

Food Insecurity within the  
Island Lake First Nation Communities in Northern Manitoba, Canada

by

Shauna Zahariuk

A Thesis submitted to the Faculty for Graduate Studies of

The University of Manitoba

in partial fulfilment of the requirements of the degree of

MASTER OF ENVIRONMENT

CLAYTON H. RIDDELL FACULTY OF ENVIRONMENT, EARTH, AND  
RESOURCES

University of Manitoba

Winnipeg

Copyright © 2014 by Shauna Zahariuk



## **ABSTRACT**

Conditions of hunger and lack of access to affordable healthy foods exists within Canada. Canada has committed itself to international Declarations, Covenants, and Conventions focused on reducing world hunger; however, it has neglected to address domestic hunger issues.

Using mixed methods, this study quantified food insecurity rates and severity within four First Nation communities in northern Manitoba. The study also explored the communities' perspectives regarding barriers to healthy eating and potential solutions to addressing this multi-faceted problem.

Results indicate that the four First Nation communities within this study are amongst the most food insecure and hungry within Manitoba and Canada, with 92% of households experiencing some form of food insecurity and 50% of households experiencing severe food insecurity. The research has revealed that solutions for improving food security must be embedded within the realm of food sovereignty and be led by First Nation communities.

## **ACKNOWLEDGEMENTS**

I wish to extend a thank you to my husband for being understanding of my time constraints and for lending an ear, and helping to guide me through the Masters process. Thank you so much for your unwavering support, encouragement, and love. I also wish to thank my parents, brother, sister-in-laws, my grandmother, and my friends for their encouragement and support. A thank you as well to my Newfoundland-mix dog, who accompanied my every step along the way; even if his tail occasionally found its way under my castor-equipped desk chair – my apologies Gus!

And a heartfelt thank you to the First Nation communities of Island Lake, Manitoba. Wasagamack; thank you for taking me fishing and all the wonderful conversations. St. Theresa Point, thank you to the Manoakesick family for allowing me to stay in your home and inviting me to a family potluck and candy throw; very fun! Thank you to Garden Hill and Island Lake Lodge for the accommodations and learning how to identify wild mint! And, thank you to Red Sucker Lake for the moose meat meal, and the hospitality. Also, a very special thank you to Linda Manoakesick for her assistance, guidance, and friendship along the way.

I also wish to thank my advisor for her help and guidance, and the rest of my advisory committee for their words of wisdom.

## **DEDICATION**

This study and its results are dedicated to the First Nation communities of Wasagamack, St. Theresa Point, Garden Hill and Red Sucker Lake. Thank you for sharing your experiences with me.

## TABLE OF CONTENTS

<b>CHAPTER ONE: INTRODUCTION</b>	<b>1</b>
<b>1.1 BACKGROUND</b>	<b>1</b>
<b>1.2 PURPOSE OF THE RESEARCH</b>	<b>7</b>
<b>1.3 OBJECTIVES</b>	<b>8</b>
<b>1.4 RESEARCH STUDY AREA</b>	<b>9</b>
1.4.1 <i>COMMUNITY ACCESSIBILITY</i>	9
<b>1.5 ORGANIZATION OF THESIS</b>	<b>13</b>
<b>1.6 RESEARCHER'S REFLECTION</b>	<b>13</b>
<b>CHAPTER TWO: REVIEW OF RELATED LITERATURE</b>	<b>16</b>
<b>2.1 WHAT IS FOOD (IN)SECURITY?</b>	<b>16</b>
<b>2.2 FOOD INSECURITY IN A FIRST NATIONS CONTEXT</b>	<b>19</b>
2.2.1 <i>ACCESS, AVAILABILITY, AND AFFORDABILITY</i>	22
<b>2.3 MEASUREMENT FOOD SECURITY IN CANADA</b>	<b>29</b>
<b>2.4 MEASURING FOOD INSECURITY IN FIRST NATIONS COMMUNITIES IN CANADA</b>	<b>33</b>
<b>2.5 FOOD-BASED INITIATIVES</b>	<b>40</b>
2.5.1 <i>NUTRITION NORTH CANADA</i>	42
2.5.2 <i>NORTHERN HEALTHY FOOD INITIATIVE</i>	45
2.5.3 <i>COUNTRY FOOD PROGRAMS</i>	49
2.5.4 <i>COOPERATIVES</i>	52
2.5.5 <i>FOOD BUYING CLUBS</i>	53
<b>2.6 CHAPTER SUMMARY</b>	<b>53</b>
<b>CHAPTER THREE: METHODS</b>	<b>56</b>
<b>3.1 RESEARCH ETHICS APPROVAL</b>	<b>57</b>
<b>3.2 INTRODUCING THE RESEARCHER TO THE COMMUNITY</b>	<b>59</b>
<b>3.3 FOOD COSTING SURVEY</b>	<b>60</b>
3.3.1 <i>CALCULATING COST</i>	61
3.3.2 <i>CALCULATING AFFORDABILITY</i>	62
3.3.3 <i>LIMITATIONS</i>	63
<b>3.4 HOUSEHOLD FOOD SECURITY SURVEY</b>	<b>65</b>
3.4.1 <i>SURVEY DESIGN</i>	66
3.4.2 <i>SURVEY DATA ANALYSIS</i>	69
3.4.3 <i>SURVEY LIMITATIONS</i>	71
<b>3.5 SEMI-STRUCTURED INTERVIEWS</b>	<b>72</b>
3.5.1 <i>INTERVIEW DATA ANALYSIS</i>	73
3.5.2 <i>INTERVIEW LIMITATIONS</i>	74
<b>CHAPTER FOUR: RESULTS</b>	<b>76</b>
<b>4.1 FOOD ACCESSIBILITY</b>	<b>76</b>
4.1.1 <i>STORE LOCATIONS</i>	76
4.1.2 <i>PREVALENCE OF HOUSEHOLD GARDENING, HUNTING AND FISHING</i>	81
4.1.3 <i>PERCEIVED BARRIERS TO ACCESSING HEALTHY FOODS</i>	83
4.1.3 <i>COMMUNITY PERSPECTIVES ON SOLUTIONS TO ACCESSING HEALTHY FOODS</i>	87
<b>4.2 FOOD COSTING AND FOOD AVAILABILITY RESULTS</b>	<b>91</b>
<b>4.3 FOOD BASKET AFFORDABILITY</b>	<b>95</b>

<b>4.4</b>	<b>HOUSEHOLD FOOD SECURITY SURVEY</b>	<b>96</b>
4.4.1	<i>HOUSEHOLD FOOD SECURITY STATUS IN ISLAND LAKE</i>	97
<b>4.5</b>	<b>COMMUNITY INITIATIVES IN ISLAND LAKE FIRST NATIONS</b>	<b>104</b>
<b>4.6</b>	<b>CHAPTER SUMMARY</b>	<b>106</b>
<b><u>CHAPTER FIVE: DISCUSSION</u></b>		<b>108</b>
<b>5.1</b>	<b>ACCESSIBILITY AND AFFORDABILITY OF THE REVISED NORTHERN FOOD BASKET</b>	<b>109</b>
5.1.1	<i>ACCESSIBILITY</i>	109
<b>5.2</b>	<b>HIGH FOOD COSTS</b>	<b>110</b>
5.2.1	<i>IS THE REVISED NORTHERN FOOD BASKET AN APPROPRIATE FOOD COSTING TOOL?</i>	114
5.2.2.	<i>LARGE PERCENTAGES OF HOUSEHOLD BUDGETS ARE DEVOTED TO FOOD COSTS</i>	117
<b>5.3</b>	<b>PREVALENCE OF FOOD INSECURITY IN THE ISLAND LAKE FIRST NATION COMMUNITIES</b>	<b>119</b>
5.3.1	<i>IS THE HOUSEHOLD FOOD SECURITY SURVEY A CULTURALLY APPROPRIATE MEASURE?</i>	122
<b>5.4</b>	<b>EVALUATION OF COMMUNITY INITIATIVES</b>	<b>124</b>
<b>5.5</b>	<b>CHAPTER SUMMARY</b>	<b>128</b>
<b><u>CHAPTER SIX: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS</u></b>		<b>130</b>
<b>6.1</b>	<b>THE CRUX OF THE PROBLEM</b>	<b>131</b>
<b>6.2</b>	<b>OPTIONS AND SOLUTIONS</b>	<b>132</b>
<b>6.3</b>	<b>CONCLUSION</b>	<b>135</b>
<b><u>REFERENCES</u></b>		<b>137</b>

## LIST OF TABLES

Table 1: Community Profiles.....	12
Table 2: Comparison of Canadian Food Basket Weights <sup>1,2</sup> .....	27
Table 3: Canadian and Manitoban Food Insecurity Rates, CCHS Studies.....	31
Table 4: Household Food Insecurity Rates in Households With and Without Children ..	32
Table 5: 2006 and 2011 Canadian Census Population and Income Data.....	63
Table 6: Household Food Security Screening Question .....	68
Table 7: Food Security Status Category Descriptions .....	70
Table 8: Food Stores in the Island Lake First Nations .....	77
Table 9: Prevalence of Household Gardening, Hunting and Fishing .....	81
Table 10: Awareness of Food-Based Programming within the Island Lake.....	90
Table 11: Selected Average Food Costs in Island Lake Compared to Winnipeg.....	92
Table 12: Cost of the Revised Northern Food Basket in Island Lake .....	94
Table 13: Affordability of the Revised Northern Food Basket in 2009 .....	95
Table 14: Island Lake Community Initiatives.....	105
Table 15: RFNB Costs Before and After Application of NNC Subsidy .....	113

## LIST OF FIGURES

Figure 1: Location of Island Lake First Nation Communities.....	2
Figure 2: Aerial View of Island Lake First Nation Communities .....	10
Figure 3: National First Nation Reported Consumption of Nutritious Balanced Diet” .....	35
Figure 4: First Nation Adult Food Insecurity Indicators vs. Canadian Population .....	37
Figure 5: First Nation Child Food Insecurity Indicators vs. Canadian Population .....	38
Figure 6: Food Insecurity Rates and Severity in Select First Nations in Canada .....	40
Figure 7: Aerial Photograph of Wasagamack First Nation .....	77
Figure 8: Aerial Photograph of Garden Hill First Nation .....	78
Figure 9: Aerial Photograph of St. Theresa Point First Nation .....	79
Figure 10: Aerial Photograph of Red Sucker Lake First Nation .....	80
Figure 11: Island Lake First Nation's Perceived Barriers to Accessing Healthy Foods ...	84
Figure 12: Island First Nation's Perceived Solutions to Accessing Healthy Foods.....	88
Figure 13: The Northern Store vs. Community Store Food Prices .....	93
Figure 14: Household Food Security in Island Lake, All Households.....	98
Figure 15: Household Food Security Status within the Island Lake Region .....	99
Figure 16: Adult Household Food Security Survey Responses, All Households.....	100
Figure 17: Child-Scale Household Food Security Survey Responses, All Households ..	101
Figure 18: Child and Adult Food Security Status in Households with Children .....	103
Figure 19: Adult Food Insecurity in Households with and without Children.....	104
Figure 20: RNFB Cost in Island Lake First Nation Communities (1995 to 2013)” .....	112
Figure 21: Household Food Insecurity in 14 Northern Manitoba Communities (2009) ..	120
Figure 22: Comparison of Food Insecurity Rates in Island Lake to Canadian Studies... ..	122

## **LIST OF PHOTOGRAPHS**

Photograph 1-4: Household Gardens in the Island Lake First Nations.....	82
Photograph 5: Bannock and Moose in Red Sucker Lake .....	83

(All photographs captured by author)

## **LIST OF APPENDICES**

Appendix A	Revised Northern Food Basket 67-Item Food List and Volumes and Comparison of Revised Northern Food Basket Items to National Nutritious Food Basket
Appendix B	Revised Northern Food Basket Price Selection Procedure
Appendix C	Household Food Security Survey
Appendix D	Summary of Individual Food Item Costs and Revised Northern Food Basket Costs for Each Community
Appendix E	Community Responses to the Household Food Security Survey

## **LIST OF ACRONYMS AND ABBREVIATIONS**

AANDC	Aboriginal Affairs and Northern Development Canada, formerly Indian and Northern Affairs Canada (INAC)
CCHS	Canadian Community Health Survey
FNFNES	First Nations Food, Nutrition and Environment Study
INAC	Indian and Northern Affairs Canada
NHFI	Northern Healthy Food Initiative
RHS	Regional Health Survey

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background**

When Canadians think about hunger issues and limited access to healthy foods, thoughts of famines and conditions in war-torn and poorer countries typically come to mind.

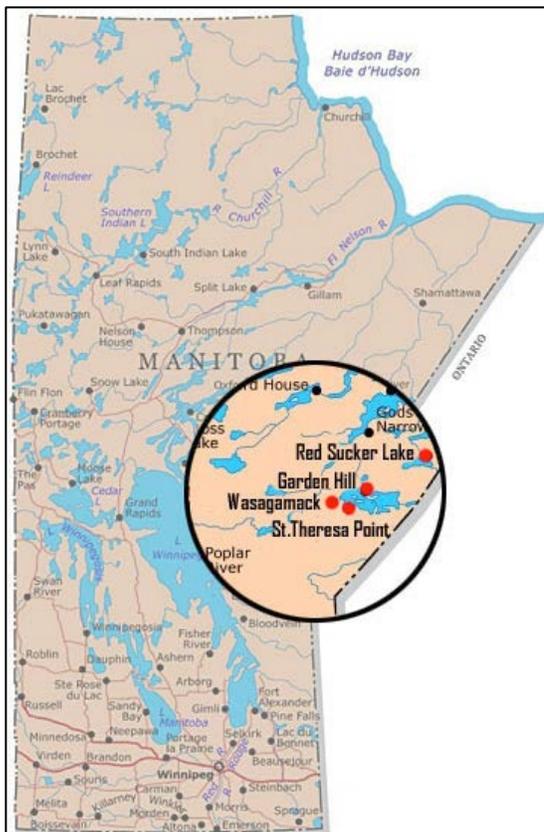
However, many may not realize that conditions of hunger and lack of access to affordable healthy foods exists in a wealthy country such as Canada. Although the conditions are not as grave as the deprivation which exists in many poorer countries, the lack of access to healthy foods has created serious physical and mental health issues in many northern First Nation communities (Young, 2000; Tonn, 2011), including the communities of Island Lake Region (Wasagamack, St. Theresa Point, Garden Hill, and Red Sucker Lake Ojibway Cree First Nations), the study area.

Recent studies have confirmed that First Nation communities in northern Manitoba lack access to healthy affordable foods, in particular fruits and vegetables (Chan et al., 2012; FNIGC, 2012; Thompson et al. 2011; and Thompson et al., 2012). The following factors are also contributing to a state of food insecurity: lack of selection of healthy foods; expensive prices and shipping costs as well as high unemployment rates and subsequently high poverty rates; and, a decrease in the consumption of country foods (Government of Manitoba, 2003).

Food insecurity is characterized by deficient or insecure access to “sufficient, nutritious, and personally acceptable food” (Davis and Tarasuk, 1994, p. 51) and can be measured at the household, community and national scales, along a continuum, from food secure to severely food insecure. Food insecurity has been defined as “the inability to acquire or

consume an adequate diet quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so” (Davis and Tarasuk, 1994, p. 50). In Canada food insecurity manifests itself in unhealthy eating patterns and behaviors, including a diminished intake of fresh fruits and vegetables (Che and Chen, 2001; Thompson, 2012).

**Figure 1: Location of Island Lake First Nation Communities<sup>1</sup>**



The remoteness of many First Nation communities, especially fly-in only communities such as those in the Island Lake Region (see Figure 1), directly affects the price of healthy foods and the ability to access those foods, especially as shipping costs continue

---

<sup>1</sup> Four Arrows Regional Health Authority, June 2013.

to increase and winter road systems<sup>1</sup> continue to become less predictable due to climate change (Manitoba Department of Transportation and Government Services, 2003).

The lack of healthy affordable foods in remote First Nation communities in Manitoba has contributed to a rise in diabetes and other nutrition-related diseases (Che, and Chen, 2001; Thompson et al., 2010), and negatively affects general and psycho-social health (Tonn, 2011). Indeed, the prevalence of type 2-diabetes among First Nations populations is approximately four to five times greater than experienced by non-Aboriginal populations in Manitoba and the rest of Canada (Government of Manitoba, 2003; Young, 2000). Within the Island Lake Region, children as young as eight years old have been diagnosed with type 2-diabetes (Young, 2000).

Fittingly, food insecurity has been recognized as a determinant of health by the Public Health Agency of Canada and Health Canada (Health Canada, 2007). In response, federal and provincial government programs have been created to address the problem through various initiatives and studies such as the Northern Healthy Food Initiative (NHFI), the Young Rural Aboriginal Entrepreneurship Initiative, and Aboriginal Head Start Program.

Health Canada began studying the issue of food security in 2004, as part of the Canadian Community Health Survey (CCHS), an initiative that began in 2001. Although the CCHS studies ironically exclude at-risk First Nation and remote communities, “off-reserve<sup>2</sup>”

---

<sup>1</sup> Winter road systems in Manitoba are temporary routes to remote northern communities. Manitoba’s approximate 2180 km winter road system is constructed on frozen lakes, rivers, and land during the winter season. Winter roads usually open in mid-January to early February and close in March.

<sup>2</sup>“Off-reserve” is a term used to describe people, organizations, objects, etc., which are not located on a First Nations reservation (reserve) or community.

households were included. The 2004 CCHS study revealed that 33% of Aboriginal<sup>1</sup> households compared to 9% of non-Aboriginal households in Canada were food insecure, and that approximately 18% of Aboriginal households compared to 3.5% of non-Aboriginal households in Canada received social assistance (Health Canada, 2007). The 2007-2008 CCHS found that 20.9% of “off-reserve” Aboriginal households in Canada were food insecure, with 8.4% of those households experiencing severe food insecurity, compared to non-Aboriginal household which exhibited a food insecurity rate of 7.2%, this almost three times lower than Aboriginal households (Tarasuk et al., 2013). The authors attributed the higher prevalence of food insecurity among Aboriginal households to the greater degree of poverty experienced by that population (Health Canada, 2007; Tarasuk, 2013; Willows et al., 2008). Within Manitoba, the 2009-2010 CCHS data reveal that 10.8% and 10.0% of all households experienced some level of food insecurity in 2009 and 2010, respectively (Health Canada, 2011). While “off-reserve” Aboriginal households in Manitoba experienced food insecurity at a rate of 21.4% compared to 5.4% for non-Aboriginal households in 2009 and 2010, four times lower than Aboriginal households (Health Canada, 2011).

In 2002, the issue of food security was researched within the isolated fly-in and winter road Cree community of Fort Severn in northwestern Ontario. The study revealed that food costs were 82% higher than in Ottawa, and that 67% of households within the community were food insecure, with 25% of families experiencing hunger (Lawn and Harvey, 2004). Households indicated that the barriers to accessing healthy affordable

---

<sup>1</sup> An Aboriginal person is defined under the Canadian *Constitution Act (35)(2)* as, First Nation, Inuit and Métis people.

foods include high cost, poor quality, and lack availability and variety. The researchers found that “households which received social assistance and households that were described as working poor, were significantly more food insecure than those relatively well off” (Lawn and Harvey, 2004, p.ix). Similarly, a study completed in the remote fly-in Inuit community of Kugaaruk, Nunavut in 2001 revealed that 83% of households within the community were food insecure, with 50% of households experiencing hunger (Lawn and Harvey, 2003). Households indicated the barriers to accessing healthy affordable foods included the high cost, poor quality, poor availability, and lack of variety (Lawn and Harvey, 2003). Researchers indicated that lack of employment opportunities, low income, and the prevalence of households receiving social assistance places Kugaaruk’s population at risk of food insecurity.

Prior to studies lead by the University of Manitoba in 2009 (documented in Thompson et al., 2010; Thompson et al., 2011; Thompson et al., 2012) and including this research, and the 2002/03 Manitoba First Nation Regional Longitudinal Health Survey, the prevalence of food insecurity within northern Manitoba First Nation<sup>1</sup> communities was unknown. However, it was suspected to be “moderate” to “severe” given the high levels of poverty experienced in most First Nation communities. Research in Ontario and Nunavut supports this hypothesis.

The issue of food security within nine Manitoba First Nation communities was also studied a year following this thesis research, as part of the 2010 Manitoba First Nations Food Nutrition and Environment Study (FNFNES). The Manitoba FNFNES 2010 study,

---

<sup>1</sup> A First Nation is also known as a “First Nation Reservation”, and is a parcel of land set aside by the Government of Canada for the use and benefit of an Aboriginal community.

included nine First Nation communities throughout the province, and revealed that 38% of households experienced some level of food insecurity, with 32% and 6% of those households experiencing moderate and severe food insecurity, respectively. In the most northern communities (Tadoule Lake and Lac Brochet, located less than 100 km from the Nunavut boarder), food insecurity rates climbed to 73% (Chan et al., 2012).

There are several national and provincial programs and community-based programs that are endeavoring to address the issue of food security and its related health outcomes. The national Nutrition North Canada (NNC) Program is a healthy food shipping subsidy program, which operates under the goal of reducing the price of healthy foods by subsidizing registered retailers who are responsible for passing the subsidy onto the customer. The NNC replaced the former Food Mail Program in 2011.

The Northern Healthy Food Initiative (NHFI) is a provincial initiative created in 2005 by the Government of Manitoba to increase access to affordable healthy foods in northern Manitoba. The NHFI is a collection of initiatives and programs working to increase local sustainable food production through gardening and greenhouses, poultry production, country food programs, food preservation, and school nutrition programs. Additionally, several communities have implemented food-buying clubs where groups of people and/or institutions organize to buy food in bulk to save on cost and shipping.

In Nunavut and Nunavik, Arctic Cooperative stores and La Fédération des coopératives du Nouveau-Québec (FCNQ) have been successful, however there are no member stores in Manitoba. The FCNQ has 14 member cooperatives and is the largest non-government employer within the region, employing over 310 people within Nunavik and 120 in

Montreal; the FCNQ and its cooperatives are managed by Inuit and Cree staff (FCNQ, n.d.). The Arctic Cooperatives have 31 independently owned and controlled stores, employing over 900 people (Arctic Cooperatives Limited, n.d.). Both the FCNQ and Arctic Cooperatives have several arms to their business including retail, accommodations, cable television and internet operations, construction, outfitting, and arts production and marketing.

## **1.2 Purpose of the Research**

The study asks the following question: *What is the food security status of the Island Lake First Nation communities and why?* The intent of this study is to determine the prevalence of household food insecurity within the Island Lake First Nation communities. This research explores and determines the variables affecting food security, including the cost of a healthy food basket, access to store-bought and country foods, and geographical location and degree of isolation. This study will also explore current initiatives that are in employed to increase food security within the Island Lake First Nation communities.

The 2010 Manitoba FNFNES studied the rates of food insecurity within Aboriginal households within nine First Nation communities, presenting the results regionally. While all CCHS studies excluded First Nation communities in the nation-wide study, “off-reserve” Aboriginal households (Aboriginal people living outside of First Nation communities) were included. Food security rates from the Island Lake First Nation communities will be compared to the 2009-2010 CCHS and 2010 FNFNES Manitoba results, as well as the Thompson et al. 2011 results. The comparison will provide an interpretation of food security status in Island Lake, highlighting the gap that exists

between First Nation communities and people, and non-First Nation communities and non-Aboriginal people.

Information presented in this thesis will contribute to forming a greater knowledge base regarding First Nation food security in Northern Manitoba, and will provide a baseline for future studies within the area. It is also hoped that the Island Lake communities will be able to use the information as a means to secure funding for food security projects. The results from this study have the potential to inform food security policy development and community initiatives. Additionally, information collected during the summer 2009 field research presented in this thesis was used to review the effectiveness of the Northern Health Foods Initiative program (Thompson et al., 2010), and has been included in several published academic journal articles (Thompson et al., 2011; Thompson et al., 2012).

### **1.3 Objectives**

In order to satisfy the purpose of this research project, the specific research objectives included the following:

1. Determine to what degree First Nation households within the Island Lake First Nation communities have access and can afford the 2007 *Revised Northern Food Basket* as defined by the Government of Canada (Indian and Northern Affairs), and what issues may be influencing accessibility and affordability.

2. Determine the household food security status within the Island Lake First Nation communities.
3. Explore initiatives that are being employed in the Island Lake First Nation communities and other northern Manitoba First Nation communities to address food insecurity.

## **1.4 Research Study Area**

### ***1.4.1 Community Accessibility***

Four northern isolated First Nation communities in the Island Lake Region (Wasagamack, St. Theresa Point, Garden Hill and Red Sucker Lake) were part of a study to determine the level of household food security in terms of affordability and accessibility of healthy foods; see Figure 2 below for geographical locations. Three of the four communities, excluding Red Sucker Lake, are located on the sixth largest lake in Manitoba, Island Lake; and are located approximately 605 km northeast of Winnipeg and 325 km southeast of Thompson. Red Sucker Lake First Nation is located approximately 75 km northeast of Garden Hill on Red Sucker Lake, approximately 530 km southeast of Thompson.

**Figure 2: Aerial View of Island Lake First Nation Communities**



Wasagamack is accessible via boat from St. Theresa Point and Garden Hill, or via winter road. There is no airport in Wasagamack, therefore residents and visitors must fly to St. Theresa Point, approximately 12 km north of Wasagamack and take a \$30 water taxi in the open-water season to the community (2009 cost). During the winter, Wasagamack can be accessed via truck and snow machine. Airports in St. Theresa Point and Garden Hill are located on islands outside of the main community, which are accessible via boat or winter road. In 2009, the water taxi from St. Theresa Point's airport on St. Mary Island to the main community was \$10 per trip, while in Garden Hill the trip from the airport located on Stevenson Island to the First Nation was eight dollars.

Mobility issues permeate life in these air/winter-road access only communities. Winter roads are generally available for an eight-week period, from late January to mid-March (ESRA, 2013); however, this mode of access is becoming increasingly unpredictable due to

late lake freeze-up and early spring thaw, thereby truncating the window for winter road access (ESRA, 2013; Kuryk, 2003).

Shipping via winter road to the communities is more favorable, as it is generally less expensive than air transportation (ESRA, 2013). Winter roads are extremely important for remote communities in Manitoba for the shipment of non-perishable foods, building supplies, fuel, as well as employment and personal travel for community members. For example, in 2005, the Northern Stores and Island Lake Trading Company, the two largest food stores in the area, transported approximately 1.15 million kilograms of non-perishable foods to the Island Lake area (Flood, 2005). As the winter road system becomes increasingly unreliable, the cost of shipping healthy foods will likely increase, due to an increased reliance on air transportation (ESRA, 2013).

Community profiles are presented in Table 1. As illustrated in the Table, St. Theresa Point has the greatest median family income and largest population amongst the four communities, and also the greatest educational attainment. However, St. Theresa Point also has the highest percentage of social assistance income. All communities with the exception of Garden Hill have experienced large population increases since 2006. All communities with the exception of Wasagamack have a greater number of census families than households revealing that some households may be comprised of an extended family. Approximately 472 homes within St. Theresa Point and 267 homes within Garden Hill First Nations do not have residential access to treated water. These residences either collect treated water from access points within the community, or utilize lake water. Homes in all four communities mostly use pit privies (outhouses).

**Table 1: Community Profiles**

Parameters	Wasagamack	St. Theresa Point	Garden Hill	Red Sucker Lake
Population, 2011	1411 <sup>1</sup>	2871 <sup>1</sup>	2776 <sup>1</sup>	781 <sup>1</sup>
Population change since 2006	22% increase <sup>1</sup>	21% increase <sup>1</sup>	6.1% decrease <sup>1</sup>	34.4% increase <sup>1</sup>
No. households	274 <sup>1</sup>	524 <sup>1</sup>	545 <sup>1</sup>	172 <sup>1</sup>
No. census families	265 <sup>2</sup>	625 <sup>1</sup>	640 <sup>1</sup>	190 <sup>1</sup>
Ave. persons per family	4.1 <sup>2</sup>	4.3 <sup>1</sup>	4 <sup>1</sup>	3.8 <sup>1</sup>
Ave. persons per household	4.5 <sup>2</sup>	5.5 <sup>1</sup>	5.1 <sup>1</sup>	4.6 <sup>1</sup>
Median family income	\$26,432 <sup>2</sup>	\$29,920 <sup>2</sup>	\$24,320 <sup>2</sup>	\$26,891 <sup>6</sup>
Rate of employment	28% of adults employed <sup>2</sup>	27% of adults employed <sup>2</sup>	36% of adults employed <sup>2</sup>	N.A.
Social assistance rates	41% social assistance <sup>2</sup>	43% social assistance <sup>2</sup>	37% social assistance <sup>3</sup>	38% social assistance <sup>3</sup>
Aboriginal Population, %	100% <sup>2</sup>	99.9% <sup>2</sup>	100% <sup>2</sup>	At least 87% <sup>1</sup>
Population >15 yrs old, %	61% <sup>1</sup>	60% <sup>1</sup>	58% <sup>1</sup>	60% <sup>1</sup>
Educational attainment	24% of adults have completed high school <sup>2</sup>	28% of adults have completed high school; 5% have university education <sup>2</sup>	18% of adults have completed high school; 5% had college education <sup>2</sup>	19% of adults have completed high school; 6.3% have college or university education
Residential water treatment	Homes have water trucked to cisterns or barrels <sup>4,5</sup>	10% of homes have water trucked to cisterns or barrels; 90% have no service <sup>4,5</sup>	54% of homes have water trucked to cisterns or barrels; 49% have no service <sup>4,5</sup>	Homes have water trucked to cisterns or barrels <sup>4,5</sup>
Residential sewage treatment	Pit privies <sup>4,5</sup>	7% of homes have trucked septic service; 93% use pit privies <sup>4,5</sup>	Pit privies <sup>4,5</sup>	Pit privies <sup>4,5</sup>
Transportation	Boat or winter road	Boat, winter road, plane	Boat, winter road, plane	Boat, winter road, plane
<sup>1</sup> Statistics Canada, 2012a,b,c,d <sup>2</sup> Statistics Canada, 2007a,b,c,d <sup>3</sup> Statistics Canada, 2001a,b,c,d <sup>4</sup> FARHA, 2013 <sup>5</sup> Kitayan, 2013 <sup>6</sup> Average between Wasagamack, St. Theresa Point, and Garden Hill 2006 median family incomes.				

## **1.5 Organization of Thesis**

Chapter One has introduced the background, context, purpose, objectives, and need for the research. Chapter Two provides a discussion of relevant literature surrounding food security within First Nation communities, within the Aboriginal population living “off-reserve”, and within the rest of the population of Canada, and discusses current initiatives that are employed in First Nation communities to increase food security. Chapter Three provides a framework for the research and explains the data collection methods. Chapter Four describes the results of the household food security surveys and food costing research. Chapter Five offers the authors insight into the results, and Chapter Six presents final conclusions and recommendations related to the objectives based on the findings.

## **1.6 Researcher’s Reflection**

Since 2001, I have had the opportunity to travel throughout the Canadian Arctic, northern Manitoba, and northern Ontario, visiting and working in many First Nation and Aboriginal communities. During my visits I was always shocked by the high cost of food, low employment opportunities and noticeable monetary-poverty that I saw around me. I often thought to myself, “How could a family afford to eat healthy foods”?

Like destiny, I had the good fortune to hear about a study which was to be undertaken in communities and First Nations in northern Manitoba, looking into the issue of food insecurity and food costs. I thought that this would be my chance to understand the problems I often saw around me in my travels, and to hopefully find some solutions and provide much needed data to communities struggling to secure funding for programs.

In the summer of 2009, I travelled to the Island Lake Region landing in St. Theresa Point with my co-worker, who calls St. Theresa Point her hometown. From the airport we hauled our luggage to the community dock and took a water taxi to Wasagamack. We went door-to-door conducting interviews and administering the household food security survey. We also visited all of the community's stores pricing food items. We then took another boat taxi to The Northern Store, which was located on an Island. Why is the only grocery store on an Island I thought? Considering the high cost of food how does the requirement to travel via boat taxi to the only full grocery store impact food accessibility?

We travelled back to St. Theresa Point a few days later. The prices in the stores were outrageous; how could a family afford to eat? We continued to interview families and administer the survey; however, after visiting one family I was forever changed. A mother lamented that she could not afford to feed her children healthy food. The mother disclosed that she knows what food is healthy and what she ought to be feeding the children; however, if she buys those healthy foods instead of the less-healthy foods, her children will be hungry again. She said that she buys what she can in order to satiate hunger, even though it is not healthy. Is this really Canada?

This study pulled at my hearts strings and made me realize that hunger exists within Canada, and that our Government ought to be acting with haste to remedy this grave situation. To stand motionless and mute when one understands the gravity and the consequences would be immoral and unethical. In light of this study, it is my thought that

Canada has failed to act with an ethical conscience in elevating hunger in First Nation communities.

## **CHAPTER TWO: REVIEW OF RELATED LITERATURE**

This chapter provides a review of relevant academic literature and seminal articles, government reports and documents, and recent news articles, in order to provide context regarding the issue of food insecurity First Nation communities, and to provide support and dialogue for subsequent interpretation of research results.

The chapter defines the concepts of food security and food insecurity, and provides a discussion of food insecurity rates within Canada, Manitoba, and within First Nation communities. A review of issues concerning food availability and accessibility within First Nations including remoteness, employment and poverty, restrictions on the use of country foods is provided, in addition to current tools available for food costing and current food-based initiatives employed with First Nations. A summary of food security studies in Canada and within First Nation communities is also provided.

### **2.1 What is Food (In)Security?**

Food is a basic human need. The right to food is also a fundamental human right. It was recognized as such by the United Nations in the 1948 *Universal Declaration of Human Rights*. Canada has recognized the 1976 *International Covenant on Economic Social and Cultural Rights*, the *Convention on the Elimination of Discrimination Against Women*, and the *Convention on the Rights of the Child* under which, “Canada has a duty to respect, protect and fulfill the right to food” (United Nations, 2012, p.5). Some would also argue that, Canada’s own *Charter of Rights and Freedoms* in section 15(1) (the equality provision) and section 7 (right to life, liberty, and security of the person); although the Charter does not explicitly state that Canadians enjoy the ‘right to food’.

Food security has been defined by the World Food Summit (1996) in the *Rome Declaration on World Food Security* as,

“existing when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life”.

This definition comprises concerns including economics, food safety, accessibility, and culture, which contribute to the idea of possessing appropriate food access for individuals and households. The World Health Organization (WHO) notes that food security comprises three core ideas: food availability (consistently being able to maintain a reliable quantity of food); food access (possessing adequate resources to obtain healthy and culturally appropriate foods, and having geographical access to those healthy foods); and food literacy (knowledge of food preparation and basic nutrition, and access to sufficient quantities of clean water and sanitation) (WHO, n.d.).

On the opposite end of the scale, food insecurity is characterized by deficient or inadequate access to “sufficient, nutritious, and personally acceptable food” (Davis and Tarasuk, 1994, p. 50), and can be defined as “the inability to acquire or consume an adequate diet quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so” (Davis and Tarasuk, 1994, p.51). Food insecurity is often associated with poverty (Health Canada, 2007), and encompasses varying degrees of intensity located on a continuum. Health Canada (2007) and Tarasuk et al. (2013) describe the three intensities of food insecurity as “marginal”, “moderate” and “severe”. “Marginal” food insecurity is described by Tarasuk et al. (2013) as having

some indication of anxiety, worry, or income-related barrier to acquiring an adequate supply of food. A compromise in the quantity and/or quality of food is an indication of “moderate” food insecurity, and those who experience “severe” food insecurity reduce their food intake and exhibit disrupted eating patterns, and/or hunger (Health Canada, 2007; Tarasuk et al., 2013).

The Rome Declaration declared that “poverty is a major source of food insecurity” and that the eradication of poverty is required in order to ensure that all people have access to food” (World Food Summit, 1996). Nationally, family income is recognized as one of the most important determinants of level of food security and subsequently health (Federal, Provincial and Territorial Advisory Committee on Population Health, 1994; Government of Canada, Agriculture and Agri-Food, 2008; WHO, 2003; Health Canada, 2007).

The depth of poverty in First Nation communities is alarming even though many First Nation families share their resources. The 2006 Canadian Census data revealed that 50% of Status First Nation children in Canada live below the poverty line (the after-tax Low-Income-Measure); in Manitoba the rate increases to 62%; while the average national child poverty rate is 17% (Canadian Centre for Policy Alternatives, 2013).

Low-income households are limited in the choices they can make regarding food procurement, as low-income households possess limited purchasing power. Households that are food insecure are more likely to purchase processed foods, which are typically low in cost, as opposed to more healthy and expensive foods such as lean meats, fresh fruits and vegetables, and dairy products (Vozoris and Tarasuk, 2003). Research has correlated inadequate nutrition with food insecurity, which has also illustrated that “a

prolonged state of inadequate nutrition can have serious health implications” (Che and Chen, 2001, p. 18). Indeed, food insecurity is linked to both physical and mental health problems, including type 2-diabetes, obesity, cardiovascular disease, depression, anxiety, among other problems (Che & Chen, 2001; Kirkpatrick and Tarasuk, 2008; Tonn, 2011; Young, 2000; Vozoris and Tarasuk, 2003).

## **2.2 Food Insecurity in a First Nations Context**

The Aboriginal subsistence economy has experienced considerable change during and following the fur-trade era marked by the effects of colonialism and the policies and systems imposed, which ushered communities and families into a wage economy and subsequent reliance on market-foods (Churchill, 1999; NRI, 2011; Thompson et al., 2004). Underdevelopment and appropriation of lands for resource development in and near many northern Aboriginal communities has continued to have a negative effect and has resulted in impoverished conditions (LaDuke, 2002; Thompson et al., 2011).

“As late as the 1950’s, northern communities were relatively self-sufficient, except for flour, sugar and similar products. It was not uncommon to have had market gardens, canning and other locally produced foods” (Government of Manitoba, 2003, p. 13), where locally produced foods included country foods; such as fish, wild meats, berries, and medicinal plants harvested locally, which were part of the First Nation community’s subsistence based economy. As a result of the shift in economic base, over the past 70 years Aboriginal people have been settled into permanent communities, which decreased reliance on country foods (Fieldhouse and Thompson, 2012). Additionally, younger people today are not as interested in consuming country foods, and prefer the store-

bought foods (Fieldhouse and Thompson, 2012). However, this may be the result of a loss of intergenerational transfer of traditional knowledge and language due to the residential schools experience (Rudolph and McLachlan, 2013)

Although the younger people are ostensibly less interested in country foods, these foods are recognized as essential to the social, cultural, economic and spiritual wellbeing of Aboriginal First Nation Communities (Bell-Sheetter, 2004; Chan et al., 2011; Chan et al., 2012) in addition to being a nutritious and healthy food source. Health Canada's Food Guide for First Nation, Inuit and Métis people, indicates that wild meats are considered to be leaner and have more essential nutrients required for a healthy diet than store-bought meats.

Policies and other instruments employed by the Canadian and provincial governments in the past and present have also affected the consumption of country foods. Under current health regulations, country foods cannot be provided for school lunch programs, Elder programs, or other community public events (NRI, 2011). Under *The Wildlife Act* of Manitoba, wild meat may be given to First Nation people by First Nation people for food. However, legislation has created restrictions on the use of the wild meat; since wild meat that has not been federally inspected cannot be "utilized in any way for food in a food handling establishment", under Manitoba's *Food and Food Handling Establishment Regulation* and *Public Health Act*. This regulation restricts the ability for wild meat to be used in school lunch and Elder meal programs; which would greatly reduce costs and increase health benefits to a community struggling with healthy eating. For the community to succeed in such an endeavor, their meat processing facility would need to

be either federally regulated or provincial registered. This would also allow the community to sell wild meats, should they wish to do so (Thompson et al, 2012).

In addition to low-income and the inability to afford healthy foods, many First Nation communities including those of Island Lake, face challenges in obtaining clean drinking water in sufficient quantities to ensure a standard of healthy living. Over 3000 First Nation households across Canada are without running water, and are not connected to a water treatment plant but instead are provided potable water via truck, which is stored in cisterns or barrels at the households (Winnipeg Free Press, 2010). Approximately 49% (n=739) of households in the Island Lake First Nation communities have no access to trucked potable water services (FARHA, 2013; Kitayan, 2013), resulting in a lack of access to sufficient amounts of potable water for cooking, drinking and cleaning. In 2010 it was estimated that households in Island Lake depend on 10 liters of treated and 20 liters of untreated water per day per person for drinking water and domestic uses (Winnipeg Free Press, 2010). The United Nations has recognized the right of every human to have access to a sufficient amount of safe, acceptable, affordable and physically accessible water for personal and domestic uses in the volume of 50 to 100 liters per person per day (UN, n.d.; Winnipeg Free Press, 2010); well above the 10 liters per person per day that many First Nation households are receiving now. Since water is requirement for cleaning, cooking and the preparation of foods, the inaccessibility of clean and safe water adversely affects the ability to provide healthy food for many households.

### ***2.2.1 Access, Availability, and Affordability***

In many Canadian and Northern Manitoban First Nations achieving food security is challenging. The pillars upon which food security rests (food access, food availability and food literacy) are fractured (Government of Manitoba, 2003; INAC, 2003; NRI, 2011; Thompson et al., 2010; Thompson et al., 2011; Thompson et al., 2012). A lack of stores and commercial competition, in addition to access to country foods, geographical location, degree of isolation and proximity to larger urban areas, and a lack of monetary resources can decrease access to food and increase levels of food insecurity (Thompson et al., 2011). Many First Nation communities in Canada and Manitoba are remote and plagued by access problems, and approximately 4% of the 491,000 First Nation people in Canada are lacking all-season road access to their communities. In northern Manitoba, 23 First Nation communities (36.5%) are without all-season road access and rely on either rail or air for transportation. The remoteness of these communities, especially fly-in only communities, directly affects the price of healthy foods and access to those foods as shipping is expensive and winter road systems have become less predictable (Manitoba Department of Transportation and Government Services, 2003; Government of Manitoba, 2003).

#### ***Elevated Food Prices in the North***

“Why is alcohol priced the same at Churchill as in Winnipeg, but milk is much more expensive?” Indeed, why? This question engaged the Province of Manitoba to visit the problem and study the issue of high food costs in the north. The study culminated in the 2003 Northern Food Prices Report, which provided insight into the problem and made recommendations. The price of milk is often used as an indicator of overall food prices in

northern and remote communities, mainly by the media; however, the price of most store-bought foods in Canada's northern and remote First Nations are significantly higher than those in southern Canada, due to elevated shipping costs, high store overheads, and high energy costs (Government of Manitoba, 2003; Manitoba Food Charter, 2009). In addition to higher costs, the availability of fresh foods such as vegetables and fruit is usually low, and what is available is often in poor condition (Lawn and Harvey, 2004; Thompson et al., 2011). The elevated cost of foods has had a great impact on the ability of northern and remote First Nations to provide enough healthy food for their families (Government of Manitoba, 2003; Thompson et al., 2011).

For most First Nation families, the Northern Store is their only option for groceries. The Northern Store is owned and operated by the North West Company (NWC), formally operated by the Hudson Bay Company, a business with a long and controversial history in Canada's northern communities. The Northern Store offers a wide variety of services including a full grocery and general merchandise, fast food outlet, and banking; and in most First Nation communities in Manitoba, they are a monopoly regarding the offering of fruits, vegetables, and meats. Depending on the degree of isolation of the community and connectedness to larger urban areas, the Northern Store may need to barge, fly, or transport by ground food and supplies to the communities. In the Island Lake First Nation communities, food and supplies are flown into the communities during the spring, summer and fall, and transported via truck on unreliable winter roads during the winter months. Due to the mode and duration of transportation food to the community, fresh foods such as fruits and vegetables are often bruised or spoiled before they are on the shelves (Thompson et al, 2011).

Without reliable and affordable transportation and shipping, the prices of market-foods within fly-in only communities are dependent on favorable winter road conditions.

Thompson et al. (2012) found that road access and public transit, such as bus or rail, are positively correlated with increased food security. Thompson also found that rates of food insecurity associated with road access only, plane access only, train access only were 70%, 78%, and 80% respectively as documented in the film *Harvesting Hope* (NRI, 2011), further illustrating that the degree of isolation and associated accessibility directly affects the rate of food security.

### ***Putting Food on the Table***

According to the 2006 Canadian Census (the most recent data available), the median on-reserve family income in Canada was approximately \$14,000. In Manitoba the average median “on-reserve” income was \$9,345 in 2001 (AANDC, n.d.(a)), compared to the median Canadian and Manitoban family incomes of \$23,307 and \$21,805 after-tax, respectively. The Low-Income Measure (LIM)<sup>1</sup> in 2005 for an individual with no children or spouse was \$14,604, and for an individual with two children and no spouse, \$24,827 for (Statistics Canada, 2007e). This illustrates that on-reserve income was well below the stated LIM, which results in food access and affordability problems due to the high cost of food and supplies in First Nation communities. One of the reasons for the gap in income, is that there are limited full-time employment opportunities within First Nations communities, results in people working seasonally or part-time (AANDC, n.d.(a)). Subsequently, there are also higher rates of dependency on social assistance

---

<sup>1</sup> The Low Income Measure (LIM) is one measure of poverty in Canada, and is commonly used for making international comparisons. The LIM is calculated as 50% of median income, adjusted for household size.

programs (which include pension). In 2005/06, 47% of people living in First Nations communities in Manitoba were dependent on social assistance, compared to the average for individuals living in First Nations across Canada at 36%, and the general Canadian population at 5.5% (INAC, 2007a).

### ***Measuring Food Costs***

Canada has several tools available for pricing a healthy basket. The National Nutritious Food Basket (NNFB) was first created in 1974 by Agriculture Canada and is now under the jurisdiction of Health Canada. A revised edition of the NNFB was created by Health Canada in 2008 to keep up with changes in the Canadian diet. The NNFB includes 67 items for a family of four (two adults, male and female, ages 30-51; and two children, male and female, ages 9-13) for one week and weighs approximately 59 kg. While Health Canada develops the NNFB, it does not collect information on the cost of the Basket or provide a costing protocol for collecting pricing data, as this is the responsibility of individual provinces. The NNFB is most commonly used for costing purposes in urban and southern Canadian locations.

In addition to Health Canada's National food basket, the Northern Food Basket (NFB) is also available for food costing purposes and is based on a family of four. The NFB was developed in 1990 by Indian and Northern Affairs Canada (INAC), (Aboriginal Affairs and Northern Development Canada (AANDC)) to monitor and report on the cost of foods in northern and remote communities throughout Canada. In 2007 the NFB was revised to incorporate the changes made by Health Canada to the Canadian Food Guide and the First Nations, Inuit and Métis Food Guide, and based on food consumption surveys

within First Nation and Inuit communities to reflecting the types of foods consumed by northern families across Canada. The NFB was also revised to easy convert purchase sizes into edible portions. The resulting 2007 Revised Northern Food Basket (RNFB) comprises 67 perishable and non-perishable food items and is surveyed on an annual or seasonal basis by AANDC. The basket is intended to provide a diet for two adults (male and female) ages 30-51, and two children (male and female) ages 9-13), and weights 52 kg. The RNFB does not contain measures for country foods, and is based only on market-foods. The RNFB was not created to be a grocery list for healthy food consumption, but rather a benchmark for comparing food costs over time and between different communities (INAC, 2007).

A comparison of the two baskets illustrates that the RNFB contains more canned and frozen meat, fruits, and vegetables than the Health Canada NNFB, as well as powered milk and canned milk. The RNFB also contains less than Health Canada's recommended amount for grain servings and milk (INAC, 2007). The NNFB does not contain flour, sugar, lard, or butter; however, does have additional grain products including pita bread and buns. The NNFB weighs approximately 7 kg more than the RNFB, and contains considerably more dairy products (see Table 2). The RNFB also contains an additional 5% (in addition to the miscellaneous food) "to compensate for the additional energy needs of the cold climate" (INAC, 2007, p.9) in the north. For a full comparison of items in each of the baskets and their associated food weights see Appendix A.

**Table 2: Comparison of Canadian Food Basket Weights<sup>1,2</sup>**

Food Category	Revised Northern Food Basket	National Nutritious Food Basket	Food Weight Difference
Dairy	9.2 kg	22.06 kg	12.86 kg
Eggs	0.45 kg	0.78 kg	0.33 kg
Meat and Meat Alternatives	7.7 kg	6.49 kg	1.21 kg
Grains	5.5 kg	5.79 kg	0.29 kg
Fruit and Vegetables	26.75 kg	22.06 kg	4.69 kg
Fat and Oils	1.05 kg	1.37 kg	0.32 kg
Sugar	0.6 kg	N.A.	0.6 kg
Miscellaneous	5%	5%	
Total Weight	52 kg	59 kg	
1INAC, 2007			
2Health Canada, 2008			

***Cost of Market-Food in Northern Manitoba***

Aboriginal Affairs and Northern Development Canada collects food costing data for most First Nation communities throughout Canada as a part of the former Food Mail Program and now, the Nutrition North Canada program. In the past, AANDC collected this data with the communities using the RNFB. Under the NNC program, participating stores now collect this information and report it to AANDC. The average costs of the RNFB (a family of four, for one week) in the Island Lake Region were \$413 (2010); \$426 (2011); \$393 (2012); and in March 2013, \$410 (Government of Canada, Nutrition North Canada, n.d.(a)(b)). In comparison to a cost of \$243 in Winnipeg in 2010 (the only data available for Winnipeg), a difference of \$170 (Government of Canada, Nutrition North Canada, n.d.(a)(b)).

A food-costing audit in 14 northern communities and First Nations in Manitoba using Health Canada's NNFB in 2009 revealed that the Basket costs \$418 in fly-in only communities, \$302 in northern rural communities, and \$233 in stores within southern

Manitoba (Thompson et al., 2012) for a family of four for one week. The study found that the NNFB in fly-in only communities were 38% more costly compared to communities with road-access, and that the NNFB is approximately \$185 more expensive in fly-in only communities than in Southern Manitoba (Thompson et al. 2012). This price gap is similar to the difference (\$170) between the RNFB costs in Island Lake from 2010 to 2013 compared to Winnipeg. Thompson also concluded that families in northern Manitoba are spending 50% to 80% of their income on food alone (Thompson et al., 2011).

The 2010 Manitoba FNFNES also measured the cost of Health Canada's NNFB (family of four for one week), amongst other parameters including food insecurity rates in nine Manitoba First Nation communities<sup>1</sup>. The study found that the cost of the NNFB varied depending on the location and accessibility of the communities. In southern First Nation communities the basket cost between \$62 and \$70 more than in Winnipeg, while mid-Manitoba First Nations basket cost \$57 over the Winnipeg costs, and more northern First Nations with a similar degree of isolation as the Island Lake First Nations cost \$182 more than Winnipeg (Chan et al. 2012). This price gap agrees with Thompson et al. (2012) and the RNFB costing data from Nutrition North Canada.

A recent report published in May 2012 by the Winnipeg Regional Health Authority investigated the cost of Health Canada's NNFB throughout Winnipeg and within Manitoba's Health Regions. In the Burntwood Region (the area in which the Island Lake

---

<sup>1</sup> First Nation communities included in the Manitoba FNFNES study include: Swan Lake, Sandy Bay, Pine Creek, Chemawawin, Sagkeeng, Hollow Water, Cross Lake, Sayisi Dene, and Northlands Denesuline First Nations.

First Nation communities are located, and included two stores within the Island Lakes area of the six stores that were audited) the cost of the NNFB in May 2011 was approximately \$273 for a family of four per week, in Winnipeg the cost was between \$179 and \$198, a difference of approximately \$75 to \$94 (WHRA, 2012). The study also found that 29.4% of foods within the National Nutritious Food Basket were unavailable within the Burntwood Region, comprising 26% of meats; 25% of fresh vegetables and fruits, among other missing items. The cost of the food basket is likely lower in this region as it includes several First Nations and communities with road access in addition to the City of Thompson.

The high price of food coupled with limited household income has led to threatened food security, and consequently a crisis of poor health outcomes, including type-2 diabetes (Thompson et al., 2011). In 1996, the Minister of Health acknowledged diabetes to be “both a major public health issue and an epidemic among Aboriginal people” (Government of Manitoba, 2003. p. 14). Sadly, Manitoba has one of the highest rates of pediatric type-2 diabetes in Canada, with children as young as eight years old being diagnosed with the disease within the Island Lake First Nation communities (WRHA, 2012; Young, 2000). The rate of diabetes amongst Aboriginal people in Manitoba is 18.9% compared to 4.5% for non-Aboriginal people (Government of Manitoba, 2003).

### **2.3 Measurement Food Security in Canada**

Food insecurity can be measured at various levels including the individual level, household level, and community level. In Canada, food security has been measured at the household and community levels, where household food security measures the ability of

a household to acquire food at the household level; and, community food security is broader and incorporates the social and economic factors that concern the availability and quality of foods, as well as any programs available to counteract food insecurity that exist within a community (Cohen, 2002). At the community level and beyond, food insecurity can have a negative impact on the health care system, and can affect children's abilities to succeed in school and within society (Che and Chen, 2001).

The first Canadian food security survey was supplementary to the 1998/1999 National Population Health Survey, and consisted of only three questions. Since 2004, food insecurity has been monitored on a consistent basis by Health Canada as part of the CCHS, however not all provinces choose to partake every year in the food security module. The 2004 CCHS was the first survey attempting to quantify the prevalence of food insecurity within Canada using a validated research tool (18-question survey module), developed by the United States Department of Agriculture (USDA) and used by the USDA since 1995. The survey is designed to capture "self-reports of uncertain, insufficient, or inadequate food access, availability and utilization due to limited financial resources" (Health Canada, 2007, p.8), as a measure of household food insecurity and measures food security on a continuum from food secure to severely food insecure.

The CCHS focuses on nutrition throughout Canada with the exception of First Nation communities; however, the surveys do include Aboriginal households living "off-reserve". Beginning in 2015, the food insecurity component questionnaire will be a regular component of the larger study.

Table 3 illustrates the food insecurity rates for the Canadian and Manitoban populations, obtained from Health Canada’s CCHS studies from 1998 to 2011. The CCHS reports also consistently illustrate higher rates of food insecurity within the Canadian and Manitoban “off-reserve” Aboriginal population when compared to the rest of Canadians.

As illustrated in Table 3, food insecurity rates in Canadian Aboriginal households “off-reserve” are in the double to triple the food insecurity rates experienced in the rest of Canada. In Manitoba, the data illustrates that in later years the food insecurity rate of Aboriginal people living “off-reserve” is double the rest of Manitobans and four times the rate of non-Aboriginal Manitobans. These studies highlight the need for assessment of on-reserve households given the high rates of poverty that exist on First Nation reserves.

**Table 3: Canadian and Manitoban Food Insecurity Rates, CCHS Studies**

	Canadian Population			Manitoba Population		
	All Households	Non-Aboriginal Households	Aboriginal Households Off-Reserve	All Households	Non-Aboriginal Households	Aboriginal Households Off-Reserve
1998/1999 <sup>1</sup>	10%	-	27%	-	-	-
2004 <sup>2</sup>	9.2%	8.8%	32.9%	9.4%	-	9.8%
2007/2008 <sup>3,5</sup>	7.7%	7.2%	20.9%	12.4% (2007) 12.9% (2008)	-	-
2009/2010 <sup>4,5</sup>	-	-	-	10.8% (2009) 10.0% (2010)	5.4%	21.4%
2011 <sup>5</sup>	12.3%	-	27.1%	12.4%	-	-

<sup>1</sup>1998/1999 National Population Health Survey (Rainville and Brink, 2001).  
<sup>2</sup>2004 Canadian Community Health Survey (Health Canada, 2007)  
<sup>3</sup>2007/2008 Canadian Community Health Survey 2007-2008 (Health Canada, n.d.)  
<sup>4</sup>2009/2010 Canadian Community Health Survey (Health Canada, 2011)  
<sup>5</sup>Household Food Insecurity in Canada 2011 (Tarasuk et al., 2013)

The studies also illustrate the difference in food security rates in households with children versus households without children. Table 4, illustrates that households without children

are more food secure than those with children. Food insecurity rates are similar in both the general population and the Aboriginal population living “off-reserve”. The 2011 CCHS also revealed that households are more likely to be food insecure if they are lead by a female lone parent (35%), have an income below the Low-Income Measure (LIM) (33%), are Aboriginal (27%), or rent their home (25%) (Tarasuk et al., 2013).

**Table 4: Household Food Insecurity Rates in Households With and Without Children**

	General Canadian Population		“Off-Reserve” Aboriginal Population	
	Households with Children	Household without Children	Households with Children	Household without Children
1998/ 1999 <sup>1</sup>	8.5%	5.5%		
2004 <sup>2</sup>	10.4%	8.6%	10.3% <sup>6</sup> / 13% <sup>7</sup>	7.4% <sup>6</sup> / 6.8% <sup>7</sup>
2007/ 2008 <sup>3,5</sup>	9.7%	6.8%		
2009/ 2010 <sup>4,5</sup>	9.5% <sup>7</sup>	6.1% <sup>7</sup>		
2011 <sup>5</sup>	16%	10.7%		

<sup>1</sup>1998/1999 National Population Health Survey (Rainville and Brink, 2001).  
<sup>2</sup>2004 Canadian Community Health Survey (Health Canada, 2007)  
<sup>3</sup>2007/2008 Canadian Community Health Survey 2007-2008 (Health Canada, n.d.)  
<sup>4</sup>2009/2010 Canadian Community Health Survey (Health Canada, 2011)  
<sup>5</sup>Household Food Insecurity in Canada 2011 (Tarasuk et al., 2013)  
<sup>6</sup>Canadian Population  
<sup>7</sup>Manitoban Population only

The CCHS reports and Tarasuk et al. (2013) also reveal that household food insecurity grew in Canada, from approximately 1.4 million households in 2008 to 1.6 million households in 2011.

While there is limited government documentation regarding food insecurity rates within First Nation communities, the CCHS reports offer some insight into the dichotomy that exists between Aboriginal and non-Aboriginal households in Canada. Given that many Northern Canadian households have lower incomes due to unemployment, seasonal employment, or low wages (Butler Walker et al., 2009), and suffer systemic racism,

impacts of the residential schools, and other social determinants of health (Rudolph, 2012; Willows, 2005), the rate of food insecurity within First Nation Communities is likely greater than “off-reserve” statistics presented. These studies highlight the need to include the assessment of food insecurity within First Nation communities given the high rates of poverty that exist within these communities. Additionally, it is likely that by excluding First Nations from the national assessment of food insecurity, that the statistics are incorrect and present lower food insecurity rates than what actually exist (Tarasuk et al., 2013).

## **2.4 Measuring Food Insecurity in First Nations Communities in Canada**

While the Government of Canada has excluded First Nation communities from their Canadian Community Health Studies, there are several studies that have been conducted by academics and Aboriginal organizations documenting nutrition and food security within First Nation communities throughout Canada including several First Nations within Manitoba, Fort Severn First Nation in northern Ontario, the Inuit hamlet of Kugaaruk, Nunavut, and several First Nations in British Columbia.

There are several studies that have been conducted at the National level by First Nation organizations. The First Nations Regional Longitudinal Health Survey (RHS), a national survey collecting information on health indicators, for Aboriginal peoples living within First Nation communities throughout Canada was administered in 1997<sup>1</sup>, with subsequent

---

<sup>1</sup> The 1997 study comprised 14,008 individual surveys in 188 communities, and included both Wasagamack and Garden Hill First Nations.

national surveys conducted in 2002/03<sup>1</sup> and 2008/10<sup>2</sup>, which focused much of its attention on nutrition and did not utilize the CCHS food security survey tool. The national 2008/10 RHS however, used the 6-item subset of the United States Household Food Security Survey Core Module (US HFSSM) tool to assess adult food security, which has been shown to approximate closely the three main categories of food insecurity: food secure, moderately food insecure, and severely food insecure (Bickel et al., 2000). Additional national RHS surveys are scheduled to be undertaken in 2013 and 2016.

Although the national RHS 2002/2003 and 2008/10 studies and the 2002/03 Manitoba First Nation Regional Longitudinal Health Survey<sup>3</sup> did not utilize the 18-item household food security questionnaire used in the CCHS studies, the studies did collect information regarding household behaviors that can be used as indicators of household food security status, for example the consumption of a balanced diet. Results from these studies are presented in Figure 3. Lawn and Harvey (2004) have, however, found that the phrase “balanced meal” may not be appropriate within First Nation communities, and that “healthy meals” may be more meaningful to Aboriginal communities. It is unknown if terminology could have skewed results in any way.

Figure 3 reveals that the majority of adults “sometimes” consumed a balanced diet within the National survey, while the majority of children are reported as “always or almost

---

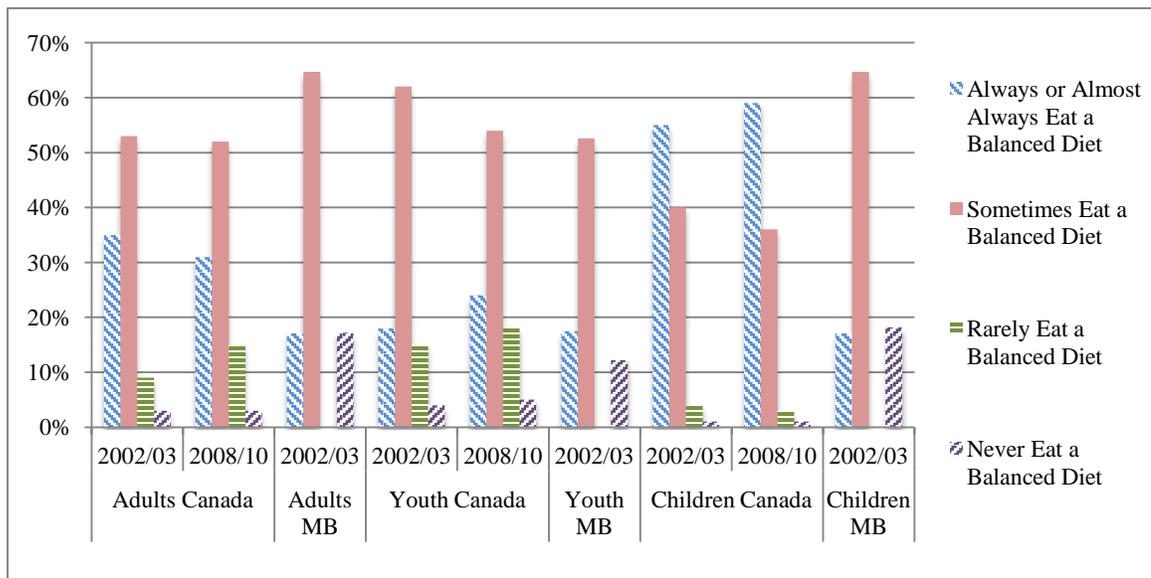
<sup>1</sup> The 2002/03 national RHS study comprised 22,602 individual surveys in 238 communities, and included both St. Theresa Point and Garden Hill First Nations.

<sup>2</sup> The 2008/10 national RHS study comprised 21,757 individual surveys in 216 communities and included Garden Hill First Nation.

<sup>3</sup> The 2002/03 regional RHS study comprised 5,615 individual surveys in 26 Manitoba First Nations.

always” consuming a balanced diet. In the Manitoba study there is little difference between adults, youth, and children. The national study suggests that adults are giving preferential treatment to their children, and may be compromising the quantity or quality of food they are consuming.

**Figure 3: National First Nation Reported Consumption of Nutritious Balanced Diet<sup>1,2,3</sup>**



Prior to studies lead by researchers from the University of Manitoba<sup>4</sup> (Thompson et al., 2010; Thompson et al., 2011; Thompson et al., 2012) and the 2002/03 Manitoba First Nation Regional Longitudinal Health Survey, the prevalence of food insecurity within northern Manitoba First Nation communities was unknown. The Thompson et al. (2011) and Thompson et al. (2012) research conducted in 2009 included the four Island Lake

<sup>1</sup> First Nations Centre, 2005

<sup>2</sup> FNIGC, 2012

<sup>3</sup> Assembly of Manitoba Chiefs et al. (2006)

<sup>4</sup> Thompson et al. (2011 and 2012) studies comprised 534 individual surveys in 14 First Nation and Remote communities in northern Manitoba.

communities of Wasagamack, St. Theresa Point, Garden Hill and Red Sucker Lake, in addition to ten other northern Manitoba First Nation communities north of Thompson, Manitoba. The results gathered as part of this thesis, are included in Thompson et al. 2011 and 2012 analysis and journal articles.

Since 2009 several additional studies led by First Nation organizations have been conducted within First Nation communities, including the First Nation Food, Nutrition and Environment Study conducted in 2010 within Manitoba by Chan et al. (2012)<sup>1</sup>, and the First Nations RHS Phase 2 (Manitoba)<sup>2</sup> undertaken between 2008-2010 by the Assembly of Manitoba Chiefs. Both Thompson's studies and Chan et al. (2012) have used the full CCHS household food security tool. Additionally, studies conducted in First Nation communities in Nunavut, Northern Ontario, Manitoba and British Columbia have also used the CCHS household food security surveys, which allows for direct comparison across studies and populations, as well as to comparison to "off-reserve" Aboriginal population documented in the CCHS studies.

The CCHS survey questions are structured in a way to reveal behaviors that are consistent with marginal, moderate, or severe food insecurity and are measured on an adult and child scale (Health Canada, 2007; Tarasuk, 2013). Figure 4 illustrates questions pertaining to the three intensities of adult food insecurity, and reveals that 35% to 63% of adults in Manitoba First Nation communities worried that food would run out before there was money available to buy more, indicating behaviors representing marginal food

---

<sup>1</sup> The Manitoba FNFNES Study comprised 646 individual surveys in nine Manitoba First Nation communities throughout Manitoba.

<sup>2</sup> The First Nations RHS Phase 2 (Manitoba) study comprised 3,390 individual surveys in 34 First Nation communities throughout Manitoba.

insecurity. Compared to Fort Severn First Nation, Ontario and Kugaaruk, Nunavut where 76% and 92% of adults worried about having enough money for food, respectively. Cutting the size of a meal or skipping meals because there isn't enough money to buy food is indicative of moderate food insecurity. In Manitoba the Thompson et al. (2011) study indicated the highest rate of this behavior at 46%, while 30% Fort Severn adults and 60% of Kugaaruk adults reported this behavior. Severe food insecurity is marked by hunger. In Manitoba the Thompson et al. (2011) and 2002/03 RHS studies revealed rates of 22% to 35%. Kugaaruk revealed the highest rates of hunger. Rates of hunger amongst the general Canadian population were in the order of 3%, revealing adult hunger rates 11 times the Canadian norm in Manitoba.

**Figure 4: First Nation Adult Food Insecurity Indicators vs. Canadian Population**

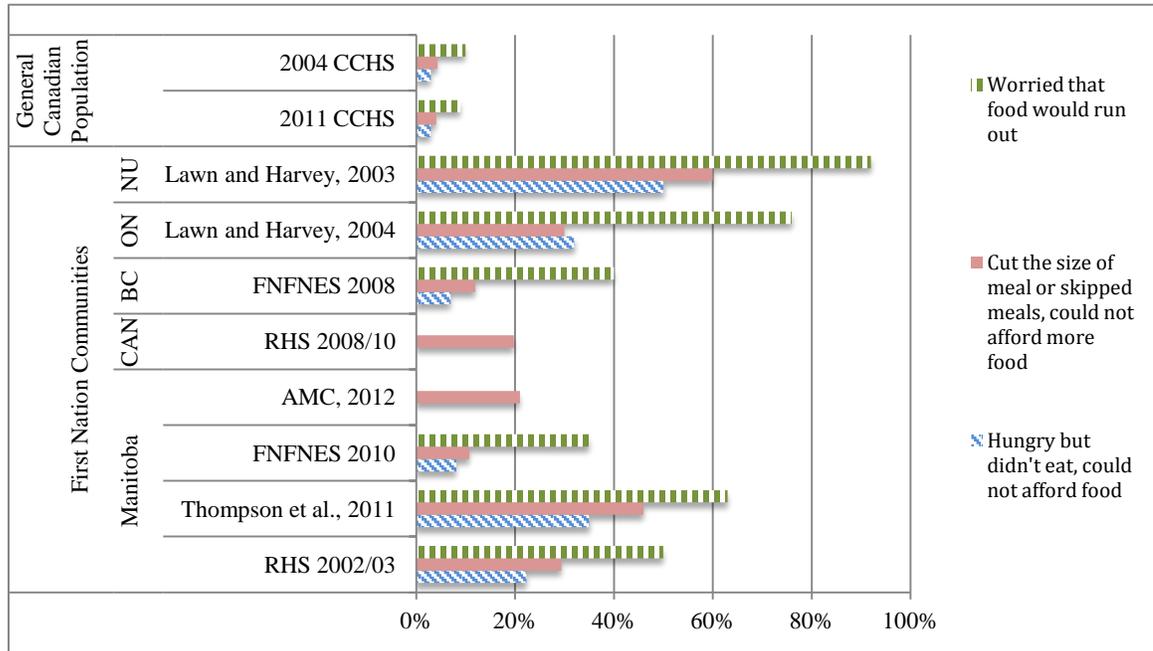
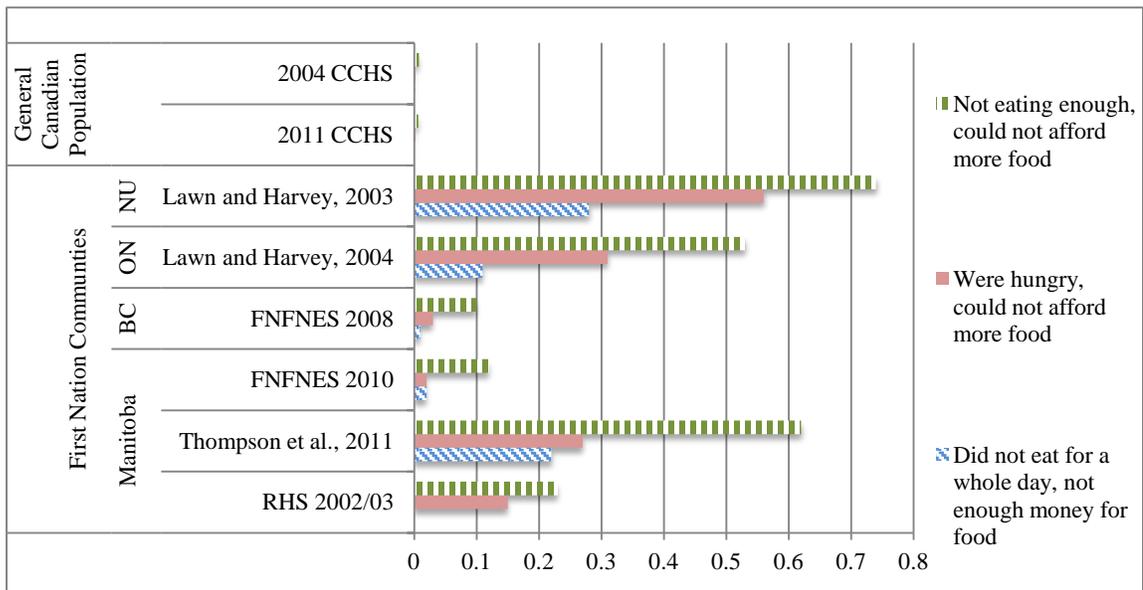


Figure 5 illustrates questions pertaining to child food insecurity focusing on moderate and severe food insecurity behaviors, and reveals similar results to the adult scale figure. In

Manitoba, the 2002/03 RHS and Thompson et al. (2011) study reveal that 23% to 63% of children are not getting enough to eat, because there isn't enough money for food. Similar albeit slightly higher results are observed in Fort Severn and Kugaaruk. Similar results regarding hunger were observed in Manitoba (27%) and Fort Severn (31%), while rates of hunger increased to 56% in Kugaaruk. Shockingly, 22% and 28% of children were reported to have not eaten for an entire day, because there was no money for more food in Manitoba and Kugaaruk, respectively. These three measures were all below 1% in the general Canadian population, revealing appalling conditions for children in these First Nations.

**Figure 5: First Nation Child Food Insecurity Indicators vs. Canadian Population**



The Thompson 2009 study revealed that three out of four homes (75%) are food insecure, of which 42% are moderately food insecure, and 33% are severely food insecure. Within

the 14 communities the level of household food security ranged from 47% in Nelson House First Nation to 100% in South Indian Lake First Nation (Thompson et al., 2011).

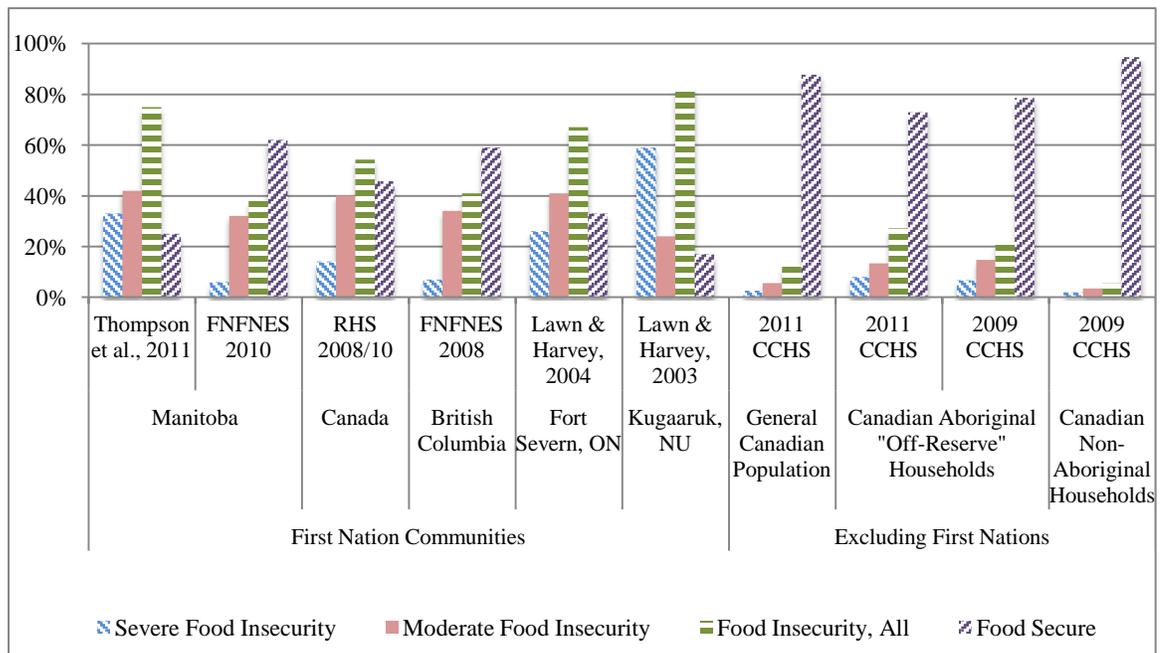
The 2010 Manitoba FNFNES results revealed similar results to the Thompson et al. (2011) study; however the intensity of severe food insecurity was not as great (6%) (Chan et al., 2012). The Manitoba FNFNES report, also examined food insecurity by geographical regions. Household food insecurity was experienced in 44% of First Nations households near the geographical location of Island Lake, with 35% of those households experiencing moderate food insecurity and 9% facing severe food insecurity (Chan et al., 2012). In more northern First Nations near the border of Nunavut, which are a better representation of the isolation that characterizes the Island Lake First Nations (air and winter road access only), food insecurity was experienced in 73% of households, with 60% and 13% of those households experiencing moderate and severe food insecurity, respectively (Chan et al., 2012). These findings are consistent with the food insecurity rates published in Thompson et al. (2011) and Thompson et al. (2012).

Since the Thompson et al. (2011) and the Manitoba FNFNES 2010 study utilized the CCHS household food security survey it is easy to compare the results to other national, provincial and territorial studies. Figure 6 illustrates food insecurity rates and intensives in First Nation communities in studies throughout Canada, and compares these rates to the CCHS “off-reserve” Aboriginal results. The figure clearly illustrates that Aboriginal people living “off-reserve” enjoy higher rates of food security.

Figure 6 also illustrates that the small hamlet of Kugaaruk, Nunavut and Manitoba exhibit the highest rates of overall food insecurity at 83% and 75%, respectively. While

Kugaaruk exhibits the greatest severe food insecurity rate at 59%; Manitoba and Fort Severn are similar at 33% and 26%, respectively. It is surprising that Kugaaruk and isolated hamlet of approximately 600 people is similar to Manitoba First Nations. However, during the summer Kugaaruk receives goods via barge, and in winter Manitoba's fly-in only communities receive goods via winter road. Both of these alternate forms of shipping are highly dependent on freeze and thawing conditions, which may explain some of the similarities.

**Figure 6: Food Insecurity Rates and Severity in Select First Nations in Canada**



## 2.5 Food-Based Initiatives

Successful initiatives to increase access to healthy food in Indigenous communities around the globe have four common characteristics: Traditional harvesting, agriculture and gardening activities, education about food production and nutrition, and growing

community food plans through collaboration (Thompson et al., 2012). Successful initiatives can also incorporate food-related community economic development for a more holistic approach to address the reality of high food costs and low employment opportunities within many First Nations. Food-related community economic development employs a participatory and community-lead approach (Thompson et al., 2012) that strives to build local capacity to address issues of poverty, hunger and inequality (Shragge, 2003; Thompson et al., 2012). These are also characteristics of “food sovereignty”.

Food sovereignty can be defined as “people’s right to define their own policies and strategies for the sustainable production, distribution and consumption of food that guarantees the right to food for the entire population, on the basis of small and medium-size production, respecting their own culture and the diversity of peasant, fishing and indigenous forms of agricultural production, marketing and management of rural areas, in which women play a fundamental role” (Fisher and Ponniah, 2003, p.166). Food sovereignty as also been defined as “the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agricultural systems” (International Planning Committee for Food Sovereignty, 2007, p.1). Food security is similar in that it is concerned with the access and availability of affordable foods; however, it does not concern itself with the source of foods and if programs implemented to increase food security are rooted in colonialist ideas, which may remove First Nations people further away from their traditions (Rudolph, 2012).

Thompson et al. (2010), Thompson et al. (2011), Thompson et al. (2012), and Fieldhouse and Thompson (2012) discuss how several northern and remote communities and First Nations in Manitoba, including the Island Lake First Nation communities, South Indian Lake First Nation, Brochet and Granville Lake have begun to respond to this crisis by growing household and community gardens, raising poultry, creating and implementing diabetes programs and school-meal programs, implementing meal programs for elders, and in Nelson House First Nation – creating the Country Foods Program, among other initiatives. These are some examples of food-related community economic development that are aiding to de-commodify food production and distribution, and re-invigorate local food production, with the benefit of increasing food access in northern Manitoba.

A number of national and provincial programs focus on increasing food security within First Nation and other remote communities in Manitoba, including the national food subsidy program Nutrition North Canada; the Northern Healthy Food Initiative (NHFI), country foods programs, and market-based solutions (co-operatives and food-buying clubs). Not all initiatives are employed in every community; however, this summary provides an understanding of initiatives that have the potential to be employed in each community.

### ***2.5.1 Nutrition North Canada***

Nutrition North Canada (NNC) is a healthy food subsidy program that was introduced April 2011, to replace the former Food Mail Program, which was initially created to reduce costs for federal employees in the Canadian Territories. The goal of the NNC program is to reduce the price of healthy foods by subsidizing registered retailers who are

responsible for passing the subsidy onto the consumer. Currently, only the North West Company is registered for this program within the Island Lake First Nation communities. The program receives a budget of \$53.9M (Government of Canada, n.d.).

For communities to be eligible for the NNC program they must lack year round road-access and must have used the former Food Mail program. Currently, in Manitoba, there are 14 First Nations that are eligible for the program, including the four Island Lake First Nations. Communities are eligible for either a full subsidy or partial subsidy, and this affects the final cost passed onto the consumer. First Nations that used the former Food Mail program in the past extensively were awarded a full subsidy; communities, which used the program moderately, were awarded the partial subsidy. Additionally, eligible food and non-food items have a “per kilogram subsidy level” applied (either ‘high’ or ‘low’), and this also affects the end-price for the consumer. Retailers pass on the subsidy to the consumer through lower food prices, and claim the subsidy from the Government of Canada.

The program subsidizes perishable foods including fresh fruits and vegetables, meat, milk, eggs, frozen vegetables, bread, infant formula, country foods (if purchased through a store), flour and pre-made foods (i.e., pizza, lasagna). The program also subsidizes non-perishable foods and non-food items such as dried and canned goods, toilet paper, diapers, feminine-hygiene products, soaps and cleaners (Government of Canada, n.d.). The NNC program however, does not subsidize hunting, fishing, or gardening supplies. Currently only commercially produced country foods qualify for the subsidy, and there

are only three country food processing facilities that meet the program's requirements, all of which are located in Nunavut.

The program indicated that since its inception it has lowered prices in communities receiving the full subsidy by approximately 5.6% (Government of Canada, Nutrition North Canada, n.d. (b)). However, there are mixed reviews regarding the efficacy of the NNC program. While retailers have stated that the new program allows for more control over the delivery dates of products, types of products brought in, and allows for cost savings (CBC, 2013a), consumers and Members of Parliament in northern Canada have stated that the NNC program is inefficient, expensive and that retailers are not passing on any savings to consumers (CBC, 2012; CBC, 2013b; Thompson et al, 2012). In response the Government of Canada indicates that there are processes and controls in place to monitor the program's performance and several grocery stores and suppliers have been audited to ensure that cost-savings are passed onto the consumer. In some cases the audits have revealed that savings were not being reflected in the end price for consumers. (Government of Canada, Nutrition North Canada, (n.d.(c)). Currently, stores and suppliers are not obligated to share their shipping costs, and under the NNC stores are auditing themselves and self-report price savings to the government resulting in little transparency and oversight of this program.

At the request of the three Territorial legislatures in addition to several provincial Members of Parliament, a review of the NNC program by the Auditor General of Canada was completed in June 2013. The audit found that the controls in place were adequate, however there were opportunities for improvement including: governance, cost

containment measures, compliance reviews, and performance measurement, among others (AANDC, 2013a).

Since the NNC program is unsustainable, not-ecologically sound, lacks equality, lack opportunity for human development, and was not created by the communities in which the program is aimed, it does not offer a pathway to food sovereignty or to food-related economic development. However, if the program does achieve lowering of healthy-foods, it may achieve to some extent improved food security.

### ***2.5.2 Northern Healthy Food Initiative***

The *Northern Healthy Food Initiative* (NHFI) was created in 2005 by the Government of Manitoba to increase access to affordable healthy foods in Northern Manitoba communities, to address the recommendations from the 2003 Northern Food Prices Report and is run by Manitoba's Department of Aboriginal and Northern Affairs (ANA). In response to the Report, the NHFI adopted its goal to create and implement a program that addresses the food self-sufficiency needs of northern Manitobans, and to harmonize government resources dedicated to food-programs in the north.

The NHFI programming was informed by the 2003 Northern Food Prices Report which revealed that there is an appreciable level of food insecurity in many northern Manitoba communities; a broad range of strategic options are needed to address the problem of high costs and improve nutritional health in northern Manitoba; and, community capacity building and holistic solutions are essential to the success of any strategic option (Government of Manitoba, 2003). "The NHFI assists northern communities to build

capacity in local production of food for local consumption, choose nutritional foods, implement strategies to lower the cost for healthy foods, leverage funding for projects and create food-based economic development opportunities” (Fieldhouse and Thompson, 2013 p. 219).

This community-based initiative comprises six strategies, including: community gardens; greenhouses; increasing access to healthy commercial foods; school nutrition; increasing access to country foods and poultry/other production; and food preservation which includes loans for the purchase of freezers (Thompson et al., 2010).

### ***Gardening and Greenhouses***

Gardening used to be popular in northern Manitoba, ensuring there were fresh vegetables available and playing an important role in achieving food security. Families used to have gardens in their communities and at their trap lines; however, over the last 30 years gardening has dwindled (Thompson et al., 2010). The NHFI provides gardening tools and, such as rototillers, ploughs, and other supplies for community members to share. The NFHI also provides materials and training to build greenhouses.

With the help of the NHFI, gardening is becoming popular again and is being recognized as a means to providing more affordable healthy food on the table. Community and home gardens are also becoming a part of the education offered in Island Lake schools and is recognized by community members as strengthening community and getting people more physically active (Thompson et al., 2010). To-date the NHFI has provided plant lights for at least 20 schools, helped to build 59 greenhouses, and supported the creation of

approximately over 1000 gardens with 1200 gardeners in 80 different First Nation and northern communities in Manitoba (Fieldhouse and Thompson, 2012; Thompson et al., 2010). Increased gardening may be one piece of a pathway to food sovereignty in First Nation communities, as gardening is a traditional practice and is successfully producing food (albeit on a household scale), and increasing availability and accessibility of fresh foods.

However, the potential for market-gardens does exist. Flying Dust Cree Nation in Saskatchewan have successfully operated their Flying Dust Cree 8 Worker Coop market garden since 2009, growing 20 acres of potatoes which are sold to First Nation members at cost the remainder being sold at a market (Flying Dust Cree Nation, November 2013). The Riverside Market Garden employs 8 to 15 people seasonally, and has a training program. Such an endeavor requires large funding and considerable management, which is a barrier for some communities.

### ***Freezer Loans***

Freezers are a necessity to increase the ability of households to store country foods and buy meats and other foods in bulk. The NHFI administers the household “freezer loan” which is a revolving loan program where the cost of a freezer is paid back (fully or partially) by households in small monthly payments. This type of funding allows for additional households to purchase freezers once loans are paid back. In 2010 the program purchased 435 freezers within 22 participating communities (Fieldhouse and Thompson, 2012; Thompson et al., 2010; Thompson et al, 2012). The NHFI also provides food-

preservation training, and holds various workshops in canning and other food preservation techniques.

### ***Poultry Raising***

Raising poultry is a viable option for increasing food security levels in First Nation communities, as meat is expensive. Additionally, poultry can provide a great source of fertilizer for gardening. The NHFI provides interested families with a poultry production manual, 60 chickens or ten turkeys, grain, feeders, and fencing material. Families must have a chicken coop built, but the NHFI does not fund the coops.

In 2010, the Island Lake First Nation communities received funding for raising chickens. With aid from the Four Arrows Regional Health Authority, the communities began raising chickens from 2010 to 2012, with a total of 142 chickens raised for meat and eggs (FARHA, 2012). Currently, the project is being reviewed; however there is interest in the communities to continue with raising chickens and other livestock. In the seven Bayline Region communities and First Nations have raised 1080 chickens and 54 turkeys between 2006 and 2009 (Thompson et al., 2010). In 2011-2012, there were 13 First Nation and northern communities (29 households) raising poultry (Fieldhouse and Thompson, 2012).

Poultry-raising as a pathway to food sovereignty within First Nation communities has been criticized, as it takes individuals away from traditional hunting practices and takes considerable time and effort to raise poultry (Rudolph, 2012).

### ***School Nutrition***

The NHFI works closely with the Frontier School Division, and helps to provide school nutrition projects, such as harvesting and cooking education, integrating gardening, plant sciences and nutrition into the school curriculum. The NFHI also aids in providing healthy breakfasts, lunches and snacks, and works alongside Health Canada's *Aboriginal Head Start Program*.

### ***2.5.3 Country Food Programs***

Country foods are recognized as intrinsic to the social, cultural, economic and spiritual wellbeing of Aboriginal First Nation Communities, in addition to being a healthy food source. Currently Nisichawayasihk Cree Nation (NCN) has the only operating country foods program in Manitoba however, Garden Hill and South Indian Lake First Nations are currently developing country foods programs (Thompson et al., 2011; Thompson et al, 2012).

The Country Foods Program in NCN provides hunted and harvested foods to members of the community through the Country Food Distribution Centre. Harvested foods include garden-produce, hunted animals, fish, and gathered berries. The Country Foods Program has been in existence for approximately 22 years. The Program provides all equipment needed for hunting, gathering, fishing, and distributing the foods.

All country food and garden-produce (mostly potatoes) is distributed via the NCN Country Foods Distribution Centre. The Distribution Centre, houses the cutting machine, sausage maker, scales, cleaning and cutting areas, and chest freezers. The Program also

has a smokehouse for smoking fish and meat, a storage building and garage for the snowmobiles, sleighs, trucks, nets and sideline, and gas. Country foods at the Distribution Centre are for everyone within the community; however, the Program does target community members older than 55, low-income families and individuals, and single mothers. The Program has been quite successful in distributing large amounts of wild meat, fish, and berries to the community. Records available through the Nisichawayasihk Trust Annual Reports and the Wuskwatim Generation Project Environmental Impact Statement (Manitoba Hydro, 2003) reveal that the Program has collected approximately 139,435 kg of country foods.

Weighing and tracking the distribution of wild meat, also satisfies the intention of various regulations that have the ability to impair the Program. Under *The Wildlife Act* of Manitoba, wild meat may be given to First Nation people by First Nation people for food. However, legislation has created restrictions on the use of the wild meat; since the wild meat that has not been federally inspected cannot be “utilized in any way for food in a food handling establishment”, under Section 20(3) of Manitoba’s *Food and Food Handling Establishment Regulation* and *Public Health Act*. This Regulation restricts the ability for wild meat to be used in school lunch programs and elder meal programs, which would greatly reduce costs and increase health benefits to a community struggling with healthy eating. For the community to succeed in such an endeavor, their meat processing facility would need to be either federally regulated or provincial registered. This would also allow the community to sell wild meats, should they choose to.

Until 2009, the Program employed one manager, one field coordinator, and five field workers/hunters on a full-time and year-round basis; however, depending on available funding the employment numbers can go up or down. Since 2009, the Program has employed one manager and four field workers/hunters. The field workers/hunters are responsible for the manual labour, including gardening and cleaning, packaging and weighing of country foods, and are also involved in a number of other activities that the Program provides. The manager is responsible for ensuring that the distribution of country foods is tracked and ensures that the Program complies with all provincial and federal legislation. The manager is also responsible for the budget and purchasing of goods, in addition to helping the workers/hunters with hunting and transportation.

The Program also employs summer students as funds allow. This helps to build interest in the Program as well as building cultural capital by exposing youth to traditional skills and country foods. Hiring students also allows for mentorship and growth of management capacity.

The Program also employs hunters on a “contract basis”, which also aids to build capacity within the community. The Program reimburses hunters for their supplies if they donate the meat to the Program. The Program also purchases fish from the First Nation’s commercial fisherman to distribute among NCN members, and reimburses community members who gather berries. The Country Foods Program Manager indicates that a moose donated to the program can cost upwards of \$800, as hunters need to go further and further to hunt successfully and the Program must reimburse for the escalating costs of fuel and transportation.

According to Thompson et al. (2012), who assessed household food security in relation to food programming and community accessibility in 14 northern Manitoba communities, the country foods program is related to increased food security. The Thompson et al. (2012) study illustrated that when a country foods program, similar to NCN's, is coupled with road access, the rate of food security increases to 95%; higher than the Canadian average of 92%. A community without road access, but with a country foods program was predicted to have a food security rate of 40% (Thompson et al., 2012). The Country Foods Program in NCN is a good example of a program built on food sovereignty.

#### ***2.5.4 Cooperatives***

While currently there are no First Nation communities that operate large cooperatives in Manitoba, the models that the Arctic Cooperative and la Fédération des Coopératives du Nouveau-Québec (FCNQ) employ and their success in Northern Canada, warrants their discussion as a potential initiative that could be employed within Manitoba.

Arctic Cooperatives can be found in most Inuit and Dene communities within Nunavut and Northwest Territories, with 31 stores employing over 900 people, and are independently owned and controlled by the communities in which they reside (Arctic Cooperatives Limited, n.d.). Similarly, the FCNQ Cooperatives are located within Nunavik, the northern territory of Quebec, and have 14 member cooperatives within Inuit and Cree communities. The FCNQ is the largest non-government employer within Nunavik, and employs over 310 people within the communities, and 120 people within Montreal. The FCNQ is owned, managed, and controlled by the Inuit and Cree, and operates under the

objective to unite the community and to act as a spokesperson for the community's interests (FCNQ, n.d.).

The Cooperatives have several arms to their business including retail, accommodations, cable operations, construction, outfitting, arts and crafts production property rentals, and joint ventures with shipping companies. The Cooperative model of business, help to built capacity in communities, and retain money within the communities, and give control to the communities in terms of what foods it offers and what price they are offered at.

While cooperatives are for-profit, a portion of these profits is re-distributed amongst its members annually, and a portion of the profit is re-invested into the cooperative. Inflated prices do not make sense, as the money would be distributed back to the members who initially paid the inflated prices (NAHO, 2004).

### ***2.5.5 Food Buying Clubs***

Food buying clubs are community clubs that consist of people or institutions who organize to buy food in bulk to save on cost and shipping. Schools and First Nation Social Assistance Departments organize the largest food-buying clubs in northern Manitoba (Thompson et al., 2012). This allows schools to provide healthy foods and allows families on social assistance greater access to fresh meats and other healthy foods.

## **2.6 Chapter Summary**

First Nation communities in Manitoba are food insecure. Recent research conducted in 2009 and 2010 demonstrates that food insecurity rates are three to four times greater in

First Nation communities in Manitoba than in the rest of Manitoba and Canada (Chan et al., 2012; Health Canada, 2007; Health Canada, 2011; Tarasuk et al., 2013; Thompson et al., 2011; Thompson et al., 2012). The core issues contributing to the high rates of food insecurity include high rates of poverty and subsequently the inability to afford healthy foods, in addition to geographical isolation and subsequent lack of access to larger urban centers.

In response to this problem, there are a number of initiatives that are working towards reducing the rates of food insecurity by increasing the number of gardens and gardeners, providing support for poultry-raising projects, providing loans for procurement of freezers, and the implementation of country food programs to provide foods to community members in need, in addition to employment opportunities.

The first Canadian food security survey was supplementary to the 1998/1999 National Population Health Survey and consisted of three questions. Since 2004 the CCHS has regularly collected food security information using a validated research tool (18-question survey module), developed by the United States Department of Agriculture (USDA).

While the CCHS has collected information from most provinces, it does not collect information regarding food insecurity rates for First Nations people living on-reserve, one of the most at-risk populations in Canada.

Prior to studies led by researchers from the University of Manitoba (Thompson et al., 2010; Thompson et al., 2011; Thompson et al., 2012) beginning in 2009 and the 2003/2003 Manitoba First Nation Longitudinal Health Survey, the prevalence of food insecurity within northern Manitoba First Nation communities was essentially unknown.

Since 2009, additional studies have been conducted, notably the 2010 FNFNES study conducted in nine First Nation communities in Manitoba. This research contributes to this growing body of knowledge.

### **CHAPTER THREE: METHODS**

A literature review was conducted to determine the existing knowledge base regarding food security issues within First Nation communities in Manitoba. The review was expanded to include provincial and nation-wide studies, to build understanding regarding food security measurement and household food security status, and to allow comparison of this research to provincial, national and international jurisdictions.

This research was conducted using a mixed methods research approach (Creswell, 2003), as both a quantitative and qualitative methods were used to collect research data, and a qualitative approach to data analysis was employed. A mixed methods research paradigm was employed for the purpose of allowing the researcher to quantify the prevalence of food insecurity, in addition to identifying the underlying reasons and barriers to limiting access to healthy affordable foods. A quantitative validated household food security questionnaire was administered door-to-door in order to determine the prevalence and severity of food insecurity in each of the four communities. Following the administration of the questionnaire, a qualitative semi-structured interview was completed for the purpose of understanding household access to country foods, household gardening practices, perceived barriers to obtaining healthy foods, and ideas to improve access. A quantitative food costing survey was also conducted in each of the food stores within the four communities and within one store in Winnipeg for comparison purposes.

This research is conducted from within a pragmatic knowledge claim (Creswell, 2003), as the goals of this research were to draw attention to the elevated levels of food security within First Nation communities; draw attention to the disparity and imbalance that exists

between First Nation communities and non-Aboriginal communities within Manitoba; and to ensure that the voices of the communities were heard in order to create change.

The four Island Lake communities in this study were assessed as part of a larger sample of 14 remote Manitoba communities. The four communities are also isolated in terms of their geographical location and accessibility. The four communities are only accessible via air (year round) and via winter road, for approximately six to eight weeks per year. It is important to study the prevalence of food insecurity within such isolated communities, as geographical location and degree of isolation are associated with increased food costs due to elevated shipping costs and increased food insecurity, resulting from limited employment opportunities and consequently high rates of poverty (Government of Manitoba, 2003; INAC, 2009).

### **3.1 Research Ethics Approval**

This research required approval from the University of Manitoba's Research Ethics Board. An ethics protocol for human subject research was submitted to the Board in August 2008 with approval granted (J2008:114) in September 2008.

The protocol identifies and describes the 2004 CCHS Cycle 2.2 food security survey (research instrument), which was employed to gather information regarding food security status within each of the four First Nation communities. I administered the survey from door-to-door along with a paid representative from the Four Arrows Regional Health Authority who was familiar with each of the communities.

Prior to administering the survey, participants were made aware of the intentions of the survey and how the information would be used. Participants were ensured a guarantee of confidentiality and anonymity; no names or addresses were recorded and all results were to be summarized for the community. To ensure understanding of research intentions, ethical considerations, and survey questions, communication was offered in both Ojibway Cree and English. Participants were also informed that they could stop the interview, should they wish to, at any time during the questionnaire and interview process.

Participants either agreed to participate or refused to participate at this point. Everyone who answered the door was given a small gift of nectarines for their family to thank them for their time and information, regardless of their agreement or disagreement to participate in the survey. The participation rate shared between the communities was 95%, with individual community participation rates of 90% in Wasagamack, 95% in St. Theresa Point, 98% in Garden Hill and 98% in Red Sucker Lake First Nations.

Participants were also informed that results of the food security survey would be made available via a poster, summarizing their community's household food security survey results. The posters were submitted to the community's Chief and Council for distribution and display within the community approximately three months after the survey was administered. The posters were also presented at the *Northern Harvest Forum* (a food security education and networking forum), in Thompson, Manitoba in October 2009, which was attended by community members from the Island Lake First Nations and other Manitoba First Nations, Aboriginal organizations, academia, and government.

### **3.2 Introducing the Researcher to the Community**

It is important to ensure that the First Nation community approves of the research and is aware of how the research and associated data will be used. The administration of the food security survey was completed in association with the Four Arrows Regional Healthy Authority (FARHA), who provided a community liaison and interpreter for research activities in the communities. This individual was paid by FARHA, as part of their normal duties.

Prior to visiting the Island Lakes area, the Chief and Council for each community was contacted, and a letter was subsequently mailed introducing the intention of the food security survey, how the survey was to be administered, and how the results of the survey may be used. A copy of the food security survey was appended. The letter also discussed the food-cost audit, which was proposed to take place in each store in the communities, in order to assess availability of healthy food and its associated cost.

Upon arriving in each community, a meeting with Chief and Council was conducted to get final permission to administer the survey door-to-door and to discuss any concerns or comments Chief and Council may have had. A guarantee of confidentiality and anonymity amongst the respondents was also discussed. Once gaining the community's permission, the food security survey was also introduced on the local community television station in both Ojibway Cree and English. A telephone line was available for community members to call in and ask any questions prior to the survey being administered door-to-door within the communities.

Prior to conducting food costing surveys, the manager and/or owner of the store was contacted to discuss the intention of the survey and how the food costing information would be used. The store manager and/or owner were informed that the survey would not disrupt business or involve staff.

### **3.3 Food Costing Survey**

A community food-costing survey was completed in all food stores, including convenience stores, in each of the four communities to help determine food accessibility and affordability. The number of stores, store type, location, and price and availability of healthy food was recorded. The RNFB was used to determine the level of food accessibility and affordability by recording available food basket items in each community and their associated price. One full-service grocery store in Winnipeg was also audited for food costs for comparison purposes.

The RNFB contains 67 perishable and non-perishable food items, and weighs approximately 37 kilograms. The Basket represents nutritious diet for a family of four comprising a man and woman between ages 31 and 50, and a boy and girl between the ages of 9 and 13 for one week. The Basket contents were selected based on Aboriginal community food consumption surveys conducted by Aboriginal Affairs and Northern Development Canada (formerly Indian and Northern Affairs Canada), and “was designed to meet the Recommended Dietary Allowances or the Adequate Intakes proposed by Health Canada’s Dietary Reference Intake Committee” (INAC, 2007, p.9). The RNFB however, is not intended as a recommended diet; the Basket was solely created as a tool for food costing in First Nation and northern communities in Canada (INAC, 2007).

### ***3.3.1 Calculating Cost***

All stores in each of the four communities were audited for availability and price of each of the perishable and non-perishable food items listed within the RNFB (see Appendix A for a list of foods included in the RNFB), in addition to one full-grocery store in Winnipeg. The RNFB Price Selection Procedure (see Appendix B) was used to guide the pricing methodology. Where several brands of food items were available within a single store, the lowest price was recorded; however, at the time of data collection availability of more than one brand for a single food item was rare. For items that were offered on-sale or at a reduced-price during the food costing exercise, their regular price was recorded; however, this was an uncommon occurrence. Products that were on sale were items that were nearing their expiry date or were of poor quality. Using the regular price ensured that the cost of the Basket was more representative of what consumers would expect to pay on average for that particular food stuff. Also, using the regular prices aided in comparing individual food items and the Basket costs between communities, as promotions may have differed between communities.

For costing purposes, each food item had a standard purchase size (volume) or weight assigned. If a specific purchase size was not available within the stores, the food item size available within the store was recorded (weight/volume, and cost). The cost of this item was subsequently converted to the standard purchase size, prior to entering it into a costing spreadsheet.

For food items that were not available within the community, the weight or volume assigned to those specific items was divided evenly amongst available food items within

that food category to account for the missing weight or volume. This method of weight or volume allocation was employed as to not bias one food item price, and to represent the whole food category. This method differs from the RNFB Price Selection Procedure for entering prices, which suggest using prices from recent costing survey's in the community or from nearby communities; however, the procedure does indicate that the methodology should be adapted to account for the circumstances within the communities. In the Island Lake area, several food items were not available in the four communities. Therefore, reallocating the weight or volume of the missing items was deemed most appropriate, in order to respect the total weight of the RNFB. Where vegetables and fruits were priced per item in stores, three items were weighed and the average weight was used to calculate the cost per kilogram.

Once costs of individual food items were collected, the average cost per item per community was then calculated, as outlined in the RNFB Price Selection Procedure. An additional 5% was added to the total of the Basket to account for miscellaneous foods, such as tea, coffee, spices and baking powder, as outlined in the RNFB Price Selection Procedure.

### ***3.3.2 Calculating Affordability***

To determine the affordability of the RNFB for a family of four, the cost of the Basket was extrapolated to reflect the annual cost. This cost was compared to the annual median income per family as reported in the 2006 Canadian Census, for Wasagamack, St. Theresa Point and Garden Hill First Nations. The median family income for Red Sucker Lake First Nation was suppressed by Statistics Canada and is therefore unavailable to the

public. A median family income was estimated for Red Sucker Lake by using the average of the other three First Nations, which yielded a result of \$26,891; see Table 5 below.

**Table 5: 2006 and 2011 Canadian Census Population and Income Data**

First Nation	Population	Occupied Homes	Average Family Size	Average Household Size	Median Income per Family
Wasagamack	1411 <sup>2</sup>	274 <sup>2</sup>	4.1 <sup>1</sup>	4.5 <sup>1</sup>	\$26,432 <sup>1</sup>
St. Theresa Point	2871 <sup>2</sup>	524 <sup>2</sup>	4.3 <sup>2</sup>	5.5 <sup>2</sup>	\$29,920 <sup>1</sup>
Garden Hill	2776 <sup>2</sup>	545 <sup>2</sup>	4.0 <sup>2</sup>	5.1 <sup>2</sup>	\$24,320 <sup>1</sup>
Red Sucker Lake	781 <sup>2</sup>	172 <sup>2</sup>	3.8 <sup>2</sup>	4.6 <sup>2</sup>	\$26,891 <sup>3</sup>
<sup>1</sup> Statistics Canada (2007a,b,c)					
<sup>2</sup> Statistics Canada (2012a,b,c,d)					
<sup>3</sup> Average of Wasagamack, St. Theresa Point and Red Sucker Lake median family incomes					

### 3.3.3 Limitations

Food costing was completed during the month of July, and represented one period in time. For communities with air-only and winter road access, prices in early summer may not have been representative of higher costs in fall and early winter, prior to winter roads opening when non-perishable items are re-stocked.

The RNFB does not include country foods, even though the consumption of country food can be a major contributor to the amount of food consumed by many northern Aboriginal households. The 2008/10 Manitoba Regional Health Survey found that approximately 85% of First Nation adults “sometimes” or “often” had country foods shared with their household (FNIGC, 2012), illustrating that country foods in some households are indeed an important food component. Indian and Northern Affairs Canada (INAC) recognized that “traditional food (country food) is extremely important to most Inuit and First Nations living in the North, and most Northern diets contain some traditional food” (INAC, 2007, p.18). However, INAC then stated that it would be too difficult to include

country foods within the RNFB, as the types of foods consumed by Aboriginal people throughout Canada differ greatly. Since country foods are obtained via subsistence activities, pricing would need to be based on “species harvested, distances that must be traveled, cost of equipment and supplies, and existence and type of hunter support programs” (INAC, 2007, p.18). For households that consume a significant quantity of country foods, the RNFB may not be appropriate for estimating the cost of food consumed. Consequently, the RNFB is a tool used to illustrate the cost of a market-based food basket (store-bought foods).

The RNFB indicates that while it is consistent with current food consumption practices in the north, the Basket does not contain a representational quantity of prepared foods and does not include the cost of dining in a restaurant. The Basket does not account for family members whom may require special diets, and may not be representative of individual food preferences, and also assumes that individuals have some knowledge of food preparation.

The RNFB weight is based on a family of four, which may not be representative of all families in each community. According to Statistics Canada, Wasagamack and St. Theresa Point have an average family size of 4.1 and 5.3, respectively; and the average family size in Red Sucker Lake is 3.8. However, the average household size in each of the four First Nations was greater than 4, see Table 5. Therefore, actual costs incurred to provide food for family members may differ from what is presented.

### **3.4 Household Food Security Survey**

To evaluate household food security, the 18-question validated food security survey (see Appendix C) used in the CCHS reports, was administered in either English or Ojibway Cree to approximately 40 households in each community. Although the questions were read aloud in either language, many individuals requested to follow the questions on a copy of the survey, which was written in English only. A target sample size of 10% to 20% of households was used; a larger sample not pursued due to the limited field time available. Households were chosen at random throughout the community using a community map and satellite photographs where community maps were unavailable. The survey was cross-sectional with data collected at one point in time; however, participants were asked to recall food security situations within the last twelve months.

Households and individuals were not identified on the surveys in any way, and personal information was not recorded in order to ensure that participant confidentiality was respected. The survey was administered to an adult household member responsible for the regular food purchases. The surveys were analyzed using the methodology recommended within Health Canada's 2007 CCHS report and Tarasuk et al. (2013).

Information regarding the size of the household, number of children, age of residence, income, source of income, etc. was not obtained as part of this study. Demographic data was obtained through Statistics Canada as needed.

### ***3.4.1 Survey Design***

In their CCHS studies, Health Canada employed the United States Household Food Security Survey Module (US HFSSM) to assess household food security status in Canada. The survey is designed to capture “self-reports of uncertain, insufficient, or inadequate food access, availability and utilization due to limited financial resources” (Health Canada, 2007, p.8), as a measure of household food insecurity.

The 18-question survey was adapted to reflect research completed by Tarasuk (2001) and advice received from “leading experts in nutrition and food security” (Health Canada, 2007). The Canadian research suggested that the food insecurity thresholds used in the United States were overly conservative. Such that the United States survey used three or more affirmative responses to denote the presence of food insecurity, and Health Canada used the threshold of two or more responses to indicate some degree of food insecurity. Health Canada indicates that these changes help to identify marginally food insecure households. However, Health Canada also recognizes that even with the adaptation to a less conservative threshold, there may be a small percentage of households that the survey considers as food secure, while they may actually experience marginal food insecurity (Health Canada, 2007). Subsequently, indicating less food insecurity within the population.

Health Canada also altered the US HFSSM to assess child and adult household food security status separately, as suggested in research completed in isolated northern

Canadian communities by Lawn and Harvey<sup>123</sup>. Health Canada altered the survey by creating two scales, a 10-question adult scale focused on adult food security, which also addressed food security in homes without children, and an 8-question child scale focused on children (eighteen years old and younger) within the household. This approach allowed for the comparison of the prevalence and severity of food insecurity experienced by adults and children within the same household, which the US HFSSM did not allow for (Health Canada, 2007)

The surveys were administered to an adult within the household who was normally responsible for purchasing groceries. Each participant was informed that the questions were framed to examine food consumption and purchasing patterns with regard to financial constraints and not personal preference. The survey began with a screening question to determine if there is some condition that indicates that household members are less than food secure (see Table 6). If the household confirmed that there was some level of food insecurity, the remaining questions in the survey were asked.

---

<sup>1</sup> Lawn, J. and Harvey, D. (2003). *Nutrition and Food Security in Kugaaruk, Nunavut: Baseline Survey for the Food Mail Pilot Project*. Ottawa: Indian and Northern Affairs Canada.

<sup>2</sup> Lawn, J. and Harvey, D. (2004). *Nutrition and Food Security in Fort Severn, Ontario: Baseline Survey for the Food Mail Pilot Project*. Ottawa: Indian and Northern Affairs Canada.

<sup>3</sup> Lawn, J. and Harvey, D. (2004). *Nutrition and Food Security in Kangiqsujuaq, Nunavik: Baseline Survey for the Food Mail Pilot Project*. Ottawa: Indian and Northern Affairs Canada.

**Table 6: Household Food Security Screening Question**

Screening Question<sup>1</sup>: *Which of the following statements best describes the food eaten in your household in the past 12 months? (1) You and other household members always had enough of the kinds of food you wanted to eat. (2) You and other household members had enough to eat, but not always the kinds of food you wanted. (3) Sometimes you and other household members did not have enough to eat. (4) Often you and other household members didn't have enough to eat. (5) Don't know/refuse to answer.*

Research completed in the United States, “has shown that a very small proportion of higher-income households screened out by [the screening question], will register food insecurity if administered the full [questionnaire]” (Bickel et al., 2000, p.21). Answers to the screening question indicating some level of food insecurity were not included in the assessment of food security results, as the intensity of food insecurity is determined by subsequent questions within the survey. Answers to the screening question indicating food security were included within the assessment of food security results.

Each question in the survey focuses on the ability to afford food as the reason for a specific condition or behavior framed in the question. Potential answers to questions are structured using categorical (i.e., “yes”; “no”; “don’t know/refuse to answer”) and continuous scales (i.e., “often true”; “sometimes true”; “never true”; “don’t know/refuse to answer”, and “almost every month”; “some months but not every month”; “only 1 or 2 months”; “don’t know/refuse to answer”) (Health Canada, 2007). Questions were ordered

---

<sup>1</sup> Bickel, G., Nord, M., Price, C., Hamilton, W., and Cook, J. (2000). *Guide to measuring household food security, revised 2000*. U.S. Department of Agriculture, Food and Nutrition Service, Alexandria VA.

in a sequence of increasing food insecurity, from worrying about not having enough money to purchase food, to not eating for an entire day.

It is unlikely that an answer indicating some level of food insecurity within the screening question will result in exaggerated food insecurity levels for the community, since each subsequent question within the survey allows the participant to indicate that the behavior or condition is “never true” for household members.

### ***3.4.2 Survey Data Analysis***

Answers to the survey questions were analyzed to determine adult, child, and household food security status using the food security scales and methodology derived by Health Canada in their CCHS reports. Two scales were used to determine both adult food security and child food security. Based on the number of responses indicating some level of food insecurity, households were classified into three categories: “food secure”, “marginally food insecure”, “moderately food insecure” and “severely food insecure” as illustrated in Table 7. Responses were considered affirmative if the following were indicated: “yes”; “often” or “sometimes”; “almost every month” or “some months but not every month”.

For households containing children, the greatest level of food insecurity experienced either the children or adult, was assigned to that household. For example, if an adult experienced severe food insecurity and the children in the household experienced moderate food insecurity, the household is described as experience severe food insecurity.

**Table 7: Food Security Status Category Descriptions**

Status	Interpretation	10-Item Adult Food Security Scale	8-Item Child Food Security Scale
Food Secure	No indication of difficulty with income-related food access	No items affirmed/ absence of food insecurity in screening question	
Marginal food insecurity	Some indication of worry or an income-related barrier to adequate, secure food access	No more than 1 affirmed response	
Moderate Food Insecurity	Indication of compromise in quality and/or quantity of food consumed	2 to 5 affirmed responses	2 to 4 affirmed responses
Severe Food Insecurity	Indication of reduced food intake and disrupted eating patterns	≥6 affirmed responses	≥5 affirmed responses
Source: Health Canada (2007); Tarasuk et al (2013)			

Survey results were compared to the CCHS (2009-10) data for Aboriginal households living “off-reserve”, in addition to the 2009 household food security survey data for an additional 10 northern and remote communities in Manitoba documented in Thompson et al. (2011) and Thompson et al. (2012). Survey results were also compared to the 2010 Manitoba First Nations Food, Nutrition and Environment Study (FNFNES), and the national 2008/10 First Nations Regional Health Survey (RHS). The 2009-2010 CCHS, Thompson et al. (2011), Thompson et al. (2012), and the 2009/10 FNFNES studies utilized the 18-question US HFSSM survey tool. The 2008/10 RHS used the 6-item subset of the US HFSSM Core Module survey tool to assess adult food security. The 6-item subset has been shown in United States studies to approximate closely the three main categories of food insecurity, food secure, moderately food insecure, and severely food insecure (food insecure with hunger) (Bickel et al., 2000). The 2008/10 RHS did not assess child or youth food security specifically and instead focused on nutritional questions.

### **3.4.3 Survey Limitations**

Although the CCHS (2009-2010) food security survey, derived from the USDA's Measuring Food Security in the United States (2000) Report, is observed as "the best available instrument for assessing household-level food insecurity in the context of financial resource constraint" (Health Canada, 2007, p.32; Tarasuk, 2001, p.28) it does have some limitations. The survey requests participants to recall a 12-month period; however, the survey does not capture the frequency or duration of the condition or behavior (Health Canada, 2007; Tarasuk et al., 2013). In First Nation communities it may be more appropriate to measure food security according to seasons. This method of recall may capture price fluctuation in market-food and seasons where traditional foods are more abundant.

Although the survey was modified by Health Canada (2007) and Tarasuk (2001), the phrasing of the questions and potential answers to those questions are framed within an urban western social context and may not be culturally appropriate for use in First Nation and other Aboriginal communities. Prior to administering the household food security survey in the Inuit hamlet of Kugaaruk, Nunavut, Lawn and Harvey (2003) tested the questions with local Inuit interviewers. They found that to be more culturally appropriate, the questions should be less direct and should begin with "Some families might say". Additionally, Lawn and Harvey (2003) modified potential answers from "always true", "sometimes true" and "never true" to "often", "sometimes", and "never". Finally, they modified the survey to reference "healthy meals", which respondents found more meaningful than the term "balanced meal". It was noted that during the administration of the surveys in each of the Island Lake First Nation communities, the term "balanced

meal” needed further explanation. This term was explained as “a healthy meal, usually containing three food groups such as a meat, a vegetable, and pasta, potato, bannock or bread”.

Also, “the food security scale does not measure food safety, nutrition, availability of food through socially acceptable channels, or community-level factors including the nature and sources of the available food supply” (Bickel et al., 2000, p.16).

Finally, the survey does not have open-ended questions allowing participants to further explain their condition or behavior, which could potentially provide additional information and context allowing the researcher to understand the complexities within the community; these questions must be added by the researcher and can be tailored to the community that is being surveyed, which this study did.

### **3.5 Semi-structured Interviews**

Semi-structured interviews were conducted in either English or Ojibway Cree with community workers and community gardeners, to determine the number of community and home gardens, and other food-related initiatives. A semi-structured interview format was used to help facilitate discussion. Contact with community NHFI workers and Aboriginal Diabetics Initiative (ADI) workers, was initiated through the Four Arrows Regional Healthy Authority to introduce the research and ensure that individuals would be available during the community visits. The NHFI and ADI workers were asked about the prevalence and popularity of food-related initiatives including, educational, food preservation, community food production, and food access programs.

During the administration of the door-to-door food security survey, a semi-structured interview was conducted, and asked six questions (semi-structured interview questions are presented in Appendix C) to better understand household access to country foods, household gardening practices, perceived barriers to obtaining healthy foods, and ideas on how to improve access to healthy foods. Using a qualitative data collection technique alongside the quantitative household food security questionnaire, allowed participants to provide additional information regarding their answers within the questionnaire and provided a forum for their ideas to be heard and documented. This information was used to gauge the consumption of additional food supplies that are not accounted for in the RNFB and to gauge community interest in gardening and country foods as a whole.

### ***3.5.1 Interview Data Analysis***

Answers to the household semi-structured interview questions were documented in the interview questionnaires and subsequently entered into a spreadsheet. The questions were structured in themes (prevalence of household gardening and hunting, ideas regarding the barriers to accessing healthy food within the community, ideas to improve access to healthy food within the community, etc.), which allowed for straightforward organization of answers. Participant's answers were subsequently compared to the household food security survey, food costing data, and observations in the community, and the literature review to clarify relationships in the data. Representative comments have been selected to support the common ideas and thoughts that emerged through the interviews, which also supported the results of the household food security survey and food-costing analysis.

Semi-structured interviews with NHFI and ADI workers were used to understand the number and types of programs available to community members within each community. This information was sought to provide insight into the resources available within each community with regards to healthy eating and living. No further analysis was conducted with regards to this information.

### ***3.5.2 Interview Limitations***

There are several limitations inherent when using a semi-structured interview method, or any interview method. Individuals may have been reluctant to speak, and had offered very short or “yes” “no” answers. Although the questions were structured in a way to allow for elaboration and explanation, not all individuals were comfortable with providing additional context to their immediate answer. Some participants were comfortable discussing the topics and had asked additional questions of the interviewers; additional questions and explanations were most welcomed. For these reasons each individual interview was not repeated exactly in every household.

Although I am familiar with Manitoba Cree and Ojibwa culture, it is possible that the real meaning of comments was not effectively captured when recording the interviews. In some cases, the Four Arrows Regional Health Authority worker who was present for each interview provided additional context or explanation.

Care was taken to ensure that bias was not introduced during the analysis and reduction of interview data; however, potential existed for bias to be introduced by the potential elimination of a comment, or interpreting answers incorrectly. Analysis of the data was

completed by the field researcher, which aids in reducing bias as the field researcher was present for each interview and understood the context in which the comments were provided.

## **CHAPTER FOUR: RESULTS**

Chapter Four presents the data that was collected with the methods outlined in Chapter Three. Key results from the household food security survey illustrate the prevalence and level of food insecurity within each of the four Island Lake First Nation communities. This chapter also presents information collected during the semi-structured interviews with household members regarding perceived barriers to healthy food access, country food consumption, gardening practices, and ideas for improving access to healthy food within the community. Results from data collected during the food costing and food availability audit, as well as information regarding food-based community initiatives revealed during unstructured interviews with community workers, are also presented.

### **4.1 Food Accessibility**

#### ***4.1.1 Store Locations***

In all Island Lake First Nation communities, with the exception of Garden Hill, there is one full-service grocery (The Northern Store) and two or three convenience stores located throughout each of the communities (see Table 8). Garden Hill is also served by the full-service Mikisew grocery store, located within the main community.

As illustrated in Figures 7 and 8, in Wasagamack and Garden Hill, the Northern Stores are located on islands away from the main community, impeding easy access to healthy foods. During the open-water seasons, a trip to the Northern Store can cost residents an additional four to eight dollars per shopping trip for water taxi access to the Wasagamack Northern Store and Garden Hill Northern Store, respectively. Access to the Northern Stores in these communities is particularly difficult during the spring thaw and winter

freeze-up when conditions are unsafe for travel. During these times, the islands and stores are only accessible via helicopter or hovercraft.

**Table 8: Food Stores in the Island Lake First Nations**

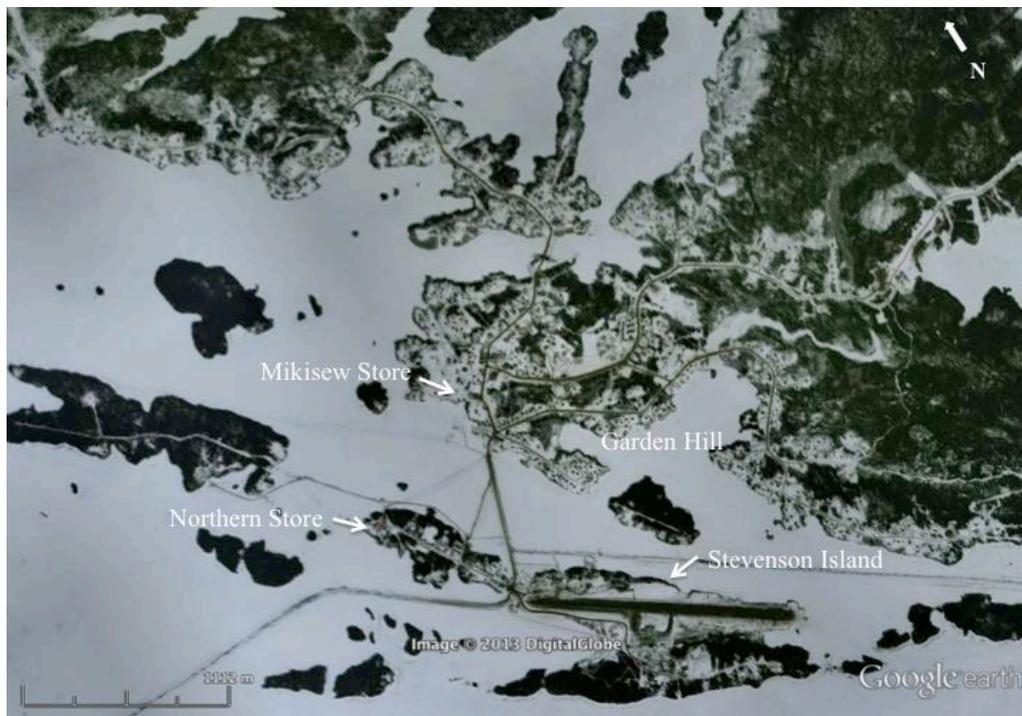
Parameters	Wasagamack	St. Theresa Point	Garden Hill	Red Sucker Lake
Number of full service grocery stores	One: The Northern Store	One: The Northern Store	Two: The Northern Store and Mikisew	One: The Northern Store
Location of full-service grocery store	On its own island; \$4 water taxi	In main community	The Northern Store is on Stevenson Island (\$8 water taxi); Mikisew in main community	In main community
Number of convenience stores	Three	Three	Three	Two
Location of convenience stores	In main community	One in main community; two on St. Mary Island (near airport)	One in main community; two on Stevenson Island (near airport)	One in main community; one on Despro Island (\$5 water taxi)

**Figure 7: Aerial Photograph of Wasagamack First Nation**



In 2009, in addition to the Northern Store, there were also three convenience stores located on the mainland serving Wasagamack; these convenience stores were owned and operated by community members. Garden Hill also had three convenience stores, one located on the First Nation's mainland and the remaining two on Stevenson Island, "off-reserve", north of the airport (see Figure 8).

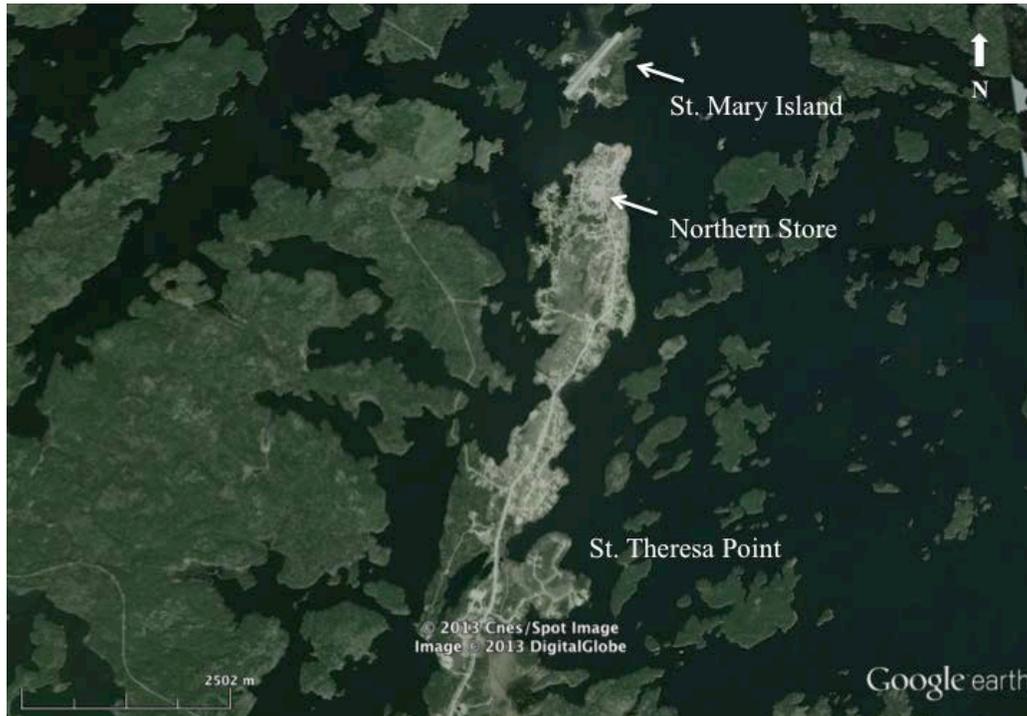
**Figure 8: Aerial Photograph of Garden Hill First Nation**



The Northern Store in St. Theresa Point was located within the main community, and was by far the largest store in the Island Lake area. In 2009, the community also had a small convenience store located on the mainland, and a small convenience store and snack shop located on St. Mary Island, near the airport; see Figure 9. While the Northern Store is located on the mainland providing year-round access for residents, for those who ordered

groceries from Winnipeg, there was an added ten-dollar cost to travel to the airport on St. Mary Island to obtain the items.

**Figure 9: Aerial Photograph of St. Theresa Point First Nation**



The Northern Store, the only full-service grocer in Red Sucker Lake is located within the main community (see Figure 10). The Northern Store servicing Red Sucker Lake is small and consisted of portable trailers, as the original store was damaged in a fire. A small convenience store is also located on the main land, and a larger convenience store was located on Despro Island, nearby. A water taxi to Despro Island was approximately five dollars for a one-way trip.

**Figure 10: Aerial Photograph of Red Sucker Lake First Nation**



Perishable foods are flown in from Winnipeg to the communities (with the exception of Wasagamack, which does not have an airport) year-round by registered grocers and suppliers under the Government of Canada’s Food Mail Program (now the Nutrition North Canada Program, which provides a subsidy for healthy foods to retailers and suppliers). In Wasagamack, perishable foods are transported via air to St. Theresa Point, the nearest airport, and subsequently transported by boat to stores in the community. Non-perishable foods are generally resupplied annually via truck on the winter road system.

#### ***4.1.2 Prevalence of Household Gardening, Hunting and Fishing***

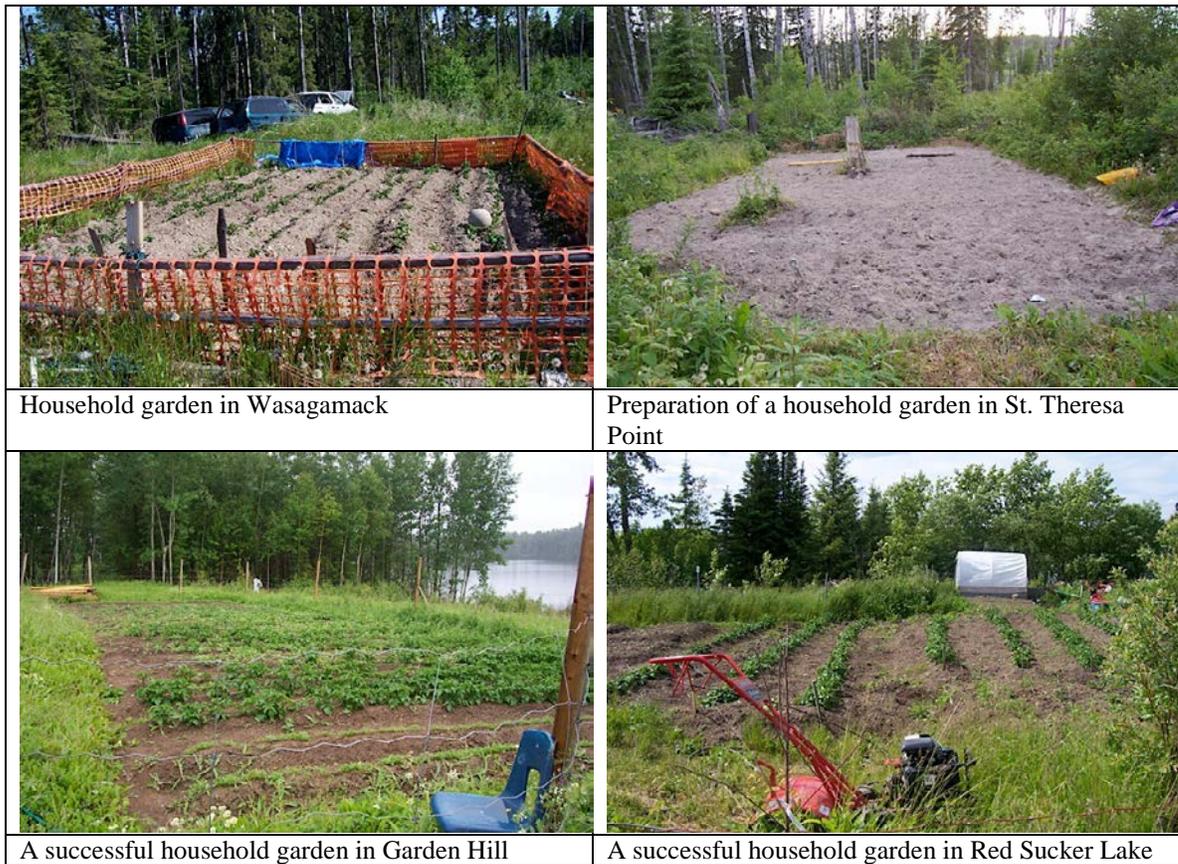
Following the administration of the household food security surveys, participants were asked questions regarding the prevalence of gardening, hunting, and fishing activities, including family sharing, within their households.

Garden Hill had the most individual household gardens (30), while Wasagamack participants reported the highest involvement in gardening activities at 43% participation (of those interviewed). There was only one household greenhouse in the region, located within Garden Hill First Nation (see Table 9). Household gardens within the each of the communities were of varying size, and potatoes were a popular crop (see Photographs 1-4) for photographs of household gardens within the communities).

**Table 9: Prevalence of Household Gardening, Hunting and Fishing**

<b>Question</b>	<b>Wasagamack</b>	<b>St. Theresa Point</b>	<b>Garden Hill</b>	<b>Red Sucker Lake</b>
Number of household gardens	15	12	30	10
Number of household greenhouses	0	0	1	0
Percent of participants who garden	43%	30%	22%	27%
Percent of participants who hunt, fish or are gifted country foods	88%	90%	68%	85%

**Photograph 1-4: Household Gardens in the Island Lake First Nations**



Participants in all four communities indicated high levels of hunting and fishing activities or family sharing of moose meat and fish (see Photograph 5). One participant in Red Sucker Lake exclaimed,

“Most of my meat is wild and we eat fish almost daily”. – Participant,  
Red Sucker Lake

St. Theresa Point participants indicated the high percentage of hunting and fishing activities at 90%, followed by Wasagamack at 88%, Red Sucker Lake at 85%, and Garden Hill at 68%; it is not clear why Garden Hill participants reported lower hunting and fishing activities or family sharing of hunted meat and fish.

**Photograph 5: Bannock and Moose in Red Sucker Lake**



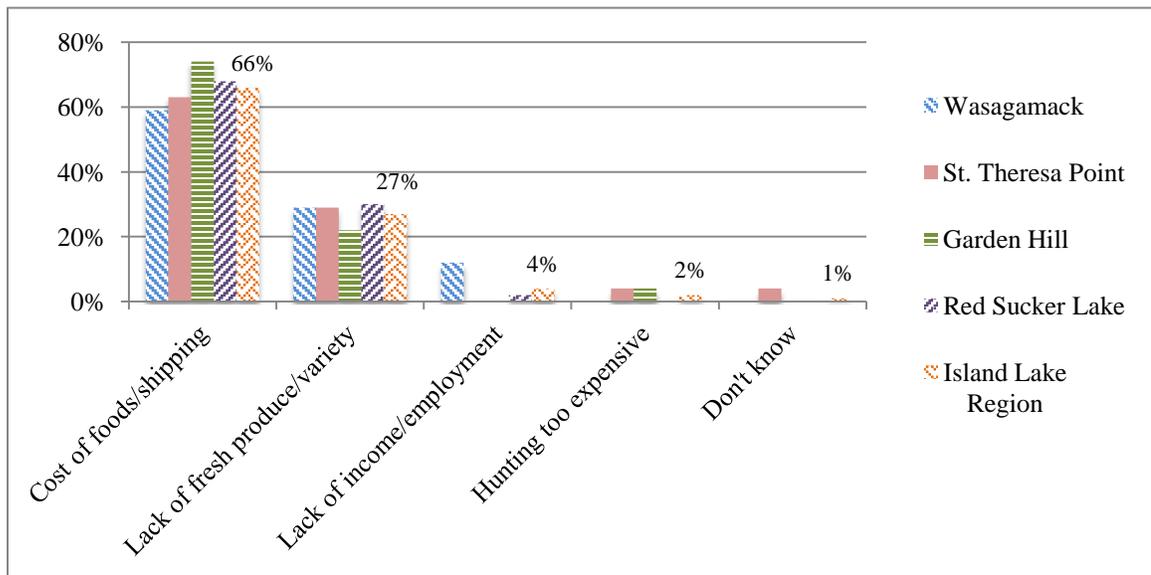
#### ***4.1.3 Perceived Barriers to Accessing Healthy Foods***

Participants in each community were asked to share their perspectives regarding what barriers existed to accessing healthy foods in their community. The barriers identified by participants were similar throughout the communities, and included the cost of foods and shipping; the lack of fresh produce and variety; inadequate income and employment opportunities; and the cost of hunting equipment and fuel. See Figure 11 for a comparison across communities.

Sixty-six of participants within all four communities identified the cost of foods and shipping as the largest barrier to accessing healthy foods in their communities.

Participants lamented the cost of healthy foods in their communities and said that the high costs of healthy foods especially fresh fruits, vegetables, and milk, prevented them from buying those foods.

**Figure 11: Island Lake First Nation's Perceived Barriers to Accessing Healthy Foods**



During the interviews it became apparent that many individuals often had to make the difficult decision to either purchase a small quantity of expensive healthy and nutrient-dense foods, or a larger quantity of cheaper low-nutrient foods (which are normally high in fat, sugar and/or salt) that will satiate hunger. Indeed, households in Island Lake First Nation communities are making tough budgeting decisions in order to put food on the table.

As one mother disclosed,

“I know that healthy food, like vegetables and fruits are good for my kids. But if I buy and feed them vegetables they will [soon] be hungry again, and there is no money for more food. So, I have to buy cheaper foods, like instant noodles so they feel full” – Participant, St. Theresa Point.

Participants within the communities had also offered the following comments with regards to the high cost of foods and shipping:

“They charge us too much just to eat and feed the kids. You should go shop at the Northern and see for yourself. One little white bag can easily go anywhere from 50 to 100 dollars.” – Participant, Wasagamack

“The biggest barrier is cost. Healthy food costs too much and [there is a] lack of nutritious food. Mostly, I can't afford healthy food.” – Participant – St. Theresa Point

“The fruit and vegetables cost so much. When you order [food] from the city, sometimes they rot because it takes so long for it to get to you. Sometimes the fruit and vegetables are [not fresh] at the Northern Store. It's hard to have fresh fruit, and the milk prices are outrageous. All the food prices at the Northern Store are outrageous.” – Participant, Garden Hill

“The high cost of food is the biggest barrier to eating healthy. The cost of milk and [infant formula] is high. I can't afford to buy fruits and vegetables all the time.” – Participant, Garden Hill

“The biggest barrier to eating healthy is the cost of food. I can never afford good meals or healthy foods.” – Participant, Garden Hill

“The cost of healthy foods, like veggies, milk, and fruits are a barrier to eating healthy; most of the time the store doesn't have any.” – Participant, Red Sucker Lake

“We spend a lot of money to order food and fruit for my family. It's like I pay three times as much when I buy food (including freight). My children grew up without fruit and vegetables because not having them

supplied in the community. If it was [available] it was always expensive to buy. We need a store that sells fresh fruit and vegetables in our community.” – Participant, Red Sucker Lake

Some of the comments offered by participants above also indicated that there was an issue regarding the supply of healthy foods, especially fruits and vegetables within the communities. Twenty-seven percent of participants indicated that the lack of fresh produce and the lack of variety in the stores prevented them from purchasing these foods. During interviews, the issue of low quality produce was identified frequently. Some participants thought that the reason for low-quality produce within their communities was inadequate refrigeration during shipping and/or that stores purchased or received low quality (bruised, rotten) produce which is subsequently shipped to their communities. Further discussion with suppliers and shippers is required in order to validate these opinions. Participants within the communities offered the following comments with low-quality produce and lack of variety:

“When ordering by food mail, half of your order you can't eat. Ground beef is thawed out and smelly. It's gone bad by the time you get it. You get rotten or not fresh foods by mail.” – Participant, Wasagamack

“Produce runs out every second day at the Northern. [The] cost of food is expensive, three times more than in Winnipeg. Supplies always run out. Cost of food for babies is three times higher.” – Participant, St. Theresa Point

“[We need] fresher produce. [By the time it gets here] it is already rotten.” – Participant, Wasagamack

“Food gets here right before the expiry date. They sell it when it is old, and the price is lowered when the expiry date is past. We have to buy it no matter what.” – Participant, Red Sucker Lake

The high cost of hunting and fishing was also identified as a barrier by approximately 4% of participants within St. Theresa Point and Garden Hill; however, participants from other each community identified that it is becoming increasingly difficult to hunt and fish:

“In the past there were traditional foods, but not so much now. We are struggling with foods now.” – Participant, Wasagamack

“Lots of money spent to go hunting, fishing and trapping; and we need to bring foods to go hunting and trapping”. – Participant, Wasagamack

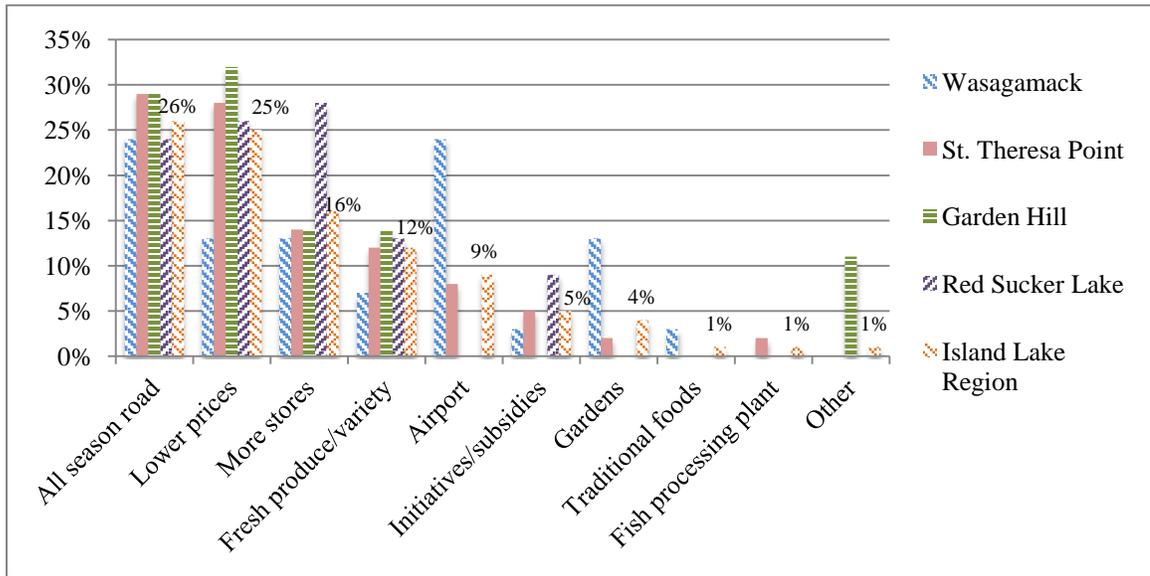
“In our tradition, you need to be a strong man and eat from the land. We can’t do that now. It is hard to get the game now.” – Participant, St. Theresa Point

“My family gets food from hunting, but it is getting hard to hunt because of the costs”. – Participant, Garden Hill

#### ***4.1.3 Community Perspectives on Solutions to Accessing Healthy Foods***

Participants in each community were asked to share their perspectives regarding what is required in their communities to increase access to healthy foods in their community. The most common solutions identified by participants within the communities were the construction of an all season road (26%) and lower food prices (25%). See Figure 12 for a comparison across communities.

**Figure 12: Island First Nation’s Perceived Solutions to Accessing Healthy Foods**



Twenty-six percent of participants within all four communities thought that the construction of an all-season road would increase access to healthy foods and would decrease the cost of those foods, as revealed in the following comments from participants:

“We need an accessible road to the south, instead of air freight subsidies (food mail/nutrition north) for groceries. Shopping for food is ridiculously [expensive], like three times higher [than Winnipeg].” – Participant, St. Theresa Point

“An all-season road would improve food access, but elders are worried about drugs and alcohol [coming into the community] and accidents on the road. [A road] might also increase mining and resource extraction activities; there is nickel ore around here.” – Participant, St. Theresa Point

As noted within the above comments, there are concerns that a road into the Island Lake area could increase access for mining and other resource-extracting companies, as well as increasing access to drugs and alcohol within these communities where alcohol is banned.

Twenty-five percent of participants also indicated that lower prices for healthy foods are required, and 12% of participants indicated that access to a variety of fresh produce is needed to increase access to healthy foods in the communities. The communities also identified high prices, poor quality and variety as barriers to accessing healthy foods. One participant exclaimed,

"As soon as possible we need a change. [Food] is too expensive. Whatever we have we'll eat to get our stomachs filled." – Participant, St. Theresa Point

One participant from Red Sucker Lake indicated that a community group should be formed to record food quality within the community, which could be used as leverage by the community to petition the stores to provide higher quality food within the community:

"[Red Sucker Lake] should have a community watchdog to monitor food quality. To watch for and track spoiled foods and expiry dates."

Twenty-four percent of participants in Wasagamack and 8% of participants in St. Theresa Point identified the need for an airport within their community. Since Wasagamack is without an airport all foods that are destined for the community are removed from the aircraft and trucked to the dock in St. Theresa Point, where they are loaded onto a boat and transported to the Wasagamack

community dock, where foods are again loaded onto trucks for their final destination. Excessive handling of perishable foods can increase the potential for bruising and decreasing shelf life. As well, during intercommunity shipping, the foods are not refrigerated. A smaller percentage (5%) of participants within the communities identified the need for additional subsidies, food-initiatives, and food-based policies.

Participants were also asked if they were familiar with food-access programs in their community (see Table 10).

**Table 10: Awareness of Food-Based Programming within the Island Lake**

	<b>Wasagamack</b>	<b>St. Theresa Point</b>	<b>Garden Hill</b>	<b>Red Sucker Lake</b>	<b>Island Lake Region</b>
Participant awareness of food-based programs and initiatives in their community	85%	60%	45%	72%	67%

Wasagamack participants reported the greatest awareness of food-based programming in their community, at 85%. In Island Lake First Nation communities as a whole, 67% of participants were aware of food-based programs within their communities. Many individuals mentioned that they were most familiar with gardening initiatives and the former national Food Mail Program. One participant offered the following:

“Food mail is a very good program, and it works for this house. If we didn't have this, the house would have to cut back on meals.” –

Participant, Red Sucker Lake

## 4.2 Food Costing and Food Availability Results

All food stores within the Island Lake First Nation communities were audited in July 2009 to determine the cost of a healthy food basket as defined by the 67-item RNFB, and subsequently compared with prices obtained from a large Winnipeg grocer audited in August 2009. The average price for food items in each community was calculated as the mean price of that item between all of the community stores in which that food item was available. The average Island Lake Regional food costs are also provided and compared to the Winnipeg food costing audit results, to illustrate the large price gap that exists (see Table 11).

Often the cost of milk in northern and remote communities is used in the media as an indicator of the elevated cost of food. Indeed, the audit revealed that a 4 L jug of 2% milk had a cost that ranged between \$9.99 in Wasagamack and \$14.17 in Garden Hill, with an average price of \$12.46 between the four First Nations. In Winnipeg a 4 L jug of 2% milk cost \$4.69, resulting in a difference of \$7.77 and an increase in price of 167% when compared to the average price in Island Lake (see Table 11). Other food items had larger price gaps, including bananas, potatoes, and carrots, among others. Bananas were over four times more expensive in Island Lake than in Winnipeg, with an average price of \$7.40 per kilogram in Island Lake compared to \$1.70 per kilogram in Winnipeg, resulting in a price difference of \$5.70 per kilogram and a price increase of 335%. Potatoes and carrots, staples in most Canadian diets, were over three and half times more expensive in the Island Lake First Nations than in Winnipeg with a price difference of \$13.11 per 4.54 kg bag and a price increase of 274%. Common items missing from the RNFB in the communities included frozen fish fillets, canned sardines, frozen orange juice, frozen

apple juice, frozen carrots, frozen corn, canned peaches, fresh cabbage, and canned meat products. In Red Sucker Lake fresh vegetables including broccoli, cabbage, and turnips were unavailable.

**Table 11: Selected Average Food Costs in Island Lake Compared to Winnipeg**

Food Items	Unit	Island Lake First Nations				Island Lake Ave	WPG	Diff <sup>1</sup>	% Increase <sup>2</sup>
		WAS	STP	GH	RSL				
2% milk	4 L	\$9.99	\$12.70	\$14.17	\$12.99	\$12.46	\$4.69	\$7.77.	167%
Eggs, large	8 units	\$2.53	\$3.11	\$2.80	\$2.97	\$2.85	\$1.93	\$0.92	48%
Lean ground beef	per kg	\$5.07	\$9.10	\$10.10	\$4.52	\$7.20	\$8.29	\$1.09	-13%
Chicken drumsticks	per kg	\$6.95	\$8.53	\$9.29	\$8.33	\$8.28	\$6.81	\$1.47	22%
Wieners	450 g	\$3.99	\$4.67	\$4.55	\$4.70	\$4.48	\$2.29	\$2.19	96%
Flour	2.5 kg	\$6.14	\$10.24	\$7.08	\$7.72	\$7.80	\$4.99	\$2.81	56%
Corn Flakes	400 g	\$4.44	\$6.62	\$7.68	\$6.96	\$6.43	\$3.83	\$2.60	68%
Rolled Oats	1 kg	\$6.21	\$6.19	\$6.13	\$6.75	\$6.32	\$3.69	\$2.63	71%
Apples	per kg	\$7.36	\$7.56	\$6.89	\$8.25	\$7.52	\$3.95	\$3.57	90%
Oranges	per kg	\$5.56	\$5.64	\$5.66	\$5.93	\$5.70	\$3.28	\$2.42	74%
Banana	per kg	\$7.28	\$10.47	\$4.99	\$6.86	\$7.40	\$1.70	\$5.70	335%
Potatoes	4.54 kg	\$19.89	\$16.10	\$19.85	\$15.75	\$17.90	\$4.79	\$13.11	274%
Onions	per kg	\$3.25	\$4.55	\$3.93	\$5.45	\$4.30	\$2.18	\$2.12	97%
Carrots	per kg	\$4.84	\$6.50	\$8.18	\$7.91	\$6.86	\$2.18	\$4.68	215%
Orange Juice	1L	N.A.	\$5.33	\$4.02	\$5.25	\$4.87	\$1.49	\$3.38	227%
Butter	454 g	\$4.90	\$4.99	\$6.53	\$6.22	\$5.66	\$3.99	\$1.67	42%
Canola oil	1 L	\$7.87	\$8.67	\$7.18	\$8.00	\$7.93	\$2.66	\$5.27	198%
Sugar	2 kg	\$6.73	\$8.19	\$6.82	\$8.55	\$7.57	\$3.69	\$3.88	105%

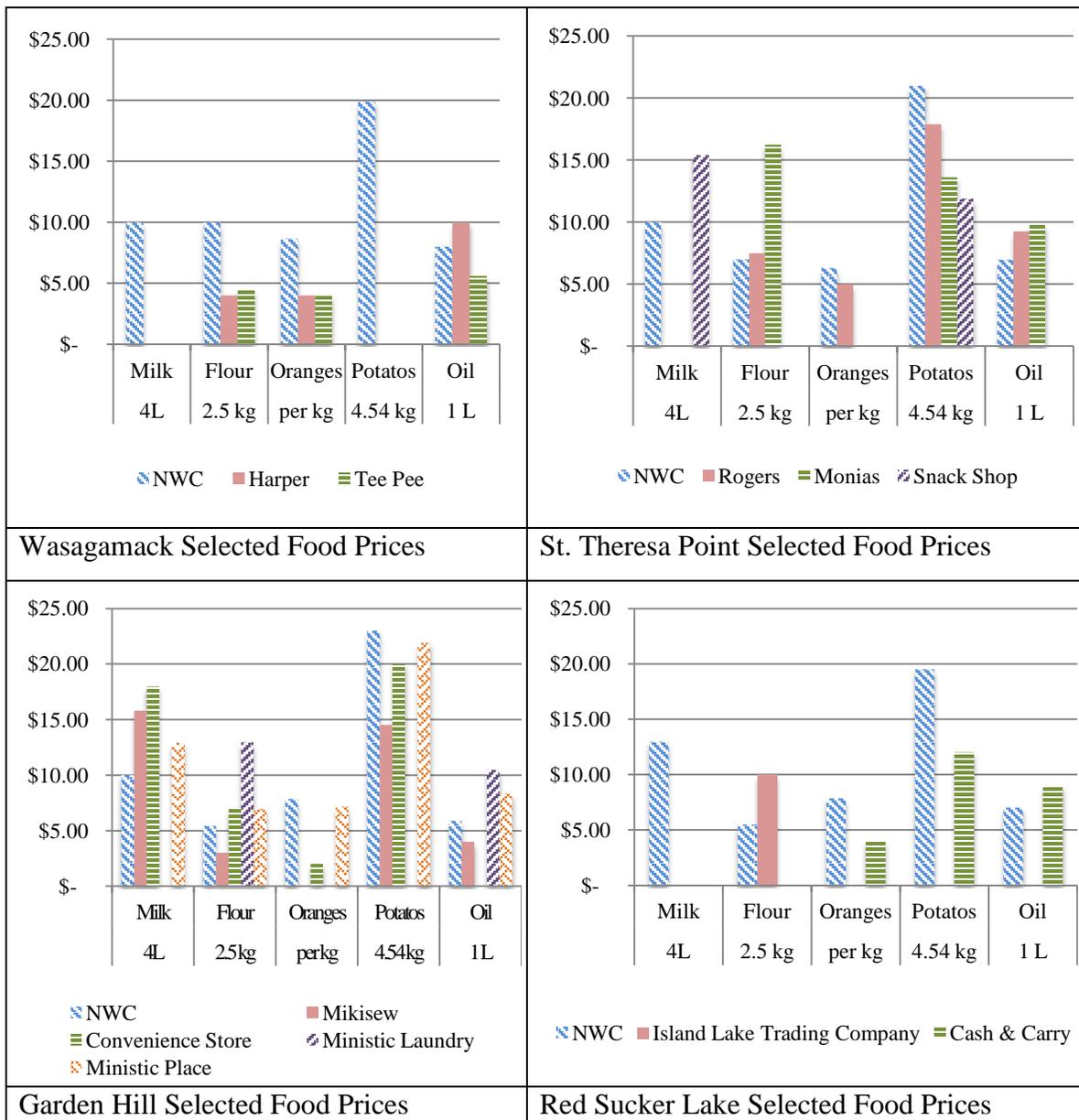
<sup>1</sup> Difference between average cost between all Island Lake First Nation communities and Winnipeg costs.  
<sup>2</sup> Percent increase in cost between Winnipeg prices and Island Lake First Nation's average price of food.  
WAS – Wasagamack First Nation  
STP – St. Theresa Point First Nation  
GH – Garden Hill First Nation  
RSL – Red Sucker Lake First Nation  
WPG – City of Winnipeg

Table 11 also reveals that 11 of the 18 selected food items presented were the least expensive in Wasagamack, the only Island Lake First Nation community without an airport; this may be due to the timing of the costing exercise. The summarized results of the food costing exercise for each community are presented in Appendix D.

Several food items including potatoes, flour, and oranges, among others, were least expensive at community owned and operated stores than at The Northern Store (see Figure 13); as one participant indicated,

“The Northern is more expensive than the other stores. Smaller stores are more competitive. – Participant, Garden Hill

**Figure 13: The Northern Store vs. Community Store Food Prices**



The RNFB divides the 67 perishables and non-perishables food items into their food groups to aid in comparing prices and Basket totals across communities. In Table 12, the 2009 food prices are illustrated within the RNFB food groups, and Basket totals in the Island Lake First Nation communities have been compared to the 2009 Winnipeg prices.

**Table 12: Cost of the Revised Northern Food Basket in Island Lake**

Food Group	Island Lake First Nations				Island Lake Ave	WPG	Diff <sup>2</sup>	% Increase <sup>4</sup>
	WAS	STP	GH	RSL				
Dairy products	\$70.32	\$66.53	\$68.64	\$67.78	\$52.57	\$36.73	\$15.84	43%
Eggs	\$2.53	\$3.11	\$2.80	\$2.97	\$2.85	\$1.93	\$0.92	48%
Meat	\$57.76	\$77.70	\$80.74	\$67.63	\$85.22	\$57.04	\$28.18	49%
Meat alt.	\$9.45	\$9.80	\$9.81	\$10.67	\$9.93	\$6.20	\$3.73	60%
Grain products	\$36.76	\$39.84	\$37.42	\$44.03	\$39.51	\$22.18	\$17.33	78%
Citrus/tomatoes	\$16.80	\$20.62	\$18.68	\$19.59	\$18.92	\$9.45	\$9.47	100%
Other fruit	\$78.15	\$87.68	\$65.55	\$80.06	\$77.86	\$35.73	\$42.13	118%
Potatoes	\$17.18	\$16.45	\$17.39	\$14.51	\$16.38	\$5.05	\$11.33	224%
Vegetables	\$68.43	\$65.25	\$69.37	\$68.12	\$67.79	\$31.40	\$36.39	116%
Oils & fats	\$11.18	\$8.98	\$10.11	\$10.69	\$10.24	\$6.88	\$3.36	49%
Sugar	\$2.02	\$2.46	\$2.05	\$2.56	\$2.27	\$1.11	\$1.16	105%
Misc. (add 5%) <sup>1</sup>	\$18.53	\$19.82	\$19.13	\$19.42	\$19.22	\$10.64	\$8.58	81%
<b>Total</b>	<b>\$389.11</b>	<b>\$418.32</b>	<b>\$401.68</b>	<b>\$407.91</b>	<b>\$404.26</b>	<b>\$224.40</b>	<b>\$179.86</b>	<b>80%</b>
<i>Difference From Winnipeg Cost<sup>3</sup></i>	<i>\$164.71</i>	<i>\$193.92</i>	<i>\$177.28</i>	<i>\$183.81</i>	<i>\$179.86</i>	-	-	-
<i>% Increase<sup>4</sup></i>	<i>73%</i>	<i>86%</i>	<i>79%</i>	<i>82%</i>	<i>82%</i>	-	-	-

<sup>1</sup>Miscellaneous items include coffee, tea, spices, condiments, and baking supplies.  
<sup>2</sup>Cost difference between the average price of the RNFB food group in Island Stores and Winnipeg.  
<sup>3</sup>Cost difference between the RNFB price in each First Nation and Winnipeg.  
<sup>4</sup>Percent increase in cost between Winnipeg prices and Island Lake First Nation's average price of food.  
WAS – Wasagamack First Nation  
STP – St. Theresa Point First Nation  
GH – Garden Hill First Nation  
RSL – Red Sucker Lake First Nation  
WPG – City of Winnipeg

The total cost of the RNFB ranged from a maximum of approximately \$418 in St.

Theresa Point to \$389 in Wasagamack, with an average RNFB cost of \$404 for the Island Lake First Nation communities. Wasagamack's cost is also 7% less than St. Theresa Point, where Wasagamack's foods are initially unloaded and shipped to the community.

The total cost of the RNFB in Winnipeg was approximately \$224. Consequently, the

RNFB in Island Lake costs between \$194 and \$165 more than Winnipeg, which is an increase in price of 86% to 73%.

### 4.3 Food Basket Affordability

In order to demonstrate affordability, the cost of the RNFB was compared to median family incomes for each of the four Island lake First Nation communities and was used to determine the percent of family income spent solely on food, if that family was to use the RNFB as a guide for food purchasing, and only purchased market-food (see Table 13). The 67-item Basket, as discussed in Chapter Three is based on a family of four and is representative of a regular diet, where there are no special dietary requirements for either medical needs or personal-belief systems. The RNFB may not be an accurate reflection of what is consumed in the average home; however, it does allow for price and affordability comparisons between communities and regions, and therefore aids in illustrating the disparity in healthy food prices between northern Manitoba and Winnipeg.

**Table 13: Affordability of the Revised Northern Food Basket in 2009**

Location	Cost per Week	Cost per Year	Median Family Income	Average Family Size	Average Household Size	Income Spent on Food (%)
Wasagamack	\$398	\$20,312	\$26,432 <sup>1</sup>	4.1 <sup>1</sup>	4.5 <sup>1</sup>	77%
St. Theresa Point	\$418	\$21,836	\$29,920 <sup>1</sup>	4.3 <sup>2</sup>	5.5 <sup>2</sup>	73%
Garden Hill	\$402	\$20,968	\$24,320 <sup>1</sup>	4.0 <sup>2</sup>	5.1 <sup>2</sup>	86%
Red Sucker Lake	\$408	\$21,293	\$26,891 <sup>3</sup>	3.8 <sup>2</sup>	4.6 <sup>2</sup>	79%
Winnipeg	\$224	\$11,714	\$52,641 <sup>1</sup>	2.4 <sup>2</sup>	2.9 <sup>2</sup>	22%
<sup>1</sup> Statistics Canada, 2007a,b,c,e <sup>2</sup> Statistics Canada, 2012b,c,d,e <sup>3</sup> Average of Wasagamack, St. Theresa Point, and Garden Hill median family incomes						

In Wasagamack the RNFB costs approximately \$20,312 per year for a family of four. On a median family income of \$26,432 (Statistics Canada, 2007a), this cost represents approximately 77% of a family's annual income. In St. Theresa Point, the RNFB costs

\$21,836 per year, representing 73% of a family's income. In Garden Hill, the RNFB costs \$20,968 and represents 86% of a family's income. In Red Sucker Lake, the RNFB costs \$21,293 and represents 79% of a family's income. While the National Nutritious Basket is usually used to determine the costs of a basket of healthy food for Winnipeg families, for comparison purposes, the cost of the RNFB was determined. In Winnipeg the RNFB costs approximately \$11,713 and represents 22% of a family's income. Consequently, the cost of the RNFB would represent 40% to 48% of a family's income in the Island Lake First Nation communities, if the price of foods were the same as in Winnipeg.

Note that the average family size is slightly greater than four in Wasagamack and St. Theresa Point, and that the average household size is greater than four in all four communities. Subsequently, the four-person RNFB may not be representative of annual costs for families with more than four persons. And, therefore the amount of income required to purchase the additional food is greater, potentially indicating a household food and/or income deficit, if families depended solely on market-foods.

#### **4.4 Household Food Security Survey**

A total of 162 household food security surveys were administered within the four Island Lake First Nation communities in July 2009, representing approximately 11% of households (n=1515) in the Island Lake First Nation Communities, with an overall response rate of 95%. In Wasagamack, 40 surveys were administered representing approximately 15% of the households (n=274). In St. Theresa Point, 40 surveys were administered representing approximately 8% of the households (n=524). In Garden Hill, 41 surveys were administered representing approximately 8% of the households (n=545).

And, in Red Sucker Lake, 41 surveys were administered representing approximately 24% of the households (n=172).

Marginal food insecurity is indicated by one positive response to the food security questionnaire, and can be indicated by positive responses concerning worrying or anxiety that the household would run out of food and/or relying on low-cost foods to feed children. Moderate food insecurity is indicated by 2 to 5 positive responses for adults and 2 to 4 positive responses for children, and is illustrated by behaviors including a compromise in either quantity or quality of food, not eating balanced meals and/or skipping meals because there wasn't enough money for food. Severe food insecurity is indicated by 6 or more affirmed responses for adults and 5 or more affirmed responses for children, and is marked by behaviors including feelings of hunger, losing weight, and not eating for day(s) because there wasn't enough money for food. Severe food insecurity can also be indicated by positive responses to questions concerning hunger, losing weight, and not eating for at least a day almost or some months (Health Canada, 2007; Tarasuk et al., 2013). A full description of the methods is offered in Chapter Three.

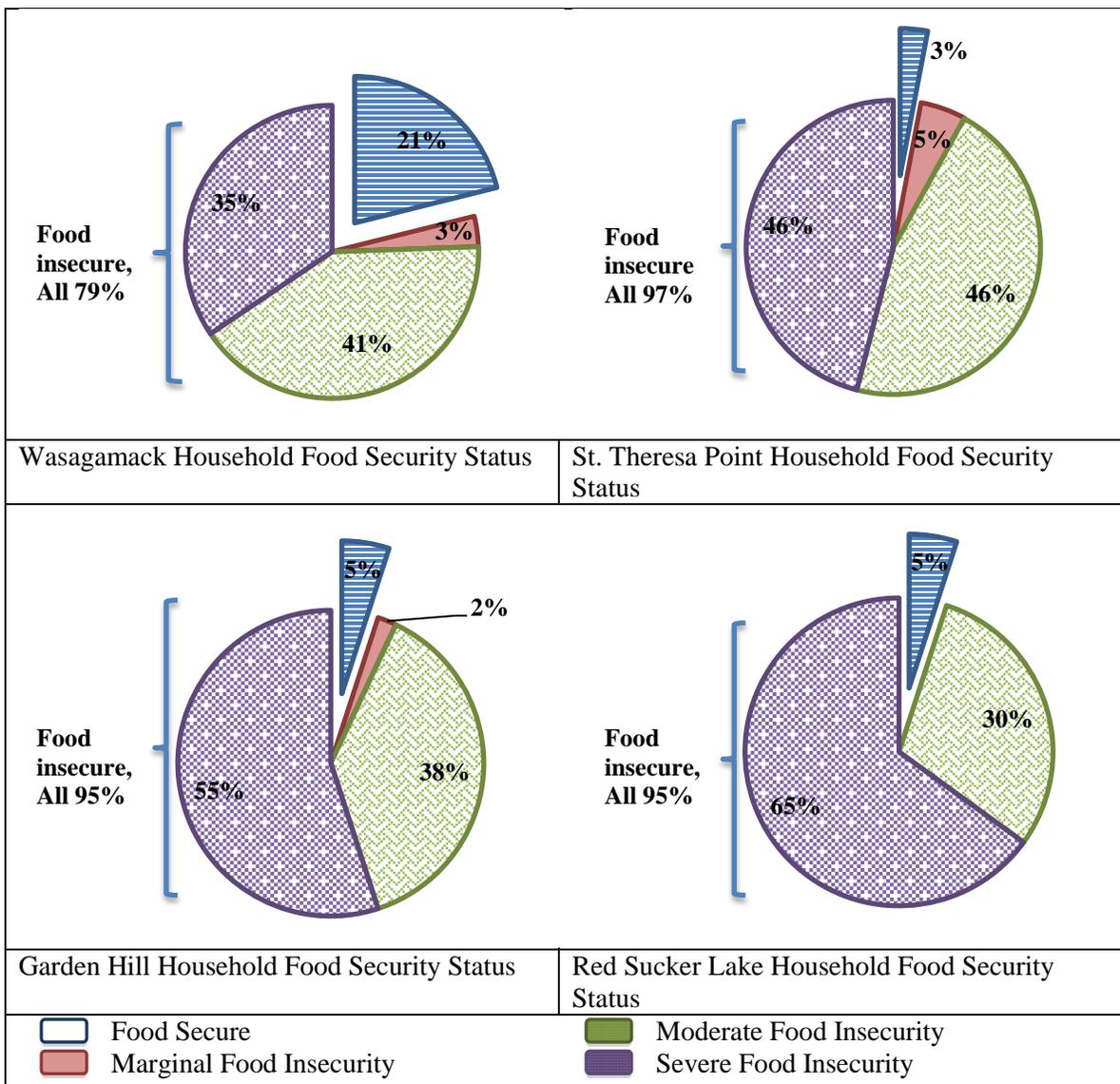
#### ***4.4.1 Household Food Security Status in Island Lake***

As illustrated in Figure 14, individuals that participated in the household food security survey in Wasagamack exhibited the highest rates of food security at 21%, compared to 5% in Garden Hill and Red Sucker Lake, and 3% in St. Theresa Point. Consequently, participants in Wasagamack exhibited the lowest overall food insecurity rate (including marginal, moderate, and severe food insecurity) at 79%, while participants in St. Theresa Point exhibited the greatest overall food insecurity rate at 97%. Participants in Red

Sucker Lake exhibited the greatest intensity of food insecurity, with a severe food insecurity rate of 65%, indicating that individuals within households are hungry, skipping meals, and/or not eating every day because there isn't enough money for food.

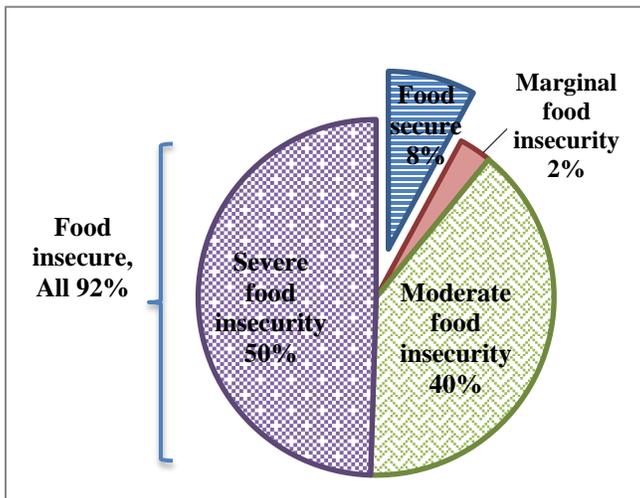
Participants in Wasagamack households exhibited the lowest intensity of severe food insecurity at 35%.

**Figure 14: Household Food Security in Island Lake, All Households**



Food security status information is also presented regionally in Figure 12, compiling the data from the four individual communities. The regional assessment revealed an average overall food insecurity rate of 92%, with 50%, 40%, and 3% of individuals within the participating households identifying as severely, moderately, and marginally food insecure, respectively as illustrated in Figure 15.

**Figure 15: Household Food Security Status within the Island Lake Region**



Responses to the household food security survey for both the adult and child scale for each community and the Island Lake Region are presented in Figures 16 and 17.

Individual community responses to the household surveys are also appended in Appendix E. One hundred and nineteen of the participants interviewed had children residing within the households (77% of households that were part of the study), and 35 households comprised only adults (23%). The child's parent who was responsible for purchasing food for the household answered the child-scale household food security survey.

The adult household food security scale responses reveal that the majority of participants (78%) in all four communities worried about running out of foods, a behavior indicative of marginal food insecurity. The survey also revealed that the majority of participant’s (78%) had run out of food and were unable to purchase more, and were unable to afford balanced meals (78%) behaviors indicative of moderate food insecurity. There was little variation between communities for these coping behaviors.

**Figure 16: Adult Household Food Security Survey Responses, All Households**

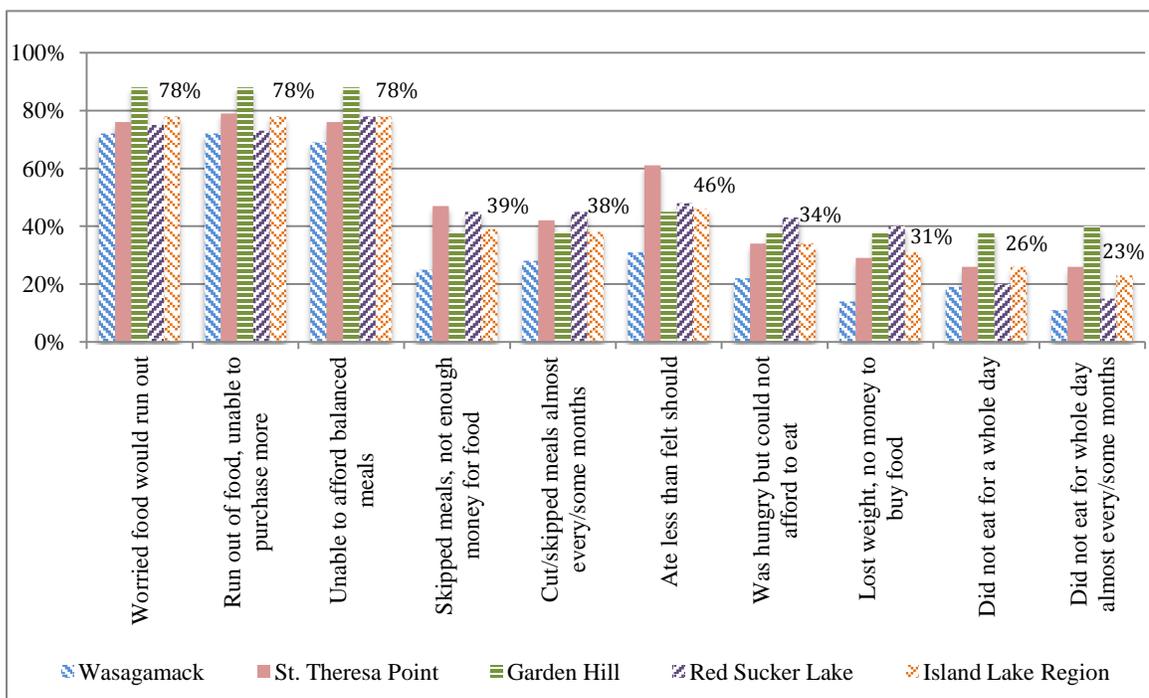
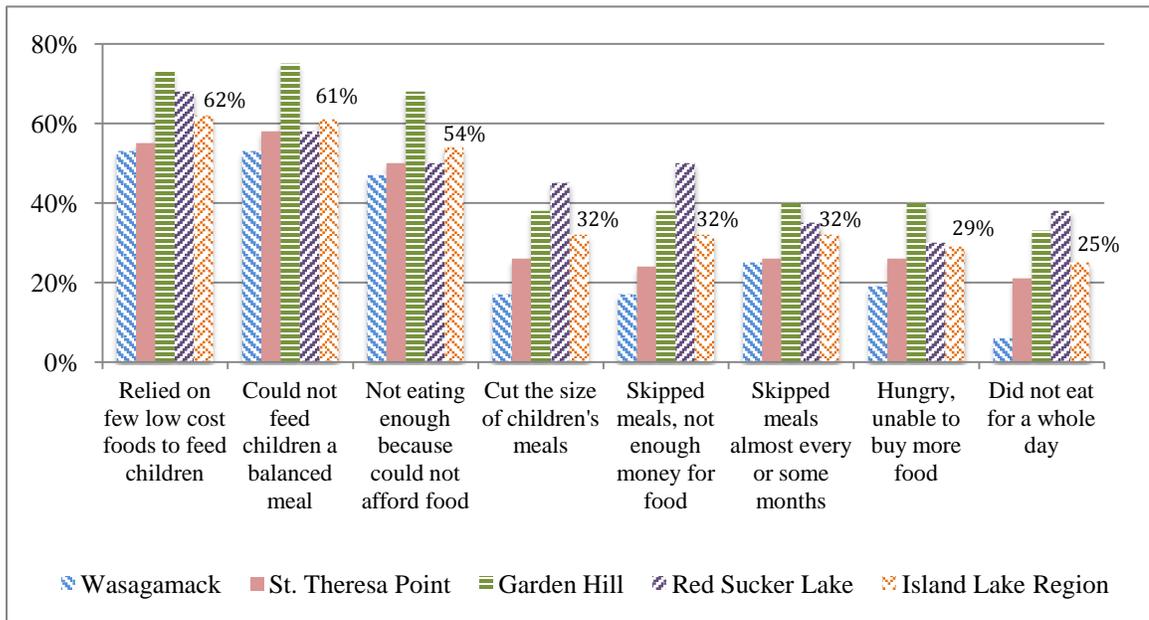


Figure 16 also reveals that 43%, 38%, 34%, and 22% of individuals interviewed in Red Sucker Lake, Garden Hill, St. Theresa Point, and Wasagamack, respectively, indicated that they have been hungry but could not afford to purchase more food (regionally 34%) a condition indicative of severe food insecurity. Likewise 38%, 26%, 20% and 19% of individuals interviewed in Garden Hill, St. Theresa Point, Red Sucker Lake, and

Wasagamack, respectively, revealed that they have not eaten for a whole day because there was not enough money for food (regionally 26%); 40%, 26%, 15%, and 11% indicated this behavior occurred almost every month or some months (but not every month) (regionally 23%). Although Red Sucker Lake participants experienced the highest rate of severe food insecurity, Garden Hill participants exhibited the highest rate of not eating for a day at 40%.

The child-scale survey reveals that the majority of participants in all four communities (62%) who have children in their homes relied on a few low cost foods to feed the children, a behavior indicative of marginal food insecurity (see Figure 17). There was some variation within the communities; 73% of participants in Garden Hill exhibited this coping behavior, while 53% did in Wasagamack.

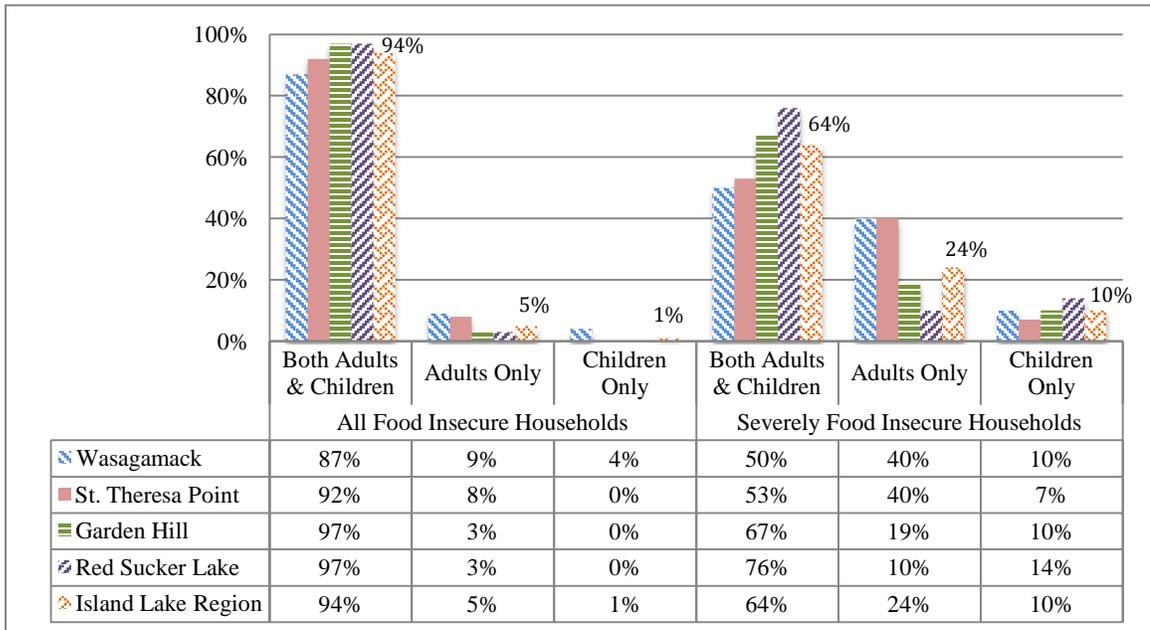
**Figure 17: Child-Scale Household Food Security Survey Responses, All Households**



The survey also revealed that the majority of participants (61%) were unable to feed the children a balanced meal, and that children were not eating enough because there was not enough money for food (54%), these behaviors that are indicative of moderate food insecurity. The survey also reveals that participants in Garden Hill and Red Sucker Lake exhibited the highest rates of behaviors associated with severe food insecurity and hunger. Participants revealed that 40%, 30%, 26%, and 19% of children were hungry in Garden Hill, Red Sucker Lake, St. Theresa Point and Wasagamack, respectively, because there was not enough money to purchase more food (regionally 29%). Likewise, 33%, 30%, 21% and 6% of participants in Garden Hill, Red Sucker Lake, St. Theresa Point and Wasagamack, respectively, indicated that children had gone without food for an entire day, because there was no food available and they were unable to purchase more (regionally, 25%). Indicators of severe child food insecurity within the four First Nation communities are consistently the lowest in Wasagamack.

The household food security survey revealed that 97% (n=115) of Island Lake households with children were food insecure: 42% (n=48) experienced moderate food insecurity and 58% (n=67) were experienced severe food insecurity. Food insecurity was experienced by both adult and child household members in 94% of Island Lake households that took part in the survey (see Figure 18). In 5% of those households only adults experienced food insecurity, and the child or children were food secure, and in 1% of the food insecure households only the child or children experienced food insecurity, while the adult members of the household were food secure, revealing that overall food insecurity is experienced by all members within food insecure households. Individual community results were similar to the Island Lake Regional results.

**Figure 18: Child and Adult Food Security Status in Households with Children**

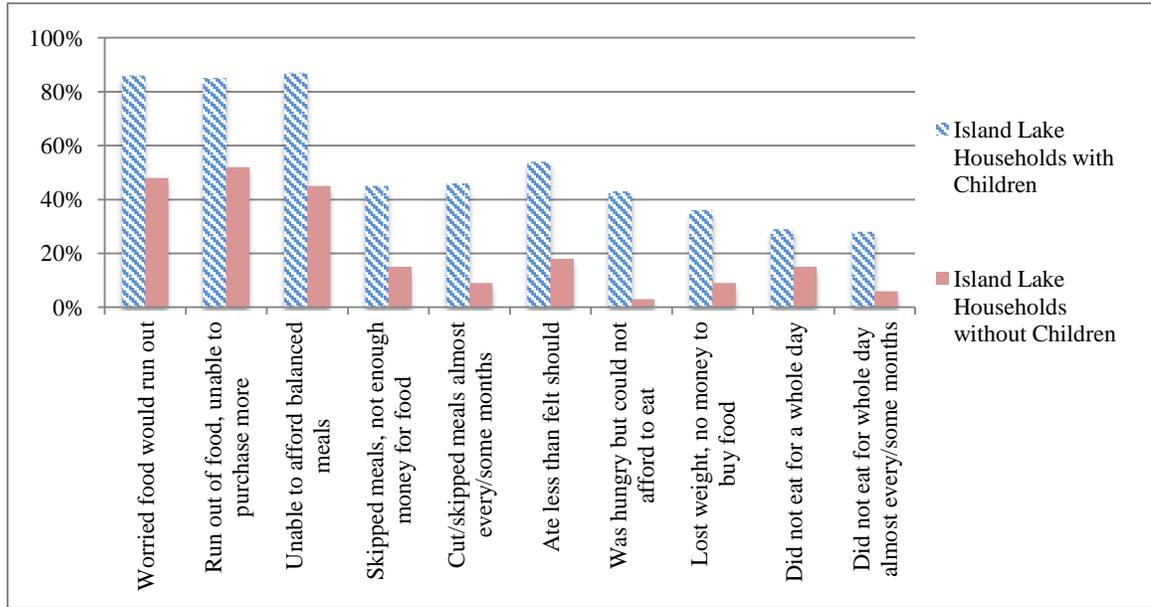


In 64% of food insecure households, both children and adults experienced severe food insecurity. In 24% of those severely food insecure households only the adults experienced severe food insecurity, while the child or children experienced either marginal or moderate food insecurity. In 10% of the severely food insecure households only the child or children experienced severe food insecurity, while the adult experience either marginal or moderate food insecurity. The results suggest that adults may be sacrificing the amount and/or types of food they consume themselves in order to provide for the child or children.

In households without children, adults experienced less food insecurity as illustrated within Figure 19. Eighty-six percent of individuals in households with children revealed that they worried that food would run out compared to 48% of individuals in households without children. Similarly, 43% of individuals in households with children indicated

that they have been hungry and unable to purchase more food, compared to 3% of individuals in households without children.

**Figure 19: Adult Food Insecurity in Households with and without Children**



#### 4.5 Community Initiatives in Island Lake First Nations

Semi-structured interviews were conducted with NHFI workers and ADI workers, regarding the prevalence and popularity of food-related initiatives; however, the effectiveness of the programs and initiatives within the communities was not specifically addressed and is considered out of the scope of this research.

In 2009, there was a variety of food and health related community initiatives within each of the four Island Lake First Nation communities. The NFHI, HEIFER International, and Manitoba Agriculture, Food and Rural Initiatives (MAFRI) fund many of the programs within the communities that have succeeded in increasing access to healthy food and

reducing the cost of healthy food. Table 14 provides a summary of the programs that are available in each community during the summer of 2009.

**Table 14: Island Lake Community Initiatives**

Program	Wasagamack	St. Theresa Point	Garden Hill	Red Sucker Lake
School garden	0	1	0	1
School Greenhouse	0	1	Planned	1
Community gardens	1	1	0	0
Berry cultivation	Yes	Yes	Yes	Yes
Poultry/egg production <sup>1</sup>	Yes	Yes	Yes	Yes
Household hunting, fishing, gathering <sup>2</sup>	88%	90%	68%	85%
Freezer loans	Yes	Yes	Yes	Yes
Airport Walk-in Freezers	No	Yes	Yes	Yes
School and/or snacks	Yes	Yes	Yes	Yes
Traditional potlucks	Yes	Yes	Yes	Yes
Community kitchens/meal programs	No	Yes	Yes	Yes
Food Mail/Nutrition North Canada	Yes	Yes	Yes	Yes
Cooking classes and/or nutrition classes	Yes	No	Yes	No
Agricultural training, tools	Yes	Yes	Yes	Yes
<sup>1</sup> Implemented 2007 to 2012, and under review in 2013				
<sup>2</sup> Percent of individuals interviewed				

St. Theresa Point has cooking circles that allow individuals to get together and cook and share healthy food for the week. Garden Hill has a “Meals on Wheels” program for Elders, serves an Elder lunch every second week, and has other Elder meal programs. Red Sucker Lake has a prenatal hamper program, providing healthy foods to expectant mothers.

Wasagamack has weekly cooking and nutrition classes. Garden Hill has a multitude of classes including, weekly healthy cooking classes; food preservation classes; a weekly diabetes clinic; and also hosts annual diabetes awareness walks for the community and

annual diabetes camps for the children. Several of the communities now have additional programs available.

#### **4.6 Chapter Summary**

This chapter presented data from household food security surveys and questions regarding the prevalence of hunting, fishing and gardening, barriers to food accessibility, and current initiatives to address food insecurity within the communities. The data presented in this chapter is congruent with the existing literature and provides the results to address the Objectives of this thesis.

The cost of the RNFB ranges from \$389 to \$418 per week for a family of four, with an average cost of \$404 within the Island Lake communities, compared to \$224 in Winnipeg presenting a difference of \$180. Surprisingly, without an airport Wasagamack had the lowest cost of food, possibly due to the timing of the pricing exercise.

There was also difference between prices in Island Lake communities compared to those in Winnipeg. For example bananas and potatoes cost approximately four and one-half and four times as much in Island Lake than in Winnipeg, respectively. Milk costs almost three times as much in Island Lake than in Winnipeg. Also, several food items including potatoes, four, and oranges, among others, were least expensive at First Nation owned and operated stores than at The Northern Store.

The top three barriers to accessing healthy food as identified by households were as follows: the elevated cost of healthy food and shipping (66%), a lack of fresh produce and variety (27%), and the lack of employment opportunities within the communities

(4%). The RNFB food costing audit and subsequent comparison of food costs to median annual family income further illustrate that healthy food, when it is available, is unaffordable.

The household food security survey revealed high levels of food insecurity in all four communities, with 92% of households in Island Lake communities experiencing some level of food insecurity, ranging from anxiety and worry that food would run out to hunger. Fifty percent of households experienced severe food insecurity characterized by a reduced intake of food and disrupted eating patterns. The survey results also illustrated that households with children experienced a greater level and severity of food insecurity than households without children. The results also suggest that adults may be sacrificing the amount and/or types of food they consume themselves in order to provide for the child or children.

It is obvious that food insecurity rates are very high within the Island Lake First Nation communities. However, communities and funding agencies have begun to respond to the widespread problem with a number of initiatives to address food insecurity and the associated health complications. Communities have begun to embrace gardening and poultry production, and families continue to hunt and fish for sustenance. Additionally, there are a number of breakfast/lunch and snack programs that target school-age children, the most vulnerable population.

## **CHAPTER FIVE: DISCUSSION**

The results of the household food security survey, food-costing audit and interview reveal that household food insecurity rates are elevated, with 92% of participants within the Island Lake First Nation communities indicating some degree of food insecurity. These results parallel and agree with the results of other food security studies in First Nations communities within Manitoba, Northern Ontario, British Columbia, and Nunavut.

Additionally, the results of the food-costing audit revealed that the Island Lake communities may be devoting upwards of 86% of their annual income to food alone. Considering that the cost of the RNFB does not include personal care products, cleaning supplies, special dietary food products (diabetes-appropriate foods or gluten-free foods), convenience/take out foods, or the cost of hunting or fishing equipment, the true cost of consuming a healthy diet in the Island Lake First Nation communities is likely greater than presented, further supporting the notion that healthy food and the RNFB is unaffordable.

This Chapter will reflect on the disparity that exists in food costs and income devoted to food, between remote northern communities and southern urban locations and will also consider the appropriateness of the RNFB, and potential solutions to make it more effective. This chapter will also compare the results of the household food security survey to other studies including the “off-reserve” Aboriginal population included in Health Canada’s latest national CCHS studies.

## **5.1 Accessibility and Affordability of the Revised Northern Food Basket**

Is a healthy diet, represented by the RNFB, accessible and affordable for most families within the Island Lake First Nation communities? The short answer is no. Healthy food is not affordable and geography, policy decisions, education, and socio-economic realities comprise a large and diverse role in supporting this answer.

### ***5.1.1 Accessibility***

The three major barriers to accessing healthy food within the Island Lake First Nation communities as identified by households in this study were as follows: the costs of healthy food and shipping (66%), a lack of fresh produce and variety (28%), and a lack of income and employment (4%). Community members in Fort Severn First Nation and Kugaaruk, Nunavut also indicated that food costs (85-89%), the lack of fresh healthy food and variety (64-68%), and poor quality (64-66%), were key barriers to accessing healthy foods in their community. The Manitoba FNFNES 2010 study also reported that the high cost of food and lack of retail competition are barriers to accessing nutrition and healthy food in First Nation communities in Manitoba, however there are no statistics provided. Ultimately, these concerns are similar in many First Nation communities and often that healthy food, when it is available, is unaffordable.

Participants in the Island Lake communities indicated that more stores are required to increase food security within their communities. Recent research agrees with this communities' hypothesis. Thompson et al. (2012) predicts that an increase in number of full grocery stores in a community has the potential to increase the level of food security from 25% where there is no store in the community, to 69% where there are three full

grocery stores in a community. This could have a significant economical and social impact on the communities if stores were First Nation-owned and operated as a cooperative. Currently, the Northern Store, owned by the North West Company (NWC), enjoys a food-monopoly in most northern and remote communities in Manitoba. While the Northern Store does offer some employment to community members, its parent company, NWC, has policy of hiring managers external to the community (Thompson et al., 2012). In addition to filtering money out of the communities, the NWC management model limits the ability for human resource and capacity development. A cooperative model-run store has the potential to have significant impact on food pricing, human development and economic opportunity within the First Nations and “may be more consistent with community values of sharing and reciprocity than the Northern Store” (Socha, 2011, p.50) as illustrated by the Nunavik experience discussed in Chapter Two.

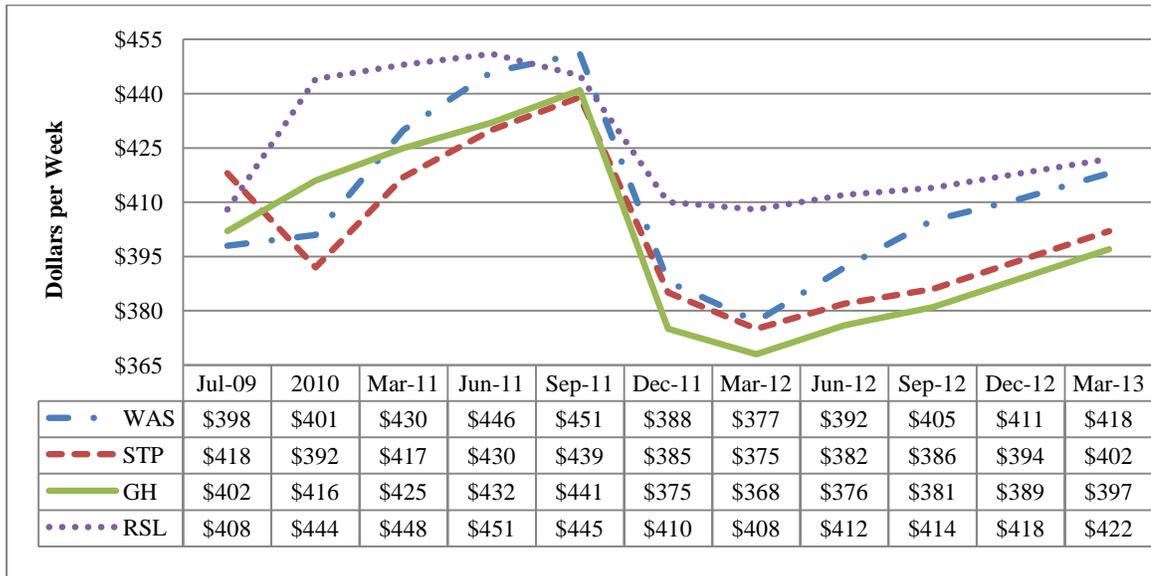
## **5.2 High Food Costs**

In 2009 the RNFB total was between \$398 and \$418 per family of four per week (average \$404), potentially occupying 73% to 86% (average 79%) of a family’s income in the Island Lake First Nations. After healthy food is purchased (using the RNFB as a guide), families have between \$3109 (Red Sucker Lake) to \$8804 (St. Theresa Point) left in their annual household budget for other household and personal essentials. Comparatively, the cost of the RNFB in Winnipeg declines to \$224 per week for a family of four, representing 22% of a family’s annual income; a difference in cost of \$180 compared to the Island Lake communities.

Similar results have been documented. The Thompson et al. (2011) and Thompson et al. (2012) studies documented the price of Health Canada's NNFB to and discovered that northern and remote First Nation families in Manitoba are spending 50% to 80% of their income on food alone. The Manitoba FNFNES 2010 found that the cost of the NNFB in northern and remote First Nation communities was \$327 compared to a cost in Winnipeg of \$145 per week, resulting in a cost difference of \$182 (Chan et al., 2012). Similarly, the RNFB costs tracked by AANDC since 2010 in the Island Lake communities have revealed an average difference of \$170 when compared to Winnipeg, further supporting the observations of this study. Although the price gaps between the north and Winnipeg are consistent with this study, we cannot be sure if samples collected by other researchers are representative of each community and/or region. For example, all costing exercises within the Island Lake communities completed by INAC, only take into account food costs and availability at the Northern Stores. Additionally, the RNFB and NNFB consist of different items potentially impacting the utility of the Chan et al. (2012) and Thompson et al. (2011 and 2012) reports for comparison purposes, as discussed in Chapter Two.

Costs obtained by AANDC for the RNFB within the Island Lake First Nations are presented in Figure 20 below (the 2009 data were obtained as part of this thesis research). Red Sucker Lake on average has the highest food costs. The graph illustrates that food costs are lower in the winter months and peak during the summer periods, likely due to winter road access and consequently cheaper shipping costs during this time.

**Figure 20: RNFB Cost in Island Lake First Nation Communities (1995 to 2013)<sup>1,2,3</sup>**



Published RNFB costs available after April 1, 2011, the Nutrition North Canada programs implementation date, indicate that the cost of the RNFB has decreased in the Island Lake communities by approximately \$20 (4.9%), and by an average of \$25 (5.6%) in all Canadian communities eligible for the full subsidy from March 2011 to March 2013. According to Statistics Canada, food prices in the rest of Canada increased by 4% during the same time period (as quoted in Government of Canada, Nutrition North Canada, (n.d.(b))).

There are no published data regarding the cost individual food items within the RNFB, therefore it is difficult to determine if subsidies are indeed being applied. In 2011, The Northwest Company stated that consumers in eligible communities should expect to see prices on some items decrease by as much as 20% (The Northwest Company 2011). For

<sup>1</sup> Government of Canada, Nutrition North Canada, (n.d.(a)).

<sup>2</sup> Government of Canada, Nutrition North Canada, (n.d.(b)).

<sup>3</sup> AANDC, (n.d.(b)).

discussion purposes, the NNC subsidy was applied to the RNFB eligible foods and associated weights to determine the potential savings that could be realized by households in the Island Lake communities using the 2009 food costing data (see Table 15).

**Table 15: RFNB Costs Before and After Application of NNC Subsidy**

Location	Cost per Week Prior to Subsidy	Cost per Week After Subsidy	Subsidy Savings per Year	Median Family Income	Income Spent on Food Prior to Subsidy (%)	Income Spent on Food After Subsidy (%)
Wasagamack	\$389	\$332	\$2,964	\$26,432 <sup>1</sup>	77%	66%
St. Theresa Point	\$418	\$358	\$3,160	\$29,920 <sup>1</sup>	73%	62%
Garden Hill	\$402	\$344	\$3,017	\$24,320 <sup>1</sup>	86%	74%
Red Sucker Lake	\$408	\$352	\$2,909	\$26,891 <sup>3</sup>	79%	68%
Winnipeg	\$224	N.A.	N.A.	\$52,641 <sup>1</sup>	22%	N.A.

<sup>1</sup>Statistics Canada, 2007a,b,c,e  
<sup>2</sup>Statistics Canada, 2012b,c,d,e  
<sup>3</sup>Average of Wasagamack, St. Theresa Point and Garden median family incomes

Currently eligible foods have two subsidy rates, “high” and “low” set at \$1.60 and \$0.05 per kilogram respectively, within the Island Lake First Nation communities. Once the subsidy is applied, we can see that the cost of the RNFB would decrease by approximately \$3,013 (approximately 17% overall), and the potential income spent on food if using the RNFB as a guide decreases by approximately 12%. The RNFB data from AANDC reveal that the basket prices have been consistently over the cost predicted after the application of the subsidy. Additional data throughout 2013 and beyond are required to determine what effect on food costs the subsidy may have in the long term within the Island Lake First Nation communities.

### ***5.2.1 Is the Revised Northern Food Basket an Appropriate Food Costing Tool?***

While the RNFB is a good indicator of the cost of market-based food, it has several major limitations, some of which were discussed in Chapter Three. One of the largest pitfalls of the food costing tool is that it does not include country foods. In the study area, 68% to 90% of participants said their household hunts, fishes, or otherwise receives country foods. Other Manitoba studies have shown that 85% of adults consume country food (FNIGC, 2012) and the average First Nation person consumes 45g of country foods per day per person (Chan et al., 2012), accounting for ~4% of the RNFB weight. Studies in British Columbia First Nation communities indicate that First Nations people are consuming between 37g to 118g of country food per day per person (average 67g) accounting for 3% to 9% of the RNFB weight (Chan et al. 2011). Other studies have also shown country food consumption to account for 11% of the RNFB weight (Lawn and Harvey, 2003). These consumption patterns illustrate that country foods in home households are an important food component, and in order to understand food security in its entirety within First Nation communities, country foods need to be considered in both a food costing tool and household food security survey. Many First Nations people also recognize that meeting food requirements solely through the supply of country foods would be difficult, due to population growth, the decline the abundance of wildlife, and the presence of contaminants within some country foods (Chan et al., 2012; Rudolph and McLachlan, 2013). Indeed, even though 68% to 90% of Island Lake households revealed that they consumed country foods, the food insecurity rate was very high. Subsequently, there are critical barriers to obtaining enough country foods for a balanced healthy diet

such as the cost of equipment, declining habitat, and increasing distances to hunting areas, among others.

A more culturally appropriate food-costing tool would include the costs associated with hunting and fishing, such as the cost of equipment, cost of travel, distance travelled, and level of effort required, for not every hunt is successful. The tool should also be specific to the region to reflect food consumption preferences and environmental realities. For example, sardines and fish sticks are included within the RNFB; however, most individuals within the Island Lakes region do not consume these products, as they live on a large fresh water lake with plenty of fish available either through fishing or through traditional family sharing practices. Also, if resource development and other industry have affected traditional hunting, fishing and gathering areas within a First Nations Resource Management Area and/or Traditional Area, costs associated with increased travel could also be taken into account. Such a tool would need to be created by individual communities and/or regions to allow for adaptation to lifestyles within those areas and to reflect on foods available within the communities and their consumption patterns, and to make it meaningful to the communities in which the tool is ideally supposed to serve.

The RNFB was created by government and has been perceived as a colonialist tool by Socha et al., 2011. The list of foods is determined by AANDC and encompasses a truncated list of 67 food items, which may not be representative of what individuals are consuming and what is available in the community. Additionally, it does not include convenience foods such as frozen pizza, which has shown to be a high frequency food

purchase with 75% to 93% of households purchasing this product (Lawn and Harvey, 2003; Lawn and Harvey, 2004). The RNFB also does not include cleaning supplies and food storage supplies that are necessary for safe food handling. A First Nations led food expenditure study would aid in creating a more appropriate list of market-foods to be monitored, and would be more reflective of First Nations and Northern communities food preferences and food availability.

Given that many of the available fresh foods are reported to be in poor quality, it would be helpful to supplement the tool with food quality ratings and the collection of information regarding percent of foods offered for sale that are past their 'best before date' and food availability, to get a more accurate representation. I believe this would be a welcomed tool by the Island Lake communities, especially Red Sucker Lake where participants indicated that the Northern Store often ran out of fresh produce, and when it was available it was in poor quality.

While the changes suggested above may be more appropriate for First Nations communities and provide a more accurate reflection of food costs within specific communities, such a specific food-costing tool may lose its utility for comparing across communities in the north and to the south, and could complicate the tracking of market-food costs over time. The use of one tool over another would depend on what one is attempting to accomplish by the costing exercise.

### ***5.2.2. Large Percentages of Household Budgets are Devoted to Food Costs***

Many food security reports and academic research have linked food insecurity to inadequate household income. Family income can be used as one indicator of poverty and as such to determine purchasing power for market-based food baskets. There are several measures of poverty available in Canada including the Low-Income Cut-Off (LICO), the Low-Income Measure after tax (LIM-AT) and the Market Basket Measure (MBM); however, the LICO depends on the consumer price index, and does not take into account the higher costs of goods and services in northern Canada and may not a representative measure.

The LIM-AT for a family of four consisting of two adults and two children was \$30,358 in 2006 (Statistics Canada, 2008) and the 2006 MBM<sup>1</sup> for rural Manitoba four-person family was \$27,535 (Statistics Canada, 2013). Family incomes within the Island Lake First Nation communities ranged between \$24,320 and \$29,920 (Statistics Canada, 2007a,b,c,d) in 2006, revealing that Island Lake communities are below the LIM-AT and MBM thresholds (with the exception of St. Theresa Point), and indicating that the average family in the communities cannot afford the required basic necessities to enjoy a basic standard of living.

Generally, low-income families devote a larger percentage of their income to basic necessities including food, shelter and clothing (Statistics Canada, 2008). But what is a reasonable percentage of income to devote solely to food costs? The Dietitians of Canada

---

<sup>1</sup> The Market Basket Measure “is a measure of low-income based on the cost of a specific basket of goods and services (food, clothing and shelter) representing a modest, basic standard of living” (Statistics Canada, 2013, p. 9) for a family of four, with measures for each province and size of community.

indicate that “a monthly household food cost of not more than 15% of household net income is considered affordable” (Alberta Community/Public Health Nutritionists Food Security Subcommittee and Dietitians of Canada, 2008, p.1). According to the most recent base for low-income cut-off (LICO), “the average family spent 43% of its after-tax income on food, shelter, and clothing” (basic necessities) (Statistics Canada, 2013, p.6). Families in Island Lake First Nation communities are potentially devoting upwards of 86% of their annual family income to food alone, which surpasses the Dietitians of Canada standard and Statistics Canada’s LICO spending threshold, further supporting that the Island Lake First Nation communities are unable to afford the RNFB and the basic necessities required for a healthy life.

In order to place Island Lake’s food costs in perspective, we can compare the potential upper limit of 86% income devoted to food, on a provincial, national and an international scale. Statistics Canada’s *Survey of Household Spending, 2010* report found that Manitoban households spent approximately \$7,100 annually on food expenditures, representing 11% of Manitoban’s median annual after-tax income (or 15% of their annual expenditures) for a family of two or more persons (Statistics Canada, 2010)<sup>1</sup>. Canadians on average spent approximately \$7,422 on food in 2010, representing approximately 11% of their family income after tax, (or 14% of their annual expenditures) (Statistics Canada, 2010).

Internationally, households in the United States allocated approximately 7% of their annual expenditures on food, the United Kingdom 10%, Australia 11%, Sweden 13%,

---

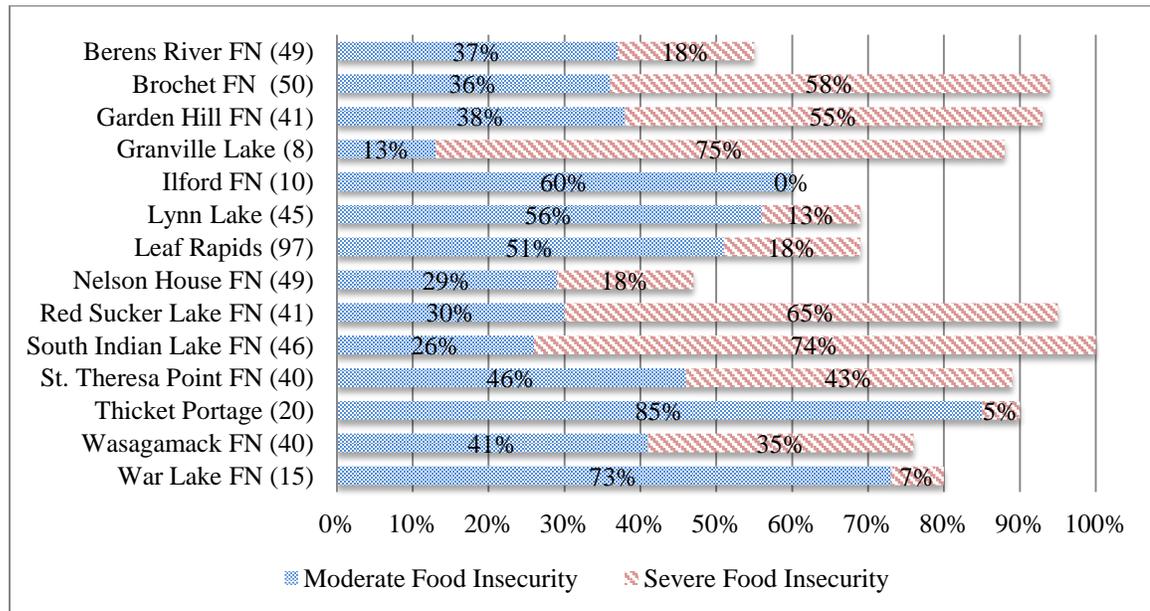
<sup>1</sup> Median after-tax income of a Manitoban family of two or more persons was \$64,500 in 2010. Statistics Canada. (2010).

Japan 15%, Mexico and China 23%, Bolivia 28%, Kenya and Pakistan 42% and the highest percentage of household expenditures devoted to food in 2010 were in Cameroon at 47% (Meade, 2011). The Island Lake First Nations and other northern and remote First Nations and communities devote a higher percentage of their income and consequently their expenditures to food, than any other country reviewed, including less developed countries. Additionally, Island lake First Nations and other northern and remote First Nations devote greater than 63% of their income to food alone, surpassing the Government of Canada's low-income cutoff level.

### **5.3 Prevalence of Food Insecurity in the Island Lake First Nation Communities**

To provide an evaluation of the prevalence of food insecurity in northern Manitoba, the Island Lake results have been compared to Thompson et al. (2011) and Thompson et al. (2012) food security results; and to other provincial and national studies, including Health Canada's CCHS 2011 study. Figure 21 illustrates the levels food insecurity within 14 northern and First Nation communities, and reveals that all of the Island Lake communities with the exception of Wasagamack are amongst the top five communities experiencing the highest rates of food insecurity. The prevalence of food insecurity is significantly associated with geographic location and degree of isolation (Thompson et al, 2011; Thompson et al, 2012; Tonn, 2011). Communities connected via all-season road (Lynne Lake, Leaf Rapids and Nelson House First Nation), with the exception of South Indian Lake First Nation have the lowest rates of food insecurity; albeit still elevated when compared to "off-reserve" Aboriginal households and non-Aboriginal households in Manitoba.

**Figure 21: Household Food Insecurity in 14 Northern Manitoba Communities (2009)<sup>1</sup>**



An all-season road linking the Island Lake communities to Norway House Cree Nation, which 26% of Island Lake participants that identified the need for, is being planned and will elevate some of the pressures of high food costs. However, the completion date of the primary road is between 2035 and 2045; with the final road being completed by the end of the century (ESRA, personal communication, February 28, 2013).

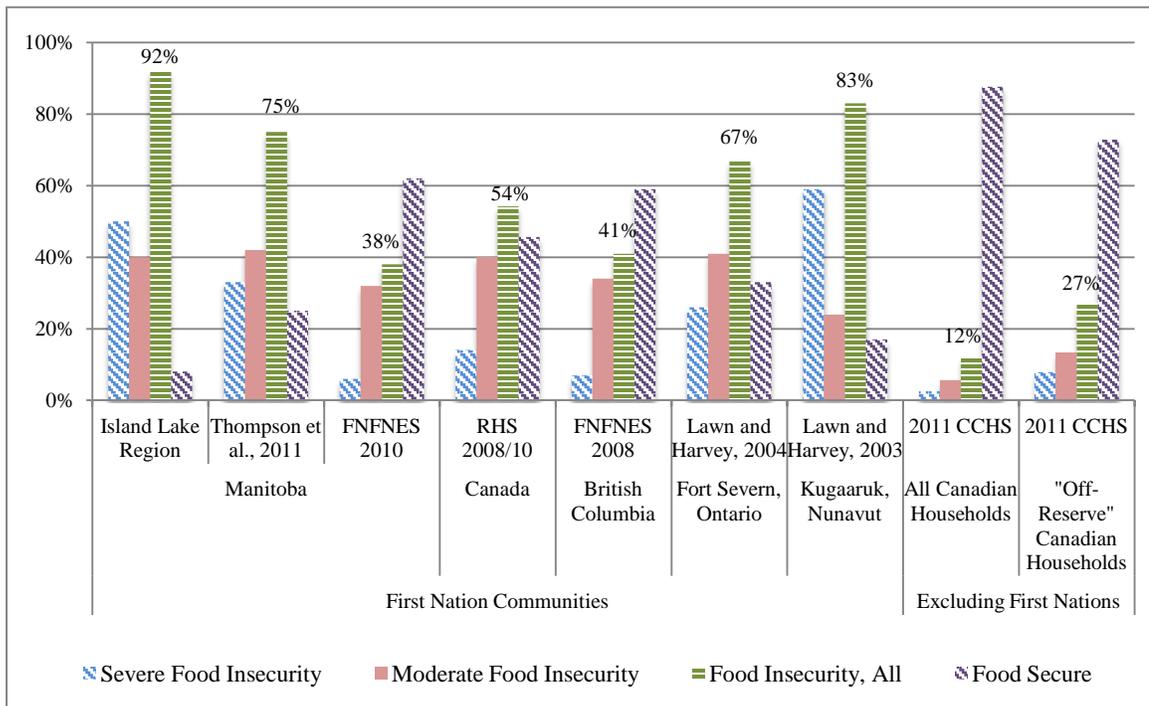
The assumption by the community and government is that once an all-season road is constructed, the prices of foods will decline due to less expensive shipping costs. While Thompson et al. (2012) predicted that access to all-season roads had a significant positive effect on the level of food security; however, it does not hold true for every community

<sup>1</sup> Derived from Thompson et al. (2011). The four communities of Lynne Lake, Leaf Rapids, Nelson House First Nation, and South Indian Lake First Nation are connected to an all-season road. The communities of Ilford, Thicket Portage and War Lake First Nation are connected to larger centers via rail, air or winter road access. All remaining communities have air and winter road access. Berens River First Nation, is also connected via barge access to the south in the ice-free seasons.

and is not the “silver bullet” for elevating high food cost and food insecurity rates in First Nation communities. Food insecurity is a complex issue within First Nation communities, which is steeped in racism, colonialism, and underdevelopment. For example, South Indian Lake First Nation is connected by an all-season road with the nearest urban center located 345 km south; however, the community experiences 100% food insecurity, with a 74% severe food insecurity rate (Thompson et al., 2011). South Indian Lake First Nation attributes their food insecurity to the relocation of their community in the 1970’s due to hydro-electrical development and resulting flooding of their community and surrounding lands, which also impacted their commercial fishery and subsistence economy (Thompson et al., 2011). Thompson’s study also illustrates that communities located in closer proximity to urban centers have decreased food security rates, further illustrating that food security issues are complex and requires a diverse initiatives to elevate food insecurity.

A comparison of the Island Lake results to other First Nation food security studies in Manitoba, Northern Ontario, and British Columbia, illustrate that the Island Lake area experiences higher rates and greater depths of food security than the First Nation communities represented in these studies (see Figure 22). The contrast between Aboriginal people living on and “off-reserve” is shocking. Aboriginal people living “off-reserve”, enjoy a food security rate of approximately 73% compared to a dismal rate of 8% in the Island Lake Region. However, “off-reserve” Aboriginal people still sustain a food security rate 15% below the general population of Canada.

**Figure 22: Comparison of Food Insecurity Rates in Island Lake to Canadian Studies**



This evaluation has demonstrated that the communities within the study area are amongst the most food insecure and hungry in Canada. The high costs of fresh healthy food, low availability of healthy foods, poor quality of healthy foods, and lack of a living wage/income reinforces the high levels of food insecurity, and may explain why children in Island Lake have the highest rate of pediatric diabetes in North America (Amed et al., 2010; Government of Manitoba, 2003; Thompson et al., 2011).

**5.3.1 Is the Household Food Security Survey a Culturally Appropriate Measure?**

Similar to the RNFB, the household food security survey is useful for making comparisons between communities and different populations. Complications for comparisons between Aboriginal communities and non-Aboriginal communities may

arise however, due to the way in which the questions were phrase and developed. During the administration of the surveys in each of the Island Lake First Nation communities, the term “balanced meal” needed further explanation and on occasion the phrase “skipping meals” also need further explanation, which led the researcher to question the utility of the survey tool within First Nation communities. Lawn and Harvey (2003) tested the survey with Inuit interviewers and found that several modifications were required in order to make the tool more culturally appropriate within the Inuit community. Lawn and Harvey (2003) found that to be more culturally appropriate, the questions should be less direct and prefaced with “Some families might say”. Additionally, they modified the survey to reference “healthy meals”, which respondents found more meaningful than the term “balanced meal”.

Additionally, “the food security scale does not measure food safety, nutrition, availability of food through socially acceptable channels, or community-led factors including the nature and sources of the available food supply” (Bickel et al., 2000, p.16). A food security measure employed within First Nation communities should include traditional resource and food sharing practices, as this can be an important channel for food acquisition.

For this survey to provide a true reflection of household food security within Aboriginal communities, the survey needs to be vetted by an Aboriginal organization, to make it more culturally appropriate. For example, the survey requests participants to recall a 12-month period; however, in First Nation communities it may be more appropriate to measure food security according to seasons. This method of recall may capture market

based price fluctuation in food commodities and seasons where traditional foods are more abundant.

The survey needs to allow for further explanation of conditions and behavior, and should also incorporate questions regarding traditional food-sharing practices to understand other coping mechanisms that are unique to First Nation communities. Households in First Nation communities are more likely to be multi-generational than southern households. Therefore several surveys may need to be administered in each household if each family is purchasing their own market-foods. To address multi-generational household and food security status, a separate scale should be created for senior citizens (Elders), as Elders may rely on traditional food sharing practices and community food initiatives, such as “meals on wheels” more so than other age-groups, and as a result may be a vulnerable population.

The survey should also capture the frequency or duration of coping behavior to fully understand the depth and severity of food insecurity. Finally, the survey would offer better insight if demographic and income data was collected alongside, which would help identify particularly vulnerable populations within the greater population.

#### **5.4 Evaluation of Community Initiatives**

Gardening can have a significant effect on access to healthy and nutritious foods, which are otherwise too expensive or unavailable aiding to de-commodify food. Gardening is a traditional source of food for Aboriginal people, a practice that had been absent due to the effects of the residential school system, and appropriation of lands, among other causes

(LaDuke, 2002; Rudolph and McLachlan, 2013; Thompson et al., 2012). However, gardening in northern Manitoba is gaining in popularity and has grown 45% since 2009 (Fieldhouse and Thompson, 2012). Schools have been leaders in gardening programs in the north by working healthy eating and gardening into their curriculums and activities, introducing children to foods they may not normally wish to eat, and encouraging excitement about eating healthy foods and gardening.

Gardening in the north has its unique challenges including: a shortened growing season, making some vegetables and fruit impossible to grow; the need for soil amendments and equipment; lack of consistent available funding; and an ongoing commitment from gardeners throughout the growing season (Thompson et al., 2010; Thompson et al., 2011). Even with all of these requirements satisfied, gardens may not produce enough foods to alleviate the high cost of food throughout the year. Gardens do however have positive outcomes and spins-offs that include community building, sharing of knowledge between youth and Elders, physical activity, and momentum for positive change within the community (Rudolph and McLachlan, 2013). Increased gardening is a pathway to food sovereignty in First Nation communities, as gardening is a traditional practice and is successfully producing food (albeit on a household scale).

The NHFI has implemented funding towards the creation of small-scale livestock projects including the raising of poultry, allowing communities increased access to eggs, fresh meat and fertilizer for gardens. Raising poultry as a pathway to First Nation food sovereignty has been criticized however, for removing individuals from traditional

hunting practices and potentially undermining country foods, and taking considerable time and effort (Rudolph and McLachlan, 2013; Rudolph, 2012).

An initiative currently not implemented with the Island Lake First Nation communities, which has a significant potential to increase food security, is a country foods program. Country foods programs promote the consumption of traditional foods, by supporting hunters and gatherers who provide food for the community (Thompson et al., 2011), and promotes food sovereignty within the community.

Thompson et al. (2012) found a significant positive effect on food security when a community implemented a country foods program, which was more influential on food security status than any of the other parameters measured. Thompson et al. (2012) predicts that “a community with a country foods program but no [rail or bus transportation] or [all-season] roads would enjoy 40% food security; however, when a country foods program is paired with access to rail or bus, and an all-season road the rate of food security could increase to 95%, surpassing the Canadian average of 92% (Thompson et al, 2012). Indeed, Nelson House First Nation, which enjoys all-season road access and has a country foods program, has the lowest rate of overall food insecurity measured in northern Manitoba First Nations and communities at 47% (See Figure 21). Although this food security rate is impressive in the context of First Nations in Manitoba, it is still elevated when compared with non-Aboriginal households and Aboriginal households living “off-reserve” in Manitoba (Health Canada, 2011). Clearly, country foods programs have great potential to increase food security within a community, in

addition to providing employment opportunities and strengthening cultural connections within a food sovereignty lens.

Each of the four Island Lake First Nation communities has implemented school nutrition programs, cooking classes, cooking circles, and elder meal programs. These programs help to educate community members that may not be familiar with the preparation of some of the healthy foods available at the grocery stores or grown in gardens as well as traditional food, and also helps to highlight the link between diet, diabetes, and obesity, while addressing food security and food sovereignty.

School nutrition programs and elder meal programs would be stronger, more affordable, and more culturally appropriate if country food use was allowed. Given the high rates of food insecurity and obesity within Island Lake and other First Nations, applicable regulations need to be revisited and a mutually beneficial agreement drawn in its place that satisfies the intent of food safety regulations given the lack of infrastructure in the north.

Arctic Cooperative stores have also had a positive impact in northern Aboriginal Canadian communities. Cooperative stores are independently owned, operated, and controlled by the community in which they reside. Cooperative stores focus on building human capacity and retain money within the community. Since the cooperative model takes its profits and re-distributes a portion amongst its members, and subsequently re-invests the remainder back into the cooperative, inflated prices do not make good long-term business sense (NAHO, 2004). Developing cooperative stores within the Island Lake communities could help to provide better access to foods, if constructed within the

main community (i.e., not on an island). Additionally, a cooperative store could provide the community with some control over the type of healthy and unhealthy foods that are imported into the community, which may have a positive impact on food insecurity and its negative health outcomes.

## **5.5 Chapter Summary**

The Island lake First Nations and other northern and remote First Nations devote greater than 63% of their income to food alone, surpassing the Government of Canada's low-income cutoff level. Further, these communities also devote a higher percentage of their income and consequently their expenditures to food than many less developed countries, revealing that the average family within the four communities cannot afford the RNFB and the basic necessities to enjoy a basic standard of living and healthy life.

A comparison of Island Lake's regional household food security results to other First Nation food security studies in Manitoba, Northern Ontario, and British Columbia, illustrate that the Island Lake area experiences higher rates and greater depths of food security than many other First Nation communities represented in these studies. This evaluation has demonstrated that the Island Lake communities are amongst the most food insecure and hungry in Canada.

The high costs of fresh healthy food, low availability of healthy foods, poor quality of healthy foods, and lack of employment and income, are the key factors influencing the high levels of food insecurity; and, may also be contributing factors for children in Island

Lake possessing some of the highest rates of pediatric diabetes in North America (Amed et al., 2010; Government of Manitoba, 2003; Thompson et al., 2011)

Northern and remote First Nations in Manitoba have begun to respond to this crisis by growing household and community gardens, creating and implementing diabetes programs and school-meal programs, implementing meal programs for elders, and developing country food programs, among other initiatives. These are some examples of food-related community economic development initiatives that are aiding to de-commodify food production and distribution, and re-invigorate local food production and while moving towards a more sustainable and community-controlled food system.

## **CHAPTER SIX: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

While the objectives of this thesis are presented independently, the results of this research indicate that the issue of food security has many layers that are not independent of each other. In examining factors that influence and determine the degree and depth of food insecurity, a holistic view needs to be employed taking into account issues including geographical location, access to and affordability of foods, access to employment and income levels, as well as programs and initiatives to support food security and their cultural appropriateness. However, as one reviews this information additional themes regarding colonialization, commodification of food, equity and equality, and political environment emerge. While the following Chapter reflects on these issues, they require further study and consideration and should be considered in future food security and sovereignty research.

The disparity between southern Manitoba and northern Manitoba First Nations generates the need for ongoing food-costing studies and initiatives aimed at decreasing food costs and increasing access to healthy foods through community led programs. It also illustrates the requirement for increased funding and community led economic development initiatives to increase culturally appropriate employment opportunities within First Nation communities. Underneath the numbers, there lies systemic racism that perpetuates the poverty within First Nation communities, resulting in high rates of food insecurity and hunger.

## **6.1 The Crux of the Problem**

The high rate of food insecurity within the Island Lake First Nation communities and within other northern remote communities and First Nations is unacceptable.

Food costs in the Island Lake communities are double what Winnipeg families have to bare, and Winnipeg's median family income is double that of the average Island Lake family. This inequitable situation results in hunger as families within the Island Lake First Nation communities cannot afford the Revised Northern Food Basket and the basic necessities required to enjoy a basic standard of living in Canada. For if households within the Island Lake First Nation communities consumed food according to the RNFB, the percent of their annual expenditures devoted to food would be greater than some of the poorest and under-developed countries in the world (Meade, 2011). A truly inequitable situation, illustrating that food insecurity is directly linked to inadequate household income. Social assistance rates need to be reflective of true cost of living in the northern communities, and communities need to be actively pursuing their own source revenue in order to provide employment opportunities to their members.

The degree and intensity of household food insecurity observed within the Island Lake First Nation communities is extremely concerning when compared with other First Nations Provincially and Nationally. The Island Lake household food security results show that the communities experience higher rates and greater depths of food security than that of many other First Nation communities in Manitoba, Northern Ontario, and British Columbia. Consequently the Island Lake communities are amongst the most food insecure and hungry in Canada.

These high rates of food insecurity and the associated high cost of healthy foods increase the risk of diabetes, obesity, and other related health ailments, as families try to stretch their dollar by purchasing cheaper processed and less nutrient-dense foods, many of which are laden with salt, fat, preservatives, and highly refined carbohydrates. Because food insecurity is directly linked to increased health risks, communities may wish to consider limiting the importation of unhealthy foods in their communities by passing Band Council Resolutions (by-laws) and promoting healthy food consumption.

Previous First Nation food security studies have revealed the need for improved assessment of household food insecurity within First Nations across Canada, and at the very least, inclusion within Health Canada's annual CCHS studies. By excluding First Nation's communities within their CCHS, Health Canada paints an inaccurate picture of the state of food insecurity within Canada and amongst Canada's most vulnerable populations. This exclusion is indicative of the colonialist paradigm that permeates the policies and tools available to make progress in this area. It is this thought paradigm that must change, so that the accuracy and appropriateness of the tools can be improved.

## **6.2 Options and Solutions**

An all-season road may be one of multiple layers of solutions that are required to increase food security and food sovereignty within First Nation communities. Roads improve predictable food and fuel delivery, and reduce shipping costs for market-foods and other essential supplies; but roads are not the "silver-bullet", and complementary programs are required to reduce food insecurity. Furthermore, roads can have negative impacts on traditional hunting and gathering areas and can gnaw at the fabric of community

wellness. One quarter of community participants identified an all-season road as their top priority to increasing food access and availability. Building an all-season road is an extremely costly endeavor, and more locally grown and community-led solutions may be more viable, especially in the short term.

Country food programs have been shown to have a positive influence on food security rates. Country food programs are also controlled and operated by the community, employ community members, and promote traditional foods and culture. Therefore, country food programs also increase food sovereignty by offering an alternative to commoditized foods that are produced and transported by external companies, while retaining money within the community. However, restrictive legislation preventing the use of wild meat for school lunch and elder meal programs needs to be re-visited. Communities may wish to investigate the potential for a regional federally or provincially registered meat processing facility, which would allow the use of wild meat in meal programs, and would also allow the sale of wild meat, should the communities wish to do so. The challenge is creating policies that can be universally applied, but are still appropriate at the community level.

There is also potential for traditional trading to take place between other First Nation communities, where country foods may be traded for agricultural foods, providing communities with more control over their food source and supporting the economic development of First Nations.

Household gardens may offer some support to individual families; however, it is unlikely that gardens will provide a significant reduction in food insecurity rates. That being said,

gardens have proven to help build community and reconnect the youth and Elders, while concurrently improving physical fitness. This reiterates the need for multi-faceted approaches that include social and culture and well as economic aspects.

It is recognized by First Nation communities that some form of market food will be required, and that country foods alone will not be able to sustain communities due to the growing population and reductions in wildlife quantity and quality. As such, solutions must include interaction with the market-system. Developing cooperative stores within the Island Lake communities and beyond could help to provide better access to affordable foods by increasing purchasing power, while providing opportunity for employment and control over the types of foods imported into the community. Money would also stay within the community, allowing for re-investment to improve quality of life. The Island Lake food costing results have revealed that community-run stores can be less expensive than the large corporate-run Northern Store, and provide a viable option for consumers. There needs to be greater awareness of the potential alternatives to the Northern Store monopoly, and sharing of this knowledge between First Nation and Aboriginal communities throughout Canada.

The solutions to improving food security and food sovereignty within First Nation communities are multi-faceted. Successful programs and initiatives will come from within the communities, as illustrated by the success of the country foods program, instead of being handed down by governments. Additionally, many of these programs suffer from the unpredictable nature of funding, which compromises the ability of the programs to have long-term plans and reach eventual stability and self-sufficiency. The

Canadian and Provincial Governments need to prioritize and encourage community led solutions and make the subsequent financial commitments required to begin to address and implement them.

### **6.3 Conclusion**

In the words of former Prime Minister Jean Cr tien, Canada pledged as part of the *Rome Declaration on World Food Security*, “to a world that was free from hunger, free from want, with enough food for all” (Government of Canada, 1998). While Canada’s *Charter of Rights and Freedoms* does not explicitly state that Canadians enjoy this right, Canada’s acknowledgment of the *Declaration* and of the 1976 *International Covenant on Economic Social and Cultural Rights*, *The Convention on the Elimination of Discrimination Against Women*, and the *Convention on the Rights of the Child*, as well as subsequent Federal progress reports on food security, illustrate Canada’s intentions, especially abroad. Canada, a country which has strived to reduce hunger abroad, has neglected the Aboriginal people of Canada and has failed to embrace its Fiduciary duty and obligations, and to act with an ethical conscience in working to elevate hunger in First Nation communities.

According to the United Nations Human Development Index, which measures indices such as life expectancy, education, and adult literacy, First Nations people have a quality of life ranked 134<sup>th</sup> internationally, among developing-world conditions (AANDC, 2013; United Nations, 2007). Additionally, the Community Well Being Index for First Nations, developed by AANDC, which measures education, employment, income, and housing,

revealed that Aboriginal communities represent 96 of the 100 unhealthiest Canadian communities (AANDC, 2013).

The Government of Canada must sincerely address household food insecurity, hunger and associated inequality, and work with haste to close the gap between First Nation people and the general Canadian population. For ultimately,

“a lack of food security points to the deeper social ills we struggle to contain” Gary Bloch, MD, Chair of the Ontario College of Family Physicians (as quoted in Tarasuk, 2013))

## REFERENCES

Aboriginal Affairs and Northern Development Canada (AANDC). (n.d.(a)). *2011-2012 Report on Plans and Priorities: Demographic Description, Aboriginal Population Profile*. Retrieved on August 2013 from <http://www.gov.mb.ca/ana/pdf/apm2006.pdf>

Aboriginal Affairs and Northern Development Canada (AANDC). (n.d.(b)). *Regional results of price surveys*. Retrieved July 2013 from <http://www.aadnc-aandc.gc.ca/eng/1100100035986/1100100035987>

Aboriginal Affairs and Northern Development Canada (AANDC). (2013). *Aboriginal Demographics and Well-Being*. Retrieved September 2013 from [http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ-AI/STAGING/texte-text/rs\\_re\\_pubs\\_demograph\\_wellbeing\\_PDF\\_1358863272403\\_eng.pdf](http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ-AI/STAGING/texte-text/rs_re_pubs_demograph_wellbeing_PDF_1358863272403_eng.pdf)

Aboriginal Affairs and Northern Development Canada (AANDC). (2013a). *Internal audit report: Audit of nutrition north Canada*. Retrieved October 2013 from [http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ-AEV/STAGING/texte-text/au\\_nn\\_1375886798629\\_eng.pdf](http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ-AEV/STAGING/texte-text/au_nn_1375886798629_eng.pdf)

Alberta Community/Public Health Nutritionists Food Security Subcommittee and Dietitians of Canada. (2008). *Cost of Eating in Alberta, 2008*. Retrieved on June 2013 from <http://www.dietitians.ca/Downloadable-Content/Public/Alberta---Cost-of-Eating-2008.aspx>

Alberta Community/Public Health Nutritionists Food Security Subcommittee and Dietitians of Canada. (2008). *Cost of Eating in Alberta, 2008*.

Amed, S., Dean, L., Panagiotopoulos, C., Seller, E., Hadjiyanakis, S., Laubscher, T., Dannenbaum, D., Shah, B., Booth, G., and Hamilton, J. (2010). Type 2 diabetes, medication-induced diabetes, and monogenic diabetes in Canadian children: A prospective national surveillance study. *Diabetes Care*, 33(4), 786-791.

Arctic Co-operatives Limited. (n.d.) Retrieved September 2013 from <http://www.arcticco-op.com>

Assembly of Manitoba Chiefs. (2006). *Manitoba First Nation regional longitudinal health survey (RHS) report 2002/03*. Retrieved August 2013 from [http://amc.manitobachiefs.com/images/pdf/mb\\_fns\\_rhs\\_report\\_2002\\_03.pdf](http://amc.manitobachiefs.com/images/pdf/mb_fns_rhs_report_2002_03.pdf)

Bickel, G., Nord, M., Price, C., Hamilton, W., and Cook, J. (2000). *Measuring food security in the United States. Guide to measuring household food security, revised 2000*. United States Department of Agriculture, Alexandria VA. Retrieved November 2013 from <http://www.fns.usda.gov/fsec/files/fsguide.pdf>

- Butler Walker, J., Kassi, N., Eamer, C. (2009). *Food security in times of change*. Retrieved on August 2013 from <http://www.aicbr.ca/ourPriorities/foodSecurity/home>
- Canadian Broadcasting Corporation (CBC). (2010, February 20). Nutrition North food subsidy program under fire. *CBC News*. Retrieved June 2013 from <http://www.cbc.ca/news/canada/north/nutrition-north-food-subsidy-program-under-fire-1.1294032>
- Canadian Broadcasting Corporation (CBC). (2013a, May 1). Nutrition North changing how northern retailers do business. *CBC News*. Retrieved June 2013 from <http://www.cbc.ca/news/canada/north/nutrition-north-changing-how-northern-retailers-do-business-1.1303757?cmp=rss>
- Canadian Broadcasting Corporation (CBC). (2013b, July 30). Auditor General to review Nutrition North program. *CBC News*. Retrieved August 2013 from <http://www.cbc.ca/news/canada/north/auditor-general-to-review-nutrition-north-program-1.1323254>
- Chan, L., Receveur, O., Sharp, D., Schwartz, H., Ing, A., Fediuk, K., Black, A., and Tikhonov, C. (2012). *First Nations Food, Nutrition and Environment Study: Results from Manitoba, 2010*. Prince George: University of Northern British Columbia. Retrieved on August 2013 from [http://www.fnfnes.ca/docs/MB%20Reports/FNFNES%20Report-MB\\_WEB\\_rev.pdf](http://www.fnfnes.ca/docs/MB%20Reports/FNFNES%20Report-MB_WEB_rev.pdf)
- Che, J. and Chen, J. (2001). Food insecurity in Canadian Households. *Health Reports*, 12(4), 11-22.
- Churchill, W. (1999). *Struggle for the land: Native North American resistance to genocide, ecocide and colonization*. Winnipeg, Manitoba: Arbiter Ring Publishers.
- Cohen, B. (2002). Community Food Assessment Toolkit. EFAN. USDA. Retrieved June 2013 from [http://www.ers.usda.gov/media/327699/efan02013\\_1\\_1\\_.pdf](http://www.ers.usda.gov/media/327699/efan02013_1_1_.pdf)
- Davis, B. and Tarasuk, V. (1994). Hunger in Canada. *Agriculture and Human Values*, 11(4), 50-57.
- Dietitians of Canada. (2007). *The cost of eating in B.C. 2007: The bite nutritious food takes from the income pie*. Retrieved August 2013 from [http://www.dietitians.ca/Downloadable-Content/Public/BC\\_CostofEating\\_2007.aspx](http://www.dietitians.ca/Downloadable-Content/Public/BC_CostofEating_2007.aspx)
- East Side Road Authority (ESRA). (2013). *Transportation Challenges on the East Side*. Retrieved June 2013 from <http://www.eastsideroadauthority.mb.ca/vision-transportation.html>
- Fédération des Coopératives du Nouveau-Québec (FCNQ). (n.d.). Retrieved November 2013 from <http://www.fcnq.ca/webconcepteur/web/fcnq/en/nav/federation.html>

Fieldhouse, P. and Thompson, S. (2012). Tackling food security issues in indigenous communities in Canada: The Manitoba experience. *Nutrition & Dietetics*, 69, 217-221

First Nations & Inuit Regional Health Survey National Steering Committee. (1999). *First Nations & Inuit regional health survey*. Retrieved August 2013 from [http://www.rhs-ers.ca/sites/default/files/ENpdf/RHS\\_1997/rhs\\_1997\\_final\\_report.pdf](http://www.rhs-ers.ca/sites/default/files/ENpdf/RHS_1997/rhs_1997_final_report.pdf)

First Nations Centre. (2005). *First Nations regional longitudinal health survey (RHS) 2002/03*. Retrieved August 2013 from [http://www.rhs-ers.ca/sites/default/files/ENpdf/RHS\\_2002/rhs2002-03-technical\\_report.pdf](http://www.rhs-ers.ca/sites/default/files/ENpdf/RHS_2002/rhs2002-03-technical_report.pdf)

First Nations Information Governance Centre (FNIGC). (2012). *First Nations regional health survey (RHS) 2008/10: National report on adults, youth and children living in First Nation communities*. Ottawa: FNIGC. Retrieved August 2013 from [http://www.fnigc.ca/sites/default/files/First%20Nations%20Regional%20Health%20Survey%20\(RHS\)%202008-10%20-%20National%20Report.pdf](http://www.fnigc.ca/sites/default/files/First%20Nations%20Regional%20Health%20Survey%20(RHS)%202008-10%20-%20National%20Report.pdf)

Fisher, W.F. and Ponniah, T. (2003). *Another world is possible: Popular alternatives to globalization at the world social forum*. Fernwood Publishing, Nova Scotia.

Flood, G. (2005, March 19). Cost of living driven up out here: transportation challenges force massive markup on goods. *The Winnipeg Free Press*, pp. A1.

Flying Dust Cree Nation. (2013, November). *Flying Dust Cree 8 Worker Coop Ltd.* Presentation conducted at the Environmental Contaminants and Traditional Food Conference (Assembly of Manitoba Chiefs) on November 4 & 5, 2013, Winnipeg, MB.

FOA (1996). *World Food Summit: Rome declaration on world food security and world food summit plan of action*. FAO: Special Advisers to the Director-General. Retrieved January 2013 from <http://www.fao.org/docrep/003/w3613e/w3613e00.htm>

Four Arrows Regional Health Authority Inc. (FARHA). (2013). *Wasagamach First Nation*. Retrieved May 2013 from <http://www.fourarrowsrha.ca/wasagamack-first-nation/>

Four Arrows Regional Health Authority Inc. (FARHA). (2013). *St. Theresa Point First Nation*. Retrieved May 2013 from <http://www.fourarrowsrha.ca/st-theresa-point-first-nation/>

Four Arrows Regional Health Authority Inc. (FARHA). (2013). *Garden Hill First Nation*. Retrieved May 2013 from <http://www.fourarrowsrha.ca/profiles/>

Four Arrows Regional Health Authority Inc. (FARHA). (2013). *Red Sucker Lake First Nation*. Retrieved May 2013 from <http://www.fourarrowsrha.ca/red-sucker-lake-first-nation/>

Four Arrows Regional Health Authority Inc. (FARHA) (Producer). (2012). *Chicken's of the north* [Video]. Retrieved on May 2013 from <http://www.youtube.com/watch?v=giOmhPOSDo4>

Glaser, B.G. and Strauss, A.L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine de Gruyter.

Government of Canada. (1998). *Canada's Action Plan for Food Security*. Retrieved August 2013 from [http://www.agr.gc.ca/misb/fsec-seca/pdf/action\\_e.pdf](http://www.agr.gc.ca/misb/fsec-seca/pdf/action_e.pdf)

Government of Canada, Agriculture and Agri-Food Canada. (2008). *Canada's fifth progress report on food security*. Retrieved October 2013 from [http://www4.agr.gc.ca/resources/prod/doc/misb/fsec-seca/pdf/1245790426228\\_rpt\\_5\\_e.pdf](http://www4.agr.gc.ca/resources/prod/doc/misb/fsec-seca/pdf/1245790426228_rpt_5_e.pdf)

Government of Canada. (n.d.). *Nutrition North Canada. Fact sheet: The Nutrition North Canada program*. Retrieved May 2013 from <http://www.nutritionnorthcanada.gc.ca/eng/1367932314461/1367932387670>

Government of Canada, Nutrition North Canada. (n.d.(a)). *Cost of revised northern food basket in 2011-2012*. Retrieved July 2013 from <http://www.nutritionnorthcanada.gc.ca/eng/1369313901161/1369313917620>

Government of Canada, Nutrition North Canada. (n.d.(b)). *Cost of the revised northern food basket in 2012-2013*. Retrieved July 2013 from <http://www.nutritionnorthcanada.gc.ca/eng/1369313792863/1369313809684>

Government of Canada, Nutrition North Canada. (n.d.(c)). *Compliance Reports 2011-2012*. Retrieved November 2013 from <http://www.nutritionnorthcanada.gc.ca/eng/1369314171405/1369314181554>

Government of Manitoba, Healthy Child Committee of Cabinet. Northern Food Prices Steering Committee. (2003). *Northern Food Prices Project Report*. Retrieved February 2013 from [http://www.gov.mb.ca/ana/food\\_prices/2003\\_northern\\_food\\_prices\\_report.pdf](http://www.gov.mb.ca/ana/food_prices/2003_northern_food_prices_report.pdf)

Health Canada. (2007). *Income-related household food security in Canada, Canadian Community Health Survey Cycle 2.2, Nutrition*. Ottawa, Health Canada. HC publication. No.4696. Retrieved January 2013 from [http://www.hc-sc.gc.ca/fn-an/alt\\_formats/hpfb-dgpsa/pdf/surveill/income\\_food\\_sec-sec\\_alim-eng.pdf](http://www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/surveill/income_food_sec-sec_alim-eng.pdf)

Health Canada (n.d.). *Household Food Insecurity in Canada in 2007-2008: Key Statistics and Graphics*. Retrieved October 2013 from <http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/insecurit/key-stats-cles-2007-2008-eng.php#d>

Health Canada. (2008). *Questions and Answers on the 2008 National Nutritious Food Basket*. Retrieved November 2013 from <http://www.hc-sc.gc.ca/fn-an/surveill/basket-panier/qa-qr-eng.php>

Health Canada. (2011). Canadian Community Health Survey (CCHS) 2009-2010 Food Security Share Files. Ottawa, Health Canada.

Indian and Northern Affairs Canada (INAC). (2003). *Nutrition and food security in Kugaaruk, Nunavut*. Catalogue No. R2-265/2003E. Retrieved on August 2013 from [https://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/kg03\\_1100100035822\\_eng.pdf](https://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/kg03_1100100035822_eng.pdf)

Indian and Northern Affairs Canada (INAC). (2007). *The revised northern food basket*. Retrieved April 2013 from <http://publications.gc.ca/pub?id=317334&sl=0>

Indian and Northern Affairs Canada. (2007a). *Evaluation of the Income Assistance Program*. Retrieved November 2013 from [http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/eiap07\\_1100100011749\\_eng.pdf](http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/eiap07_1100100011749_eng.pdf)

Indian and Northern Affairs Canada (INAC). (2009). *Food mail review – interim report*. Retrieved October 2013 from <http://caid.ca/FoodMailIntRev031509.pdf>

International Planning Committee for Food Sovereignty. (2007). *Declaration of Nyeleni*. Retrieved November 2013 from <http://www.nyeleni.org/spip.php?article290>

Kirkpatrick, S. and Tarasuk, V. (2008). Food insecurity in Canada - Considerations for monitoring. *Canadian Journal of Public Health*, 99(4), 324-327.

Kitayan. (2013). *Communities*. Retrieved September 2013 from [http://kitayan.ca/?page\\_id=45](http://kitayan.ca/?page_id=45)

Kuryk, D. (2003). *Winter roads in Manitoba*. Proceedings from CGU HS committee on river ice processes and the environment, 12<sup>th</sup> workshop on the hydraulics of ice covered rivers. Edmonton, AB. Retrieved May 2013 from [http://cripe.civil.ualberta.ca/Downloads/12th\\_Workshop/Kuryk-2003.pdf](http://cripe.civil.ualberta.ca/Downloads/12th_Workshop/Kuryk-2003.pdf)

LaDuke, W. (2002). *The Winona LaDuke reader: A collection of essential writings*. Penticton Indian Reserve: Theytus Books.

Lawn, J. and Harvey, D. (2003). *Nutrition and food security in Kugaaruk, Nunavut. Baseline survey for the food mail pilot project*. Ottawa: Indian and Northern Affairs. Retrieved November 2013 from [http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/kg03\\_1100100035822\\_eng.pdf](http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/kg03_1100100035822_eng.pdf)

Lawn, J. and Harvey, D. (2004). *Nutrition and food security in Fort Severn, Ontario. Baseline survey for the food mail pilot project*. Ottawa: Indian and Northern Affairs.

Retrieved November 2013 from <http://publications.gc.ca/collections/Collection/R2-350-2004E.pdf>

Manitoba Department of Transportation and Government Services. (2003). *Winter Roads in Manitoba*. Retrieved June 2013 from [http://cripe.civil.ualberta.ca/Downloads/12th\\_Workshop/Kuryk-2003.pdf](http://cripe.civil.ualberta.ca/Downloads/12th_Workshop/Kuryk-2003.pdf)

Manitoba Hydro. (2003). Wuskwatim Generation and Transmission Projects Environmental Impact Statement.

Manitoba Food Charter. (2009). *Northern grocers forum report*. Retrieved May 2013 from <http://foodmattersmanitoba.ca/sites/default/files/Northern%20Grocers'%20Forums%20report.pdf>

Meade, B. (2011). *Table 97-percent of household final consumption expenditures spent on food, alcohol beverages, and tobacco that were consumed at home by select countries, 2010*. Retrieved August 2013 from [http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=4&ved=0CDoQFjAD&url=http%3A%2F%2Fwww.fooddialogues.com%2Fsites%2Fdefault%2Ffiles%2Ffact\\_data\\_link%2F2d44f5519bc0b7b38016a476e31fb6c6\\_0.xls&ei=uJQoUpa2KtLtqQGokYHQDg&usg=AFQjCNGjETHzRG911y\\_FcDiaG7fRVly27Q&bvm=bv.51773540,d.aWc](http://www.google.ca/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=4&ved=0CDoQFjAD&url=http%3A%2F%2Fwww.fooddialogues.com%2Fsites%2Fdefault%2Ffiles%2Ffact_data_link%2F2d44f5519bc0b7b38016a476e31fb6c6_0.xls&ei=uJQoUpa2KtLtqQGokYHQDg&usg=AFQjCNGjETHzRG911y_FcDiaG7fRVly27Q&bvm=bv.51773540,d.aWc)

National Aboriginal Health Organization (NAHO). (2004). *Hunger in the Arctic: Food (in)security in Inuit communities, a discussion paper*. Retrieved July 2013 from [http://www.naho.ca/documents/it/2004\\_Inuit\\_Food\\_Security.pdf](http://www.naho.ca/documents/it/2004_Inuit_Food_Security.pdf)

Natural Resources Institute (NRI), University of Manitoba. (2011). *Harvesting hope: In northern Manitoba communities*. [Video file]. Retrieved from [http://home.cc.umanitoba.ca/~thomps04/harvestinghope\\_doc.html](http://home.cc.umanitoba.ca/~thomps04/harvestinghope_doc.html)

Rabson, M. (2010, November 3). Red Sucker Lake water woes boil over: Testing uncovers harmful bacteria in holding tanks. *The Winnipeg Free Press*, pp. A5.

Rainville, B. and Brink, S. (2001). *Food Insecurity in Canada*. Ottawa: Human Resources Development Canada, Applied Research Branch. Retrieved November 2013 from <http://publications.gc.ca/collections/Collection/MP32-29-01-2E.pdf>

Reading, C.L., and Wien, F. (2009). *Health inequalities and social determinants of Aboriginal people's health*. Retrieved August 2013 from <http://www.nccah-ccnsa.ca/docs/nccah%20reports/LoppieWien-2.pdf>

Rudolph, K. (2012). *Close to the land: Connecting northern indigenous communities and southern farming communities through food sovereignty*. (Master of Environment

Thesis). Retrieve November 2013 from MSpace Thesis Database at <http://hdl.handle.net/1993/5231>

Rudolph, K. and McLachlan, S. (2013). Seeking Indigenous food sovereignty: origins of and responses to the food crisis in northern Manitoba, Canada. *Local Environment: The International Journal of Justice and Sustainability*, (18)9, 1079-1098

Shragge, E. (2003). *Activism and social change: Lessons for community and local organizing*. Toronto, ON: University of Toronto Press.

Socha, T.; Chambers, L.; Zahaf, M; Abraham, R.; Fiddler, T. (2011). Food availability, food store management, and food pricing in a northern First Nation community. *International Journal of Humanities and Social Science*, (1)11, 49-61

Social Planning Council of Winnipeg. (2012). *Child and family poverty, 2012 report card. Campaign 2000 (Manitoba)*. Retrieved on August 2013 from [http://www.spcw.mb.ca/files/4013/5414/7237/C2000\\_Child\\_Poverty\\_Report\\_Card-2012.pdf](http://www.spcw.mb.ca/files/4013/5414/7237/C2000_Child_Poverty_Report_Card-2012.pdf)

Statistics Canada. (2001a). *2001 Wasagamack, Manitoba. 2001 Community Profiles. 2001 Census*. Retrieved November 2013 from <http://www12.statcan.ca/english/Profil01/CP01/Details/Page.cfm?Lang=E&Geo1=CSD&Code1=4622800&Geo2=PR&Code2=46&Data=Count&SearchText=wasagamack&SearchType=Begins&SearchPR=01&B1=All&Custom=>

Statistics Canada. (2001b). *2001 St. Theresa Point, Manitoba. 2001 Community Profiles. 2001 Census*. Retrieved November 2013 from <http://www12.statcan.ca/english/Profil01/CP01/Details/Page.cfm?Lang=E&Geo1=CSD&Code1=4622801&Geo2=PR&Code2=46&Data=Count&SearchText=st.%20theresa%20point&SearchType=Begins&SearchPR=01&B1=All&Custom=>

Statistics Canada. (2001c). *2001 Garden Hill, Manitoba. 2001 Community Profiles. 2001 Census*. Retrieved November 2013 from <http://www12.statcan.ca/english/Profil01/CP01/Details/Page.cfm?Lang=E&Geo1=CSD&Code1=4622048&Geo2=PR&Code2=46&Data=Count&SearchText=garden%20Hill&SearchType=Begins&SearchPR=01&B1=All&Custom=>

Statistics Canada. (2001d). *2001 Red Sucker Lake, Manitoba. 2001 Community Profiles. 2001 Census*. Retrieved November 2013 from <http://www12.statcan.ca/english/profil01/CP01/Details/Page.cfm?Lang=E&Geo1=CSD&Code1=4622056&Geo2=PR&Code2=46&Data=Count&SearchText=red%20sucker%20lake&SearchType=Begins&SearchPR=01&B1=All&Custom=>

Statistics Canada. (2007a). *2006 Wasagamach, Manitoba (Code 4622800)(table). 2006 Community Profiles. 2006 Census*. Statistics Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. Retrieved May 2013 from <http://www12.statcan.gc.ca/census->

recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CSD&Code1=4622800&Geo2=PR&Code2=46&Data=Count&SearchText=Wasagamack&SearchType=Begins&SearchPR=01&B1=All&GeoLevel=PR&GeoCode=4622800

Statistics Canada. (2007b). *St. Theresa Point, Manitoba (Code 4622801)(table). 2006 Community Profiles*. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. Retrieved May 2013 from <http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CSD&Code1=4622801&Geo2=PR&Code2=46&Data=Count&SearchText=St.%20Theresa%20Point&SearchType=Begins&SearchPR=01&B1=All&GeoLevel=PR&GeoCode=4622801>

Statistics Canada. (2007c). *Garden Hill First Nation, Manitoba (Code 4622048)(table). 2006 Community Profiles*. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. Retrieved May 2013 from <http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CSD&Code1=4622048&Geo2=PR&Code2=46&Data=Count&SearchText=Garden%20Hill%20First%20Nation&SearchType=Begins&SearchPR=01&B1=All&GeoLevel=PR&GeoCode=4622048>

Statistics Canada. (2007d). *Red Sucker Lake 1976, Manitoba (Code 4622056)(table). 2006 Community Profiles*. 2006 Census. Statistics Canada Catalogue no. 92-591-XWE. Ottawa. Released March 13, 2007. Retrieved May 2013 from <http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CSD&Code1=4622056&Geo2=PR&Code2=46&Data=Count&SearchText=Red%20Sucker%20Lake%201976&SearchType=Begins&SearchPR=01&B1=All&GeoLevel=PR&GeoCode=4622056>

Statistics Canada. (2007e). *Low income cut-offs for 2006 and low income measures for 2005*. Catalogue no. 75F0002MIE-No. 004. Retrieved August 2013 from <http://www.statcan.gc.ca/pub/75f0002m/75f0002m2007004-eng.pdf>

Statistics Canada. (2008). *Low income cut-offs for 2007 and low income measures for 2006, 2006/2007*. Catalogue no. 75F0002M, no. 004. Retrieved August 2013 from <http://www.statcan.gc.ca/pub/75f0002m/75f0002m2008004-eng.pdf>

Statistics Canada. (2010). *Income in Canada, 2010*. Retrieved on August 2013 from <http://www.statcan.gc.ca/pub/75-202-x/75-202-x2010000-eng.htm>

Statistics Canada. (2012a). *Wasagamack, Manitoba (Code 4622800) and Division No. 22, Manitoba (Code 4622) (table). Census Profile*. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released October 24, 2012. Retrieved August 2013 from <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E>

Statistics Canada. (2012b). *St. Theresa Point, Manitoba (Code 4622801) and Division No. 22, Manitoba (Code 4622) (table). Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released October 24, 2012. Retrieved August 2013 from <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E>*

Statistics Canada. (2012c). *Garden Hill First Nation, Manitoba (Code 4622048) and Division No. 22, Manitoba (Code 4622) (table). Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released October 24, 2012. Retrieved August 2013 from <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E>*

Statistics Canada. (2012d). *Red Sucker Lake 1976, Manitoba (Code 4622056) and Division No. 22, Manitoba (Code 4622) (table). Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released October 24, 2012. Retrieved August 2013 from <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E>*

Statistics Canada. (2012e). *Winnipeg, Manitoba (Code 4611040) and Division No. 11, Manitoba (Code 4611) (table). Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released October 24, 2012. Retrieved August 2013 from <http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E>*

Statistics Canada. (2012f). *Survey of Household Spending, 2010. Released April 25, 2012 in The Daily. Retrieved August 2013 from <http://www.statcan.gc.ca/daily-quotidien/120425/dq120425a-eng.pdf>*

Statistics Canada. (2012g). *User Guide for the Survey of Household Spending, 2010. Catalogue no. 62F0026M, no.1. Retrieved August 2013 from <http://www.statcan.gc.ca/pub/62f0026m/62f0026m2012001-eng.pdf>*

Statistics Canada. (2013). *Low Income Lines, 2011 to 2012. Catalogue no. 75F00002M, no. 002. Retrieved August 2013 from <http://www.statcan.gc.ca/pub/75f0002m/75f0002m2013002-eng.pdf>*

Tarasuk, V. (2001). *Discussion paper on household and individual food insecurity. Retrieved on June 2013 from <http://www.hsfspark.com/sites/default/files/Tarasuk-%20Discussion%20paper%20on%20food%20security.pdf>*

Tarasuk, V. (2005). Household food insecurity in Canada. *Topics in Clinical Nutrition, 20(4), 299-312.*

Tarasuk, V., Mitchell, A., and Dachner, N. Research to identify policy options to reduce food insecurity (PROOF). (2013). *Household Food Insecurity in Canada 2011. Retrieved*

August 2013 from <http://nutritionalsciences.lamp.utoronto.ca/wp-content/uploads/2013/07/Household-Food-Insecurity-in-Canada-2011.pdf>

The Manitoba Public Health Act (C.C.S.M. c. P210) (2006), Retrieved September 2013 from <http://web2.gov.mb.ca/laws/statutes/ccsm/p210e.php>

The Manitoba Public Health Act: Food and Food Handling Establishment Regulation (C.C.S.M. c. P210). (1988). Retrieved September 2013 from <http://web2.gov.mb.ca/laws/regs/pdf/p210-339.88r.pdf>

The Manitoba Wildlife Act. (C.C.S.M. c. W130). (2010). Retrieved September 2013 from <http://web2.gov.mb.ca/laws/statutes/ccsm/w130e.php>

The North West Company. (2011). *Changes in the north means cheaper food* [Press Release]. Retrieved November 2013 from [http://www.northwest.ca/content/news\\_releases/Press%20Release%20-%20Changes%20in%20the%20north%20means%20cheaper%20food.pdf](http://www.northwest.ca/content/news_releases/Press%20Release%20-%20Changes%20in%20the%20north%20means%20cheaper%20food.pdf)

The North West Company. (n.d.). The North West Company update on the success of the Nutrition North Canada (NNC) program in the communities we serve [Press Release]. Retrieved November 2013 from <http://www.northernstores.ca/nnc/2013/Fall%20Update%20on%20NNC%20in%20NWC%20Markets.pdf>

Thompson, S. (2004). Sustainability and vulnerability: Aboriginal arctic food security in a toxic world. In F. Berkes, A. Diduck, H. Fast, R. Huebert, & M. Manseau (Eds): *Integrated management, complexity and diversity of resource use: Responding and adapting to change* (pp. 47-69). Calgary: University of Calgary Press.

Thompson, S., Gulrukh, A., and Wong, K. (2010). *Is healthy food on the table in northern Manitoba? Evaluating northern healthy foods initiative for sustainability and food access*. Winnipeg, MB: Natural Resources Institute, University of Manitoba.

Thompson, S., Gulrukh, A., Ballard, M., Beardy, B., Islam, D., Lozeznik, V., and Wong, K. (2011). Is community economic development putting healthy food on the table? Food sovereignty in Northern Manitoba's Aboriginal communities. *The Journal of Aboriginal Economic Development*, 7(2), 14-39.

Thompson, S., Kamal, A., Alam, M., Wiebe, J. (2012). Community development to feed the family in northern Manitoba communities: Evaluating food activities based on their food sovereignty, food security, and sustainable livelihood outcomes. *Canadian Journal of Nonprofit and Social Economy Research*, 3(2), 43-66.

Tonn, N. (2011). *Food insecurity and self-reported psycho-social health status in Manitoba first nation communities: Results from the Manitoba first nations regional*

*longitudinal health survey 2002/2003*. (Master of Science Thesis). Retrieved January 2013 from MSpace Thesis Database at <http://hdl.handle.net/1993/5061>

United Nations. (n.d.). *Water*. Retrieved September 2013 from <http://www.un.org/en/globalissues/water/>

United Nations. (2007). *Human Development Report 2007/2008*. Retrieved November 2013 from [http://hdr.undp.org/en/media/HDR\\_20072008\\_EN\\_Complete.pdf](http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf)

United Nations. (2012). *Report of the special rapporteur on the right to food, Oliver De Schutter. Addendum: Mission to Canada*. Retrieved October 2013 from [http://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session22/AHR\\_C2250Add.1\\_English.PDF](http://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session22/AHR_C2250Add.1_English.PDF)

Vozoris, N. and Tarasuk, V. (2003). Household food insufficiency is associated with poorer health. *The Journal of Nutrition*, 133(1), 120-126.

Willows, N.D., Veugelers, P., Raine, K., and Kuhle, S. (2008). Prevalence and sociodemographic risk factors related to household food security in Aboriginal peoples in Canada. *Public Health Nutrition*, 12(8), 1150-1156.

Willows, N.D. (2005). Determinants of healthy eating in Aboriginal Peoples in Canada: The current state of knowledge and research gaps. *Canadian Journal of Public Health*, 93, 32-36.

Winnipeg Free Press. (2010). *No running water*. [Video File]. Retrieved on August 2013 from [www.winnipegfreepress.com/no-running-water/video](http://www.winnipegfreepress.com/no-running-water/video)

Winnipeg Regional Health Authority (WRHA). (2012). *The cost of eating according to the National Food Basket in Manitoba, May 2011*. Retrieved May 2013 from [http://www.wrha.mb.ca/extranet/nutrition/files/Professionals\\_Reports\\_FoodBasketReport.pdf](http://www.wrha.mb.ca/extranet/nutrition/files/Professionals_Reports_FoodBasketReport.pdf)

Winnipeg Regional Health Authority (WRHA). (2012). Dealing with diabetes. *WAVE: Winnipeg health and wellness magazine*, 4(5), 26-35. Retrieved October 2013 from <http://www.wrha.mb.ca/wave/2012/09/files/WaveFull-1209.pdf>

World Health Organization (WHO). (n.d.). *Food Security*. Retrieved July 2013 from <http://www.who.int/trade/glossary/story028/en/>

World Health Organization (WHO). (2003). *Social determinants of health: The solid facts, 2<sup>nd</sup> edition*. Retrieved May 2013 from [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0005/98438/e81384.pdf](http://www.euro.who.int/__data/assets/pdf_file/0005/98438/e81384.pdf)

Young, T.K. (2000). Type 2 diabetes mellitus in Canada's First Nations: status of an epidemic in progress. *Canadian Medical Association Journal*, 163(5), 561-566.

## **APPENDIX A**

### **Revised Northern Food Basket 67-Item Food List and Volumes**

<b>Revised Northern Food Basket (2007) for a family of four for one week</b>				
<b>Category</b>	<b>Perishables</b>		<b>Non-Perishables</b>	
Dairy Products (Total 15.35 L or 9.2 kg)	2% Milk, fresh or UHT	4.76 L	Evaporated 2% milk	1.58 L
	Mozzarella cheese	0.485 kg	Skim milk powder	0.09 kg
	Processed cheese slices	0.385 kg		
	Yogurt	1.67 kg		
Eggs	Large eggs	8		
Meat (Total 6.7 kg)	Chicken drumsticks	2.68 kg	Canned pink salmon	0.27 kg
	Pork chops, loin centre-cut	1.21 kg	Canned sardines in soya oil	0.27 kg
	Ground beef, lean	1.34 kg	Canned ham	0.2 kg
	T-bone steak	0.47 kg		
	Sliced ham	0.135 kg		
	Frozen fish sticks	0.135 kg		
Meat Alternatives (Total 1 kg)	Bologna	0.06 kg	Canned pork-based luncheon meat	0.05 kg
	Wieners	0.1 kg	Canned corn beef	0.04 kg
	Peanut butter	0.09 kg	Canned beans with pork	0.29 L
			Canned beef stew	0.18 kg
		Canned spaghetti sauce with meat	0.155 L	
Grain products (Total 5.5 kg)	Bead, enriched white	0.66 kg	Flour, all purpose	1.92 kg
	Bread, 100% whole wheat	0.66 kg	Pilot biscuits	0.275 kg
			Macaroni or spaghetti	0.385 kg
			Rice, long-grained parboiled white	0.33nkg
			Rolled oats	0.275 kg
			Corn flakes	0.44 kg
			Macaroni and cheese dinner	0.55 kg
Citrus Fruit and Tomatoes (Total 4.4 kg)	Oranges	1.23 kg	Apple juice, Tetrapak	0.88 L
	Apple juice, frozen	0.033 L	Orange juice, Tetrapak	0.375 L
	Orange juice, frozen	0.282 L	Canned whole tomatoes	0.215 L
			Canned tomato sauce	0.3 L
Other Fruit (Total 9.95 kg)	Apples	4.38 kg	Canned fruit cocktail in juice	0.855 L
	Bananas	3.58 kg	Canned peaches in juice	0.285 L
	Grape	0.5 kg	Canned pineapple in juice	0.285 L
Potatoes (Total 3.7 kg)	Fresh potatoes	3 kg	Instant potato flakes	0.22 kg
	Frozen French fries	0.48 kg		
Other Vegetables (Total 8.7 kg)	Carrots	2 kg	Canned green peas	0.9 L
	Onions	0.695 kg	Canned kernel corn	1.09 L
	Cabbage	0.52 kg	Canned green beans	0.315 L
	Turnips	0.35 kg	Canned carrots	0.325 L
	Frozen broccoli	0.695 kg	Canned mixed vegetables	0.545 L
	Frozen carrots	0.26 kg		
	Frozen corn	0.26 kg		
	Frozen mixed vegetables	1.74 kg		
Oils and Fats	Margarine, non-hydrogenated	0.715 kg	Canola oil	0.185 L
	Butter	0.065 kg	Lard	0.105 kg
Sugar (Total 600 g)		Sugar, white	0.6 kg	
Miscellaneous		5% added to cost		

Note: The foods in the basket weigh approximately 52 kg in total.

Comparison of Food Items Included within the Revised Northern Food Basket (RNFB) and National Nutritious Food Basket (NNFB)									
Category and Food Items	RNFB	NNFB	Category and Food Items	RNFB	NNFB				
	Item	Item		Item	Item				
<b>Dairy</b>			<b>Fruits and Vegetables</b>						
Cheddar Cheese	Yes	Yes	Apple Juice	Yes	Yes				
Processed Cheese slices	Yes	Yes	Apples	Yes	Yes				
Milk	Yes	Yes	Bananas	Yes	Yes				
Yogurt	Yes	Yes	Cantaloupe	No	Yes				
Mozarella cheese	Yes	Yes	Tomato, fresh	No	Yes				
Evaporated milk	Yes	No	Tomato, canned whole	Yes	Yes				
Skim milk powder	Yes	No	Raisins	No	Yes				
<i>Dairy Total Weight</i>	9.2 kg	22.06 kg	Pears, fresh	No	Yes				
<b>Eggs</b>			Peaches, canned	Yes	Yes				
Eggs	Yes	Yes	Orange juice	Yes	Yes				
<i>Egg Total Weight</i>	0.45 kg	0.78 kg	Oranges	Yes	Yes				
<b>Meat and Alternatives</b>			Grapes	Yes	Yes				
Baked beans, canned	Yes	Yes	Strawberries, frozen	No	Yes				
Lean Ground Beef	Yes	Yes	Tomato juice	No	Yes				
Beef Roast	No	Yes	Tomato sauce	Yes	No				
Beef Steak	Yes	Yes	Fruit cocktail, canned	Yes	No				
Chicken Legs	Yes	Yes	Pineapple, canned	Yes	No				
Fish, frozen	Yes	Yes	Broccoli, fresh	No	Yes				
Salmon, canned	Yes	Yes	Broccoli, frozen	Yes	No				
Tuna, canned	No	Yes	Cabbage	Yes	Yes				
Sardines	Yes	No	Carrots, Fresh	Yes	Yes				
Pork chops	Yes	Yes	Carrots, canned	Yes	No				
Ham, sliced	Yes	Yes	Carrots, frozens	Yes	No				
Ham, canned	Yes	No	Celery	No	Yes				
Peanuts	No	Yes	Corn, canned	Yes	Yes				
Peanut butter	Yes	Yes	Corn, frozen	Yes	No				
Lentils, dry	No	Yes	Green pepper	No	Yes				
Bologna	Yes	No	Iceberg lettuce	No	Yes				
Wieners	Yes	No	Mixed frozen vegetables	Yes	Yes				
Canned pork-based luncheon meat	Yes	No	Mixed vegetables, canned	Yes	No				
Canned corned beef	Yes	No	Mushrooms	No	Yes				
Canned beef stew	Yes	No	Onions	Yes	Yes				
Canned spaghetti sauce with meat	Yes	No	Peas, frozen	No	Yes				
<i>Meat and Alternatives Total Weight</i>	7.7 kg	6.49 kg	Peas, canned	Yes	No				
<b>Grains</b>			Instant potato flakes	Yes	No				
Bread, white	Yes	Yes	Potatoes	Yes	Yes				
Bread, whole wheat	Yes	Yes	French fries, frozen	Yes	No				
Buns	No	Yes	Romaine lettuce	No	Yes				
Corn Flakes	Yes	Yes	Rutabaga/turnip	Yes	Yes				
Wheat Squares	No	Yes	String beans, frozen	Yes	Yes				
Crackers/pilot biscuits	Yes	Yes	Sweet potatoes	No	Yes				
Oatmeal	Yes	Yes	Cucumber	No	Yes				
Pasta	Yes	Yes	<i>Fruits and Vegetables Total Weight</i>	26.75 kg	22.06 kg				
Pita bread, whole wheat	No	Yes	<b>Sugar</b>						
Rice	Yes	Yes	Plain cookies	No	Yes				
Flour	Yes	No	Sugar	Yes	No				
Macaroni and cheese dinner	Yes	No	<i>Sugar Total Weight</i>	0.6 kg	N.A.				
<i>Grains Total Weight</i>	5.5 kg	5.79 kg	<b>Miscellaneous</b>						
<b>Fats and Oils</b>			<b>5%</b>						
Canola Oil	Yes	Yes	<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;"><b>Total Basket Weight</b></div> <table border="1"> <tr> <td><b>RNFB</b></td> <td><b>NNFB</b></td> </tr> <tr> <td><b>52 kg</b></td> <td><b>59 kg</b></td> </tr> </table> </div>			<b>RNFB</b>	<b>NNFB</b>	<b>52 kg</b>	<b>59 kg</b>
<b>RNFB</b>	<b>NNFB</b>								
<b>52 kg</b>	<b>59 kg</b>								
Salad dressing, Italian	No	Yes							
Margarine	Yes	Yes							
Mayonnaise	No	Yes							
Lard	Yes	No							
Butter	Yes	No							
<i>Fats and Oils Total Weight</i>	1.05 kg	1.37 kg							

## **APPENDIX B**

### **Revised Northern Food Basket Price Selection Procedure**

## **Revised Northern Food Basket Price Selection Procedure (2007)**

This document describes the procedure for calculating the price used for each of the 67 items in the Revised Northern Food Basket developed in 2007. This version is to be used for surveys conducted in 2008.

### **Objectives**

The objectives of the price selection procedure are as follows:

1. To produce costs that are based on realistic, typical prices in each community for each item in the basket, recognizing that the prices of identical items can differ between stores in the same community.
2. To minimize the effects of there being different numbers of stores and a different selection of brands and sizes available in different stores and in different communities.
3. To aid in the detection of communities where one or more retailers do not appear to be passing the transportation subsidy provided by the Food Mail Program on to their customers.
4. To keep the amount of work required to select or calculate the prices used in the basket to the minimum required to meet objectives 1, 2 and 3.

The objective is not to produce the lowest possible cost for the basket, assuming that shoppers are aware of prices and always buy each item at the lowest possible price available in the community, or the most economical brands and sizes. An approach based on average prices, rather than lowest prices, has been adopted, to give results that are more typical of what consumers would pay to purchase this basket in various communities. However, this does not mean using average prices for all brands and all sizes of every product in the basket.

### **Approach**

Different approaches are used for selecting prices, depending upon the nature of the product, the relevance of brand name, the availability of different brands, the dominance of a particular brand and purchase size in the market, the different purchase units available for products that may be sold both by weight and in standard-sized bags, and the different varieties that may be available for products such as apples, oranges and potatoes.

The approaches for selecting prices for different products in *northern communities* are as follows:

1. Use average prices for a specific purchase size. For some items (list A), use the average price for *all* brands recorded at all stores in the community for the purchase size indicated. For products where one national brand is almost always available and dominates the market (list B), use the average price for that *specific national brand* in the purchase size indicated for all stores in the community. Products are listed in the order in which they appear in the current version of the price survey form.
2. Where the specific purchase size is not available in the community, use the average price for an alternative size (in most cases, the next larger available size), and convert this to a price for the specified purchase size before entering it into the spreadsheet. The preferred alternative sizes are

shown in lists A and B. If the preferred alternative size is not available, substitute other sizes. **Under no circumstances should scalars or purchase units be changed on the spreadsheet.**

3. For products where one national brand was specified (list B) but was not available in the community in the specified purchase size, use the average price for all other national brands available in the community in the specified size. If no national brands are available, use store brands. If the product was not available in the specified size for any brand, use the average price for the specified brand in an alternative size, if available. Otherwise, use the average price for all other brands available in an alternative size.
4. Special procedures are to be used for certain products (see list C).
5. Enter the number of price quotes from the community that were used to calculate the price for each product on the spreadsheet in column K.

In *southern communities*, use the same procedure, but based on the prices in one supermarket. Where a product in the basket is not available at that supermarket, or is not available in the specified size, an effort should be made to obtain a price from another supermarket.

Our practice in recent years has been to survey in only one store in Whitehorse, Val-d'Or, Timmins and most large southern cities (Winnipeg, Ottawa, Gatineau, Montréal, Edmonton) but to survey in all stores in other entry points: Yellowknife (i.e., at both the co-op and an Extra Foods store since 2005), Happy Valley - Goose Bay, Churchill (which now has only one store), Thompson, Inuvik and St. Anthony. We have normally conducted surveys in two stores in St. John's, but used the results from only one store for our published data series. In some years, surveys were also conducted in two stores in Timmins.

In the future, it would be preferable to conduct surveys in two supermarkets in all southern cities where we survey and to use average prices from these stores, as we will do for northern communities, to ensure that results are typical of southern prices and that we can minimize the amount of substitution of sizes (and of brands, where this is a factor). However, this may not be possible, because of the additional time required. A test in a number of southern cities could determine whether this makes enough difference in the results to justify the additional time and expense of surveying in more than one supermarket in these cities on an ongoing basis.

### **Stores to include**

In northern communities, all grocery stores and other stores (regardless of their name) that sell a wide variety of food are normally to be included in the price selection. However, in certain circumstances, convenience stores that sell a very limited range of perishable food, have very high prices, are likely to have a very small share of the local market, or are only open in the afternoons and evenings, will be excluded from the survey results, even if a price survey has been conducted there.

### **Specials**

Special prices should be used, including those in northern communities where only regular prices were used in the original NFB. If the *only* price or prices used for a particular product are special prices, put "special" in column I on the spreadsheet.

### **Prices for Multiples**

Occasionally, stores have different unit prices when a customer purchases more than a certain quantity of an item. The prices for multiples may be higher or lower than the unit price for a customer purchasing less than a specified quantity of that item.

Prices for multiples should not be used, even if the quantities required to be purchased to get the lower price are reasonable amounts to be purchased at one time (e.g., three cans of corn or loaves of bread), and not case lots. Where customers can buy only a certain number of units at a low price (e.g., a limit of one per customer) and have to pay more if more units are purchased, the low price should still be used.

### **Out of Stock Items**

Prices for items that are out of stock at the time of the survey should be included in the calculation only if the item is not available anywhere in the community.

### **Imputed Prices**

For items which are not available in the community in any brand or size, prices must be imputed using the most appropriate method under the circumstances (for example, a price from another community, from another recent survey in the same community, or by applying the ratio of prices between similar products in another community to the price of one of those products in the community where a price must be imputed). The exact procedure should be documented.

When prices are imputed, the word “imputed” should be entered in column I on the spreadsheet in the row corresponding to the item concerned, and the imputation method entered at the bottom of the relevant page.

In some cases, similar products that are likely to be priced the same as a missing product can be used when the item was not available (for example, whole evaporated milk when 2% is not available). Prices for these substitutes are not considered to be “imputed,” but details of the product substituted should be entered in column J on the spreadsheet.

### **Documentation of Prices Selected**

When prices are selected using sizes which are **not** the “preferred” sizes (or “preferred” brands, for items in List B), the relevant size and brand information should be recorded in column J of the spreadsheet, in the row corresponding to the item concerned. This step facilitates checking and analysis of the results, without having to search through the price survey forms to see whether unusual results reflect “unusual” brands or sizes.

## List A

Use the average price for all national and store brands in a specified size for these products:

Where a size range is specified, or where a different size must be substituted, prices must be converted to a price for the purchase unit indicated on the pricing spreadsheet.

Product	Size	Alternative size
Ham, sliced <sup>1</sup>	175 g	375 g
Bologna, beef and pork, sliced <sup>2</sup>	175 g	375 g
Wieners, beef and pork <sup>3</sup>	450 g	
Fish sticks <sup>4</sup>	700 g	350 g
Frozen French fries <sup>5</sup>	900 g - 1 kg	750 g
Frozen corn	1 kg	Use the closest smaller size for these products.
Frozen carrots <sup>6</sup>	1 kg	
Frozen mixed vegetables (corn, peas, carrots, green beans) <sup>7</sup>	1 kg	
Frozen broccoli <sup>8</sup>	1 kg	

<sup>1</sup> Exclude Black Forest ham unless this is the only type available in the community.

<sup>2</sup> Use all beef bologna only if no regular (beef and pork) bologna is available in the community.

<sup>3</sup> Use all beef wieners only if no regular (beef and pork) wieners are available in the community. Exclude prices for barbecue style wieners, unless this is the only type available in the community.

<sup>4</sup> Use the average price for 700 g packages of frozen fish sticks made from a *mixture of minced fish*. Fish sticks in a 700 g package are made from a mixture of minced fish, while those in 350 g packages are normally from one species. Fish “krisps”, fish cakes and similar products made from a mixture of minced fish should be considered to be the equivalent of fish sticks, and should be used if no “fish sticks” made from a mixture of minced fish are available. If no fish sticks, fish “krisps” or fish cakes made from a mixture of minced fish are available, substitute, in order of preference, fish sticks made from one species of fish, plain fish fillets, and fish in batter.

<sup>5</sup> For frozen French fries, corn, carrots, mixed vegetables and broccoli, include prices for B grade brands.

<sup>6</sup> If no frozen carrots are available, substitute peas and carrots, or frozen mixed vegetables with carrots if no peas and carrots are available.

<sup>7</sup> If no frozen mixed vegetables are available in the 1 kg size, use frozen peas and carrots.

<sup>8</sup> If no frozen broccoli is available, use frozen mixed vegetables containing broccoli.

<b>Product</b>	<b>Size</b>	<b>Alternative size</b>
Frozen apple juice	341 - 355 ml	
Frozen orange juice	341 - 355 ml	
Mozzarella cheese <sup>9</sup>	200 - 227 g	300 - 340 g
Process cheese slices <sup>10</sup>	500 g	250 g
Fruit yogurt	175 g	150 g
Canned fruit cocktail with juice <sup>11</sup>	398 ml	540 ml
Canned peaches with juice	398 ml	540 ml
Canned pineapple with juice <sup>12</sup>	398 ml	540 ml
Canned peas	398 ml	540 ml
Canned corn	341 ml	540 ml
Canned carrots	398 ml	540 ml
Canned green beans <sup>13</sup>	398 ml	540 ml
Canned tomatoes	540 ml	796 ml
Canned mixed vegetables	398 ml	540 ml
Canned tomato sauce <sup>14</sup>	398 ml	
Apple juice, Tetra Pak <sup>15</sup>	960 ml - 1 L	1.36 L canned
Orange juice, Tetra Pak <sup>16</sup>	960 ml - 1 L	

<sup>9</sup> Do not include shredded unless this is the only type available in the community.

<sup>10</sup> Do not include Kraft Extra Cheddar slices unless these are the only cheese slices available in any size in the community.

<sup>11</sup> Include prices for chunky mixed fruit in juice.

<sup>12</sup> Use chunks or crushed only if no sliced pineapple is available.

<sup>13</sup> Include cut, whole and French style.

<sup>14</sup> Include Italian.

<sup>15</sup> For apple juice in Tetra Paks, prices for 960 ml must first be converted to a price for 1 L, and then combined with prices for 1 L Tetra Paks.

<sup>16</sup> For orange juice in Tetra Paks, prices for 960 ml must first be converted to a price for 1 L, and then combined with prices for 1 L Tetra Paks.

Product	Size	Alternative size
Canned salmon <sup>17</sup>	213 g	418 g
Instant mashed potatoes	350 - 500 g	180 g
Skim milk powder	500 g	1 kg
All-purpose flour Exception: Newfoundland and Labrador	2.5 kg 3.18 kg	5 kg 2.5 kg
Peanut butter	500 g	250 g
Canola oil <sup>18</sup>	946 ml	1 L

### List B

Use the average price for a single dominant national brand in a specified size for these products:

Product	Brand	Size	Alternative size
Margarine, non-hydrogenated	Becel	454 g <sup>19</sup>	2 x 227 g
Corn flakes	Kellogg's	400 g	525 g
Oats	Quaker	1 kg	1.35 kg
Pilot biscuits	Barge	400 g	350 g
Canned spaghetti sauce with meat	Catelli	398 ml	680 ml
Canned corn beef	Hereford	340 g	
Canned baked beans with pork and tomato sauce	Heinz	398 ml	540 ml
Canned luncheon meat, pork	Klik <sup>20</sup>	340 g	
Canned ham	Maple Leaf <sup>21</sup>	454 g	680 g

<sup>17</sup> If no pink salmon is available in any size, substitute keta (if available) or sockeye (if this is the only kind available).

<sup>18</sup> If no canola oil is available in the 946 ml or 1 L size, use the 473 ml and 500 ml sizes, if available as the first alternative size. If no canola oil is available in any size, use vegetable oil.

<sup>19</sup> Include prices for two 227 g tubs packaged together if this price is lower than the price for 454 g in all other stores, or if no 454 g tubs are available in the community. If no 454 g or 227 g tubs are available in the community, use 907 g as the alternative size.

<sup>20</sup> Include prices for both regular and light Klik.

<b>Product</b>	<b>Brand</b>	<b>Size</b>	<b>Alternative size</b>
Canned sardines in soya oil	Brunswick	106 g	
Canned beef stew	Puritan <sup>22</sup>	665 - 700 g <sup>23</sup>	410 g
Macaroni and cheese dinner	Kraft Dinner	225 g	200 g
Rice, parboiled	Uncle Ben's Converted	900 g	450 g
Macaroni <sup>24</sup>	Catelli	500 g	900 g
Canned evaporated milk, 2%	Carnation	370 - 385 ml	160 ml <sup>25</sup>
Lard	Tenderflake	454 g	1.36 kg

### **List C**

Special procedures are to be used for these products. These are mainly products for which brands are not relevant or not an important consideration. Substitution rules are provided to deal with situations where the product is not available in the community.

T-bone steak:<sup>26</sup> Use the average price for T-bone steak at all stores in the community. If no T-bone is available, use the average price for similar types of steak with bone (e.g., wing, porterhouse or rib).

Ground beef, lean: Use the average price for lean ground beef at all stores in the community in all sizes up to 1 kg. If no lean ground beef is available, use medium or regular ground beef or frozen hamburger patties (in this order of preference).

Pork chops, centre-cut loin: Use the average price for centre-cut loin pork chops at all stores in the community, including barbecue style, but excluding fast fry. If centre-cut loin chops are not available, substitute loin rib and tenderloin end, loin pork chops (unspecified), loin rib, boneless or shoulder butt chops (in this order of preference).

---

<sup>21</sup> If the 454 g size is not available, substitute another brand (if available) or the 680 g size of Maple Leaf canned ham if no canned ham in a 454 g size is available in any brand. Use Maple Leaf Picnic shoulder only if no canned ham is available in any size. If no canned ham or pork shoulder is available, use canned flakes of ham.

<sup>22</sup> Include prices for both regular and Frontier style Puritan beef stew.

<sup>23</sup> Prices for the 665 g size should also be used, but must be converted to a price for 700 g.

<sup>24</sup> At stores where no Catelli macaroni is available in the 500 g size, substitute spaghetti.

<sup>25</sup> If 2% evaporated Carnation milk is not available in a 370 - 385 ml can, use whole Carnation (as the first alternative) or all other brands, before using this alternative size.

<sup>26</sup> For T-bone steak, ground beef, pork chops and chicken legs, use prices for "family packs" only if smaller packs are not available.

Chicken drumsticks: First, select or estimate a price for chicken drumsticks by following this procedure at each store:

1. Use drumsticks if available.
2. If no drumsticks are available, use the price for chicken legs without backs, divided by 1.1, if available, or the price of chicken legs with backs, divided by 1.02, to provide a cost for the same edible quantity of chicken.
3. If no chicken legs with or without backs are available, use the price for thighs without backs, divided by 1.22.
4. Omit stores that have no drumsticks, thighs or legs. However, if no drumsticks, thighs or legs are available in the community, use the price of chicken breasts, divided by 1.27, at each store that has them.

Once you have selected or estimated a price for chicken drumsticks at all stores, calculate the average of these prices.

This procedure ensures that a price for chicken drumsticks is normally available for each store, and that the cost of the chicken in this basket is consistent with the edible portion represented by the “as purchased” quantity of chicken drumsticks contained in the basket.

Milk: At each store, calculate the average price for 2 L of regular milk in cartons and jugs and the average price for micro-filtered 2% milk in cartons and jugs (if both types are available). Then select the lower of these two at each store and calculate the average price. (Exclude stores where this size is not available.) If a 2 L size of 2% milk is not available in the community, substitute 2 L of 1%, skim or homogenized milk in that order of preference. If no milk is available in a 2 L size, use the average price for 1 L of fresh 2% milk (converted to price for 2 L) if available, or for 4 L if the 1 L size is not available. If no fresh milk is available, use the average price for all brands of UHT milk (converted to price for 2 L), and put “UHT” in column J.

Eggs: At each store, select the lowest price for 1 dozen large eggs. Then calculate the average of the prices selected. If no large eggs are available in the community, use the average price for medium eggs.

Butter: At each store, select the lowest price for 1 lb. of butter. Then calculate the average of the prices selected.

Apples: Calculate the average of all prices per kilogram for different varieties of apples sold in bags up to 5 lbs., loose or individually. Do not include prices for apples sold individually if the weight is unknown.

Oranges: Use the same procedure as for apples, including bags up to 5 lbs. or one dozen oranges. Do not include prices for oranges sold individually if the weight is unknown.

Bananas: Calculate the average of prices per kilogram recorded at each store.

Grapes: Calculate the average price for green, red and black grapes at all stores in the community.

Potatoes: Calculate the average of all prices recorded for 5 lb. (2.27 kg) bags of all varieties of potatoes, excluding sweet potatoes, baking potatoes, new potatoes and B grade potatoes. If no 5 lb bags are available, calculate the average of all prices recorded for loose potatoes. Do not use prices for 10 lb. bags unless there are no potatoes in the community sold loose or in 5 lb. bags.

Carrots: Calculate the average price for 2 lb. bags of unpeeled carrots recorded at all stores. If no 2 lb. bags are available in the community, use larger bags and loose carrots, and convert the price to a price for 2 lbs.

Onions: Calculate the average of all prices per kilogram for yellow cooking onions and jumbo onions sold loose or in 2 lb. or 3 lb. bags. Do not include Spanish onions, white onions or red onions unless no yellow or jumbo onions are available. If no yellow or jumbo onions are available in the community, use the cheapest price for Spanish, white or red onions.

Turnips: Calculate the average of prices per kilogram recorded at each store. Include rutabagas, but not swedes.

Cabbage: Calculate the average of prices per kilogram for green cabbage recorded at each store.

White bread: *At each store*, select the lowest price for 675 g of white bread, after converting prices for all loaves, regardless of size, to a price for 675 g. Then calculate the average of the prices selected at each store.

Whole wheat bread: *At each store*, select the lowest price for 675 g of 100% whole wheat bread, after converting prices for all loaves, regardless of size, to a price for 675 g. Then calculate the average of the prices selected at each store. If no 100% whole wheat bread is available in the community, substitute 60% whole wheat.

Sugar: *At each store*, select the lowest price for 2 kg of sugar. (Normally, there will be only one price at each store.) Then calculate the average of the prices selected at each store. If no sugar is available in the community in this size, substitute 4 kg, if available, converted to a price for 2 kg. If neither of these sizes is available, use prices for 1 kg, multiplied by 2.

## **APPENDIX C**

### **Household Food Security Survey**

# Household Food Security Questionnaire

The following questions are about the food situation for your household in the past 12 months.

**Q1.<sup>20</sup>** Which of the following statements best describes the food eaten in your household in the past 12 months, that is since [current month] of last year?

1. You and other household members always had enough of the kinds of food you wanted to eat.
  2. You and other household members had enough to eat, but not always the kinds of food you wanted.
  3. Sometimes you and other household members did not have enough to eat.
  4. Often you and other household members didn't have enough to eat.
- Don't know / refuse to answer (Go to end of module)

## STAGE 1: Questions 2–6 — ask all households

Now I'm going to read you several statements that may be used to describe the food situation for a household. Please tell me if the statement was often true, sometimes true, or never true for you and other household members in the past 12 months.

**Q2.** The first statement is: you and other household members worried that food would run out before you got money to buy more. Was that often true, sometimes true, or never true in the past 12 months?

1. Often true
  2. Sometimes true
  3. Never true
- Don't know / refuse to answer

**Q3.** The food that you and other household members bought just didn't last, and there wasn't any money to get more. Was that often true, sometimes true, or never true in the past 12 months?

1. Often true
  2. Sometimes true
  3. Never true
- Don't know / refuse to answer

---

<sup>20</sup> Question Q1 is not used directly in determining household food security status.

**Q4.** You and other household members couldn't afford to eat balanced meals. In the past 12 months was that often true, sometimes true, or never true?

1. Often true
  2. Sometimes true
  3. Never true
- Don't know / refuse to answer

---

IF CHILDREN UNDER 18 IN HOUSEHOLD, ASK Q5 AND Q6;  
OTHERWISE, SKIP TO FIRST-LEVEL SCREEN

---

Now I'm going to read a few statements that may describe the food situation for households with children.

**Q5.** You or other adults in your household relied on only a few kinds of low-cost food to feed the children because you were running out of money to buy food. Was that often true, sometimes true, or never true in the past 12 months?

1. Often true
2. Sometimes true
3. Never true
- Don't know / refuse to answer

**Q6.** You or other adults in your household couldn't feed the children a balanced meal, because you couldn't afford it. Was that often true, sometimes true, or never true in the past 12 months?

1. Often true
2. Sometimes true
3. Never true
- Don't know / refuse to answer

---

**FIRST-LEVEL SCREEN (screener for Stage 2):**

If **AFFIRMATIVE RESPONSE** to ANY ONE of Q2–Q6 (i.e. "often true" or "sometimes true")  
OR response [3] or [4] to Q1, then continue to STAGE 2; otherwise, skip to end.

---

---

IF CHILDREN UNDER 18 IN HOUSEHOLD, ASK Q7;  
OTHERWISE SKIP TO Q8

---

**Q7.** The children were not eating enough because you or other adults in your household just couldn't afford enough food. Was that often, sometimes or never true in the past 12 months?

1. Often true
2. Sometimes true
3. Never true
- Don't know / refuse to answer

The following few questions are about the food situation in the past 12 months for you or any other adults in your household.

**Q8.** In the past 12 months, since last [current month] did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?

1. Yes
2. No (Go to Q9)
- Don't know / refuse to answer

**Q8b.** How often did this happen?

1. Almost every month
2. Some months but not every month
3. Only 1 or 2 months
- Don't know / refuse to answer

- Q9.** In the past 12 months, did you (personally) ever eat less than you felt you should because there wasn't enough money to buy food?
1. Yes
  2. No
- Don't know / refuse to answer
- Q10.** In the past 12 months, were you (personally) ever hungry but didn't eat because you couldn't afford enough food?
1. Yes
  2. No
- Don't know / refuse to answer
- Q11.** In the past 12 months, did you (personally) lose weight because you didn't have enough money for food?
1. Yes
  2. No
- Don't know / refuse to answer

---

**SECOND-LEVEL SCREEN (screener for Stage 3):**  
If **AFFIRMATIVE RESPONSE** to ANY ONE of Q7–Q11,  
then continue to STAGE 3; otherwise, skip to end.

---

**STAGE 3: Questions 12–16 — ask households passing the Second-Level Screen**

- Q12.** In the past 12 months, did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food?
1. Yes
  2. No (IF CHILDREN UNDER 18 IN HOUSEHOLD, ASK Q13; OTHERWISE SKIP TO END)
- Don't know / refuse to answer
- Q12b.** How often did this happen?
1. Almost every month
  2. Some months but not every month
  3. Only 1 or 2 months
- Don't know / refuse to answer

---

**IF CHILDREN UNDER 18 IN HOUSEHOLD, ASK Q13–16;  
OTHERWISE SKIP TO END**

---

Now, a few questions on the food experiences for children in your household.

- Q13.** In the past 12 months, did you or other adults in your household ever cut the size of any of the children's meals because there wasn't enough money for food?
1. Yes
  2. No
- Don't know / refuse to answer

**Q14.** In the past 12 months, did any of the children ever skip meals because there wasn't enough money for food?

1. Yes
2. No
- Don't know / refuse to answer

**Q14b.** How often did this happen?

1. Almost every month
2. Some months but not every month
3. Only 1 or 2 months
- Don't know / refuse to answer

**Q15.** In the past 12 months, were any of the children ever hungry but you just couldn't afford more food?

1. Yes
2. No
- Don't know / refuse to answer

**Q16.** In the past 12 months, did any of the children ever not eat for a whole day because there wasn't enough money for food?

1. Yes
2. No
- Don't know / refuse to answer

**End of module**

### **Open-ended questions**

Q17. Do you garden to produce food? How much of the food your family eats comes from your garden?

Q18. Does your family get food from hunting or fishing or have chickens to supply food? How much of the food your family eats comes from hunting or fishing?

Q19. Do you have a freezer to store the food? Do you need one?

Q20. Are you familiar with any programs to help food access?

Q21. What would you like to see in your community to improve food access?

Q22. What is the biggest to eating healthy in your community?

## **APPENDIX D**

### **Summary of Individual Food Item Costs and Revised Northern Food Basket Costs For Each Community**

Revised Northern Food Basket Cost in Island Lake First Nations and Winnipeg, 2009				
Food Group	Food Items	INAC Standard Unit <sup>1</sup>	Wasagamack	St. Theresa Point
Dairy Products	2% milk	4.76 L	11.89	15.11
	Evaporated milk, prepared	1.58 L <sup>2</sup>	11.03	12.69
	Skim milk powder	90 g	1.94	1.96
	Yoghurt	1.67 kg	25.65	16.70
	Processed cheese	385 g	6.44	6.92
	Mozzarella cheese	485 g	13.36	13.15
	<b>Food Group Total</b>			70.31
Eggs	Eggs	8	2.53	3.11
Meat	Steak	470 g	N.A.	8.33
	Ground beef, lean	1.34 kg	7.88	12.83
	Pork chops	1.21 kg	10.53	18.05
	Chicken drumsticks	2.68 kg	20.11	23.44
	Sliced ham	135 g	5.69	5.51
	Frozen fish fillets	135 g	N.A.	2.24
	Canned salmon	270 g	13.55	7.30
	Canned ham	200 g	N.A.	N.A.
	Sardines	270 g	N.A.	N.A.
<b>Food Group Total</b>			57.76	77.7
Meat Alternatives	Wieners	100 g	1.68	1.97
	Bologna	60 g	2.17	2.30
	Peanut butter	90 g	2.08	2.29
	Caned baked beans with pork	290 mL	3.51	3.24
	Canned pork-based luncheon meat	50 g	N.A.	N.A.
	Canned corn beef	40 g	N.A.	N.A.
	Canned beef stew	180 g	N.A.	N.A.
	Canned spaghetti sauce with meat	155 mL	N.A.	N.A.
<b>Food Group Total</b>			9.44	9.80
Grain Products	White enriched bread	660 g	5.56	4.83
	Whole wheat bread	660 g	3.82	3.41
	All purpose flour	1.92 kg	4.72	7.86
	Macaroni or spaghetti	385 g	2.85	2.93
	White long-grained rice	330 g	3.04	3.42
	Macaroni and cheese dinner	550 g	5.99	5.64
	Rolled oats	275 g	1.71	1.70
	Corn flakes	440 g	4.44	6.62
	Pilot biscuits	275 g	4.63	3.42
<b>Food Group Total</b>			36.76	39.83
Citrus Fruit and Tomatoes	Oranges	1.23 kg	6.84	6.94
	Apple juice, tetra pack	880 mL	N.A.	2.27
	Apple juice, frozen, prepared	130 mL <sup>3</sup>	N.A.	N.A.
	Orange juice, frozen, prepared	1.13 L <sup>3</sup>	6.35	N.A.
	Orange juice, tetra pack	375 mL	N.A.	8.01
	Canned whole tomatoes	215 mL	1.57	1.32
	Canned tomato sauce	300 mL	2.04	2.08
<b>Food Group Total</b>			16.80	20.62

<b>Revised Northern Food Basket Cost in Island Lake First Nations and Winnipeg, 2009</b>				
<b>Food Group</b>	<b>Food Items</b>	<b>INAC Standard Unit<sup>1</sup></b>	<b>Wasagamack</b>	<b>St. Theresa Point</b>
Other Fruits	Apples	4.38 kg	32.25	33.11
	Bananas	3.58 kg	26.07	37.48
	Grapes	500 g	6.25	3.85
	Canned fruit cocktail in juice	855 mL	10.46	8.44
	Canned peaches in juice	285 mL	N.A.	2.31
	Canned pineapple in juice	285 mL	3.11	2.48
	<b>Food Group Total</b>			78.14
Potatoes	Potatoes	3 kg	13.63	11.03
	French fries	480 mL	3.56	5.42
	Instant potatoes	220 mL	N.A.	N.A.
	<b>Food Group Total</b>		17.19	16.45
Other Vegetables	Cabbage	520 g	2.42	N.A.
	Carrots	2 kg	10.12	13.48
	Onions	695 g	2.54	3.50
	Turnips	350 g	3.74	2.37
	Frozen mixed vegetables	1.74 kg	10.05	11.77
	Frozen broccoli	695 g	6.37	6.53
	Frozen corn	260 g	N.A.	2.34
	Frozen carrot	260 g	N.A.	5.11
	Canned corn	1.09 L	10.05	8.19
	Canned peas	900 mL	7.12	5.56
	Canned mix vegetables	545 mL	6.28	3.59
	Canned beans	315 mL	9.74	1.18
	Canned carrot	325 mL	N.A.	1.63
	<b>Food Group Total</b>		68.43	65.25
Fats and Oils	Margarine	715 g	8.65	6.25
	Butter	65 g	0.70	0.71
	Canola oil	185 mL	1.46	1.60
	Lard	105 g	0.38	0.41
	<b>Food Group Total</b>		11.19	8.97
Sugar	Sugar	600 g	2.02	2.46
Miscellaneous	etc.	5%	18.53	19.92
<b>Total Basket Cost</b>			<b>389.10</b>	<b>418.31</b>
<p><b>Notes:</b>  <sup>1</sup>Standard unit-family of four  N.A. - Not available  To account for food items missing in any food groups, the weights assigned to those missing foods were equally divided amongst the remaining items within that food group, and costed accordingly.</p>				

Revised Northern Food Basket Cost in Island Lake First Nations and Winnipeg, 2009					
Food Group	Food Items	INAC Standard Unit <sup>1</sup>	Garden Hill	Red Sucker Lake	Winnipeg
Dairy Products	2% milk	4.76 L	16.86	15.46	5.58
	Evaporated milk, prepared	1.58 L <sup>2</sup>	11.91	12.04	7.64
	Skim milk powder	90 g	1.50	1.96	1.26
	Yoghurt	1.67 kg	17.62	16.07	8.88
	Processed cheese	385 g	6.33	7.93	3.69
	Mozzarella cheese	485 g	14.42	14.33	9.68
	<b>Food Group Total</b>			68.64	67.79
Eggs	Eggs	8	2.80	2.97	1.93
Meat	Steak	470 g	10.00	9.77	7.10
	Ground beef, lean	1.34 kg	14.24	6.51	11.69
	Pork chops	1.21 kg	17.52	14.92	9.72
	Chicken drumsticks	2.68 kg	25.55	23.16	18.73
	Sliced ham	135 g	3.83	7.54	2.88
	Frozen fish fillets	135 g	3.68	N.A.	2.20
	Canned salmon	270 g	5.91	5.73	4.73
	Canned ham	200 g	N.A.	N.A.	N.A.
	Sardines	270 g	N.A.	N.A.	N.A.
<b>Food Group Total</b>			80.73	67.63	57.05
Meat Alternatives	Wieners	100 g	1.92	1.98	0.97
	Bologna	60 g	2.66	3.42	2.13
	Peanut butter	90 g	1.81	1.90	1.44
	Caned baked beans with pork	290 mL	3.42	3.33	1.67
	Canned pork-based luncheon meat	50 g	N.A.	N.A.	N.A.
	Canned corn beef	40 g	N.A.	N.A.	N.A.
	Canned beef stew	180 g	N.A.	N.A.	N.A.
	Canned spaghetti sauce with meat	155 mL	N.A.	N.A.	N.A.
<b>Food Group Total</b>			9.81	10.63	6.21
Grain Products	White enriched bread	660 g	4.36	6.48	3.59
	Whole wheat bread	660 g	4.00	6.71	3.59
	All purpose flour	1.92 kg	5.43	5.93	3.90
	Macaroni or spaghetti	385 g	2.78	2.85	1.16
	White long-grained rice	330 g	3.06	3.07	1.62
	Macaroni and cheese dinner	550 g	4.88	6.10	3.35
	Rolled oats	275 g	1.69	1.86	1.14
	Corn flakes	440 g	7.67	6.96	3.83
	Pilot biscuits	275 g	3.54	4.09	N.A.
	<b>Food Group Total</b>			37.41	44.05
Citrus Fruit and Tomatoes	Oranges	1.23 kg	6.96	7.29	4.03
	Apple juice, tetra pack	880 mL	3.53	3.36	1.51
	Apple juice, frozen, prepared	130 mL <sup>3</sup>	N.A.	N.A.	N.A.
	Orange juice, frozen, prepared	1.13 L <sup>3</sup>	2.66	3.45	1.95
	Orange juice, tetra pack	375 mL	1.51	1.97	0.56
	Canned whole tomatoes	215 mL	1.42	1.28	0.51
	Canned tomato sauce	300 mL	2.60	2.24	0.90
	<b>Food Group Total</b>			18.68	19.59

Revised Northern Food Basket Cost in Island Lake First Nations and Winnipeg, 2009					
Food Group	Food Items	INAC Standard Unit <sup>1</sup>	Garden Hill	Red Sucker Lake	Winnipeg
Other Fruits	Apples	4.38 kg	30.19	36.14	17.30
	Bananas	3.58 kg	17.85	24.56	6.09
	Grapes	500 g	4.76	5.00	1.64
	Canned fruit cocktail in juice	855 mL	7.45	11.20	6.42
	Canned peaches in juice	285 mL	2.22	N.A.	2.14
	Canned pineapple in juice	285 mL	3.09	3.17	2.14
	<b>Food Group Total</b>			65.56	80.07
Potatoes	Potatoes	3 kg	13.59	10.79	3.28
	French fries	480 mL	3.80	3.73	1.76
	Instant potatoes	220 mL	N.A.	N.A.	N.A.
	<b>Food Group Total</b>		17.39	14.52	5.04
Other Vegetables	Cabbage	520 g	5.87	N.A.	0.89
	Carrots	2 kg	17.67	21.32	4.36
	Onions	695 g	3.36	7.58	1.52
	Turnips	350 g	2.64	N.A.	1.15
	Frozen mixed vegetables	1.74 kg	15.14	17.58	8.09
	Frozen broccoli	695 g	N.A.	N.A.	3.05
	Frozen corn	260 g	3.47	N.A.	1.21
	Frozen carrot	260 g	N.A.	N.A.	1.21
	Canned corn	1.09 L	7.83	10.10	3.52
	Canned peas	900 mL	5.45	5.60	2.68
	Canned mix vegetables	545 mL	4.43	3.57	1.71
	Canned beans	315 mL	1.89	2.38	0.99
	Canned carrot	325 mL	1.63	N.A.	1.02
	<b>Food Group Total</b>			69.38	68.13
Fats and Oils	Margarine	715 g	7.48	7.82	5.50
	Butter	65 g	0.93	0.89	0.57
	Canola oil	185 mL	1.33	1.48	0.49
	Lard	105 g	0.36	0.41	0.32
	<b>Food Group Total</b>			10.10	10.60
Sugar	Sugar	600 g	2.05	2.56	1.11
Miscellaneous	etc.	5%	19.13	19.42	10.69
<b>Total Basket Cost</b>			<b>401.68</b>	<b>407.96</b>	<b>224.41</b>
<p><b>Notes:</b>  <sup>1</sup>Standard unit-family of four  N.A. - Not available  To account for food items missing in any food groups, the weights assigned to those missing foods were equally divided amongst the remaining items within that food group, and costed accordingly.</p>					

**APPENDIX E**

**Community Responses  
to the  
Household Food Security Survey**

Wasagamack Household Food Security Survey Responses						
Survey Question	All Households		Households with Children		Households without Children	
	n	%	n	%	n	%
<b>Adult food security scale</b>						
Worried food would run out	26	72%	21	88%	5	42%
Run out of food and unable to purchase more	26	72%	20	83%	6	50%
Unable to afford balanced meals	25	69%	21	88%	4	33%
Adult ever skip meals because wasn't enough money for food	9	25%	9	38%	0	0%
Adult cut or skipped meals almost every or some months	10	28%	10	42%	0	0%
Ate less than felt should	11	31%	10	42%	1	8%
Was hungry but could not afford to eat	8	22%	8	33%	0	0%
Lost weight, no money to buy food	5	14%	4	17%	1	8%
Adults did not eat for a whole day	7	19%	6	25%	1	8%
Adults did not eat for a whole day almost every or some months	4	11%	4	17%	0	0%
<b>Child food security scale</b>						
Relied on a few kinds of low cost foods to feed children	19	53%	19	79%	n.a.	n.a.
Could not afford to feed children a balanced meal	19	53%	19	79%	n.a.	n.a.
Children were not eating enough because could not afford food	17	47%	17	71%	n.a.	n.a.
Adults cut the size of children's meals because they could not afford food	6	17%	6	25%	n.a.	n.a.
Child ever skip meals because there wasn't enough money for food	6	17%	6	25%	n.a.	n.a.
Child skipped meals almost every or some months	9	25%	9	38%	n.a.	n.a.
Children were hungry but could not afford to buy more food	7	19%	7	29%	n.a.	n.a.
Children did not eat for a whole day	2	6%	2	8%	n.a.	n.a.

St. Theresa Point Household Food Security Survey Responses						
Survey Question	All Households		Households with Children		Households without Children	
	n	%	n	%	n	%
<b>Adult food security scale</b>						
Worried food would run out	29	76%	22	81%	7	64%
Run out of food and unable to purchase more	30	79%	22	81%	8	73%
Unable to afford balanced meals	29	76%	23	85%	6	55%
Adult ever skip meals because wasn't enough money for food	18	47%	15	56%	3	27%
Adult cut or skipped meals almost every or some months	16	42%	14	52%	2	18%
Ate less than felt should	23	61%	20	74%	3	27%
Was hungry but could not afford to eat	13	34%	12	44%	1	9%
Lost weight, no money to buy food	11	29%	10	37%	1	9%
Adults did not eat for a whole day	10	26%	7	26%	3	27%
Adults did not eat for a whole day almost every or some months	10	26%	8	30%	2	18%
<b>Child food security scale</b>						
Relied on a few kinds of low cost foods to feed children	21	55%	21	78%	n.a.	n.a.
Could not afford to feed children a balanced meal	22	58%	22	81%	n.a.	n.a.
Children were not eating enough because could not afford food	19	50%	19	70%	n.a.	n.a.
Adults cut the size of children's meals because they could not afford food	10	26%	10	37%	n.a.	n.a.
Child ever skip meals because there wasn't enough money for food	9	24%	9	33%	n.a.	n.a.
Child skipped meals almost every or some months	10	26%	10	37%	n.a.	n.a.
Children were hungry but could not afford to buy more food	10	26%	10	37%	n.a.	n.a.
Children did not eat for a whole day	8	21%	8	30%	n.a.	n.a.

Garden Hill Household Food Security Responses						
Survey Question	All Households		Households with Children		Households without Children	
	n	%	n	%	n	%
<b>Adult food security scale</b>						
Worried food would run out	35	88%	34	97%	1	20%
Run out of food and unable to purchase more	35	88%	34	97%	1	20%
Unable to afford balanced meals	35	88%	33	94%	2	40%
Adult ever skip meals because wasn't enough money for food	15	38%	15	43%	0	0%
Adult cut or skipped meals almost every or some months	15	38%	15	43%	0	0%
Ate less than felt should	18	45%	18	51%	0	0%
Was hungry but could not afford to eat	15	38%	15	43%	0	0%
Lost weight, no money to buy food	15	38%	15	43%	0	0%
Adults did not eat for a whole day	15	38%	15	43%	0	0%
Adults did not eat for a whole day almost every or some months	16	40%	16	46%	0	0%
<b>Child food security scale</b>						
Relied on a few kinds of low cost foods to feed children	29	73%	29	83%	n.a.	n.a.
Could not afford to feed children a balanced meal	30	75%	30	86%	n.a.	n.a.
Children were not eating enough because could not afford food	27	68%	27	77%	n.a.	n.a.
Adults cut the size of children's meals because they could not afford food	15	38%	15	43%	n.a.	n.a.
Child ever skip meals because there wasn't enough money for food	15	38%	15	43%	n.a.	n.a.
Child skipped meals almost every or some months	16	40%	16	46%	n.a.	n.a.
Children were hungry but could not afford to buy more food	16	40%	16	46%	n.a.	n.a.
Children did not eat for a whole day	13	33%	13	37%	n.a.	n.a.

Red Sucker Lake Household Food Security Responses						
Survey Question	All Households		Households with Children		Households without Children	
	n	%	n	%	n	%
<b>Adult food security scale</b>						
Worried food would run out	30	75%	27	77%	3	38%
Run out of food and unable to purchase more	29	73%	27	77%	2	25%
Unable to afford balanced meals	31	78%	28	80%	3	38%
Adult ever skip meals because wasn't enough money for food	18	45%	16	46%	2	25%
Adult cut or skipped meals almost every or some months	18	45%	17	49%	1	13%
Ate less than felt should	19	48%	17	49%	2	25%
Was hungry but could not afford to eat	17	43%	17	49%	0	0%
Lost weight, no money to buy food	16	40%	15	43%	1	13%
Adults did not eat for a whole day	8	20%	7	20%	1	13%
Adults did not eat for a whole day almost every or some months	6	15%	6	17%	0	0%
<b>Child food security scale</b>						
Relied on a few kinds of low cost foods to feed children	27	68%	27	77%	n.a.	n.a
Could not afford to feed children a balanced meal	23	58%	23	66%	n.a.	n.a
Children were not eating enough because could not afford food	20	50%	20	57%	n.a.	n.a
Adults cut the size of children's meals because they could not afford food	18	45%	18	51%	n.a.	n.a
Child ever skip meals because there wasn't enough money for food	20	50%	20	57%	n.a.	n.a
Child skipped meals almost every or some months	14	35%	14	40%	n.a.	n.a
Children were hungry but could not afford to buy more food	12	30%	12	34%	n.a.	n.a
Children did not eat for a whole day	15	38%	15	43%	n.a.	n.a

Island Lake Regional Household Food Security Survey Responses						
Survey Question	All Households		Households with Children		Households without Children	
	n	%	n	%	n	%
<b>Adult food security scale</b>						
Worried food would run out	120	78%	104	86%	16	48%
Run out of food and unable to purchase more	120	78%	103	85%	17	52%
Unable to afford balanced meals	120	78%	105	87%	15	45%
Adult ever skip meals because wasn't enough money for food	60	39%	55	45%	5	15%
Adult cut or skipped meals almost every or some months	59	38%	56	46%	3	9%
Ate less than felt should	71	46%	65	54%	6	18%
Was hungry but could not afford to eat	53	34%	52	43%	1	3%
Lost weight, no money to buy food	47	31%	44	36%	3	9%
Adults did not eat for a whole day	40	26%	35	29%	5	15%
Adults did not eat for a whole day almost every or some months	36	23%	34	28%	2	6%
<b>Child food security scale</b>						
Relied on a few kinds of low cost foods to feed children	96	62%	96	79%	n.a.	n.a.
Could not afford to feed children a balanced meal	94	61%	94	78%	n.a.	n.a.
Children were not eating enough because could not afford food	83	54%	83	69%	n.a.	n.a.
Adults cut the size of children's meals because they could not afford food	49	32%	49	40%	n.a.	n.a.
Child ever skip meals because there wasn't enough money for food	50	32%	50	41%	n.a.	n.a.
Child skipped meals almost every or some months	49	32%	49	40%	n.a.	n.a.
Children were hungry but could not afford to buy more food	45	29%	45	37%	n.a.	n.a.
Children did not eat for a whole day	38	25%	38	31%	n.a.	n.a.