, and gives the researcher the freedom to explore, probe, and ask further questions about the topic under study” (Patton, 2002, p. 343). This was especially important for capturing participant perspectives of their experiences and for creating the forum to discuss and co-create a shared understanding of food and its movement both into and within the northern household.

While I had initially planned to conduct the interviews at the end of week 4 with each participating household and with the household member(s) most responsible for food procurement and preparation activities, slight adjustments had to be made. Difficulty both in

recruiting households and scheduling home visits lengthened the amount of time required for my initial data collection so interviews had to be pushed to the end of my fieldwork at weeks 10 and 11. Even then I was only able to schedule and conduct an interview with the female head of household from one of the participating households. Scheduling conflicts and cancellations due to unforeseen circumstances or competing activities or events were common among the other two households. To overcome this barrier and to ensure I had collected enough information, I made the decision to conduct an additional interview with a key informant residing in Stony Rapids. This key informant was chosen out of convenience and because he was eager to share his experiences with me.

An interview guide (Appendix C) along with a series of photographs was used as part of the interview process. Topics and questions included in the guide were based on the existing literature base related to food security and covered any gaps or omissions that were present in my field notes. Topics focused on identifying the various types of food sources available to and used by households including where and how these food sources were acquired, along with the barriers or opportunities that influence availability and access. Additional topics and/or questions centered on the household, paying specific attention to food procurement, distribution, preparation and consumption; and the strategies used to manage food security in the household.

The photographs included in the interview depicted household or community objects and/or events that corresponded to the topics and line of questioning presented in the interview guide. Some of these photographs were taken by me and represented objects or events I felt were important to understanding food security while others were contributed by household members participating in the study. The photographs were presented to participants at prescribed points during the interview (according to the interview guide). Participants were then asked to describe and to also discuss what was shown in the photograph. The intent was to use the photographs as a starting point or trigger to facilitate further discussion and or dialogue about participant and household experiences. The process was participatory and collaborative and aimed to co-create a shared understanding of the topic under discussion.

The use of the photographs however, was not well received and didn't seem to have the intended effect. In my interview with the key informant the photographs elicited brief responses only, and additional probes had to be used to initiate further discussion. After a couple of unsuccessful attempts (my perception) I discontinued their use. The key informant was a great

story teller and better results were achieved by asking questions and just letting the informant speak of his experiences. I decided against the use of photographs in my only scheduled interview with participating households. The female head of household in this particular instance seemed to be distracted by household/work activities (physically getting up and doing chores while she answered questions) and was not engaged in the interview process. It was difficult to develop rapport and I found her responses to be short and sometimes abrupt. I felt uncomfortable and with no new information forthcoming I cut the interview short.

With permission of the two participants each interview was audio recorded and then transcribed into electronic format for use in data analysis. Each participant was also provided the opportunity to review their interview transcript and invited to provide additional information and/or corrections if necessary.

Reflexive journal. Throughout the research process I engaged in reflexive journaling. Reflexive journaling provided me an avenue in which to express my daily experiences, my biases, and the feelings and emotions that were evoked during the course of my fieldwork. As Bernard (2006) suggests, a journal “is a place where you can run and hide when things get tough - it helps you deal with the loneliness, fear and other emotions that makes fieldwork difficult (p. 390). This was certainly true, throughout my fieldwork. It wasn't uncommon to feel frustrated and angry with how my study was progressing (e.g. recruitment strategy), or overwhelmed and sad about the historical and present day realities of life in a northern community (based on my perceptions). My journal really became a safe haven; a place not only to express my emotions but a place to debrief and work through my experiences. It was here that I often sought to find balance by reconciling what I had known to be true, with what I actually experienced.

My reflexive journal was also an important document and source of information that I relied upon during the analysis phase of my study. I referred to it extensively, in the interpretation of my field notes, noting where I had a moving or pivotal experience, an “aha” moment, or a bad day. It was important for me to recognise how these events might have influenced my observations, what was recorded or not recorded, and the final interpretations that I made.

Data Analysis Procedures

Data analysis consisted of two phases. The first phase was informal and occurred throughout my time in the field. Using the process described by Seidel (1998), analysis moved in

a cyclical yet interlinked manner between thinking about things, noticing new things, and collecting things (Figure 3.4).

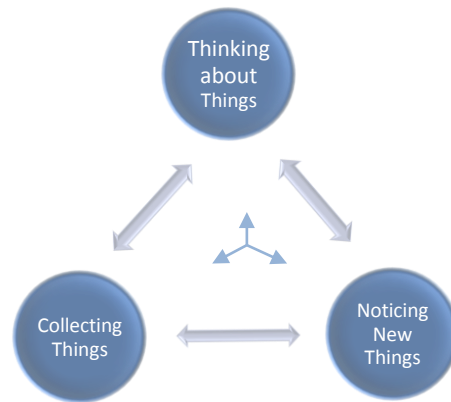


Figure 3.4. Data Analysis Process, Seidel, 1998, p.2.

In this way, data collection and analysis informed all subsequent field decisions; who to talk to, what to observe, and what information to explore in further detail. Observations and insights emerging from the above process were also shared and openly discussed with participants and other key informants (residents). These discussions focused on adding new information, clarifying existing information and/or creating a shared understanding of the topic.

As my time in the field progressed (between weeks 7-10), data analysis became more involved and focused. Compiled field notes were read and reread several times to get a holistic sense of what had been collected and to also identify particular areas where further data collection was required (specifically with regards to my research questions). This helped to inform the refinement of questions and photographic images used in the interview guide, as well directed participation in other participant observation activities that proposed to clarify and gain more in depth information.

The second phase of analysis began after I left the field and data collection had ended. In a formal process, thematic analysis grounded in the data was used to reduce, make sense, and derive meaning from the data I had collected. Using Atlas-ti, open coding was used to identify emergent themes related to my first two research questions: how does food move into northern households and how does food move within northern households. Analysis followed the process suggested by Berg (2001). With my research questions in mind, analysis began by minutely reading and rereading field notes and interview transcripts several times. Field notes and

transcripts were then broken down into smaller quote segments and codes derived from emerging patterns or concepts. Relationships among these codes were identified and collapsed into several themes connected to each of my research questions. The process considered both the data as a whole and by individual household. This helped to identify commonalities in the northern food experience as well as key differences existing among the participating households.

Methods of Verification

Verification of findings is critical to evaluating the trustworthiness of qualitative research. As proposed by Lincoln and Guba (1985), there are several criteria or issues that a researcher must consider in establishing trustworthiness. These include the credibility or the extent to which the researcher's findings represent the views of participants, the transferability of findings to contexts outside the actual setting, the dependability or consistency of the data collected, the confirmability of findings derived from the data, and the authenticity or range of different realities represented in the account. To establish trustworthiness a variety of strategies are proposed and well documented in the literature. Lincoln and Guba (1985), Creswell (1998) and others support the use of the following: prolonged engagement in the field, persistent observation, peer review, triangulation, negative case analysis, researcher reflexivity, member checking, rich thick descriptions, and external audits. Creswell (1998) recommends that researcher use at least two of the above strategies to verify findings. Rossman & Rallis (1998) argue that true value of research is to "render the account of participants' worldviews as honestly and fully as possible". They further suggest strategies that incorporate the following: a participatory study design from beginning to end, the collection of data over a period of time, the sharing of interpretations and emerging findings with participants, and the contextualisation of findings to specific settings and participants.

Throughout the course of this study I incorporated a variety of these strategies not only to enhance the credibility and authenticity of my findings but to also ensure that my methods produced findings that were both dependable and confirmable. These strategies included prolonged engagement in the field or "being there"; member checking and the sharing of emerging ideas and interpretations with household participants, key informants and other community members; triangulation of data sources; creating an audit trail, and researcher reflexivity.

Adding to the credibility of the research findings was the extended period of time that I spent in the field. For 12 weeks I lived in Stony Rapids and directly experienced life in a remote northern community. “Being there” provided more than a snapshot view of life in this community. Through my experiences I was able to learn more about the culture, the social setting, and the conditions under which food security is experienced in Stony Rapids. I was able to move beyond existing preconceptions that I had about the community and its residents, and learned to both appreciate and understand the context of life in this community. Extended time in the field also afforded the opportunities to observe various aspects of the community setting, to speak with a range of people living in both Stony Rapids and the surrounding area, and to develop relationships and rapport with residents. These aspects were important for gaining trust within the community and with residents. Without this trust it would have been difficult to engage residents in the research process, from disclosing or sharing information about themselves and what they know, to participating in further data collection and data analysis activities (e.g. participant observation activities, discussion of findings and the co-construction of meaning).

Credibility throughout the research process was also maintained through member checking and the sharing of emergent findings with household participants, key informants and other community members. Member checking arose throughout the normal course of participant observation activities, conversations with household participants and as part of the interview process. This strategy gave participants the opportunity to correct errors, challenge my perceptions, as well as and provide additional information related to the activity or event. The strategy was also important for capturing different experiences, opinions, and perception among participating households and residents. These differences weren’t discarded but counted as one of many truths related to the food security experience. Similarly, emergent findings and interpretations were also taken back to participants for them to elaborate, correct, extend, or argue about. More importantly, the opportunity to further discuss and come to a shared understanding of the topic was provided. This is in keeping with the postmodern approach where it is important to minimize power imbalances, represent multiple voices and co-create a shared understanding.

In addition, triangulation of data sources also strengthened the robustness and comprehensiveness of my research findings. Data was collected from a variety of data sources

including informal and formal participant observation activities, photographs, semi-structured interviews, and through reflexive journaling. By using more than one data source, the findings offer a deeper and more comprehensive picture of life in the north, and also allow for the recognition of multiple truths. Triangulation in this sense is used to establish completeness not to confirm existing findings (Tobin and Begley, 2003).

According to Lewis and Richie (2003) the dependability or the consistency of findings can be enhanced by reflecting and being transparent about the data collection and analysis methods that are used. This includes checking one's interpretations; carrying out fieldwork in a consistent manner; ensuring participants have the opportunity to discuss their experiences; and by systematically analysing and supporting interpretations through evidence. The research process must also be logical, traceable, and clearly documented (Schwandt, 2001). As suggested by Seale (1999), Tobin & Begley (2003), and Shenton (2004) dependability is achieved through the process of auditing and/or creating an audit trail. An audit trail allows others to examine the "documentation of data, methods, decisions, and end product" (Tobin & Begley, 2003, p.392).

Particularly useful in guiding and tracking the events related to my study was the schedule of research activities I had created prior to start of my fieldwork (Appendix D). The schedule outlined the research activities expected each week, as well as included a section dedicated to the sensitivities associated with the activity (ethical concerns). Because fieldwork is never exact, there were deviations in both the timing and use of the research activities originally planned. These deviations were documented in my field notes and provided a brief account of what happened and how I responded, and/or included a review of what worked well and what didn't.

Throughout this time I also kept a reflexive journal. Here I documented my daily experiences, personal biases, and any feeling or emotions that tended to arise throughout the research process. These notes were critical for authenticating or adding to the confirmability of the research findings. By keeping a self critical account, meanings and interpretations emerging from my field notes were less likely to be influenced by my personal biases, and the negative feelings evoked by some of my field experiences.

Ethical Approval

In this study there were a number of anticipated ethical concerns that I needed to consider. The study was situated within a cross-cultural context and therefore had to be

conducted in a culturally relevant and ethical manner that maintained the integrity of participating households, and residents. Steps were taken throughout the data collection and analysis process to address potential power imbalances and to limit the tendency to “other” or account for participant feelings or thoughts. Written and/or oral informed consent was obtained from participants stating their understanding of the study, and the risks and benefits of their participation. Given the nature of my data collection methods (participant observation, informal conversations, and the use of visual methods), seeking informed consent was a priority and ongoing. Informed consent was provided in writing, or stated orally in circumstances where the participant was unable to read or where informal conversations arose.

Confidentiality and anonymity were other ethical considerations within the context of this study. In ethnographic research, however, guaranteeing full anonymity and confidentiality is clearly not possible. While steps were taken to retain anonymity in the writing and archiving of data the possibility exists for participant’s quotes and statements to be recognisable to a passive reader of the study. In part, due to the small geographic location where the participants were recruited and in part due to the methods I used. It was important to inform participants of this possibility while maintaining that every measure would be taken ensure anonymity and confidentiality. This study was approved by the University of Saskatchewan Behavioural Research Ethics board on October 4, 2010.

Chapter 4 Results

Current understandings of food security have been limited in their ability to capture the food experience of First Nation, Métis, and non-Aboriginal living in the far north. A key part of my research was to capture this experience both by living in the remote northern community of Stony Rapids, and immersing myself in daily life there. It also meant connecting with the peoples who inhabited this small hamlet to understand firsthand their experiences with food and feeding their families. The findings I present herein are a culmination of some of these food experiences and the insight they afford in understanding food security in Stony Rapids, Saskatchewan. These experiences are representative of the three households participating in the study, of other residents who chose to share their experiences, as well as my own experiences collected during my three month stay in the community.

Collectively they inform how I might answer each of my research questions: How does food move into northern households, how does food move within northern households, and how do the answers to these questions inform our understandings of food security and the measures used to capture food security at the community level. Focusing on my first two research questions, I set out to describe in this chapter how food moves into northern households and how food moves within northern households. I answer my third research question in the next chapter.

I begin by discussing how food moves into households in Stony Rapids. Here I discuss the three dominant pathways (A, B, and C) that I found to structure this movement. For each pathway, I identify the various themes that both describe how food is accessed and the factors that tend influence household access. The section ends with a brief discussion about how the use of these pathways alone or in combination plays a role in household food security.

Next, I discuss what happens once food enters the household; how food moves within households in Stony Rapids. Here I discuss two topic areas that structure this movement: *Managing the Food Supply* and *Utilising Food within the Household*. Again, I identify various themes falling under each of these two areas that describe the various practices used by households to manage the food supply and direct how food is used within the household, respectively.

Movement of Food into Northern Households

Three dominant food pathways structure the movement of food into northern households. These pathways emerge from the sources of food that are both available to and commonly

accessed by households located in the northern hamlet of Stony Rapids, Saskatchewan. They are identified as Pathway A (food available from the land; natural environment or small scale farming/gardening); Pathway B (food available from the market system; from stores and restaurants located within the community) and Pathway C (food available from the market system; from stores and restaurants located outside the community).

The movement of food vis-à-vis these three dominant pathways is dependent on a constellation of regional and/or community level factors, as well as factors that are unique to each household. They are the cultural, economic, and social factors unique to each household that seem to have the greatest influence on a household's capacity to access food from one or more of these dominant pathways. This is explored further in the themes falling under each pathway.

Pathway A: Food from the Land

Sources of food available from Pathway A are predominately accessed from the natural environment and less often through food production activities such as farming or gardening. The geographic area supports an abundance of wildlife including large and small game animals³, a variety of fish species (white fish, Toulibe, trout, grayling, jack, pickerel) and a number of edible plants (Labrador tea) and berries (blue berries, cranberries and muskeg berries). Access to these sources of food through hunting, fishing, or gathering typically occur at specified times throughout the year, and are synchronised with the migratory patterns of small and large game, spawning cycle of some fish, and seasonal output of plants and shrubs. Caribou, a highly sought and desired source of food, for example, are generally hunted during the months of February and March when migratory patterns bring the herd in closer proximity to the community. Similarly, Toulibe, a type of white fish is netted, from mid October to November when the fish begin to their local migration to spawn.

While less common, domestic food production activities through small scale farming and gardening efforts have also been reported in Stony Rapids. One household in the community is known to raise and butcher pigs each fall. Despite the thin soil and short growing season some households also grow gardens, or have done so in the past. A female Elder reminiscing about the "old days" spoke about how her grandfather had grown potatoes as far back as the 1940's.

³ Large game animals include moose and caribou; small game animals include a variety of avian species such as the ptarmigan and spruce chicken as well as rodents such as rabbit or hare

In the nearby northern settlements of Uranium City and Camsell Portage domestic food production activities tend to be more prominent. In Camsell Portage, for example, residents rely on both farming and gardening activities as sources of food production. In garden plots a variety of vegetables are grown and include potatoes, carrots, onions, and green beans while hand built greenhouses provide an abundance of zucchini, tomatoes, cantaloupe, watermelon and cucumbers. Households here generate enough produce to last the winter or until the next crop of vegetables can be harvested. In one season, for example, a garden produced over 200 lbs of potatoes, and 30 medium Ziploc bags of cut up carrots. Gardening has been a regular activity in the community of Camsell Portage for at least 30 years.

Two chicken coops located in the community also house approximately 30 laying chickens. Egg production far exceeds what can be used by households in the community and extra eggs are often shared with residents in Uranium City. Given the relatively cheap cost to feed and raise chickens, residents here were planning to raise meat chickens in the coming year.

Sources of food available from Pathway A, and in particular from the natural environment, provide another important and viable source of food for many households in Stony Rapids. Survival in the north, as many residents pointed out would be difficult if they relied only on store bought food. Its high cost within the community, limited selection and poor quality were perceived as underlying barriers to store food use. Food from the land (wild meat), in contrast was perceived as more readily available, easier to get, and cheaper. As a male key informant revealed, "we rely on it a lot because it's available. If it wasn't available we'd just have to budget and pay for our meat another way".

It is misleading however, to suggest that food from the land is solely used to supplement the cost of the northern diet. Food obtained from the land is also culturally important among many of the First Nation/Métis households residing in the community. This importance is reflected in the following statement, "If we didn't have wild meat people would be lost. It's our connection to the land, it's who we are" (Female Household Participant; ~ 40 years of age). For all of the households in the study, participation in food procuring activities such as hunting and fishing was also considered a means of spending quality time with the family; both as a recreational activity and to pass on knowledge to their children.

The extent to which a household accesses or has access to food from these sources is dependent on the availability of food from Pathway A, as well as the capacity of the household to

directly and/or indirectly access food from Pathway A. Direct access to food from this pathway is largely a function of a household's capacity to directly participate in hunting, fishing, or gathering; and other related activities such as the processing and storage of food. Indirect food access, in contrast, relies on and is established through both food sharing practices and/or "fee for service" arrangements with other households in the community or surrounding communities.

Direct food access. Direct access to food from the land is inclusive of a household's collective knowledge or access to knowledge, their economic circumstances and the cost of participating, as well as the availability of time to participate in such activities.

Knowledge of food procurement and processing activities. A household's collective knowledge and/or access to that knowledge play a key role in creating direct access to food from the land. As aforementioned, direct access to food is defined both by the means through which food is procured as well as, how food is processed so that it can be utilised within the home. In most First Nation/Métis households, these activities are based on traditional gender roles that are deeply rooted in the cultural beliefs and history of their people. Males of the household tend to be the food procurers, the active hunter or fisher; while females in the household are responsible for processing and preserving procurement efforts. Notably, in one of the participating households both food procuring and processing activities were shared equally among the male and female head of household. Blending of these typically gendered roles was a function of wage employment by both partners and having sufficient time to participate in food production activities. For this particular household it was easier to share the work according to who had the time available rather than to assign specific tasks based on gender roles.

The skills and/or knowledge to participate in food procurement and processing activities are typically passed down from one generation to the next and are largely experiential based. Learning occurs both by actively participating in, and/or by observing others (usually parents or Elders) partaking in the activity. In most cases, participation is restricted to individual households or among households connected through strong kinship ties. A female participant in her early thirties, recalls partaking in traditional food processing activities with her sisters as they were growing up. Under the guidance of their mother they learned how to cut caribou meat, as well as prepare the meat for storage by drying or freezing. These skills had been passed down to their mother from their late grandmother. Today, the practice continues. Following a caribou hunt (usually conducted by her father and brother), the female head of household along with her

sisters who live in the surrounding community gather at their parent's house to cut, package and label caribou meat for freezing. In the process of doing so, her children have also become involved either as active participants or as passive observers of the activity. Her pre-teenage son, for example, participates by carrying the meat and gathering firewood for his grandmother.

Similarly an Elder in the community speaks about learning to hunt and fish from his late dad. "He taught us how to fish, how to cut up Caribou after you shoot them, moose and everything, how to cut them up. He's the one who taught us everything". He recalls his family often setting up a tent near the migratory grounds of the caribou. At that time (~ 40 years ago) the caribou could be found quite close to the community (sometimes near the airstrip or across the Fond du Lac River from Stony Rapids or in Stony Lake). The caribou used to come around the 2nd week of November and would stay for five days. During this time community members would camp and hunt for the caribou, processing the kill on site. He remembers his mom and his sisters cutting up and smoking the meat before the family returned home.

Inherent to participating in these activities are the particular nuances of an area that are learned as part of the "how to". Each area or region has specific physical, social and cultural characteristics that inform and guide behaviour. Learning to hunt for example is more than learning about how to shoot a gun or cut meat. Hunting "in place" imparts important skills about the natural environment: how to navigate the terrain, track and follow the migratory patterns of various fish and wildlife. This creates a challenge in households where members have not been born and raised in the community. For example, while a male head of household raised outside the community may have acquired hunting and fishing skills, he has been exposed to a different set of local area characteristics that influence food procurement practices. As one female participant defends, "My husband knows how to hunt, but doesn't because he is not from the area". The likelihood then of the household participating in and directly accessing food from the land is greatly reduced.

Likewise cultural beliefs provide important cues that serve to guide hunting as well as traditional food processing practices. Associated with a caribou hunt, are a set of beliefs that if not followed are considered to impact the return of the caribou. These beliefs include:

- All parts of the animal must be used and/or not wasted
- The bones of the caribou cannot be thrown in the garbage. They must be disposed of properly by burning or burying in the ground.

- The hunter’s clothes, guns, ammunition must be put away directly following a hunt.
- One must never walk over the Caribou or the meat. You always walk around.
- It is bad luck for women to hunt

Many residents believe that the caribou have strayed from the area in recent years because they have not been respected. Blame has been placed on those hunters who hunt for sport. They have disrespected the caribou by taking the head and leaving the remains behind. An Elder living in the community advises that “there will be trouble to pay when these hunters are caught”.

Access to traditional knowledge. The capacity of a household to participate in food access activities is highly dependent on the skill set of its individual household members. A household is more likely to access food from the land when collectively members of the household possess the required skill sets to participate in food procuring and processing activities. In households that may collectively lack these skills, relationships with others in the community, and in particular the bearers of this knowledge become important.

Elders in the community are the primary holders of traditional knowledge. They may be sought by a household to participate in food procurement or processing activities for the purpose of food production, or to impart their knowledge by taking on a teaching role. A particular example may involve asking an Elder to make dry meat; either because the female head of household does not have the knowledge to do so or because the female head of household does not have the time nor space to complete the activity. In a teaching role, an Elder is invited to participate in the activity along with the household. In this role, the Elder demonstrates, and then observes and offers pointers to those learning and participating in the activity.

Moreover, it is important to pass these skills on to the next generation. As a female household participant explains, “It is important for our kids to learn about traditional activities. It is part of our heritage. Some families have lost the traditional ways and their language because of modernisation and technology. Some households don’t go hunting anymore”. For some households, Elders, particularly grandparents, take a lead role in passing this knowledge on. In the summer, grandparents may take their grandchildren camping in the bush. There they teach

their grandchildren how to build and start a camp fire, fish, and prepare fish for eating (clean, debone).

Cost to hunt. While access to food from the land is perceived by most households as an economical way to provide food for their family, the necessary capital to participate in food procuring activities can also be a limiting factor. To hunt or fish a household must own or have access to suitable forms of transportation (snowmobile, boat, airplane charter) as well as be able to acquire supplies (guns and ammunition; nets) and cover operating costs (gas, oil). A 2-3 day caribou hunt by snowmobile for example, costs between \$500 -\$700 per household and will vary depending on the location of the caribou in the region. In the winter of 2011 the caribou arrived early (November) and were particularly close to the community (on the other side of Stony Lake, ~23 miles from Black Lake). Usually the caribou hunt occurs in February and March when the caribou have migrated closer to communities situated in the Athabasca region. As one female household participant commented, “we were lucky this year. It was a one day trip compared to a 2-3 day trip like in past years”.

In recent years, the distance of the caribou from the community has deterred some households from even participating in the hunt. The amount of time required and the cost to hunt are seen as potential barriers, especially if a hunt is unsuccessful. An older male resident in the community made the following comment, “...it’s still expensive but you will be happy if you do shoot some caribou. But some time they just go there and they come back empty handed and they lose out. But if you do shoot caribou.... five, six caribou you would be smiling [sic]”.

To offset the cost of a caribou hunt treaty households⁴ in Stony Rapids do receive support from the band in Black Lake. This year each treaty household received \$300 towards the cost of the caribou hunt. In the past, the band has also provided lower income and Elder treaty households in Stony Rapids with caribou meat.

Time available to participate. Participation in food procuring and processing activities is both time and labour intensive. Many households find it difficult or choose not to participate due to competing priorities. As aforementioned, a caribou hunt can range between 2-3 days, requires varying amounts of travel (depending on the location of the herd), as well as energy to butcher the animal for transport. Butchering may include removing the hide/hair, cutting the animal into

⁴ Treaty households were identified as those where one or more members of the household held band membership with the Black Lake First Nations.

sections (the front quarter, hindquarter, ribs and back), as well as taking care to save the head, stomach and other organs such as the liver, heart, and kidneys. Even then a household must also have the time to further process the kill. Processing the meat for storage can include cutting up the meat for freezing, smoking and making dry meat. Making dry meat, for example, is a lengthy process that requires cutting the meat into thin strips, hanging it to dry over a wood stove, followed by pounding and/or grinding the meat so that it can be easily consumed (Figure 4.1).

Figure 4.1. Preparing Caribou Meat for Drying



In some households both the male and female heads of households are employed full time in wage based employment, which leaves little time to participate in these activities. The male head of household may be employed at one of several mine sites in the area; working one week on site with one week off. During his time away the female head of household has the full responsibility of managing the demands of the household and in some cases also works fulltime herself. When the household is together there are competing priorities. Depending on the household the male head of household may spend his time engaged in one or more of the following: reconnecting with the family, helping out with chores around the home, and/or recharging by participating in other activities that he might enjoy. For one participating

household, spending time with the family is very important. The household may participate in recreational activities such as snowmobiling or picnicking, as well as visit and have meals with extended family members. Household duties are given less priority and usually wait until the male head of household returns to work. For other households, providing help around the home takes precedent, especially where the female head of household is employed full time. When the male head of household is home from the mine he may contribute by making lunches and tidying the house. As one household participant exclaims, “the only thing he doesn’t do is the laundry”.

This is not the case in all households. For some, the 1 week off provides the opportunity to fully participate in fishing and hunting activities. In addition, where the female head of household is not employed in full time work there is the time to participate in food processing activities.

Indirect Food Access. Food from the land also moves into households’ indirectly through established food sharing practices or through “fee for service” arrangements. Food sharing practices occur more commonly among households with strong kinship ties (immediate and/or extended family members), or among households that are well connected with others in the community or surrounding communities. It is also customary to provide for Elders who are no longer able to fully participate in direct food procurement and processing activities. The sharing of food within the above arrangements is voluntary or in response to requests, and is most often a reciprocated exchange which may or may not involve food.

Kinships. A kinship may include members of the household’s immediate family (parents, siblings) or also include extended family (aunts, uncles, and cousins). Within these kinships food sharing practices often involve the collective participation of its members in food procurement and processing activities. Each member contributes by taking on a specific yet gendered role; ranging from procurement efforts such hunting or fishing by males, to processing the meat for drying or freezing by females in the kinship. Food sharing persists even when a member(s) are unable to fully participate in these activities due to time constraints (e.g. employment outside the home), other commitments within the household (e.g. domestic duties such as household work, tending to children), or because of place of residence and geographic location (larger urban centres such as La Ronge, Prince Albert). Grown children who live outside the community in larger urban centres to the south often receive a care package from home. The care packages may contain frozen or dry caribou meat, as well as fresh or smoked fish.

For one household in particular, kinship ties with the immediate family are extremely important in providing access to food from the land. Inclusion in the kinship alleviates the burden of having to participate in both food procurement and processing activities given the constraints of time due to employment and other existing priorities within the household. Participation may be limited to food processing activities where the female head of household along with her sisters may gather at their parent's house to help cut, bag, and label meat from a caribou hunt. In other instances, the household may provide support by spending a few hours gathering fire wood so that smoked fish can be made. In exchange the household has access to a freezer full of caribou meat, dry meat, or fish. Food sharing practices for this particular household are also about spending time with immediate and extended family members. While participating in an activity together, members visit or gossip about what is going on in the community, share stories about the past, and more importantly impart or pass on their knowledge to all those participating.

In some households food sharing practices are limited to partial kinships among immediate family members. These kinships are defined primarily by the relationship between a parent(s) and their now grown child (ren). In these instances past or ongoing social issues within the household and/or the family itself make it difficult for all extended family members to get together to participate in food procurement and processing activities, or to share food. Participation and the exchange of food then are not a collective family effort but instead are isolated exchanges among individual family members. A mother, for example, may help her adult daughter by providing caribou meat for the household, and on a separate occasion assist her son in cutting and making dry meat. In exchange, the mother may be invited over for a meal or receive some of the dry meat.

Relationships with others in the community or surrounding communities (Black Lake) are also important for households that are unable to directly participate in food procurement and processing activities. From time to time an older male resident who is no longer able to hunt because of an existing health condition relies on an old friend for fish or other wild meat. "Right now well it's been given to me. A good friend ... we grew up together. He's the one there, help yourself. I just phone him and he brings it over [sic]".

Likewise, much care is given to Elders in the community. Wild meat (fresh and processed), fish, berries are often shared with Elders who are no longer able to participate in food

procurement or processing activities. Family (immediate and extended), as well as other residents in the community, make an effort to share what they have. A son, for example will share part of his caribou hunt with his elderly mother; stocking her freezer with meat. Similarly, a fisherman with an excess catch may provide fish to all the Elders in the community.

Fee for service. Food from the land may also be indirectly accessed through fee for service arrangements. Fee for service arrangements involve the exchange of money for services that lead to the procurement and/or food that is ready for use. This may include upstream procurement activities such as hiring and paying a hunter, or involve downstream food processing activities that support the purchase of wild meat.

Access via fee for service is dependent on a household's connections and existing relationships within Stony Rapids and the surrounding area. For households that are well connected in the community it is relatively easy to find and hire an active hunter. For others and specifically in households that tend to be more marginalised (e.g. a household not from the area, social issues have isolated the household) within the community the process can be more difficult. Most often, these households are unaware of who the active hunters are and with limited social networks have a harder time finding a hunter. Even when an active hunter is found they are not easy to hire because it is often "family first". This especially holds true when wildlife, and in particular the caribou, are further away from the community and are not easily accessible. An active hunter instead will try to meet the needs of his own family before willingly assisting others in the community. As one female household participant suggests, "things have changed, in the past everyone helped each other". Notably fee for service arrangements are not accepted practices among all households. Households with stronger traditional values believe it is wrong to pay someone to do the hunting.

Pathway B: Food from the Market System-Within

Pathway B includes sources of food from the market system that are available from businesses located in Stony Rapids and the surrounding community of Black Lake. As previously mentioned, there are two general stores that sell grocery items in Stony Rapids. Food may also be purchased from one store located just outside the hamlet on the Black Lake First Nation Reserve as well as from the general store in Black Lake. Each of these stores has a

selection, albeit limited, of fresh fruit and vegetables, meat and dairy, canned and dry goods, as well as frozen food products.

In addition, there are two eating establishments in Stony Rapids; a restaurant and a cafeteria. The restaurant is open to the public for breakfast, lunch and supper and serves a selection of “home” cooked meals. The restaurant is also licensed to serve alcohol. The cafeteria serves lunch only. Lunch can be purchased for \$6. The lunch menu usually consists of a main (soup/salad and sandwiches, burgers, pork chops and mash), dessert, as well as a beverage (juice, coffee, tea).

Household access to sources of food from Pathway B varies according to household economic circumstances and suggests two diverging patterns of local store use among households. Households that tend to be better off economically make fewer and different types of purchases locally compared to other households in the community that may not be as financially stable. For these higher income households, food purchases made locally are on a *need-to* basis when stocked food items have run out or where a particular item(s) had not been purchased on a previous shopping trip south. More often these households choose to shop locally for lottery or bingo cards, and to make purchases of snack food such as soda pop, potato chips, and other confectionary items. As an employee at one of the stores explained, “the store (sic) is more of a glorified convenience store than a grocery store. Some people buy groceries but many have other means of getting food which is more economical”.

For households that have limited or no access to market food in the south, there is no choice but to rely on local stores to supply most of their market food and sundry needs. These households are typically lower income and/or Elder households that may not have the means or the money to travel south to make food purchases. Some lower income Elder households, for example, make most of their grocery purchases from their local stores, buying enough canned items such as soups and stews to last the month. For other lower income households, not having the means to travel south provides no choice but to purchase locally. As an older male resident explained, “I had no way of going south or sending anybody out there or giving money to anybody. I was buying from the stores here, I had no choice”.

Having no choice also means accepting the higher cost of food in the community, along with a limited selection of products, and in some cases poorer quality food. When asked about the cost of market food and its influence on purchasing decisions, this same resident had this

response “I have to buy that stuff because I need them because if I don’t need them I won’t be buying it just for the hell of it. Because I need them cost doesn’t matter”.

Where households do shop locally, whether occasionally or on a regular basis, the cost, quality, and selection of food items available from each store is carefully considered. A store’s reputation, as well as a household’s relationship with store owners, managers or employees also seems to dominate and play a role in household purchasing decisions. Based on these factors households tend to develop allegiances with a particular store or stores in the community.

Food costs. A prevailing factor in the north is the high cost of food. Food costs in Stony Rapids and the surrounding area are substantially higher than those in the south of the province. According to the Public Health Nutritionists of Saskatchewan, it costs \$252.27 per week to feed a family of four in northern Saskatchewan compared to \$184.81 in large urban city in the southern part of the province (2008). Table 4.1 provides a list of prices of some common food items I either purchased or observed during my stay in Stony Rapids.

With longer distances from suppliers in the south along with limited and/or poor infrastructure heavy transportation costs are added to food products and sundries. Heavier items like laundry detergents, canned goods and more perishable foods such as fruits and vegetables are typically more expensive to ship, compared to non perishable convenience or confection foods lighter in weight. In 2011, a transport company out of La Ronge for example, charged 37 cents a pound plus an additional 18% fuel surcharge for shipments arriving from Saskatoon. In comparison, air freight from Saskatoon to Stony Rapids via one of the northern airlines was \$3/lb, plus an additional 1.7% fuel surcharge. A 5lb package containing 1 small tin of coffee, a box of tea, and a dozen cookies for example cost \$18.90 to send from Saskatoon to Stony Rapids. Although most food products arrive in Stony via land transport, a less expensive alternative, freight costs still remain high given the long distances from food suppliers. Households tend to shop at the store(s) with the best overall food prices, or the store offering a particular food item(s) at a more competitive price. In between shopping trips one household primarily shops at the store just outside of Stony Rapids but will also check prices at one of the other stores within the community. The remaining store in Stony Rapids is rarely visited by the household because food prices are high and the produce is not as fresh. Similarly, an Elder who makes the majority of his food purchases locally reports, “I have nothing against the one store but the other store, it’s a lot cheaper. And there you can charge up your bill and pay later”.

Table 4.1. Price of Food Items in Stony Rapids, October 2010-January 2011

Product	Price (\$)	Product	Price (\$)
Sundries		Meat and Meat Products	
Laundry Detergent (946 mL)	20.89	Beef Steak (2/pkg.) Ungraded	12.19
Dryer Sheets	5.19	Whole Chicken (Ungraded)	12.89
Bathroom Cleanser	2.19	Sandwich Meat (Ham) pkg.	3.39
Kitchen Garbage Bags (10/pkg.)	5.19	Fresh Fruit and Vegetables	
Bakery		Celery Heart (1/pkg.)	4.79 -5.59
Whole Wheat Bread	2.85	Romaine Lettuce	4.09-4.49
Harvest Multigrain Bread	~8	Mushrooms (pkg.)	3.59-4.15
Garlic Bread	5.25	Green Pepper	6.69/kg
Dairy		Tomatoes (4/clamshell)	4.79
1% Milk (1 litre)	4.09	Baby Carrots (small pkg.)	3.35 – 4.25
2% Milk (4 litre)	9.99	Potatoes (5lb)	8.99
Cottage Cheese (2%) 500 grams	2.95-3.09	Cucumber	5.79-6.29
Cheese Singles (8/pkg.)	5.79	Cauliflower (1 head)	~8
Cheese Block (small)	5.23 -6.15	Red Cabbage (1 head)	~9
Eggs (dozen)	2.89	Green Cabbage (1 head)	~3
Margarine	4.65	Rutabaga	~5
Canned and Dry Goods		Head Lettuce	~4
Kidney Beans	3.15	Strawberries	10
Pineapple Slices	2.95	Grapes (Clamshell)	11
Canned Tomatoes	2.95 - 3.69	McIntosh Apples (small bag)	10
Soup (Mushroom or Tomato)	1.95 -3.09	Frozen	
Tuna	2.15	Fries Crispy (small)	6.69
Mayonnaise	5.15	Mixed Vegetables (small)	4.59
White Flour (10 kg)	35		
Crackers (250 g)	4.89		

Household purchasing decisions are also based on competitive pricing of food products. Stores that offer fairer prices on specific items or where items have been reduced for quick sale are attractive to many households, especially for those that regularly shop in the community. An Elder, while preferring to shop at the one store in Stony Rapids explains his decision to buy pork chops from another vendor located outside the community:

At the store here in Stony Rapids, they have pork chops there's four of them. Really thin, for 14 bucks. But at the other store it comes in a bundle of about, 15-16 pork chops, and right on top of one another. There really thick eh, and it comes up to about 27 bucks. So, it's a lot cheaper.

Because there's more in there and 27 bucks that's cheap for pork chops.

For some households, it is also important to seek out the store that may have a particular item on sale. A female household participant in need of a few items for a pizza she was making chose to make a purchase at a store she rarely patronised. Through word of mouth she had heard that bell peppers were on sale. Instead of paying \$7/ kg at the other store, she opted for the sale price of two bell peppers at \$4. The remainder of the required items were then purchased at the other store.

Selection and Quality of Food. Stores in the area carry a selection of bakery, fresh produce, meat and dairy, canned and dry goods, as well as frozen food products. For the most part, there is little difference between the stores and the types of products that are available. One store might carry a wider range of spices or condiments, a more varied selection of meat products and/or fresh fruits or vegetables. More importantly, it is widely recognised that there is a limited selection or a variety of foods from which to choose. As an outsider used to shopping at a large supermarket or specialty grocery store I often felt uninspired by the selection of food available. None of the food items really appealed to me. Grilled cheese sandwiches on white bread with processed cheese became one of my standbys while instant noodle soup and ripple chips were sometimes added for variety.

The availability of food items also tended to vary from store to store. Suppliers to the south, store ordering decisions, as well as unforeseen shipping problems often affected the availability of food items. According to one store employee, ordered food items were not always available from the supplier. For example, fresh vegetables such as romaine lettuce, and tomatoes were often unavailable due to supplier inventory. Likewise, poor road conditions often delayed food shipments and their subsequent in-store availability, either because the Athabasca Seasonal road was impassable or slow going.

Limited or changing availability of food items was challenging for many households. As one female household participant commented "Finding the items you need may involve a visit to any one of the three stores". In these instances, allegiances to particular stores became less

important as did the cost of the needed food item(s). If a food item was needed badly enough it was purchased regardless of the store and the cost. “You accept the fact that you will pay more - you just close your eyes” (Female Household Participant; ~ 40 years of age).

Coupled with the limited selection and availability of food items are concerns of food quality. Understandably, longer travel distances from food suppliers make it more challenging to maintain the quality of perishable food items such as fresh fruits and vegetables, and even some dairy products. With a small number of residents shopping for groceries locally there is limited demand and turnover of perishable and/or fresh items. Products such as milk, cottage cheese, and a selection of fruits and vegetables make their way to store shelves and/or to consumer’s plates on or near their expiration date. The “best before” date on milk and cottage cheese is usually within 2-3 days from the point of sale. Fresh fruit, as a female resident commented, is “often rotten and dirty” (meaning too many hands have touched it). On several occasions I observed rotten fruit and vegetables sitting in store coolers. These items ranged from mouldy strawberries, rotten oranges, to shrivelled green and red bell peppers, cauliflower with numerous brown spots, wilted cabbage and lettuce, as well as over-ripe bananas and under ripe tomatoes. A particularly bad purchase that I had made saw a 5lb bag of potatoes rot within 3 days. Some produce, such as romaine lettuce, baby carrots, celery, and cucumbers appeared to be much fresher. However, the shelf life of these items was comparatively less than one would expect of the same items purchased from grocers in the south (~1week versus 2 week shelf).

Perhaps more disturbing is the high cost associated with poor quality food items. Even though food items are received in subpar condition current market value is still applied to the cost of the item. Likewise food items nearing their expiry date or that were beginning to spoil were seldom reduced in price for quick sale. Some stores chose to throw away spoiled items rather than put them on sale before they expired. On occasion, a store in the area was observed throwing away bread, crates of milk, turkey, and ham. When and if items are reduced in price, they are often rotten and inedible or if purchasable need to be consumed right away. In many cases, the sale price of the item is still disproportionate to the quality of the item. In one store a 4-pack of oranges although reduced in price from over to \$6 to \$3.69 did not even appear edible.

Store reputation and relationships. A store’s reputation and/or the relationships a household might have with a store owner, manager or other employees also influences a household’s purchasing decision. To this end households were more likely to shop at stores they

perceived as having a good reputation or where they had an existing relationship with a store manager or employee. For some households a store's reputation was intimately tied to the historical importance of the store and a household's connection with that history. One particular store in the community held special meaning for a male Elder who regularly shopped there.

That's where since I can remember, since I started remembering. It's been there all our lives so I think it's more important to have this store because it supplied all the goods and stuff like that.

Conversely, this same Elder held a slightly different opinion of the other store in the community and rarely if ever made his grocery purchases there. This particular business was perceived as "having profited off of residents, offering nothing in return, except higher food prices" (Male Elder).

Store management practices were also important in maintaining a store's reputation in the community. Management practices at one of the stores, for example, were a "hot topic" of discussion during the course of this research. With recent changes in management many residents talked about a shift in the store's mandate. Instead of passing savings on to customers in the form of fairer and reduced food costs many perceived the store's new mandate as meeting targets and earning bonuses. As a female household participant recalls, previous store managers used to hold regular sales.

Small town dynamics also played a role in where households shopped for food. Relationships developed with store owners, managers or other store staff influenced the extent to which a household frequented and made purchases at a particular store. For some households these relationships were intimately tied to their employment at one of the stores or businesses in the area. Many felt obliged to shop from their employer while others appreciated having such perks as an employee discount (20%) on food purchases.

For others, store allegiances were indicative of the relationship that a household had developed with a store owner, manager, or employee. For one of the participating households, needed food items were most often purchased from one of two stores where the female head of household had developed a friendship with the store owners. Despite better quality or fairer food prices from the other food purveyor in the community, it was perceived as more ethical to support the privately owned businesses of friends. In some cases, relationships were based on casual interactions between store staff and individual household members. I chose, for example,

to frequent a store where one of its employees always greeted me as I came into the store. This employee also informed me of the next shipment dates for fresh fruit and vegetables and/or looked in the back for better quality food items that would have arrived earlier in the day.

Pathway C: Food from the Market System- Outside

Pathway C includes sources of food that are available from the market system in larger urban centres to the south (La Ronge, Prince Albert, and Saskatoon). These sources may include food accessed from large chain supermarkets as well as a variety of fast food or eat-in style restaurants. For many households in Stony Rapids access to food from these sources has become an attractive option. Not only are food prices more economical but there is more selection and a better quality of food items from which to choose. As one household participant suggests, “it would be difficult to survive if we couldn’t travel south to buy groceries”.

Access to food from sources in the south is reliant on multiple systems of access that include travel on the Athabasca Seasonal Road, flights in and out of Stony Rapids, and social networks in the south. For many households, a combination of two or more of these systems is commonly used. However, the extent to which a household makes use of each system is largely dependent on their economic circumstances, and connection with social networks both to the south and within the community.

Athabasca seasonal road. The Athabasca Seasonal road is 180 km of unpaved road from Black Lake to Points North Landing that connects Stony Rapids with the rest of the province’s road systems (Figure 4.2). Although designed mainly as an overland winter road, the road is used year round by residents and businesses to transport food and other goods into Stony Rapids and the surrounding communities. Year round use, however is highly dependent both on the weather and seasonal road conditions (e.g. spring runoff), and more importantly the type of vehicle used to travel the road. Given seasonal road conditions that can vary from washed out sections of the road, large ruts, rocks and low clearance, “heavy duty” pick-up trucks are the most logical choice. Notably, though there are times when road conditions do not permit safe travel.

Figure 4.2. Athabasca Seasonal Road



Throughout the 180 km of road there are also no essential services such as gas or service stations, rest areas, and mobility phone service. The closest service hub is Points North Landing located at the southern end of the seasonal road. The gates to this service hub however, are only open from 8am – 8pm. With no service between these two points travellers often call family or friends as they are leaving Points North Landing. If they don't arrive by a certain time the instructions are to come looking. This is especially important in the summer when the road is the most dangerous.

While the Athabasca Seasonal Road improves household access to market food and other goods, regular travel is restricted to those households that have the economic means to travel south. A reliable vehicle that can withstand prevailing road conditions, as well as sufficient funds to cover vehicle maintenance, the cost of gas (~ \$300-\$400 round trip to Prince Albert or Saskatoon), hotels and food is required, not to mention having the financial resources (cash or credit) to make large grocery and other household purchases. The amount spent per grocery trip tends to vary depending on the size of the household and the frequency of trips a household may take. Grocery purchases for a household of four travelling south every four to six weeks ranged between \$500 -\$700 per trip. In households with infants there is also the added cost of flights to and from the desired destination and Stony Rapids. For infants in particular, travel on the

seasonal road is not recommended due to rough road conditions and the sheer length of the journey south. Depending on where the household is headed along with the existing road conditions travel times can range from 8-15 hours (La Ronge ~ 8 hours, Prince Albert ~10-12 hours, and Saskatoon ~12-15 hours). In particular, the first 180 km towards Points North tends to be the roughest part of the drive. On a trip from Stony Rapids to Saskatoon, I found this section of the road to be quite rough and bumpy; much like a fair ride. Large ruts had yet to be filled in with snow (early November) and numerous rocks/boulders on the road had to be navigated around. On some sections of the road the average driving speed was less than forty kilometers per hour compared to 80-100 kilometers per hour where road conditions were better. Travel on this road also made me feel a bit nauseous and I was glad for a pit stop at Points North before we carried on our journey to Saskatoon. This particular stretch of road also seemed quite isolated. Along the way, I only saw two other vehicles. These were headed in the opposite direction going north. From Points North to La Ronge there seemed to be a bit more traffic, but these were mostly transport trucks.

For households that can afford to travel south, shopping trips are usually planned every 3 months or 4 times a year. Some households even travel south once a month or every other month. Typically though, trips are planned according to seasonal road conditions: before the spring thaw, or after freeze up, and are timed according to upcoming holidays or celebrations. From mid November to December, for example, households begin to travel south to buy food, and gifts in preparation for the Christmas holiday season.

Shopping trips south are usually multi-purpose and may include the purchase of household items such as furniture, home renovation and building supplies, and clothing, as well as grocery items such as sundries, dry and canned goods, produce, and meat. Most grocery items are purchased in bulk and are intended to last until the next shopping trip south (Figure 4.3). The type of grocery items purchased also varies according to when a trip is taken. In the summer a household may purchase more canned goods over frozen items because the items can withstand warmer temperatures during transport whereas in the winter frozen items or meat are more easily transported because of cooler temperatures.

Figure 4.3. Grocery Shopping in the South



In addition to purchasing goods, households also take advantage of a number of services that are infrequently available or unavailable in Stony Rapids and the surrounding community. Included are health services such as dental and eye care, as well as a variety of retail and professional services (automotive/mechanical, hair stylist).

In as much as trips south are planned to shop for goods and to make use of a variety of services available in larger urban centres, trips are also planned to break the monotony of living in a remote community. Residents often spoke of being “bushed” or having “cabin fever,” meaning they needed to get out and enjoy some of the conveniences that come with living in the south. On trips south, it is not uncommon for households to visit family and friends living in the area, or to participate in a variety of leisure activities such as going to the movies, bowling, and the casino. Eating out at restaurants is also popular. The food court at a mall, Red Lobster, and Kentucky Fried Chicken are favourite destinations for one of the participating households.

Flights in and out of Stony Rapids. Flights in and out of Stony Rapids are rarely used by households to access and/or transport market food from the south. Freight costs are high (\$1/lb plus an additional 18% fuel surcharge) and given the sheer volume of household purchases it is an unaffordable option for many households. An exception does apply, however, for those working at one of the local airlines. Employees of the airline along with their respective

household members receive free flights in and out of the community as well as free shipping on all freight. Paying customers are given first priority, however, for all seat and freight bookings.

Households that are able to take advantage of this perk often place their food order with a grocery store in the south without ever physically visiting or shopping at the store. Food orders are typically placed once a month by fax, email, or telephone. Store employees fill and pack the order according to whether the food items are dry, frozen, or perishables, as well as arrange for its delivery to the airport. Delivery rates to the airport range between \$5 and \$12.

The availability of and quality of the food items usually varies depending on the store, the employee who fills the order, as well as the conditions surrounding the transport of the ordered food items. A female household participant preferring to an order with a particular vendor in La Ronge offered the following comment regarding availability:

Well lots of times the things that we order - they won't have in stock. And so then because we only make our order once a month- we have to wait to try again the next month. And we don't have an option really because those items if they're not available at the time in La Ronge then we won't be able to buy them here either so. So I suppose if you are trying to make a certain recipe then you're stuck.

The selection and receipt of high quality food items ordered from the south are not always guaranteed. For one household, dairy products nearing expiration or that had already expired, or produce on its way out were selected and shipped (mouldy raspberries, strawberries) as part of the household's food order. To circumvent the problem, the female head of household has since built a relationship with an employee at the store who takes care in selecting higher quality food items and where possible fills the household's order with sale items.

Even though the store may carefully select and store food items prior to shipping, shipping delays as well as improper handling at the airport terminal sometimes result in spoiled or damaged food items. Customers are given first priority on all freight. If customer freight demands are high, "it means that we're last priority so often our perishables are not in good shape when they get here because it just takes so long" (female head of household, age 40). A household can wait up to a week to receive their food order. Most other food spoilage occurs during the transfer from the terminal to aircraft due to extreme cold or hot weather conditions.

On occasion improper handling of food items has also resulted in damaged goods. In one instance, two dozen eggs that were ordered by a household arrived broken.

To a lesser extent, medical appointments scheduled in larger urban centres such as Prince Albert and Saskatoon also serve as a means to bring market food from the south into the household. With limited health services in the community, residents are often sent south to see a specialist or to receive specialised medical treatment. In these circumstances flights and accommodation costs are covered by the Athabasca Health Authority. During these trips many combine their scheduled medical appointment(s) with the opportunity to shop for groceries and/or other household goods. Though freight charges still apply, passengers are allowed up to 75lbs of freight (2 bags) at no charge. Many take advantage of this when transporting their purchases. For others, freight charges are applied due to the volume of their purchases.

Social networks. Social networks with friends and family living outside the community are also a vital anchor in a households' access to food. These networks are important for sourcing and for shipping food to the household. For some households, that are unable to travel south regularly, family members living in one of the larger urban centres may be called upon to purchase and ship various food items to the household. A household, for example, wired \$300 to their adult son who lives in Prince Albert to purchase a variety of meat cuts in family packs (pork chops, hamburger, and steak), and other staples such as cereal and coffee that the household needed. For another household, family members to the south may be called upon to shop around for a particular household item, sometimes purchasing it for the household or sourcing it so the item is easier to find on the household's next trip south.

The movement of restaurant food into Stony Rapids households also relies on these networks. A group of women living in Stony Rapids get together once a month to order food from a favourite restaurant in Prince Albert (e.g. Chinese, Kentucky Fried Chicken, Pizza, etc...). The order is placed and a family member or friend living in Prince Albert is relied upon to pick up the order and deliver it to the air terminal for shipping via Trans West or Pronto. The freight cost is generally about \$20. As a female household participant revealed, "the food sometimes arrives while still warm! Similarly when family members from the south come to visit they often bring some kind of restaurant food as a special treat. The food order may be a specific request of the household or a surprise afforded by the visitors. A get together is then held with immediate and some extended family members to share the food and visit with their guests.

Social networks to the south are also important for households that regularly travel south to shop. These networks support the household by providing accommodations, as well as a place to store purchased household and food items until their departure home. For the households participating in this study, shopping trips ranged from three to five days so having a place to stay free of charge was more economical. Often family members such as siblings, and/or adult children living in the south are depended upon to meet the accommodation needs of these households. Likewise, having a place to store purchases is also an immediate necessity. As one participant suggests, “You don’t want to fill up your vehicle and then drive around for the next couple of days”. Issues of food spoilage and theft are of concern. Perishable items such as meat, fresh fruits and vegetables and frozen foods must be kept refrigerated to prevent spoilage. Having access to a family member’s refrigerator and freezer is essential. Theft of purchases from vehicles is also common place. For one household, items bought for an upcoming family member’s birthday along with a couple bags of groceries was stolen from their truck. Having an additional storage place for purchases is ideal given the limited space (cab of the truck) to securely store items.

Pathway Use by Households

Food moves into northern households via three dominant pathways: Pathway A (food from the land), Pathway B (food from the market systems-within) and Pathway C (food from the market system-outside). Households in Stony Rapids use one or more of these pathways to feed their family. The extent to which food from each pathway or combination of pathways is accessed varies according to a household’s unique characteristics. Cultural, economic and social factors unique to a household largely dictate from which pathway food is accessed and relied upon. For the three households participating in the study, combinations of all three pathways were used to access or bring food into the home. More affluent households such as those participating in the study, tended to rely more on food accessed from Pathway C with little reliance on Pathway B for their market food. These households could afford to regularly travel south to take advantage of cheaper/fairer food prices, better selection and higher quality and healthier food items. In comparison, less affluent households such as some Elder households tended to rely more on Pathway B for their market food with little or no access to Pathway C. Having limited funds, these households were at the mercy of paying more for their food which

was often of poorer quality. The option of purchasing a variety of and/or healthier food items was limited by poor availability or selection of food items from stores within the community.

Access to food from Pathway A, for either of these household types also varies according to the household's capacity to directly or indirectly access food from Pathway A. Among the three households participating in the study, differences were noted in the extent to which Pathway A was relied upon or used by these households. Regardless of having a sufficient income to participate, other cultural and social factors were involved in both direct and indirect access to food from Pathway A. Kinships with immediate and extended family in one of these households was highly important in maintaining access to food from Pathway A. Likewise, in some Elder households cultural norms play an important role in maintaining access to food from this pathway. Immediate and extended family, as well as the community as a whole provide for and share wild meat and fish. In households without such support, access to food from this pathway is more difficult.

The combination and extent that each household relies on these food pathways is influenced by the cultural, economic, and social factors unique to each household. The mix of these factors and their resulting influence on food access and pathway use may be indicative of a household's vulnerability to food security issues. For example, Households relying heavily on Pathway B and less so on Pathway A and C may be more vulnerable than households relying more on Pathway A and Pathway C than Pathway B. Differences between households in pathway use may point to differences in socioeconomic status and the ability to make affordable market purchases as well as differences in their capacity to directly or indirectly access food from the land. The goal then would be to quantify the dependency of a household on each of the pathways as a means of determining vulnerability.

Movement of Food within Northern Households

Movement of food within households in Stony Rapids is structured around maintaining an available supply of both market and land based foods in the home at all times. This is captured in the practices used by households to both monitor the food supply and preserve and store food for later use. How these food stores (market or land) are used is also reflected in the measures taken by a household to adjust their food use throughout the year or season, and/or in between shopping trips, as well as according to the food preferences of individual household members and time available to partake in meal preparation activities. These ideas are further

explored under the following topic areas: *Managing the Food Supply and the Utilising Food Within the Household*.

Managing the food supply. Shopping for groceries on a regular or weekly basis is not common practice for many households in Stony Rapids. Distance from southern markets, the high cost of food locally, along with various other factors often deter households from doing so. Coupled with the seasonal and/or unpredictable availability of fish and wildlife, managing the food supply was a priority in many of the homes I visited. While management practices varied among each of these households, some broad commonalities among households were also observed. These included having the space and means to store food items for long periods of time and an organised system for monitoring and tracking the food supply within the household. These are discussed under the two themes that follow: Arranging and Monitoring the Food Supply and Storing and Preserving Food.

Arranging and Monitoring the Food Supply. Many households try to maintain an ongoing supply and selection of both market and wild food items in the home. Market food purchases are often made with the aim of stocking up, and these items are usually purchased in bulk or in larger quantities. Depending on how market food moves into the household (Pathway B or Pathway C), stocked items are intended to sustain the household between one and three months. For some Elder households, grocery purchases from local retailers are synchronised with the receipt of monthly social security cheques and food items are stocked to last the month. In households that make the majority of their grocery purchases to the south, stocked items are expected to last two to three months at a time. In these households future shopping trips are typically planned before the stocked items run out.

Like market food, food from the land is also expected to sustain the household for an extended period of time, or between each hunting and fishing season. Important to many households is having a supply of caribou meat, or a combination of caribou meat and fish (trout, Toulibe, White fish, Jack). To a much lesser extent moose and small game animals such as hare, and spruce chicken are also stocked in some households. With the seasonal availability of fish and wildlife in the area, large amounts of meat are usually sought and procured by the household at one time. A caribou hunt for example, is typically conducted throughout the months of February and March and continues until the household's freezer is full which is usually about 3-4

caribou per household. This supply of caribou meat is intended to last the household throughout the spring and summer months.

Arrangement of the food supply within the household is also highly organised and serves to facilitate the re-stocking and monitoring of food items. Households usually have more than one freezer and fridge dedicated to the storage of perishable items, as well as a defined area or store room for canned and dry goods. In the households I visited many had a finished or partially finished basement with a dedicated storage area or room. The storage area/ rooms were comprised of 2-3 shelving units, with one or two large size freezers and sometimes an additional fridge (Figure 4.4). Many of the storage area/ rooms I observed resembled small stores. In homes without a basement, additional space was made in the home (kitchen, living room) for a small apartment size freezer. Many of these homes already had a large built-in cupboard or pantry for the storage of dry and canned goods.

Figure 4.4. Storage of Market Food within the Home; Dry and Canned Goods



In one of the participating households, freezers were stocked according to whether the food items were accessed from the market system or from the land. One freezer was dedicated to the storage of wild meat such as caribou and fish and the second freezer dedicated to the storage of a variety of domestic cuts of meat (pork, beef), frozen vegetables, and convenience food items. Canned and dry items were stocked according to the food item's category (vegetable, soup, prepared foods) and also by food type within each category (mushroom soup, tomato soup).

Most often it is the female head of household who is responsible for arranging the food supply within the household. In this role, the female head of household organises and stocks food items for storage, as well as monitors the food supply between shopping trips. As part of the monitoring role, the female head of household keeps mental track of the supply of canned and dry goods, frozen food products, and sundries, and arranges shopping trips based on the current supply of specific types of products. For example, a shopping trip south may be planned to specifically purchase a variety of canned goods and cleaning supplies while subsequent trips may be planned to purchase more dry or frozen food products. Before heading south, a written list of required food and sundry items is compiled and checked against current food stocks.

In another household, stocking and monitoring of the food supply is shared among the adult members of the household. Each member actively participates by helping to organise and re-stock items as well as contributes to the running grocery list. When grocery items arrive from the south, one or all adult members (depending on who is home) work together to unpack and put the groceries away. The monitoring of food is also shared. A running list of needed items is kept on the refrigerator and each member contributes by taking note of items that are beginning to run out or have run out. Food items that are craved or where something different is desired are also added to the list. At the end of each month, the compiled list is used to order needed grocery items from the south.

Restocking the supply of wild meat is highly dependent on the seasonal availability of fish and wildlife in the area as well as a household's access to these sources of food. Where a household's stock of wild meat is limited in both amount and variety more domestic cuts of meat are often consumed by the household. This helps conserve not only the remaining store of wild meat but ensures the food needs of the household are sustained throughout the year. Similarly, diminishing stores of caribou might signal the increased use and consumption of other types of wild meat (fish) currently stocked within the household, and/or the use of wild meat that happens to be seasonally available. During the summer, moose in the area may become a household's next source of wild meat while they wait for the return of the caribou in mid winter. In the fall, seasonal migrations of fish such as the Toulibe or small game like the spruce chicken become more abundant and are the logical option for households that choose to, and have the capacity to access food from these sources. In addition, households with strong kinship ties often have access to a supply of wild meat throughout the year. If available, stocks of caribou and other wild

meat including fish are often shared among the kinship on a need by need basis. For one household participating in the study, this may mean access to a parent's freezer when the need arises, while for another household an immediate or extended family member (adult child, nephew) may honour an Elders request by sharing their supply of meat (caribou, fish).

Storing and preserving. Key to managing the food supply within the household is finding ways to preserve and store food for extended periods of time. With this in mind a variety of market foods including canned, dry, and frozen items are often purchased because they can be stored for longer periods of time. Where perishable items such as fruits and vegetables are purchased some households have devised a system to extend shelf life of these products. Fresh vegetables, for example, are cleaned immediately and stored in the fridge using an array of plastic food storage containers (Figure 4.5). The storage capabilities of some brands of plastic containers have allowed one of the participating households to double up on their produce purchases from the south. Sometimes vegetables are also cut up before storage making for easier access and use of the produce before it spoils.

Figure 4.5. Storage of Market and Traditional Foods



A variety of traditional practices are also used to preserve and store wild meat for long periods of time. These practices include freezing, drying and smoking. With the exception of freezing items, these practices did not appear to extend to preserving or storing domestic cuts of meat or produce. Typically, one or more of these practices may be used to process a caribou hunt, or a fish catch. Meat from a caribou hunt may be frozen in large sections or smaller pieces,

as well as thinly sliced and dried over a wood stove to make dry meat. The process of pounding dry meat for storage is depicted in Figure 4.6.

Figure 4.6. Process of Pounding Dry Meat for Consumption



Similarly, Jack or White fish may be preserved both by freezing and/or smoke drying (Figure 4.7).

Figure 4.7. Preserving Fish by Traditional Smoking



Before freezing some fish is smoked for additional flavour, and depending on the type of fish being preserved it may be frozen whole or filleted. Toulibe, a type of white fish, is often frozen whole because the fish is very thin and flat which makes it difficult to filet.

In the one non-traditional household participating in the study, wild meat is mainly preserved by freezing. Deer (hunted down south) or moose meat is cut into steaks or cubes, and is made into ground meat prior to freezing. The ground meat may be used later to make sausage and cured meats such as bologna, jerky and salami (Figure 4.8).

Figure 4.8. Cured Wild Meat



Making sausage and cured meats is not only a way to preserve the meat but is also a hobby enjoyed by the male head of household. Fish caught by the household is mostly eaten fresh, with very little stored for future use. Where fish is stored it may be frozen, or on rare occasions smoked using a commercial smoker and wood chips.

Utilising Food within the Household

Use and consumption of food within households in Stony Rapids is a balance between managing the household food supply, meeting the food preferences of household members and juggling the demands of work and home life. Adjustments in food use including the amount and types of food consumed are made according to the availability of both land and market foods within the home. Food preferences also play a role and influence household decisions about the types of meals that are prepared and the foods that are consumed by individual household members. In turn, meeting the demands of work and home life are a challenge in some households. Sharing of meal preparation activities among household members, reliance on

kinships for support, and use of convenience foods that are quick and easy to prepare alleviate some of this burden.

Adjusting Food Use. Seasonally and in between shopping trips households adjust their use and consumption of various wild and market foods. Depending on their seasonal availability, certain types of wild meat may be used and consumed more often than other types of wild meat. In the fall, Toulibe, a type of white fish becomes abundantly available in the area. In some households, its use and consumption is markedly increased during this time. In an Elder household, for example, Toulibe became a mainstay in the household's diet and was prepared in variety of different ways that ranged from baking the fish whole to making fish cakes. Similarly, the return of the caribou sees an increase in its use and consumption. Feasts to celebrate and share the hunt become popular, as does the increased use of the meat in preparing meals. In one of the participating households, caribou meat is eaten at least three times a week when in large supply. A variety of both traditional (e.g. fried meat with potatoes and onions and/or porridge, boiled meat) and contemporary meals are prepared. Figure 4.9 shows two different traditional meal preparations using Caribou meat (sliced and ground), onions, potatoes and spices.

Figure 4.9. Traditional Meal Preparations Using Caribou Meat

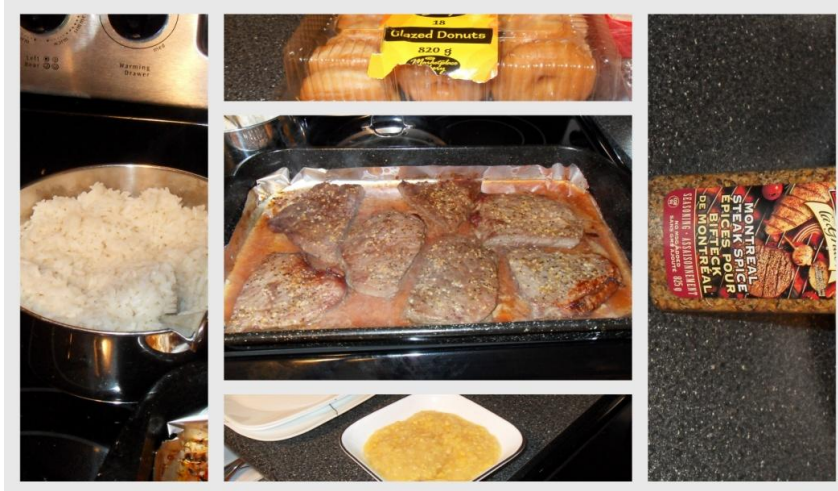


In between shopping trips, the use and consumption of market food also changes. Following a shopping trip, meals are generally planned and prepared around perishable items such as fresh fruits and vegetables, and dairy. Perishable items may be used as an ingredient to

make a specific dish such as pizza or a stir fry, or stand alone as in a salad, or celery sticks with cheese spread. As the perishables begin to dwindle more food items having a longer shelf life such as frozen and/or canned and dry food items are consumed or are used to substitute for perishable items. Stir fries for example, may be prepared using frozen mixed vegetables instead of fresh vegetables. As the end of the month approaches or as the length between shopping trips increases meals also become more creative. As one household participant states, “you have to think about how can you put remaining items together to make a meal”. Sometimes emergency purchases are made from local retailers when basic items such as bread and milk run out or a specific item is required for a recipe.

Managing food preferences. Within households, family members exhibit varied and diverse tastes in foods which are often reflected in differing household patterns of food use and consumption. This diversity may be accounted for by individual and generational preferences for certain food tastes, or embedded in larger cultural or social processes that are specific to each household and /or its members. Food use and consumption in two of the households participating in the study, for instance, varied according to where household members had been raised and the social and cultural food norms associated with that area. Particular food items or food items cooked in a specific manner may be important or the preferred choice among some household members but not by all. Under these circumstances, compromises are often made to try and meet the food preferences of all family members. In one household when the male head of household is away working, the types of foods used and consumed in the household reflect the individual preferences of the female head of household. Meals prepared for supper may be much simpler or convenient and consist of soup and/ or sandwich; or reflect a culturally preferred meal such as boiled meat (caribou). In this particular household, boiled meat (caribou) is not as culturally important to, nor is its taste preferred by, the male head of household. When the male head of household is home, meals he prefers consisting of a protein, starch, and a vegetable are prepared and served for supper. A typical meal then might include beef round steak, white rice, and creamed corn (Figure 4.10).

Figure 4.10. Contemporary Meal



Soup and sandwiches are never served for supper. Similarly, in another of the participating households the female head of household has agreed to prepare and eat more caribou meat when her husband is away working. Again, caribou meat is not a preferred option for the male head of household because he is not originally from the area. In each of these households, the types of meal prepared and consumed are negotiated among the head of households to try and satisfy the food preferences of all household members.

Generational differences were also apparent in some of the households I visited. Elder households tended to prefer more traditional foods or meals. During my time in the community, Elders receiving Meals on Wheels often complained about the type of meals that were prepared and served; meals weren't simple enough and they were too spicy. On several occasions, I observed these meals being fed to stray or wandering dogs in the community.

In one household, a male caregiver honoured his elder mother's requests by preparing the more traditional meals that she preferred. These meals included boiled meat (caribou, moose, rabbit), soups and stews made from either wild or domestic meat (beef tongue and barley), fish, and bannock (baked or fried). In this role it is not uncommon for the caregiver to source and procure various types of wild and domestic meats, or other needed food items. It is also not uncommon for the caregiver to have to learn how to prepare the requested meal. Growing up, meal preparation had been delegated to the females living in the household (sisters,

mother) while the males of the household participated in food procuring activities. His mother's request for beef tongue and barley stew wasn't simply honoured by preparing the meal but involved a series of events of first learning how to make the meal from his sister, followed by a visit to all three stores in the community to try and find pot barley and beef tongue. Similarly, a request for rabbit stew or fried caribou meat also involved a series of events that ranged from sourcing and procuring wild meat to properly preparing the meal. Whatever has to be done is done to honour his mother's meal requests. At times, this may also have involved the preparation of two different evening meals, one meal for his mother and another meal to satisfy his request for something different, like spaghetti.

Managing time. Participation in the wage economy while necessary, places additional constraints on a household's capacity to feed their family. Full time employment and/or shift work of both the female and male heads of household often leaves little available time to plan and prepare meals. With a shortage of time, these households have come to rely on a variety of strategies that make it easier to feed their families. These strategies ranged from the use of more convenience or processed foods, sharing of duties related to meal preparation activities, as well as reliance on kinships for support.

Convenience food. The use of more convenience or processed foods tends to be isolated to the work week (Monday-Friday) when time is often in short supply. This is especially true during the lunch hour. Currently there is no supervised lunch program at the Stony Rapids School and students are expected to return home for lunch. Working parents (usually the female head of household) have less than an hour to pick up their child or children from school, prepare a meal, eat, and return to work within the allotted time. For this reason convenience and processed market foods have become a popular alternative. These foods may include frozen items such as pizza pops, perogies, fries; canned soup and spaghetti; as well as packaged items like macaroni and cheese, and ramen noodles. As one female head of household explains "we buy case lots of stuff like Ichiban, and Kraft dinner, and Alphaghetti and stuff like that- that's handy for the kids for their lunch".

Convenience and processed items are also used as part of, or for meals that are served during the supper hour. As in many working households, both time and energy are often in short supply following a long day of work. With a hungry family to feed the aim is to prepare a meal as quickly as possible. In one household supper was prepared and on the table in under 30

minutes. The meal included fried caribou meat, creamed corn and mashed potatoes. In this case a combination of convenience and fresh foods were used. The caribou meat was thinly sliced and fried with a variety of spices. Boiling water was added to a package of instant mashed potatoes and a can of creamed corn was opened and served unheated.

In other households, time is saved by preparing large quantities of homemade stews, chilli, and casseroles that make more than one meal. These dishes are usually prepared beforehand and/or frozen, and conveniently reheated for lunch or supper meals. As one household participant explains,

If I cook something for lunch today, like a stew or chilli, then I will make enough so it can be used for either tomorrow's lunch or supper, like a meal tomorrow or to freeze some of it. We normally don't just cook only enough for one meal, just because it saves time.

Similarly, leftovers from a lunch or supper meal are never thrown out and are often consumed at a subsequent meal. In one household, leftovers are eaten by the male head of household in between work shifts, or are used as part of the household's next meal. For example, pizza spread and a variety of buns leftover from the week (ciabatta, hamburger and hotdog) were used to make to pizza buns. The pizza buns were served alongside pieces of homemade moose bologna, and celery sticks with cheese whiz.

Sharing meal preparation. Meal planning and preparation activities are also somewhat divided among household members. The female and/or male head of household are most often involved in the larger preparation of meals (cutting, chopping, cooking) while children who are old enough to participate, are assigned smaller tasks such as retrieving food items from the pantry or fridge, setting and clearing the table, or loading the dishwasher. Based on my observations and informal conversations with community members it would seem that the majority of the meals are prepared by the female head of household. This is often dictated by traditional gender roles (among the older generations) as well as the competing demands of shift and/or work rotations of the male head of household.

Notably, there are tradeoffs in food preparation responsibilities. This was apparent in the participating households where one or more household members were involved in shift work (away from home for long periods of time). In one of these households, responsibility for food

preparation shifted from the female to the male head of household. The male head of household might be involved in the preparation of entire meals or parts of meals to be served for lunch or supper. Similar patterns were also observed in the other participating households. In one of these households, the male head of household during his week off from work, will prepare and have a hot lunch ready for his working wife and school age children. He might make burgers and fries, grilled cheese sandwiches and soup, and Kraft dinner with wieners. For other households, the male head of household, during a shift rotation will begin the meal preparations for lunch or supper. He might prepare a batch of homemade sausage, or fry up some moose patties. Once his partner returns home from work the female head of household will finish preparing the meal. Additional items such as rice or boiled potatoes might be made and served alongside the earlier meat preparation.

Kinships. Kinships also become an important source of support for working households. Arrangements might be made within a kinship to provide one or more meals for a household during the work week. For example, employment may take both the female and male head of household outside Stony Rapids making it difficult to return home and prepare lunch for their school age children. Lunch then, is provided throughout the work week by an extended family member (grandmother, aunt) who has the time to prepare lunch and coordinate the pickup and dropping off of the children at school. In return, the household invites and provides supper for the respective kinship member and their household.

In addition, kinships also alleviate some of the burden associated with the demands of work and home life for one of the female heads of household. Evening meals, for example, might be eaten at a parent's house up to four times a week, when the male head of household is away working. With the responsibility of the entire household including cooking, cleaning, and child care, as well as being employed fulltime, the female head of household is often strapped for time and has little energy. Reliance on the kinship for meals then, alleviates some of this excess burden and more importantly instils a sense of togetherness. As the female head of household indicates, "... after supper we sat around, drank tea, and watched television with my parents."

Summary

Food moves into and within households via three dominant pathways that originate from the sources of food available to and accessed by households in Stony Rapids: Pathway A, Pathway B and Pathway C. The movement of food into households vis-à-vis these three

dominant pathways is dependent on a mix of regional and/or community level factors, as well as factors that are unique to each household. Household cultural, economic, and social factors in particular seem to have the greatest influence on the capacity of households to both access and utilise food from one or more of these dominant pathways. The mix of these factors and resulting influence on food access and pathway use may be indicative of a household's vulnerability to food security issues.

The movement of food within households is structured around maintaining an available supply of both market and land based foods in the home at all times. This is captured in the practices used by households to preserve and store both market and traditional food for later use and in practices related to the monitoring the food supply. How these food stores (market or land) are used is also reflected in the measures taken by a household to adjust their food use throughout the year or season, and/or in between shopping trips, as well as according to the food preferences of individual household members and time available to partake in meal preparation activities.

Chapter 5 Discussion

A key part of my research was to understand the experience of household food security within the context of a remote northern community. Taking an ethnographic approach, I lived in the community of Stony Rapids, Saskatchewan for a period of three months. During this time I had the opportunity to experience daily life there by immersing myself in day to day activities and events and by interacting with many of its local peoples (First Nation, Métis, and non-Aboriginal) and their culture.

Directing my work in the field, I set out to ask two important questions that I believed to capture the experience of household food security and in turn, better inform how we might understand and measure food security in this community and in similar communities throughout the north. To this end, I asked: how does food move into northern households and how does food move within northern households. By examining food movement both into and within northern households, I was able to establish where households get their food, how it is accessed and brought into the household and to a lesser extent, how food is managed and utilised within the home. More importantly, I was able to readily identify those structural factors involved in creating and maintaining household access to food.

Taken together, these findings suggest the need for an alternative way of understanding and approaching the conceptualization and measurement of food security in a northern context. Answering my third research question, how do the answers to these questions (research questions 1 & 2) inform our understandings of food security and the measures used to capture food security at the community level? I propose then, a conceptual framework of northern food security in Stony Rapids, Saskatchewan.

In the section that follows, I present this proposed framework, first by defining the framework and its component elements and secondly, by describing how each of these elements are involved in and contributes to household food security in the north. I also discuss how the framework addresses or overcomes some of the limitations of existing understandings of food security.

Using the proposed framework as a guide, I also discuss how to proceed with measuring food security at the community level. Rather than focus the discussion on specific measures to do so, I instead suggest a framework that can be used to approach the measurement of food security. I end by discussing the strengths and limitations of this work, the contribution it makes to our

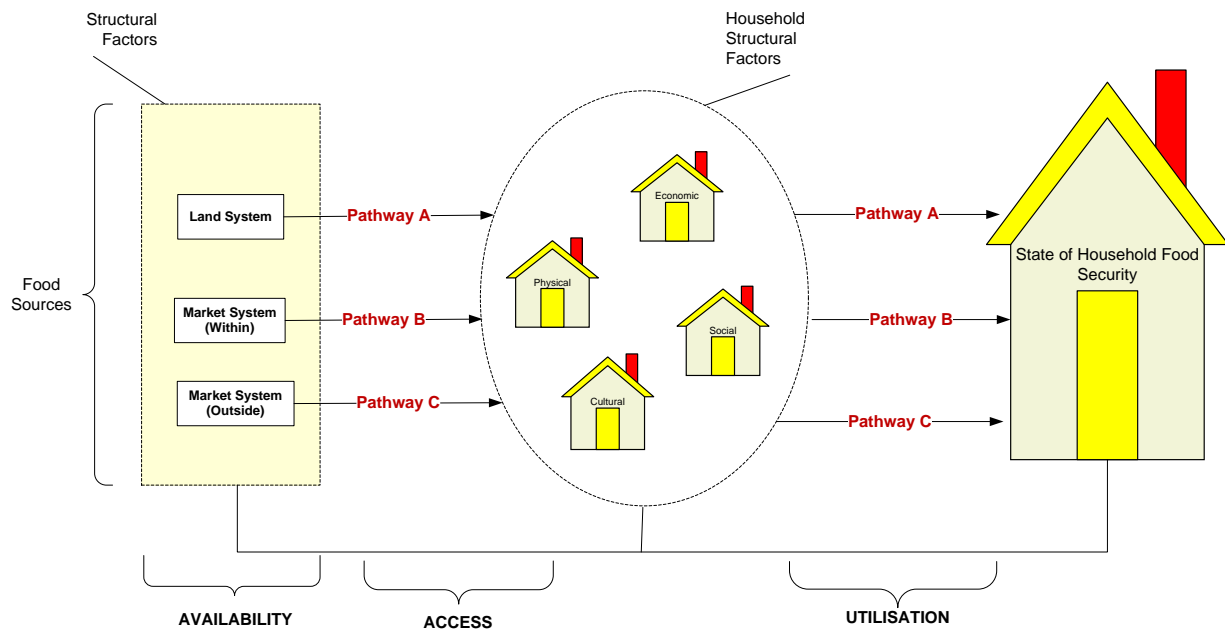
understanding and approach to northern food security, and the next steps that are required to move ahead with this body of work.

Conceptual Framework of Household Food Security

It is evident that an alternative way of understanding and framing food security in the north is much needed. Other researchers working in the field have expressed similar concerns, calling for both an expanded definition of food security (Egeland et al., 2011), and/or a demand for a framework (Power, 2008) that is relevant to and captures the food perspectives of Aboriginal peoples.

The framework I propose offers a basic guide that can be used to inform how we understand and approach food security in the north. It considers the essential dimensions of food security as currently defined by the FAO, including food availability, access, utilisation and stability; as well as the three dominant pathways previously identified, which structure the movement of food into and within northern households. The framework points to the type of information that I feel is required to address questions about food and food security in the north and how these pieces fit together (Figure 5.1).

Figure 5.1. Framework of Household Food Security in Saskatchewan’s Far North



Elements of the framework. The proposed framework is composed of three main elements that are important to understanding the movement of food into and within northern households. These elements are consistent with current ideas about food security and are identified here as food availability, access, and utilisation. Another element, stability, is a temporal determinant that affects availability, access and utilisation over time. Stability runs across all three of these elements.

Similar to the integrated framework of food security developed by Duhaime & Godmaire (2002) I also incorporate the supply mechanisms (although named differently) through which food is produced and circulates into and within the household. These mechanisms are captured by three dominant pathways through which food moves into and within northern households. Identified as Pathway A (land system), Pathway B (market system-within), and Pathway C (market system-outside), these pathways originate from the multiple sources of food that are available to, and used by households in Stony Rapids to procure food. The use of multiple food sources, including the purchase of food from both local shops and shops outside the community, and through local harvesting practices, has also been reported by Mead et al. (2010) in their work with two Inuit communities in Nunavut.

Within the framework, each food pathway forms a closed loop system with ties linking together the elements of food availability, access, and utilisation. These ties are multidirectional and recognise that each of these elements are interrelated and have a reciprocal influence on how food moves into and within the household from one or more of the dominant pathways. Food availability from any one of the pathways for example, exerts influence on household food access which in turn influences food utilisation. Food utilisation in turn, may also influence household access and the selection of food from any one of the three pathways. This is consistent with Duhaime & Godmaire's framework where multidirectional ties link the three elements in their model: inputs, supply mechanisms, and outputs (2002). In this case not only does the output exert an influence on input but it may also exert a return influence on intermediary mechanisms. Intermediary mechanisms, in turn may exert a return influence on input and input on the outputs.

Associated with each of these three elements are also a variety of structural factors that influencing food movement. These factors largely determine from which pathway or combinations of pathways food is available and through which food households' access and utilise food. In particular, it is the mix of structural factors (cultural, economic, physical and

social) at the household level that seem to have the most influence on food access, utilisation and resulting household food security. Conceptually, Duhaime and Godmaire (2002) view such factors as inputs of the social system, which they have classified into seven main groups including the environment, economy, culture, social stratification, demography and health, technology, and political and legal these factors influence the supply mechanism, and conditions of food security.

Depending on the mix of factors, households may experience differential access to food from each pathway or combination of pathways, as well as exhibit varied and dynamic patterns of food utilisation. For example, it is not uncommon for higher income earning households to predominately access their food from Pathway A (land system) and Pathway C (food from the market system-outside), and to consume a variety of market and land food. In comparison, lower income earning households often have limited access to food from Pathway C and therefore tend to access the majority of their food from Pathway A and Pathway B. In these households, less variety is afforded through market foods purchased in the community. In some of these households more land based or traditional food preparations may be consumed over market foods. Similarly, the seasonal availability of food from Pathway A, along with diminishing stocks within the home may precipitate a change from which pathway food is selected from. For example, more domestic cuts of meat purchased from Pathway B or C may be consumed when the household supply of caribou meat begins to diminish or run out.

Understanding why these differences exist requires looking closely at how such factors influence and are involved in the movement of food along each of the three dominant pathways. In the sections that follow, I trace the movement of food beginning at its source and as it moves both into and within the household. At each turn along the way, I discuss how factors associated with each element of food security; food availability, access, and utilisation influence food movement. Supporting examples are drawn from my own work within the community and with household members, and to lesser extent from the food security literature.

Food availability. Food availability in the proposed framework addresses the supply side of food and is defined by the sources of food that are available to households. In the north, these consist of food available from the market system and food available from the land (Chan et al., 2006; Duhaime et al., 2002; Goldhar et al., 2010; Power, 2008). Within the framework, I further divide sources of food from the market system into two distinct pathways according to where

these foods are available for purchase. In this case, market foods are available from retail outlets located both within the community and outside the community.

Food available from the land includes the natural resource base, as well as food from other local food production activities such as farming and gardening. Food from the land is typically not commercially harvested and/or produced with the exception of some smaller scale market activities and the trading of services for food. In Stony Rapids, this involved the sale and purchase of traditional foods considered delicacies (e.g. dry meat) or in the trading of services (e.g. ride to nearby reserve, purchase of a much needed item in the south) in exchange for wild meat (e.g. fish, caribou meat). Elsewhere in the arctic, larger commercial harvests by hunter trapper organisations and the sale of traditional foods have been well documented (Chan et al., 2006; Goldhar et al., 2010). In Greenland, for example, traditional foods are often sold and made available for purchase at local grocery stores or directly from hunters in the community (Goldhar et al., 2010).

Food availability from any of these food sources is influenced by a variety of factors that exist across all societal levels; global, national, regional, community, and the household (Gross et al., 2000). Of specific interest here, however, are those factors influencing the availability of food at the community and household level. In this study, these are inclusive of factors associated with the natural and physical environment, as well as those factors related to culture. Table 5.1, provides a sampling only of these factors and their resulting influence on the food supply at the community level and within households.

Factors influencing food availability may act singly or in combination, and have either a positive or negative impact on the food supply. The availability of market food, locally or at the household level, for example, is often influenced by a combination of factors including weather, road infrastructure and distance from southern markets. Washed out sections of a seasonal road due to heavy rainfall and localised flooding, can negatively impact the local supply of market foods by impeding travel to and from southern markets.

Table 5.1. Factors Influencing Food Availability According to Food Source

Food Source	Influencing Factors	Outcome (+/-)	
Land System	<i>Natural Environment</i>		
	<ul style="list-style-type: none"> • Climate Change • Natural Disasters (e.g. wildfire) • Weather (e.g. Freeze up, snow fall,) • Season 	<ul style="list-style-type: none"> • ↑↓Abundance of fish and wildlife • Changes in Migratory Patterns • ↑↓Physical access to hunting and fishing grounds 	
	<i>Physical Environment</i>	<ul style="list-style-type: none"> • Geographical location of wildlife 	<ul style="list-style-type: none"> • ↑↓Proximal access to fish and wildlife
	<i>Culture</i>	<ul style="list-style-type: none"> • Rituals related to harvesting 	
Market System	<i>Natural Environment</i>		
	<ul style="list-style-type: none"> • Weather (e.g. Freeze up, snow fall) • Natural Disasters (e.g. wildfire, flooding) 	<ul style="list-style-type: none"> • Road conditions and travel into and out of community (all modes of transport) • Quantity of market food imported 	
	<i>Physical Environment</i>	<ul style="list-style-type: none"> • Distance from southern markets • Road Infrastructure • Freight/Transport Schedules 	<ul style="list-style-type: none"> • Quality of food imported • Type of market food imported

This not only results in delayed food shipments and local food shortages from retailers within the community, but is also responsible for the limited selection of and poorer quality of perishable items like fruits and vegetables. Other northern communities in Canada’s arctic have experienced similar problems due to transportation and shipping issues (Chan et al., 2006; Mead et al., 2010). Food often arrives in these communities damaged, spoiled or outdated.

Similarly, household food stores may also be negatively impacted. The impact is especially felt when food stores begin to run low and are in need of replenishment. Inclement weather conditions and their resulting impact on the seasonal road prevented or made travel to and from southern markets difficult.

In contrast, weather can also have a positive impact on the community and household food supply. An early freeze up along with a heavy snow fall can facilitate travel over seasonal ice and winter roads, making it easier and safer to travel and import market foods from the south. This is especially important in households that depend on Pathway C and regularly plan (every 3-4 months) shopping trips to larger urban areas to the south. For these households, it is important to maintain an on-going supply of market foods within the home. Purchasing food items locally, is a deterrent given the limited selection, poor quality, and high cost of these items.

Likewise, the availability of food from the land is also influenced by factors related to the natural and physical environments. For instance, natural disasters such as wildfires can negatively impact the abundance or availability of wildlife commonly depended on as a viable food source. Impacts such as these, may be short lived or in some cases, result in longer term effects. Of particular concern in Stony Rapids, is the limited availability and decreased abundance of the caribou due to recent wildfires in the area. Well documented by wildlife biologists, the return of the caribou are unlikely to improve in the short term. Caribou have been known to avoid burned areas for up to 55 years (Joly, Bente, & Dau, 2007). This is due in part; to the length of time (up to a decade) it takes for lichens, a mainstay of the caribou diet, to become re-established (Jandt, Joly, Meyers & Racine, 2008). Such declines pose potential challenges for households that depend on the caribou as an important source of food. Hunting trips may become longer and more distant, and therefore require additional household resources such as time and money to participate. Access then may be limited through lack of time, money or both. This potentially impacts the future supply of caribou meat within a household as well as undermines the maintenance of cultural practices in households where the caribou are highly valued. Households may choose then to procure other sources of wild meat (e.g. moose, fish) or purchase more domestic cuts of meat from the market system.

Household Food Access

Household access to food is defined by the ease and difficulty of obtaining food from the market and land systems. Often studied in terms of economic access to food, attention has tended to focus on household income and the cost of market food as predictors of food security. While these aspect are important in northern and remote communities, economic factors only partially explain how food is accessed by households in Stony Rapids and elsewhere throughout the north (Chan et al., 2006).

Both physical and social access to food figures prominently in a household's ability to procure food. Physical access is concerned with whether food is physically accessible to household. It may consider such aspects as the logistics of market food distribution and supporting infrastructure to do so, as well as the distribution of fish and wildlife according to migratory and seasonal patterns. Social access while more difficult to define, is used here to describe the many social processes that influence household food access. These may include things like participation in the wage economy, home life and family commitments, traditional knowledge, and social networks. Table 5.2, provides additional examples related to household economic, physical and social access for each of the three dominant food pathways.

Table 5.2. Economic, Physical, and Social Access to Traditional and Market Foods in Stony Rapids, Saskatchewan

Pathway	Economic Access	Physical Access	Social Access
A	Capital to participate in harvesting activities (hunting/fishing equipment)	Location/distance of wildlife from community	Time available to participate in harvesting and processing activities
	Cost to participate in harvesting activities (gas, ammunition)	Adequate Transportation (e.g. quad, snowmobile, fishing boat, Trail and road conditions)	Traditional knowledge or access to knowledge to participate in food activities
B	Cost of Food	Proximity of store(s) to household	Food sharing through kinship ties/extended family Food programs (Meals on Wheels; School Breakfast program)
	Cost to travel within the community	Adequate transportation (quad, truck)	Food sharing (extended family; kinship ties)
	Cost of Infrastructure to maintain municipality	Infrastructure including roads, pathways, sidewalks, lighting	Relationships with store owner/managers
C	Cost of Food	Location/distance of grocery stores outside of community	Social networks outside community (e.g. family, friends)
	Travel Costs (accommodation, food, recreational activities)	Infrastructure (roads)	Time to travel to distant markets in the south
	Transportation Costs (vehicle maintenance, gas)	Adequate transportation (pickup truck) Medical Appointments	

Likewise a variety of community level and household factors influence a household's access to food from each pathway. A sampling of these factors is presented in Table 5.3. These factors may act singly or in combination, and have either a negative or positive influence on a household's economic, physical and social access to food from each pathway.

Table 5.3. Factors Influencing Household Access to Food from each Pathway

	Influencing Factor (+/-)	Household Access
Economic Access	Household Income	↑↓ access to food from Pathway A, B, C
	Dev. Infrastructure (e.g. roads)	↑↓ access to food from Pathway B, C
Physical Access	Location of Wildlife	
	Location of Stores	↑↓ access to food from Pathway A
		↑↓ access to food from Pathway B, C
Social Access	Social Networks; Sharing	↑↓ access to food from Pathway A, C
	Relationships with Store Owners/Mangers	↑↓ access to food from Pathway B

These and other factors guide subsequent decisions about where households get their food (Pathway A, B, C, or combination of pathways) and how households access food from within each pathway. Notwithstanding, such decisions are also influenced by the availability of food from each pathway as well as by patterns of food utilisation within the household (e.g. acceptability such as food preference and cultural appropriateness).

Decisions concerning household access to food are influenced by a combination of economic, physical and social factors unique to a household. Of these factors, economic factors such as household income seem to play a key and deciding role. More affluent households, tend to access food from a combination of all three pathways, with a heavier reliance on market foods accessed from Pathway C than Pathway B, and varying reliance on land based foods accessed from Pathway A. Market foods from pathway B are rarely accessed with the exception of confectionary items such as soda pop, potato chips, and chocolate bars; or other food items that run out between shopping trips to the south. In these households income affords the freedom to move between pathways based on opportunities and preference to do so. These households are unrestricted, having both the economic means to regularly travel to southern markets where food prices are cheaper as well as the capacity to offset the cost of directly and indirectly participating in traditional food harvesting activities.

Less affluent households on fixed incomes such as social security and/or pension benefits and employment insurance, in contrast do not have this same flexibility. They have limited

access to food via Pathway C and predominately access food from a combination of Pathway A and Pathway B. In these households food from Pathway C is not easily accessible due to the distance from and the high cost associated with regular travel to southern markets. For these households market foods are more easily accessible from local retailers within the community. However, given their high cost, it is rare for these households to rely solely on market foods. Access to food from Pathway A is also important in maintaining food security in these types of households. In fact, several studies have shown a direct link between increased traditional food (food from the land) use and food security (Beaumier & Ford, 2010; Chan et al., 2006; Ford & Berrang- Ford, 2009).

How food is accessed within each pathway is also influenced by the mix of economic, physical and social factors unique to each household. This point is further discussed in the example below describing household access to food via Pathway A. Food accessed from the land is contingent upon a variety of economic, physical and social factors that influence hunting, fishing and gathering activities. Such household factors influence whether a household is able to access food directly or indirectly from the land and whether a household is able to utilise this food. For example, economic access is clearly defined by the cost to participate in harvesting activities such as hunting and fishing. It may include start up, maintenance, and replacement costs of equipment, as well as transportation and/or supply costs associated with partaking in the activity. A household then must have access to sufficient income to participate. Income may be earned by participating in the wage economy, through transfer payments such as employment insurance or social security, or through other means. Even then household participation is not guaranteed. Various other factors related to social access such as participation in the wage economy, family commitments, and the knowledge and /or skills to participate in harvesting activities also play an important role. A household, for instance, must have an active hunter or fisher who is knowledgeable of harvesting practices and of the area; and who has the time and willingness to participate. If engaged in active full time employment, for example, days off must coincide with wildlife migratory patterns, allow enough time for both travel to and participation in harvesting activities (caribou hunt). For other households that may not be engaged in full time employment (e.g. pensioners, unemployed) more time is afforded to participate in such activities. This is contingent, however on the household's knowledge and capacity to participate in harvesting and food processing activities, as well as their physical ability to do so. Where these

are lacking, kinships with immediate and extended family and friends become important in providing access to food from Pathway A.

Given the location or distance of wildlife from the community, a household must further decide if they choose to participate in a hunt. Physical access as in the proximity or location of wildlife populations, and the means through which a household has access to these populations, add yet another level of complexity. If for example, wildlife populations, such as the caribou migrate further away from the community, a household may consider the following in their decision to partake:

- additional time required to travel and time available to participate;
- available modes of travel and access to these modes (e.g. snowmobile, chartered flights);
- increased cost associated with travel further away from community (e.g. gas, oil,) or increased cost of alternative modes of travel (chartered flight);
- government or band funding to support or offset the increased cost of hunting; and
- weather and trail conditions necessary for travel (e.g. sufficient snowfall, stable weather conditions); travel safety.

Depending on the household's economic and social circumstances, a household may decide to participate in the caribou hunt; forgo the hunt and rely on indirect forms of food access including fee for service arrangements, and/or food sharing through kinship ties; harvest other viable sources of fish and wildlife located closer to the community and/or consume more domestic cuts of meat purchased from the market system.

Utilisation of Food

Utilisation focuses on how much food people eat and also what and how they eat. It also considers the acceptability of food which may include household and individual food preferences, the cultural importance of food, and the safety and quality of food that is available for use. Decisions made here, concern what food is to be purchased or harvested, prepared, consumed, and allocated within the household (Weingärtner, 2004). These decisions are influenced by a mix of cultural, economic, physical and social factors unique to a household. Table 5.4 provides a sampling of such factors influencing the use and consumption of food from each pathway. These factors are specific to the decisions households make about how food is

preserved and/or stored for later use, the types of foods selected from and used, and the types of meals prepared and consumed.

Table 5.4. Household Factors Influencing Food Utilisation from each Pathway

Food Pathway	Cultural	Economic	Physical	Social
A	Food Preference Acceptability Rituals (e.g. feasts, food sharing)		Specialised equipment for food processing and preserving (e.g. smoke house) Storage space and facilities (e.g. storage room, freezer)	Time to partake in traditional food processing activities Knowledge of traditional food processing activities Knowledge of traditional food preparations Kinships, Family dynamics
B	Food Preference	Allocation of Food Supply	Storage space and facility (e.g. fridge, freezer)	Time to prepare meals Division of labour among household members
C	Food Preference	Allocation of Food Supply	Specialised storage containers Storage space and facility (e.g. fridge, freezer)	Time to prepare meals Division of labour among household members

A household's decision to use and consume food from Pathway A, for example is influenced by such cultural factors related to food preference and the acceptability of wild meat

among household members; social factors including having the knowledge or time to participate in harvesting activities; and physical factors associated with food processing (equipment) and food storage. In particular, food preferences of household members are highly influential in these decisions, influencing:

- the kinds of wild meat selected and used within the household(e.g. caribou, moose, fish);
- the timing and frequency of their use and
- the types of meals prepared (traditional vs. contemporary)

Decisions made at this level tend to take into account the food preferences of all household members. In one household, two different meal preparations, one traditional and the other contemporary may be prepared to satisfy the food preferences of all household members. In another household, cultural food preferences are managed according to the work schedule of the male head of household. Culturally preferred foods of the female head of household like caribou meat, is consumed more often when the male head of household is away working at the mine site while more preferred foods of the male head of household like moose meat, stews or soups are consumed upon his return.

Important to the use of food from each pathway is having the means to preserve and/or store food for extended periods of time. Seasonal availability of food from Pathway A, distance from southern markets, the high cost of food locally, along with the periodicity of shopping trips both within and outside the community precipitates this need. In the households I observed, many had various ways of preserving, storing and monitoring the food supply. Long term storage of items for instance, included having dedicated storage spaces/rooms, fridges and freezers. While not directly observed nor discussed, households without the adequate capacity to do so would most likely have a more challenging time feeding their family. Because of limited storage these households might depend more on food accessed from Pathway B than food accessed from Pathway A and C, and as a result pay substantially more for food items, that may be of limited selection, poorer quality, and not preferred or culturally acceptable to the household. This point is further exaggerated in how households adjust their food use based on their supply or store of food seasonally and in between shopping trips. For these households, a combination of foods from more than one pathway are typically used and consumed to maintain food stores and at the same time meet the food needs of household members. According to Usher et al. (2003) the use

of market and land foods is dependent on the opportunities that exist for households to use food from both systems. For instance, if in season and readily available a household may consume more caribou meat over other types of wild and domestic meats, compared to when caribou meat is in short supply within the household. The reverse is true when caribou meat is in short supply within the household. Other wild meat such as fish or moose and/or domestic cuts of meat are consumed in greater quantities.

The utilisation of food while less understood in the work I present here is a significant driver of how food moves into and within northern households. Influenced by various cultural, economic, physical, and social factors, decisions made at the household level influence the combination of pathways from which food may be selected and the types of food that are used and consumed within each. This is coupled with the various factors already influencing the availability of food from each pathway, and the factors influencing household access.

Stability of Food Availability, Access, and Utilisation

Stability (sustainability) is a temporal determinant that affects food availability, access and utilisation over time. In order to be food secure, stability must be achieved across all three of these elements (Gross, 2000). Where stability is not achieved food issues may arise, being either transitory or chronic in nature. A number of factors existing across all societal levels may influence the stability of the food supply, as well as impact both access to and the utilisation of food.

Based on my findings a variety of factors influence food availability, household access and utilisation of food from each pathway. These influences may have either a negative or positive impact on food security. Imposed by my short stay in Stony Rapids, it is difficult however, to determine the extent to which these impacts on food security may be short lived or transitory, or are longer term and/or constant. Further investigation over a longer period of time is required.

Key Features of Proposed Framework

Key features of the framework seek to expand on those limitation often expressed with the use of conventional food security frameworks that are neither relevant nor applicable for use with northern populations including Inuit, First Nations, Métis and to a lesser extent non-Aboriginal peoples. Guided by narrow conceptualisations of health these frameworks have largely focused on the biological/nutritional importance of food and physical health while

ignoring the contribution of food and food culture to psychological, psychosocial and sociocultural health. Neither do these frameworks capture or explain the multiple domains or range of structural factors that influence and ultimately impact food security and resulting health outcomes.

The proposed framework attempts to address these concerns. Developed within the context of a northern community, the framework captures to some extent the perspectives and practices of the range of people who live here including First Nation Dene, Métis and non-Aboriginal peoples. Of importance is the inclusion of traditional food use (food from the land), and the various practices tied to its harvest and/or gathering, processing, preserving and storing, and consumption (Chan et al., 2006; Duhaime et al., 2002; Goldhar et al., 2010; Power, 2008).

In the proposed framework, I have captured traditional food use in Pathway A: food accessed from the land. There are several reasons that traditional food use is considered here. Like elsewhere in the north, access to traditional food is vital to maintaining household food security in Stony Rapids. For households here, traditional food is perceived to be more readily available, easier to access, and more affordable. The high cost of market foods for example, from local retailers in the community, along with limited or periodic access to more affordable food from southern markets makes the addition of traditional food use a logical choice. The use of traditional foods has been especially important for low income earning households or households living on fixed incomes such as social security and/or pension benefits. As a female Elder suggests, it is not possible to survive solely on market foods. Instead, traditional foods are used with only basic food items purchased from the market system. In higher income earning households, a mix of both market and traditional foods are consumed on a regular basis. At times, adjustments to and changes in consumption patterns may vary according to the seasonal availability of and household stores of fish and wildlife; and according to the periodicity of shopping trips to southern markets. Consistent with the work of Usher et al., households move between food systems depending on opportunities for participation and according to food preferences (2003). Larger amounts of traditional foods such as Toulibe (fish) or caribou may be consumed in greater proportions when in season, while market foods may be in greater demand following a shopping trip south, especially if perishable items like fruits and vegetables have been purchased. Likewise, a household may consume larger amounts of domestic cuts of meat when traditional stores of meat begin to dwindle or vice versa. In these households both market

and traditional food use are important in promoting food security. This finding deviates somewhat from previous studies showing a direct link between increased traditional food use and food security (Beaumier & Ford, 2010; Chan et al., 2006; Ford & Berrang-Ford, 2009). It would seem, that the use of both market and traditional foods have a unique responsibility in sustaining households at different and varied periods of time (seasonal availability of wildlife, periodicity of shopping trips) and according to household economic circumstances. Lower income households, may benefit more from increased access to traditional food than households who may be better off financially.

It is misleading however, to suggest that food from the land is solely used to supplement the cost of the northern diet. Dene households in Stony Rapids, also speak of its cultural importance. “If we didn’t have wild meat people would be lost – it’s a connection to the land – it’s who we are” (Female Head of Household) Wild meat, in particular caribou, is highly sought after and a preferred meat among many Dene households. If available, caribou is consumed on a regular basis by Dene households (at least 3 times per week) with preparations ranging from traditional dishes such as boiled or fried meat, soups, and stews. The importance of the caribou is further emphasized in the cultural beliefs associated with a caribou hunt and intended use. These beliefs, if not properly followed are thought to impact the return of the caribou to the community.

The use of traditional food also imparts other important sociocultural values and practices that become enacted among household members and/or between households that may be located both within and outside of Stony Rapids. Such practices are connected to the harvesting of wildlife through hunting and fishing, food processing and preserving, as well as in the consumption of traditional foods. They include the sharing of traditional food among households with kinship ties and or with Elders in the community, the participation of a household or extended household in traditional processing activities like making dry meat and pemmican, and in the cultural rituals connected to the hunting, use and consumption of traditional foods. These findings are consistent with previous research in other arctic communities. In particular, Lamden et al., (2007); Mead et al., (2010); & Puffal et al. (2010) have all reported the significance of traditional food use in keeping traditions alive, bringing people together, and involving household members in food preparation.

The proposed framework also supports the earlier work of Duhaime and Godmaire (2002) in their development of an integrated conceptual framework of food security. Though named and represented differently within each framework, similar elements and processes are identified and implicated in food security. For example, both frameworks explain the state or condition of food security as a function of system level inputs or structural factors that influence the availability of, access and utilisation of food from one or more supply mechanisms. Ties among elements are also identified and defined within each framework. These ties are multidirectional, interrelated and are seen to have a reciprocal influence on food movement.

Because these frameworks take a conceptual approach both are limited in their functionality to assess food security. Much work remains. This includes the further identification of those structural factors or variable influencing inputs into the system, as well as an examination of the interrelationships between variables. Arguably, my work has added some value in this regard. Various structural factors (but not all) and their influence on food availability, access and utilisation have been identified throughout this work. Specific reference may be made to the following tables: 5.1, 5.2, 5.3, and 5.4. I have also attempted to explain throughout this discussion how these factors or combinations of factors exert their influence on food availability, household access and utilisation. A key part of doing so was the ability to capture the contextual features of the study community and to incorporate these into my understanding of northern food security.

The proposed framework was also developed in consideration of Loring and Gerlach's integrated model of health (2009). The integrated model of health links food security to sociocultural, ecological, psychological and biomedical aspects of individual and community health. It was important then that the framework capture and understand all aspects related to food and its movement into and within households. These are captured in the three dominant pathways and the range of cultural, economic, physical and social factors influencing the movement of food into and within these households. These factors over time may be ultimately linked to the health outcomes of individuals, households, and communities. For example, the limited availability of caribou in the community has the potential to undermine psychosocial, sociocultural and biomedical aspects of community, household, and individual health. Decreases in the abundance of culturally important wildlife species such as the caribou may impact food security and resulting health outcomes through the following processes:

- ↓ participation in food harvesting and processing activities considered important for promoting and maintaining cultural beliefs and values
- ↓ in food sharing practices and events (e.g. feasts) among community members, and households
- ↑ consumption of less nutritious foods or foods that may not preferred or as acceptable

The use of an integrated model of health to frame an understanding of food security identifies additional vulnerabilities that may have not been otherwise considered. Specifically those related to sociocultural and psychosocial health. This is especially important in northern communities where food practices are intertwined or intimately connected with these aspects of health.

Summary

Unlike conventional approaches, the proposed framework takes a holistic approach and considers the multiple domains and range of factors influencing food security. The framework as previously described incorporates the physical domains of food availability, access, and utilisation, as well as the temporal domain of stability. More importantly it considers the various pathways through which food moves into and within household along with the range of structural factors influencing each of these domains and their inter-linkages. Understanding food security in this way is important for how we measure and are able to appropriately respond to food security issues. This is discussed in further detail in the next section, measuring food security.

Measuring Food Security

The proposed framework also serves as an ideal starting point, in which to begin our discussion about how food security is measured at the community level. I begin by asking, if the right things are being measured. In other words, do existing ways of measuring food security appropriately capture those aspects important for understanding food issues at the community level? And if not, what else should be considered and/or what other information is required to better inform our approach?

I begin the discussion by reviewing existing approaches, describing the pitfalls and the subsequent need for a more comprehensive approach to measuring food security at the community level. Using my framework (Figure 5.1) as supportive evidence I propose a

framework that captures the key domains and indicator categories of food security as well as present a sampling of indicators relevant to the indicator category and respective domain. The importance of household contextual information and its use in bridging the gap between measurement and understanding food security at the community level is also discussed.

Existing approaches to measuring food security. Approaches to measuring household food security, for the most part have been simplistic and singularly focused on the measurement of household access to food (Renzaho & Mellor, 2010). The role of food availability and utilisation are often not considered, nor are the inter-linkages between all three dimensions measured and used in the assessment or monitoring of household food security (Pottier, 1998; Power, 2003). Moreover, the measurement of household access has tended to focus solely on economic access, specifically using indicators like household income and the cost of food as an indication of food security. Measuring physical or social access to food has tended to be overlooked.

As Renzaho & Mellor (2010) suggest, such approaches to measurement have led to failed attempts to appropriately identify and respond to food security issues. Evidenced in my study and recognised by others in the field other cultural, physical and social factors related to food access as well as utilisation play a key role in household food security (Renzaho & Mellor, 2010; Webb et al., 2006). This is especially important in Stony Rapids and in other communities throughout the north where social networks and familial kinships play a role in food procurement and acquisition within households (e.g. sharing of food, knowledge, time) (Mead et al., 2010; & Puffal et al., 2010).

Similarly, measures of food security must also capture the influence of factors that impact the food supply. The sources of food from which households draw, including how food is accessed and utilised within the home is significantly impacted by food supply constraints and the capacity of a household to manage such constraints. In Stony Rapids, for instance, diminishing caribou herds in and around the community place constraints (e.g. time available to hunt, and cost to hunt) on the capacity of some households to further access caribou as a viable source of food. As a result, available stores of caribou meat within these households may be eaten in moderation as to preserve existing stores, while other less preferred wild meats and/or more domestic cuts of meat accessed from Pathway B and C may be consumed in its place. The impact may be far reaching for some of these households, from limiting participation in

traditional food production activities considered important for maintaining cultural beliefs to consuming foods that may not be preferred or culturally acceptable to the household.

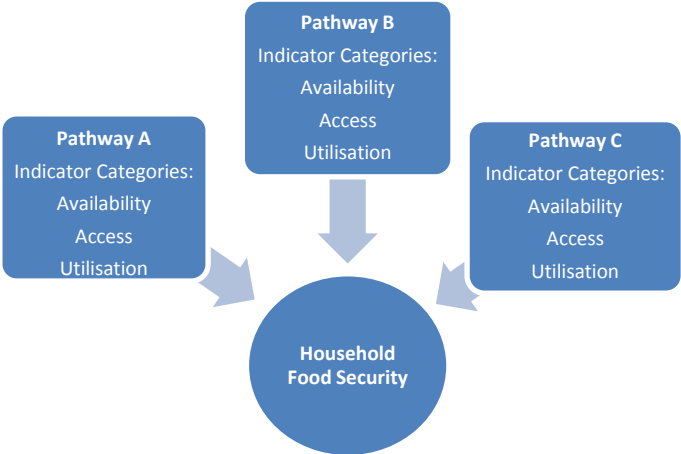
Focusing on single dimensions and/or measures of food security not only makes it difficult to capture the true extent of food security, but also makes it more difficult to identify where vulnerabilities exist. A more holistic approach to measurement is required to fully understand where vulnerabilities exist, their impact on food security outcomes and how to appropriately respond.

Proposed Measurement Framework of Northern Food Security

I refer to three guiding principles that direct how we might approach and measure food security in Saskatchewan’s far north. These principles emerge from the proposed framework of food security (Figure 5.1). The first principle recognises that food moves into northern households via three dominant food pathways. These pathways alone or in combination influence household food security. I describe these pathways as key indicator domains influencing food security, (Figure 5.2). These indicator domains feed into and are relevant to assessing and monitoring food security at the community level.

Within each pathway, the movement of food is structured according to food availability, access, and utilisation. Recognised as key dimensions of food security, it follows that the second principle incorporate these as indicator categories falling under each indicator domain. These indicator categories provide an index of where key vulnerabilities lie within each indicator category and related domain.

Figure 5.2. Key Domains and Indicator Categories for Measuring Food Security



The third principle acknowledges that no single indicator is sufficient to provide an exhaustive assessment of food security. Various cultural, economic, physical and social factors as previously discussed influence the flow of food within each pathway, beginning at its source and as food moves into and within households. A suite of indicators falling under each indicator category (availability, access, and utilisation) that capture the influence of these cultural, economic, physical and social factors are required for a comprehensive assessment.

The development of indicators relevant to each indicator category and related domain is beyond the scope of this body of work. What I provide here is a sampling only, of potential indicators that might be used to measure food availability, access, and utilisation for each domain (Table 5.5). These are based on the various influencers or factors implicated in the movement of food into and within households in Stony Rapids.

Table 5.5. Sample Indicators falling under each Indicator Category and Related Domain

Domains	Indicator Categories		
	Availability	Access	Utilisation
Pathway A	<ul style="list-style-type: none"> • Distribution and population of fish and wildlife in area • Distribution and # of forest fires in area 	<ul style="list-style-type: none"> • Cost to participate in harvesting activities • Employment participation rates • Levels of hunting and fishing • Levels of traditional knowledge • Degree of sharing 	<ul style="list-style-type: none"> • Use of traditional food practices (e.g. smoking, drying) • Consumption of wild meat • Safety of wild meat • Food preferences
Pathway B	<ul style="list-style-type: none"> • Road Infrastructure • Transport/Shipping Delays 	<ul style="list-style-type: none"> • Cost of food locally • Employment participation rates • Household income; sources of income 	<ul style="list-style-type: none"> • Quality of food • Selection of food items available for storage • Housing Infrastructure (storage space, appliances) • Use and consumption of market food; preferred foods
Pathway C	<ul style="list-style-type: none"> • Road Infrastructure • Safety of Travel 	<ul style="list-style-type: none"> • Distance from stores • Cost of food (outside) • Cost to travel (gasoline prices) • Household income • Extent of social networks outside community 	<ul style="list-style-type: none"> • Housing Infrastructure (storage space, appliances) • Use and consumption of market foods • Use and consumption of convenience foods

Much work remains in the development of these and other indicators based on the proposed framework of food security (Figure 5.1) and measurement frame (Figure 5.2). Conceptually, these frameworks have provided a formal way of thinking about and understanding food security and are really a tool for building a coherent set of indicators that are

both valid and meaningful to measuring food security in Saskatchewan's far north. Further consultation with community members is required to select and make sure indicators are relevant, and that selected indicators are appropriate to the end user of the information.

Household contextual information. Information provided at the household level is important for understanding and interpreting indicators that might be used to measure food security at the community level. Based on my findings, differences exist in the combination of and the extent to which households rely on each pathway(s) to bring food into and within the household. These differences may be explained by a range of cultural, economic, physical and social factors that are unique to each household. The influence of such factors at the household level however, may not be adequately captured or measured at the community level. Household contextual information becomes useful for understanding where differences exist, why they exist and who is most vulnerable. For example, even though a community has an adequate number of hunters, disparities may exist among households in their access to food from Pathway A. Poor social networks and/or kinships important for food sharing provide additional contextual information for understanding why the disparity exists and which households are likely to be most vulnerable. Contextual information then is useful in bridging the gap between measurement and understanding food security at the community level.

Strengths and Limitations of the Study

Having the opportunity to live and experience life in Stony Rapids was a strength of this study. As an outsider entering the unknown or the unexpected, I was attuned to what was going on around me, from noticing things in my physical surroundings to what residents were doing. The approach allowed me to observe things that were less obvious to residents, and that may have otherwise been lost had I not chosen to live in this community. Routine day to day activities of residents such as going to work, shopping for food and tending children for example, provided valuable insight into how life operates in this community.

Immersed in day to day community life I was also able to capture a more enriched and in depth understanding of food security. I directly experienced firsthand what it is like to live in a northern community. I came to know the area and its people, and the various challenges that are faced by households in feeding their families. The methods I used lend further support by providing the opportunity to directly observe what was going on in the community, to speak with

residents about their experiences, and to share and discuss with residents my own experiences and insights about food security.

In as much as the findings capture a more in depth understanding of food security, they are somewhat limited in their ability to capture the specific nuances of food security experienced by all households in Stony Rapids. More specifically, how households move between pathways given the influence of structural factors on household access and utilisation. The sampling procedure used limited the breadth of variation that might be expected among households here. Households participating in this study represented similar familial and socioeconomic arrangements (nuclear family, dual income earners, more affluent). Findings then, may be specific to and located in the context of the households that participated in the study, making it difficult to fully understand how structural factors influence the ability of households with different characteristics to access and utilise food.

Similarly, the methods chosen for this study did not allow for an in depth examination of food consumption patterns within each of the participating households. For instance, I was unable to quantify how much food these households were accessing and using from each food pathway on either a weekly, monthly or yearly basis. The use of a 24 hour food recall survey or similar survey would have been useful for this purpose. Being able to quantify the consumption of food from each pathway is important for understanding a household's vulnerability to food security issues. As reported in the results section, an over reliance on a particular pathway may be indicative of current or forthcoming food issues within the home. For example, households highly dependent on Pathway B may be more vulnerable to food insecurity than households relying on a combination of Pathway A and C. Knowledge of community or household contextual features in turn are important for understanding why differences in pathway use may exist among households or among communities.

In northern food environments, seasonal characteristics influence the availability of food from the land and from the market system, influencing both household access and utilisation. The responses of households, including how food is procured, purchased and consumed can be influenced by the season and seasonal characteristics. Having spent a short time in the field (October – February), it was more challenging to capture a detailed understanding of how these temporal influences were involved in household food security. A more general or broader level understanding of such influences was afforded by asking additional questions that made specific

reference to the other seasons (winter, spring, summer) and their influences on food availability, access and utilisation.

Future Directions

The proposed framework presents a novel way of understanding food security in Saskatchewan's far north. It follows that next steps include the validation of the framework (Figure 5.1) and measurement frame (Figure 5.2) along with the development and selection of relevant indicators. Important to these research activities are the involvement of community members from Stony Rapids and other communities located in the Athabasca region of Saskatchewan's far north.

Suggestive of the limitations of my research it is important that the validation methods used seek to first collect the experiences of food security of all household types in Stony Rapids. Additional data collection is required of households having different familial/living arrangements (single, lone parent households, and extended households), socioeconomic status (lower income households), and generations (Elder, youth). These experiences will serve to validate existing ideas and concepts as well as afford new understanding related to the movement of food into and within these households not previously captured.

Further validation methods are intended to verify whether the proposed framework captures the experience of food security in Saskatchewan's far north, to confirm or identify those factors influencing food availability, access, and utilisation and to further understand how these factors are involved in or structure the movement of food into and within northern households. Questions to ask may include:

- Does the proposed framework capture the experience of household food security in the north? If not, what is missing?
- What are the factors that influence food availability, access, and utilisation?
- How do these factors influence food availability, access, and utilisation? What are the inter-linkages between factors and resulting impact on food movement into and within northern households?
- What mix of factors is important to measure?

Conclusions

Questions about the applicability and appropriateness of existing frameworks to approach and measure food security in the north have called for the development of both improved food security concepts and measures relevant to and capture the northern food experience.

Highlighted in this body of work is the development of a framework that provides a novel way of understanding food security in a northern context. The framework takes a holistic approach and considers the multiple pathways through which households' access and use food, and the various structural factors at the community and household level that influence food movement into and within these households. Reflective of the lived experience, the framework takes into account the local characteristics and unique food perspectives and practices of its First Nation, Métis, and non-Aboriginal peoples living in this remote northern community.

Understanding food security in this way is important for how we approach, measure and are able to appropriately respond to food security issues in the north. It demands a comprehensive approach that considers the multiple pathways through which household's access and use food (Pathway A, Pathway B, and Pathway C) and a way of capturing the vulnerabilities associated with food use from each pathway. To be achieved by using the proposed measurement frame and through the development of relevant indicators.

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Appendix A

Project Information Sheet

“Enacting Household Food Security in Saskatchewan’s Far North”

“What’s it Like to Feed your Family?”

A research study will be taking place in your community to learn more about what it’s like for households located in Saskatchewan’s far north to feed their families. In particular, we would like to know more about how northern households obtain food, the barriers or opportunities that influence food access and availability, and how food is used once it enters the household.

Understanding the food experience of northern households will contribute to the development of improved ideas about and ways to measures food security. These ideas and measures will be used to help the community plan for future health programs.

The study will happen over a period of 3 months, and the researcher is looking for two households who are interested in working with her. Throughout the three months the researcher will spend some time with the household, observing and participating in activities related to food, and just talking with people. Activities will take place both in the home, and within the community; and may include accompanying people on grocery shopping trips, participating in fishing/hunting and other food gathering activities; assisting in meal preparation, and attending meal times with the family. During these activities photographs will be taken and we will have conversations about the family’s experiences. Afterwards, the researcher will do an interview with each head(s) of household participating in the study during which we will look at some of the photographs and talk about the family’s experiences getting and cooking food.

If your household is interested in participating or would like more information about the project please contact:

Renee Martin, Department of Community Health and Epidemiology. University of Saskatchewan, Tel (306) 439-2200, Fax (306) 439-2134, renee.martin@usask.ca

Fay Michayluk, Community Service Director, Athabasca Health Authority. Tel (306) 439-2200, Fax (306) 439-2110

Sylvia Abonyi, Department of Community Health and Epidemiology, University of Saskatchewan, Tel (306) 966-2194, Fax (306) 966-7920,

Appendix B

Consent and Information Form

“Enacting Household Food Security in Saskatchewan’s Far North”

“What’s it Like to Feed your Family?”

Household Participant Observation

You are invited to participate in a research project entitled “What’s it Like to Feed your Family?” *Please read this form carefully, and feel free to ask questions you might have.*

Researcher(s):

Renee Martin, Department of Community Health and Epidemiology, University of Saskatchewan, Tel (306) 439-2200, Fax (306) 439-2134, renee.martin@usask.ca

Dr. Sylvia Abonyi (Supervisor), Department of Community Health and Epidemiology, University of Saskatchewan, Tel (306) 966-2194, Fax (306) 966-7920

Fay Michayluk, Community Service Director, Athabasca Health Authority. Tel (306) 439-2200, Fax (306) 439-2110

Overview: The purpose of this research study is to learn more about what it’s like for households located in Saskatchewan’s far north to feed their families. In particular, we would like to know more about how northern households obtain food, the barriers or opportunities that influence food access and availability, and how food is used once it enters the household. Understanding the food experience of northern households will contribute to the development of improved ideas and ways to measure food security. These ideas and measures are used to help the community plan for future health programs. The study is part of the researcher’s thesis work at the University of Saskatchewan and is expected to occur over a period of 3 months. During this time the researcher will be living in your community and actively participating in daily life. She is asking for your participation.

Methods: The researcher is asking for a time commitment of 12 weeks from each household and its members choosing to participate in the study. The study will roll out in three phases and involve participant observation where the researcher will directly observe and actively participate in your daily household food activities, in your home and in the community. **Please**

be aware that the researcher has a legal obligation to report any information that identifies individuals engaged in illegal activities, or suggestive of harm to themselves or others.

In the first phase of the study (Weeks 1 and 2), the researcher will focus on building relationships with you, and other household members participating in the study. Several meetings lasting 30 minutes to one hour will be scheduled during this time and may involve such activities as a walking tour of the community, or having coffee. In addition, the head(s) of household will participate in a short interview where they will be asked to provide basic demographic information regarding their household's composition. In the second phase of the study (Weeks 3-7) participant observation activities will become more involved. Over a period of 4 weeks, the researcher will spend one or more consecutive week days (Monday-Friday), including one weekend day (Saturday and/or Sunday) in your household. Depending on the activity, participation may range from spending the entire day (6-8 hours) to spending 3-4 hours with you and your household. Activities may include accompanying you on shopping trips, participating in food production activities (fishing or hunting), assisting in meal preparation, eating a meal together, or attending a public or private event where food might play a role. Your participation in the final phase of the study, follow up, (Weeks 8-12) will be less intensive and focus on additional participant observation activities where required, and may include further conversations with the researcher.

All participant observation activities occurring throughout the study will be negotiated between the researcher and head(s) of household in Weeks 1 and 2 and where required in the follow up phase of the study. Prior to each scheduled participant observation activity the researcher will ask if you are still interested in participating.

You will be debriefed prior to each activity, about what will happen, the type of data that will be collected (jottings, field notes, photographs) and the opportunities available to collaborate in data collection and interpretation. Field notes of observations and informal conversations you have with the researcher will be documented in a notebook or directly into a computer. You will also be invited to review the data and interpretations made by the researcher, make corrections, and offer alternative explanations.

Photographs will be taken by the researcher throughout the participant observation activities and may capture images of objects in your household or community, as well as images of you or other household members participating in the study. Periodically, the researcher will select and presented a series of photographs to you. The photograph(s) will be used to stimulate further discussion with you about what was observed or experienced during a participant observation activity(s), and is intended to capture your perspective.

As a participant in the research process you will be directly involved in the selection and interpretation of the photographs to be included in the study.

The head(s) of household will also be asked to participate in an interview during Weeks 10-11. The interview is expected to last 1.5 to 2 hours.

At the end of data collection and follow up, the researcher will present to your household a photo album of images taken throughout the course of the study, in appreciation of your time and contribution to the study. Each household member will select from the photographs taken, images that have particular relevance or meaning to them.

Risks and Benefits: There are no known risks associated with this study. The participant observation activities, informal conversation and photographs taken by the researcher are not anticipated to cause undue physical or emotional stress.

There are no direct benefits to you to participating in this study. The results will be shared with the Athabasca Health Authority. The information you share may be used to inform future policy or program planning activities related to food security in your community and in communities throughout the Athabasca Health Authority.

Right of Participation and Withdrawal: Please be advised that you do not have to participate in the p-o activities, have your photograph taken, or answer any questions you are not comfortable with; and that you may change your answers or withdraw from the study any time before the researcher's thesis is submitted for defence, which will be no more than 6-8 months after data collection is complete. If you withdraw from this study, the researcher will confirm with you which parts (or all) of the data that you have contributed should be destroyed. You will be invited to give additional feedback, make corrections or offer different explanation regarding the researcher's observations and interpretations throughout the study.

Confidentiality and Anonymity: Data collected during the participant observation activities (field notes of observations, informal conversations) will be kept confidential. Any identifying information such as your name, the names of relatives, and specific references to homes or people will be altered or deleted and not included in the field notes. A self-selected pseudonym will be assigned to direct observations and quotes and your name will not appear in any report, presentation or publication about this study, unless you choose to be identified. However, because participants for this study have been selected from a small group (two households in the community), it is possible that you may be identifiable to other people on the basis of participating in the study and by what you have said. They may also be able to link you to photographs (in particular settings or places) taken by the researcher throughout the p-o activities. Anonymity cannot be guaranteed. Therefore, you are advised to consider this as you participate in the study. The consent forms will be stored separately from the field notes and photographs, so that it will not be possible to associate a name with any given response. Should the researcher wish to use one or more of your direct quotes in her thesis, final report, or presentation, she will contact you for approval.

Storage of Data: All materials pertaining to the household participant observation activities (hard copies of field jottings, field and analytical notes, electronic files on disk, and digital photographs) will be stored in the office of Dr. Sylvia Abonyi, in a locked cabinet, and on password protected computers. All materials will be destroyed 5 years after the end of this project.

Dissemination: The knowledge gained from this study will be shared, in the form of a final report with the Athabasca Health Authority (AHA) and through a presentation to residents in Stony Rapids. The report will be made available to the residents of Stony Rapids and the general public. The study will also be used to inform the researcher's thesis work in partial fulfilment of a Master's program at the University of Saskatchewan, and include a paper or poster presentation at an appropriate academic conference or other venue, as well as publications in relevant journals (e.g., *Qualitative Health Research*, *Social Science & Medicine*, and *Journal of Aboriginal Health*).

If you have any questions concerning the research project, please feel free to ask at any point; you are also free to contact the researchers at the numbers provided if you have other questions. This research project has been approved on ethical grounds by the University of Saskatchewan

Behavioural Research Ethics Board on October 4th, 2010. Any questions regarding your rights as a participant may be addressed to that committee through the Ethics Office (966-2084). Out of town participants may call collect.

Consent to Participate:

I have read and understood the description provided; I have had an opportunity to ask questions and my/our questions have been answered. I consent to participate in the research project, understanding that I may withdraw my consent at any time prior to the completion of the researcher's thesis. A copy of this Consent Form has been given to me for my records.

(Name of Participant)

(Date)

(Signature of Participant)

(Signature of Researcher)

Parental Consent

Where children are present in the household, the researcher will carefully explain the conditions under which the child may participate in the study. Both parental and consent of the child will be required for the child to participate in the study.

Parental Consent to Participate:

I have read and understood the description provided; I have had the opportunity to ask questions about my child's participation and my/our questions have been answered. As the parent or guardian I give my consent for the following children to participate in this study:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

I _____ consent for the researcher, Renee Martin to include my child(ren) in the following research activities:
 (parent or guardian)

Child's Name (Print)	P-o Activities (Household)	P-o Activities (Community)	Informal Conversations & Discussions	Photographs of p-o Activities	Parent/ Guardian Initial	Child's Initial

√- *Yes; my child may participate in the activity*, X – *No; my child may not participate in the activity*

I understand that I may withdraw my consent or that my child may choose to withdraw from the study at any time before the researcher's thesis is submitted for defence, which will be no more than 6-8 months after data collection is complete. A copy of this Consent Form has been given to me and my child(ren) for our records.

Participant Name and Signature (or parent/guardian)

Date

Researcher

Appendix C

Interview Guide

Themes	General Question	Specific/Follow-up Questions (TBD)
<i>Food Source(s)</i>	Where do you get your food? What are the main sources of food available to households? What alternative food sources are available? What types of food are available from these sources?	
<i>Food Procurement</i>	How do you obtain food? Who is responsible for getting food?	What barriers/opportunities influence food access, availability and the stability of the food supply?
<i>Food Purchasing</i>	Which food sources are selected from and why? What types of food do you purchase? How do you manage household resources? Who shops for food? Who decides what food is needed? What do you look for when you shop for food? Do you prefer certain foods? What barriers prevent you from purchasing food? What types of food are purchased? Why are these foods purchased? (cost, preference, convenience)	Frequency of shopping. Frequency of traditional food use. Quantity of food purchased. What do we need that we cannot purchase and may need to trade for? What do we have (surplus goods) that we might be able to offer our neighbors in trade? How are resources allocated across household expenses?
<i>Food Preparation</i>	Who prepares the food? How are foods prepared?	
<i>Food Storage/Management</i>	How is the food supply managed within the household?	How is food stored? What types of foods are stored? When are stored foods accessed?
<i>Food Consumption</i>	Who eats together? Does everyone eat the same kinds of food?	Could you describe the kind of food your family eats most of the time? Tell me about foods you traditionally eat? How are these foods different from everyday foods? What foods do you consider an important part of your diet? Do adults and children eat different kinds of food?

Appendix D

Schedule of Research Activities

Period	Activity	Sensitivity
Week 1	<p><i>Entering the field(Stony Rapids)</i></p> <ul style="list-style-type: none"> • Explore and map out the community (create social and physical maps); include photographs of specific areas • Hangout in the community (e.g. visit the store (2), find out about any public events, etc...) • Meet with “head” family member(s) to introduce study, expectations of their involvement. • Schedule mutually agreed upon times to meet with each of the families, identify common activities for participation <p><i>Data Collection and Analysis</i></p> <ul style="list-style-type: none"> • Document daily observations from mapping exercise and p-o activity (hanging out), take notes of informal conversations. • Review field notes and photographs collected throughout the week. Identify specific lines of questioning or areas that are of interest and in need of further investigation. Take note of who else might be important to speak to. • Document daily experiences, biases, and feelings in reflexive journal. 	<ul style="list-style-type: none"> • Present and explain informed consent form to each household participating in the study. Family member(s) most responsible for household to sign off on behalf of the household. Provide assent form if family has children under the age of 14. • Debrief household about the types of data to be collected, under what circumstances, the sensitivities of each, and opportunities for decision making and consent. • Let community residents know the reason I’m in the community and the purpose of my research. Make it clear to residents when I’m on “research time” and what is observed and discussed will be used as part of my data collection.
Week 2	<p><i>Building Relationships</i></p> <ul style="list-style-type: none"> • Meet with the families or its individual members over several occasions. Participate in agreed upon activities (walking tour of community, visit to the store, “coffee”). Begin to ask questions. • Discuss and agree upon a schedule of household p-o activities that will take place in the coming weeks (shopping trips, meal preparation, and participating in other daily activities of the household). • Continue to hang out and observe what is happening in public places as identified through the social and physical mapping exercise. In the process, meet and get to know other residents, ask questions, informally converse about daily life. Get the “skinny” on what else is happening in the community. Attend public events. Take photographs relevant to current activity. 	<ul style="list-style-type: none"> • Ensure that informed consent and assent forms are signed by each household participating in the study and provide each with a copy of the signed form(s). Review the consent form and note where households have placed conditions regarding their involvement. • Prior to each meeting review terms of participation and ask if there is still agreement to participate in the study. • Let community residents know the reason I’m in the community and the purpose of my research. Make it clear to residents when I’m on “research time” and what is observed and discussed will be used as part of my data collection.

Period	Activity	Sensitivity
Week 2	<p><i>Data Collection and Analysis</i></p> <p>Document observations and informal conversation with participants in the study and with other residents. Seek clarification throughout process to check and affirm observations arising from daily p-o activities.</p> <p>Compose field notes daily. At the end of the week, review field notes and begin to compile and analyse information for review with participants.</p> <p>Continue to document daily experiences, biases, and feelings in reflexive journal. Use in compilation of weekly interpretations.</p>	<p>Seek clarification from participants throughout p-o, and affirm observations.</p> <p>Share initial field and analytical notes with participants in the study and seek feedback.</p> <p>Along with individual and/or respective household members, co-create new understandings or insights arising from the data and further discussion.</p>
Weeks 3-7	<p><i>Participant Observation (Household)</i></p> <p>Observe and participate in household activities (take notes, listen, ask questions, participate).</p> <p>Take a photographic series of images related to the various household p-o activities.</p> <p>Periodically, present the series of photographs to individual participants to lead further discussion regarding the food cycle, and the meaning of food. Photographs to represent images captured in both public and private domains.</p> <p>Schedule interviews with respective household member(s) to take place in Weeks 10-11.</p> <p><i>Participant Observation (Public Spaces)</i></p> <p>Continue to hang out and observe what is happening in public domain related to the food cycle. Meet with other residents. Ask questions, informally converse about daily life, food security, and the meaning of food.</p> <p>Take photographs of various activities etc. occurring in the public domain.</p>	<p>Prior to p-o activity debrief what will happen throughout the time, specifying the type of data to be collected, the sensitivities and opportunities for participation and collaboration.</p> <p>Affirm there is still agreement to participate in the study (each member). Review and be familiar with the conditions set by each household. Ask if there are any additional changes to the stated conditions.</p> <p>In the event that p-o activities occur in the private domain seek informed consent (oral or written).</p> <p>Where there are identifiable images of residents or participants, present photo release form. Ensure form is signed and copy is provided to respective individual(s).</p>
Week 3-7	<p><i>Data Analysis</i></p> <p>Document p-observations and informal conversation with participants in the study and with other residents. Compose field notes daily from p-o. At the end of the week, review field notes and begin to compile and analyse information for review with participants.</p> <p>Review photographs. Select images to be presented to household participants.</p> <p>Continue to document daily experiences, biases, and feelings in reflexive journal.</p>	<p>Discuss with participants what is observed, and any insights or understandings that emerge during the p-o activities. Seek feedback and clarification.</p> <p>Share weekly field and analytical notes with participants in the study and seek feedback.</p> <p>Along with individual and/or respective household members, co-create new understandings or insights arising from the data and from the discussion.</p>

Period	Activity	Sensitivity
Weeks 8-9	<p><i>Leave the field (Saskatoon)</i> <i>Data Analysis (Phase 1)</i></p> <ul style="list-style-type: none"> • Initial reading(s) of data collected (gaps, new interpretations) along with reflexive journal. • Refine interview guide and select photographs for inclusion in the interview process. • 	
Week 10-12	<p><i>In-depth Interviews</i></p> <ul style="list-style-type: none"> • Conduct interviews with respective household member(s). • Schedule convenient time to meet and review interview transcripts with respective family member. <p><i>Data Collection and Analysis</i></p> <ul style="list-style-type: none"> • Take field notes and audio record interviews. Transcribe interviews to aid in transcript review by participants and further data analysis 	<ul style="list-style-type: none"> • Present and explain informed consent form for household members participating in the in-depth interview. • Debrief participants about the interview process (participatory and collaborative). Insights emerging from the various topics discussed will be co-constructed during the course of the interview. • Provide opportunity for participants (interviewees) to review transcripts. Where there are changes engage in a participatory and collaborative process. • Present transcript release form to be signed by household member partaking in the interview.

