

NORTHERN FOOD SOVEREIGNTY STUDY REPORT

As of June 24, 2018

Created for

Sayisi Dene First Nation

Northlands Dënesųliné First Nation

Barren Lands First Nation

and

Indigenous Services Canada

by

BoKE
consulting
bokeconsulting.com

147 Carpathia Rd
Winnipeg MB
R3N 1S8

Lead Researcher: Curt Hull
curt.hull@bokeconsulting.com

Table of Contents

Executive Summary	7
1 Background	8
2 Participants	9
2.1 Sayisi Dene First Nation (Tadoule Lake)	9
2.2 Northlands Dënesųliné First Nation (Lac Brochet)	9
2.3 Barren Lands First Nation (Brochet)	10
2.4 Food Matters Manitoba	10



2.5	<i>Boke Consulting</i>	10
3	Training	11
3.1	<i>Seed Starting</i>	11
3.2	<i>Beekeeping</i>	11
3.3	<i>Fish Canning</i>	12
3.4	<i>Garden Planning & Soil Development</i>	12
3.5	<i>Traditional Medicines</i>	12
3.6	<i>Resilience</i>	12
4	Research	13
4.1	<i>Food Production & Acquisition</i>	13
4.2	<i>Gardening</i>	13
4.2.1	Seedling Nursery	13
4.2.2	Soil Development	15
4.2.3	Composting	15
4.2.4	Vermicomposting	16
4.2.5	In-Vessel Composting	16
4.2.6	Gardening Education & Experience Sharing	17
4.2.7	Potato Tire Towers	17
4.2.8	Microgreens	18
4.3	<i>Greenhouses</i>	19
4.3.1	Garden Hill Greenhouse	22
4.3.1.1	Low-Tech and Jobs	23
4.3.1.2	Synergy Between the Greenhouse and Animals	25
4.3.2	Barren Lands First Nation/Brochet Youth Garden Project	25
4.3.2.1	Possibilities for Integration with Raising Animals	28
4.3.2.2	Personal Greenhouse in Barren Lands (Brochet)	28
4.3.3	Northlands Dënesųliné First Nation	29
4.3.4	Other Examples	30
4.3.4.1	Churchill Shipping Container Hydroponics	30
4.3.4.2	North of 60	31
4.4	<i>Cold Frames</i>	33
4.5	<i>Aquaponics</i>	34
4.6	<i>Country Foods</i>	35
4.6.1	Community Supported Hunt	35
4.6.2	Local Hunters	35
4.6.3	Tourist Hunters	36
4.6.4	Community Supported Fishery	36
4.6.5	Berry Picking	37
4.7	<i>Raising Animals</i>	37
4.7.1	Chickens	37

4.7.2	Rabbits, Ducks, and Turkeys	37
4.7.3	Beekeeping	38
4.8	<i>Food Purchasing</i>	38
4.8.1	Bulk Buying	38
4.9	<i>Food Processing and Preservation</i>	38
4.9.1	Community Freezer	38
4.9.2	Community Smokehouse	39
4.9.3	Canning	39
4.10	<i>Cooking Classes</i>	40
4.11	<i>Food Distribution</i>	40
4.12	<i>Restaurant or Café</i>	40
4.13	<i>Food System Management</i>	40
4.13.1	Social Enterprise	40
4.13.2	Entrepreneurs	41
4.13.3	Traditional Sharing and Reciprocity	41
5	Three-Community Food Discussion Tour	42
5.1	<i>Barren Lands First Nation (Brochet)</i>	43
5.2	<i>Sayisi Dene First Nation (Tadoule Lake)</i>	45
5.3	<i>Northlands Dënesųliné First Nation (Lac Brochet)</i>	47
6	Recommendations	50
6.1	<i>Five Year Plan for Three Communities</i>	50
6.2	<i>Five-Year Plan Components</i>	51
6.2.1	Community Development	51
6.2.1.1	Food Plant	51
6.2.1.2	Gardening Club	51
6.2.1.3	Repurposing Waste	51
6.2.1.4	Community and Agency Support	52
6.2.2	The Northern Soils Project	52
6.2.2.1	Limitations	54
6.2.2.2	Benefits	54
6.2.3	Community Greenhouses	54
6.2.3.1	Building Community Greenhouses Using Traditional Skills	54
6.2.3.2	Relaunch	59
6.2.3.3	Heat	59
6.2.3.4	Upgrade	59
6.2.4	Community Garden	59
6.2.4.1	Expand	59
6.2.5	Household Gardens	59
6.2.5.1	Potato Tire Towers	60
6.2.5.2	Cold Frames	60
6.2.5.3	Nurseries	61
6.2.6	Land Based Education	63

6.2.6.1	Elders/youth Traditions Transfer	63
6.2.6.2	Net Fishing	63
6.2.6.3	Hunting	63
6.2.6.4	Dressing	63
6.2.6.5	Berry and Medicine Picking	64
6.2.6.6	Traditional Preserving	64
6.2.7	Raising Animals	64
6.2.8	Food Preservation	64
6.2.8.1	Cold storage	64
6.2.8.2	Drying Vegetables	64
6.2.8.3	Canning	64
6.2.9	Food Distribution	65
6.2.9.1	Café	65
6.2.9.2	Buying Club	65
6.2.9.3	Social Media	65

Figures

Figure 1: Map of Northern Manitoba Communities Discussed in this Report	8
Figure 2: Grow North Flyer for Thompson Workshop	11
Figure 4: GreenThyme's Seedling Generator	14
Figure 3: Example of a Vertical Rack Seedling System	15
Figure 5: Worms Added to Compost Materials	16
Figure 6: Novi-Comp In-Vessel Composter	17
Figure 7: Potato Tire Towers Painted White.....	18
Figure 8: Microgreens Grown in a Shallow Tray.....	19
Figure 9: A Greenhouse Attached to the Side of a Shipping Container	20
Figure 10: Greenhouse Locations Directly Observed for This Report.....	21
Figure 11: Garden Hill Greenhouse – Interior	22
Figure 12: Aki Foods Facebook Header	23
Figure 13: Garden Hill Greenhouse Exterior (Shown Under Construction).....	24
Figure 14: Garden Hill Greenhouse Interior (with Chicks)	25
Figure 15: Barren Lands (Brochet) Young People in the Community Garden	26
Figure 16: Barren Lands (Brochet) Community Garden and Greenhouses	27
Figure 17: Garden Crew in Barren Lands (Brochet).....	27
Figure 18: Rabbit Hutch in Barren Lands (Brochet).....	28
Figure 19: Household Garden and Greenhouse in Barren Lands (Brochet)	28
Figure 20: Marie Tsessaze's Greenhouse in Northlands (Lac Brochet).....	29
Figure 21: Marie Tsessaze's Greenhouse in Winter	30
Figure 22: Growcer Shipping Container in Churchill, Manitoba	31
Figure 23: Nunavut Growing Dome	31
Figure 24: Little Salmon Carmacks First Nation's Greenhouse	32
Figure 25: Inuvik Community Greenhouse	32
Figure 26: Iqaluit Community Greenhouse.....	33
Figure 27: Kuujuaq Greenhouse.....	33
Figure 28: Cold Frame	34
Figure 29: Vertical Aquaponics System	35
Figure 30: Marie Tsessaze's Photo of Fish in Winter	37
Figure 31: Community Freezer in Brochet	39
Figure 32: Flyer Distributed in Community.....	42
Figure 33: Seed Starting Workshop in Barren Lands (Brochet).....	43
Figure 34: Food Options Community Gathering in Barren Lands (Brochet).....	44
Figure 35: Barren Lands Seed Nursery Presentation.....	44
Figure 36: Food Sovereignty Discussion at Sayisi Dene (Tadoule Lake).....	45
Figure 37: Sayisi Dene (Tadoule Lake) Seed Nursery Presentation.....	46
Figure 38: Food Sovereignty Discussion at Northlands Dënesųliné (Lac Brochet).....	48
Figure 39: Northlands Dënesųliné Seed Nursery Presentation.....	48
Figure 40: In-Vessel Composter.....	53
Figure 41: Shrine in Barren Lands (Brochet)	55
Figure 42: Shrine in Northlands Dënesųliné (Lac Brochet).....	55
Figure 43: Older Picnic Shelter in Barren Lands (Brochet).....	56
Figure 44: Newer Picnic Shelter in Barren Lands (Brochet)	56
Figure 45: Picnic Shelter Exterior Detail in Northlands Dënesųliné (Lac Brochet)	57
Figure 46: Picnic Shelter Interior Detail in Northlands Dënesųliné (Lac Brochet)	57
Figure 47: Summer Church Interior Detail at Northlands Dënesųliné (Lac Brochet)	58
Figure 48: Summer Church Frame at Northlands Dënesųliné (Lac Brochet).....	58
Figure 49: Instructional Video on Using Old Tires to Grow Potatoes.....	60
Figure 50: Step-By-Step Guide to Building Cold Frames.....	61
Figure 51: Seedling Nursery.....	62

Tables

Table 1: Survey Results - Sayisi Dene First Nation (Tadoule Lake)	47
Table 2: Survey Results - Northlands Dënesų́líné First Nation (Lac Brochet).....	49
Table 3: Five Year Plan - Sayisi Dene First Nation (Tadoule Lake)	50
Table 4: Five Year Plan - Northlands Dënesų́líné First Nation (Lac Brochet).....	50
Table 5: Five Year Plan - Barren Lands First Nation (Brochet).	51

EXECUTIVE SUMMARY

This is the final report of the 2018 Northern Food Sovereignty Study. This study was undertaken by Boke Consulting, working with Food Matters Manitoba under the auspices of the Chief & Council of Sayisi Dene First Nation. Funding was provided by Indigenous Service Canada.

This project focused on three northern Manitoba First Nations communities: Sayisi Dene (Tadoule Lake), Northlands Dënesųliné (Lac Brochet), and Barren Lands (Brochet). Although this study was focused upon these three isolated, diesel-dependent communities in north-west Manitoba, the options considered may well be suitable for other remote northern communities.

Initially this project was titled *Northern Food Security Study*. However, one of the elders in one of the participating First Nations suggested that “Sovereignty” would be a more appropriate term. The development of a community’s ability to provide more food for itself, with less dependence upon outside sources, is a path to greater autonomy and self-reliance.

The three participating communities have a tradition of providing for their own needs. Before contact, people were able to move to where food could be found. Since colonization and settlement, free movement of larger assemblages of people, while still practiced by some families, is restricted for most. People in the participating communities still depend upon traditional food sources, but they have also become dependent upon outside sources to provide much of the food they need. Much of this imported food is often lower quality, damaged, and unaffordable. Also, it usually arrives in packaging that becomes waste and a burden on the community.

There were four basic intentions for this undertaking:

- 1. Share Local Knowledge**

Better understand and share knowledge of what is being done with respect to local food provision in each of these three communities.

- 2. Build Connections**

Establish connections between food experts and people involved in food provision in the three communities, so that there might be a network for sharing information, experience, and resources in the future.

- 3. Consider Food Alternatives**

Research and discuss potential new options for healthy, affordable, local food in these communities.

- 4. Outline Potential Initiatives**

Determine what initiatives each community might want to undertake to develop healthier, affordable, local food sources and options over the next five years.

This study has found that all three communities have considerable strengths in food sovereignty. It also found that there are practical, affordable steps these communities want to take to enhance those strengths. The “Recommendations” section outlines those steps.

1 BACKGROUND

This study builds upon priorities identified in:

- Sayisi Dene First Nation's Comprehensive Community Plan, available here: <https://www.dropbox.com/work?preview=Boke+Consulting%2Fprojects%2FNFSS%2FResearch%2FCommunity+Priority+Documents%2FSayisi+Dene+Comprehensive+Community+Plan.PDF>
- Northlands Dënesųliné First Nation's Sustainable Development Strategy, available here: <https://www.dropbox.com/s/jnmt2bsxnyko420/Northlands%20D%C3%ABnes%C5%B3%C5%82in%C3%A9%20First%20Nation%20Sustainability%20Plan%20-%20Final%20.pdf?dl=0>
- Barren Lands First Nation's Gardening & Greenhouse project. Information on this project is available here: http://www.foodmattersmanitoba.ca/wp-content/uploads/2013/12/Northern-Newsletter_winter_2015_online-sharing.pdf

Figure 1: Map of Northern Manitoba Communities Discussed in this Report



2 PARTICIPANTS

Contributors:	Sherry Bighetty	sherry89bighetty@outlook.com
	Fleurette Bighetty	shorty_kobe@hotmail.com
	Jason Bussidor	jasonbuzzador@gmail.com
	Caroline Cheekie	smiley66@live.ca
	Bruce Duggan	bruce.duggan@bokeconsulting.com
	Darcy Duggan	darcy.duggan@bokeconsulting.com
	Curt Hull	curt.hull@bokeconsulting.com
	Daniel Gladu Kanu	daniel@foodmattersmanitoba.ca
	Nicole Lamy	nicole@foodmattersmanitoba.ca
	Katelynn Poole	katelynn.poole@bokeconsulting.com
	Carol Sansoffsky	blrrt@outlook.com
	Joan Thorassie	thorassieduck29@hotmail.com
	Marie Tsessaze	marietss1@hotmail.com

and the members of Sayisi Dene First Nation, Northlands Dënesųliné First Nation and Barren Lands First Nation.

One person from each of these three First Nations was asked to fill the role “Community Food Expert” for their community. Food Matters Manitoba was contracted to provide a “Northern Food Expert” for the project. Boke Consulting provided the project lead.

In addition, there were a number of people who were involved in setting up the training and community gatherings involved in this study. These were the most involved contributors:

2.1 *Sayisi Dene First Nation (Tadoule Lake)*

Councillor Jason Bussidor was the lead contact in Sayisi throughout the project. This project was initiated under the auspices of Chief and Council of Sayisi Dene First Nation.

Joan Thorassie travelled to Thompson and participated in the Grow North conference and training there. Her intention was to be the Community Food Expert for Sayisi Dene for this project. Unfortunately, Joan was unable to join the group on the Three-Community Food Discussion Tour due to an unexpected health issue. The issue arose just as the Tour was to begin, so we were not able to find an alternate from Sayisi Dene in time.

2.2 *Northlands Dënesųliné First Nation (Lac Brochet)*

Marie Tsessaze works for the Aboriginal Diabetes Initiative at the Northlands Health Office in Lac Brochet.

Marie attended and participated in the Grow North Conference and Training in Thompson. She also travelled to all three communities on the Three-Community Food Discussion Tour as the Northlands Dënesųliné Community Food Expert, and shared her stories in presentations at community gatherings in all three communities.

In 2015, Marie worked with Food Matters Manitoba to organize a garden workshop in the Lac Brochet community. There were 10 participants. After this workshop, all of the participants started their own gardens in the community. Marie helped the gardeners make raised beds. She continues to facilitate acquisition of tools, seeds, soils, and other supplies necessary for continuation of these gardens each year.

2.3 *Barren Lands First Nation (Brochet)*

Sherry Bighetty is the Kisipikamak Barren Lands Food Plant coordinator. She attended and participated in the Grow North Conference and Training in Thompson. Sherry was named as the Barren Lands Community Food Expert and travelled to all three communities on the Three-Community Food Discussion Tour. On the tour, she shared her stories in presentations at community gatherings in all three communities.

There is an active gardening community in Brochet which Sherry helps to support and facilitate. She helps organize meetings. Hosting workshops. Organizing freezers. Making inventory lists of what's in freezers and other storage. Making connections with elders.

Fleurette Bighetty is the Community Health Representative for Barren Lands working in the Health office. Fleurette attended the Grow North Conference and training in Thompson. She and Sherry were key organizers of the "Food Options Community Gathering and Discussion Event" in Brochet.

2.4 *Food Matters Manitoba*

Nicole Lamy is a Program Coordinator at Food Matters Manitoba. Nicole was one of the organizers and facilitators of the Grow North Conference and training in Thompson. She also participated in and played a key role in organizing the Three-Community Food Discussion Tour. She shared her story and helped facilitate the community gatherings and other tour elements in all three communities.

Daniel Gladu Kanu is Program Manager for Food Matters Manitoba. Daniel was one of the organizers and facilitators of the Grow North Conference and training in Thompson.

2.5 *Boke Consulting*

Curt Hull was the lead author of this report. Curt attended the February 2018 Grow North Conference and training in Thompson. He also participated in and helped to organize the Three-Community Food Discussion Tour.

Bruce Duggan initiated this project and was project lead.

Darcy Duggan provided administrative and financial management support.

3 TRAINING

Figure 2: Grow North Flyer for Thompson Workshop



Representatives from all of the participating communities attended a multi-day Grow North Conference in Thompson from February 22 to 25, 2018. During the conference training and resource material was provided on a variety of subjects.

3.1 Seed Starting

We learned that most vegetables require more frost-free weeks than are reliably available in northern latitudes. By starting seeds indoors, many food plants will get a needed headstart 4-8 weeks before they can be safely moved outdoors. Starting seeds indoors requires suitable containers, warmth, water, soil, and light. If there isn't 10 hours of light from windows, most indoor plants will grow poorly. Adding grow lights will help make seed starting more successful.

3.2 Beekeeping

We learned that bees have been kept successfully. Myrtle Fourre shared her stories of the necessities and challenges of keeping bees in Wabowden. The beekeeping workshop reviewed the basics of beekeeping, good resources for learning more about bees, and a display of the different types of products that can be produced from bees wax. Each attendee took home a beeswax lip balm souvenir that they made themselves.

In previous Grow North conferences, beekeeping workshops were conducted by Eugene and Steven Larocque from Northern Gold Honey Bee-Keepers in Thompson.

3.3 Fish Canning

Frances Hall and Cookie Hall from Wabowden taught us how to easily and safely can fish in jars. Participants learned how to fillet and prepare white fish to be canned during this workshop. There was discussion on different methods to can fish, safety precautions, and different recipes were provided. Participants were able to take home the jar that they prepared.

3.4 Garden Planning & Soil Development

Daniel Gladu Kanu from Food Matters Manitoba conducted two different workshop sessions. These workshops worked well together with participants learning about how to identify the type of soil they have, how to use local resources to improve soil, and then how to plan and plant their garden. Folks had the opportunity to ask specific questions, to trouble-shoot issues they have in their gardens, and to share their success stories.

3.5 Traditional Medicines

Carol Sansoffsky taught various ways to use wild plants to make traditional medicines. This workshop gave participants a hands-on opportunity to learn about medicines that can be found around Thompson. Participants made spruce gum salve and poplar bud balm, as well as learning about how to pick medicines. This session had good discussions with people sharing the knowledge they have and making plans to visit each other to learn more.

3.6 Resilience

Nicole Lamy conducted capacity-building workshops. This session helped participants learn how to recognize stress and burn out. Folks explored personal resilience and learnt some new techniques for responding to points of stress, as well as learning how to set healthy goals and how to move forward on them. Discussions engaged participants to share and learn from each other.

4 RESEARCH

Before embarking on the Three-Community Food Discussion Tour, and even before the Grow North training, project leads began researching and compiling information related to food initiatives in the north that might be potentially suitable for our subject communities. Our research into alternatives and enhancement strategies for more healthy, affordable, local food choices are described below.

4.1 *Food Production & Acquisition*

Northern Indigenous people still provide for much of their food needs in traditional ways.

When we discuss ‘traditional’ foods and ways, we are referring to foods hunted, fished, and otherwise gathered from the surrounding territory and waters. Indigenous traditions have been passed down from ancestors and continue to be practiced, adapted to changing circumstances, and incorporate new strategies and technologies where appropriate.

Virtually all of the people in our participating communities consume traditional meat, fish, and wild berries and nuts each year.

4.2 *Gardening*

In recent years, people of the Barren Lands First Nation and the adjacent community of Brochet have been building their experience and knowledge of gardening. The Brochet Gardening Project expanded in 2013 under the direction and management of the Health Centre with some assistance from external partners. Most funding has been provided by Northern Manitoba Food, Culture, and Community Collaborative (NMFCCC), province of Manitoba, and the LUSH foundation. Food Matters Manitoba (FMM) has been providing assistance with sourcing and shipping supplies, and with garden training.

There have been some attempts at gardens and greenhouses in the Northlands and Sayisi Dene communities, but not with the sustained effort Barren Lands. We hope to work together to share knowledge and experience among all three communities.

Gardening, of course, has many components and options. Some of these are particularly important in these three communities, with shorter growing seasons and a lack of fertile soil. What follows is an overview of some of those components.

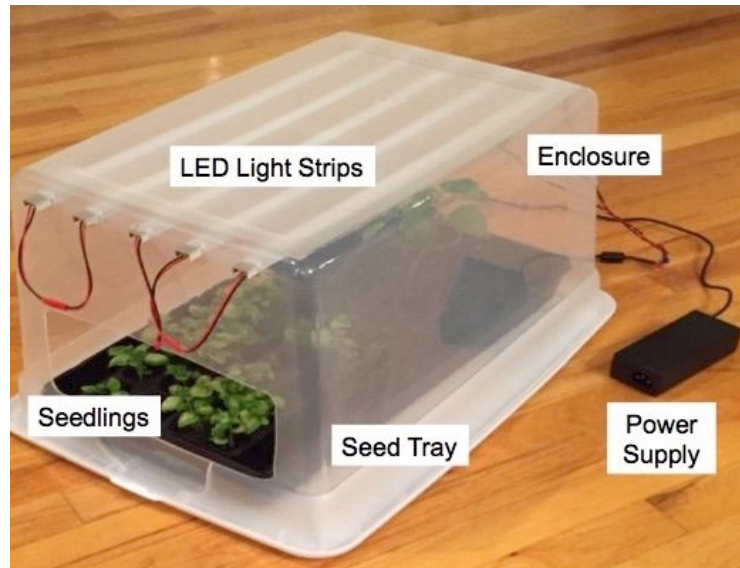
4.2.1 **SEEDLING NURSERY**

This is an indoor place that is heated and equipped with grow lights. Grow lights and trays of seedlings can be set up in very simple vertical racking systems or even started in smaller space with systems like the ones found at the school in Leaf Rapids and Frontier school division

The GreenThyme (<http://www.instructables.com/id/Green-Thumb-Grow-Lights/>) web page shows a simple system for starting plants. These plans could be revised to incorporate more local resources or easily acquired supplies. (e.g. scrap containers, tin

foil reflectors, worn out fabric) The only things that really should be imported are lights and some nuts and bolts.

Figure 3: GreenThyme's Seedling Generator



Source: <http://www.instructables.com/id/Green-Thumb-Grow-Lights/>

Also worth noting is that cool light sources (such as LED) should be as close as possible to the leaf surface. Halogen, high sodium or incandescent all use too much energy are, by comparison, very hot and burn plants when too close.

Other seedling nursery systems can be more elaborate—and grow more plants.

Figure 4: Example of a Vertical Rack Seedling System



Source: <http://www.johnnyseeds.com/tools-supplies/seed-starting-supplies/grow-lights-and-carts/full-size-seedling-light-cart-16-trays-640-watts-grow-light-system-7026.html>

4.2.2 SOIL DEVELOPMENT

In its natural state, much of the soil in these three communities is insufficient for growing food. Its structure and nutrient content needs to be enhanced and maintained to ensure consistent results. The most important means for developing soil is composting.

Un-composted materials can also be used directly by sheet mulching. Food Matters Manitoba has found that using local materials are beneficial – grass clippings, fish waste, peat, poplar debris, and manure. One strategy that might be worth exploring is growing with compost tea (nutrient) and peat (structure).

A number of things are needed to develop soil in these communities. Further information is available in section [6.4 The Northern Soils Project](#).

4.2.3 COMPOSTING

In composting, organic matter such as kitchen scraps and animal offal are decomposed to produce a nutrient-rich soil conditioner. Successful composting requires a proper mixture of water, air, and nitrogen-rich (“green”) and carbon-rich (“brown”) materials. Oxygen-using (aerobic) bacteria and fungi convert the organic inputs into heat, carbon dioxide, and ammonium. Ammonium is further converted into nitrites and nitrates by different types of aerobic bacteria.

The bacteria and fungi cannot do their work if the temperature is too cold. So, it is helpful to use methods to speed the composting process to produce as much as possible in the short warm season available in these communities. Here are a couple of ways to speed and enhance composting:

4.2.4 **VERMICOMPOSTING**

This means introducing worms or insect larvae into the decomposing material to help break it up. Doing this would mean introducing a new element to the delicate northern eco-system. This could have extremely negative ramifications. Precautionary principle notwithstanding - Red wigglers are unable to survive outside in the cold. The main concern is with other earthworms.

Other problems are that worms are not a good fit for composting common food items like oranges and coffee - and must be kept indoors during the cold season to be sustainable.

Figure 5: Worms Added to Compost Materials



Source: <https://www.thespruce.com/save-compost-worms-from-drowning-2539480>

4.2.5 **IN-VESSEL COMPOSTING**

This is composting within an enclosed vessel. In an In-vessel composter, organic decomposition occurs aerobically (with oxygen). This type of composter is an attractive alternative for northern and remote communities because it is fully closed; no odours escape to attract bears and other animals. Also, it can compost all kitchen scraps including meat.

In-vessel composting can also accommodate a larger amount of material. This greatly increases the temperature and biological activity resulting in faster turnaround, better quality compost, and less GHGs.

A number of companies in Manitoba make in-vessel composters. A Nova-Comp composter manufactured by Novid in Blumenort was shipped to Northlands in early 2018 on the winter road.

Figure 6: Novi-Comp In-Vessel Composter



Image courtesy of Novid Inc. See <https://novid.ca>

4.2.6 GARDENING EDUCATION & EXPERIENCE SHARING

Organizations like Food Matters Manitoba and the Northern Manitoba Food, Culture, and Community Collaborative (NMFCCC) are terrific resources for gathering and sharing knowledge of food among people and between communities.

Food Matters Manitoba puts on Grow North conferences once or twice a year. These conferences are excellent learning and experience sharing opportunities for people from northern and remote communities.

A relevant, recent example is a project funded by the Northern Manitoba Food, Culture & Community Fund (NMFCCF) in Barren Lands First Nation and Brochet community in 2014. In this project, gardening staff were supported and gardeners received payment and training. Over 180 people (about one in three community members) attended training; everyone from elementary students to Elders grew food, and/or received and prepared local food. Interest in the project and in gardening grew because of community celebrations where food was shared (e.g., Elders' lunch, Elders' food boxes, youth cooking class). Each celebration strengthened the belief that delicious, healthy food can be grown in the community.

4.2.7 POTATO TIRE TOWERS

By creating a tower out of old tires, a potato plant can be made to produce potato tubers up most of its stem - and a lot more potatoes per plant. Plants are started in soil in towers of one or two tires. As the plant grows, tires and soil are added to the tower. Each part of the plant's stem that is surrounded by soil, starts producing tubers on that part of the stem. To conserve soil, a grass clippings, peat and other mulch can be mixed with soil to cover the potato stems as they grow up. Although tires are made of rubber and other materials, the chemicals in them rarely leach into the soil.

Figure 7: Potato Tire Towers Painted White



Source: <http://www.instructables.com/id/Grow-Potatoes-In-Tires/>

4.2.8 MICROGREENS

Microgreens are also known as “sprouts”. They are very young versions of many of the plants that are also eaten when mature. Most microgreens can be harvested 10 to 14 days after starting from seed. In general, microgreens contain considerably higher levels of vitamins and carotenoids - about five times greater - than their mature plant counterparts.

Microgreens can be grown very easily indoors. They require minimal, inexpensive equipment and a grow light. They also need some daily attention to keep their water supply fresh.

There has been some instances of food poisoning from store-bought microgreens. This is mostly an issue that arises from transport and storage. Microgreens in our participating communities would be grown to be consumed immediately after harvest.

Consuming microgreens is unfamiliar to most people and would necessitate some education and demonstration to help familiarize people with these foods.

Figure 8: Microgreens Grown in a Shallow Tray



Source: <https://www.maximumyield.com/the-micro-revolution-growing-hydroponic-microgreens/2/1191>

4.3 Greenhouses

Although greenhouses could be considered a type of gardening, or a variation on gardening, in this report we are treating them as a separate topic. This enables us to review some of the particularities of greenhouses—and especially greenhouses in the north.

A greenhouse is a structure that provides light and temperature control in which to grow plants. Greenhouses are generally covered in a semi-transparent material, such as glass or plastic to trap heat and allow in sunlight.

Figure 9: A Greenhouse Attached to the Side of a Shipping Container



Source: <http://www.akienergy.com>

There are a number of examples and options for ways to build greenhouses. They can be simple or elaborate, large or small, community- or individually-operated. The main categories are:

1. High Tunnel (or “Basic”) Greenhouse

A wood or metal frame covered with a single layer of plastic or glass, with no heat source.

2. Heated Greenhouse

A greenhouse with a heat source and, usually, a double layer of plastic or glass, for insulation.

3. Passive Greenhouse

A greenhouse with a double layer of plastic or glass for insulation and a heat retention strategy such as a sand or water “heat sink”. Passive greenhouses often also have insulating blankets that are rolled down at night to preserve heat.

4. Indoor Growing Facility

A greenhouse that uses little or no natural light. A common example is a shipping container with LED lights. These facilities often also have heating systems and automated water systems.

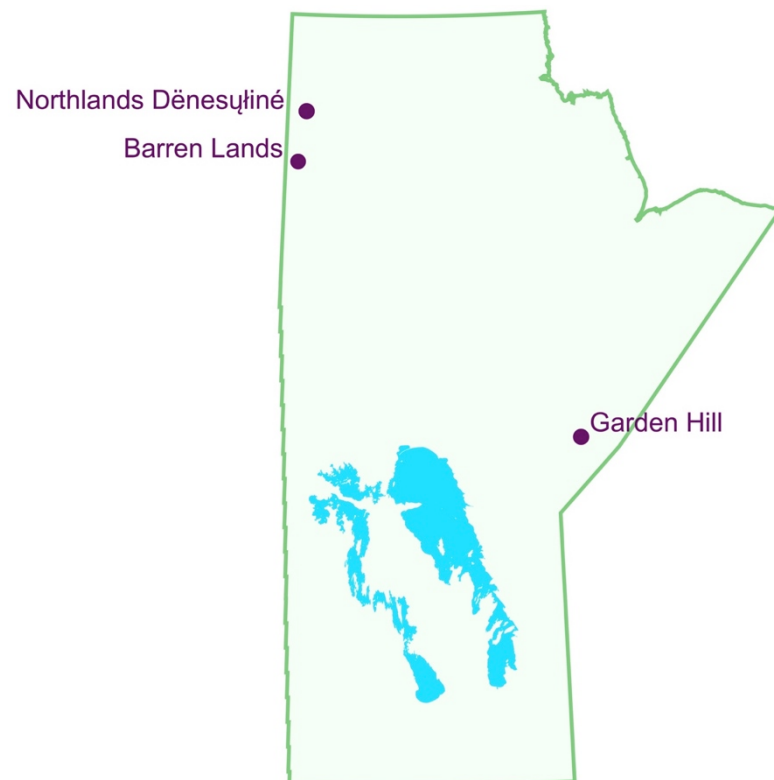
In this section we provide an overview of some examples of greenhouses that have been built within or in areas similar to our participating communities. The ideas employed in the examples below can be mixed and matched. For example, the shipping container approach used in the Churchill Shipping Container Hydroponics section below could also be used for a seedling nursery or for aquaponics. In Garden Hill, they have a lean-to greenhouse built beside a shipping container. They use the shipping container for tool and material storage. There could also be a seedling nursery within that shipping container.

Improvements in the intensity and efficiency of LED light technology has made growing food in an enclosed indoor space affordable and is expected to become increasingly efficient over the next decade. Currently, these systems can grow leafy plants efficiently. Fruiting plants still requiring further research and development before they can be grown efficiently in these systems.

According to a 2012 Northern Healthy Foods Initiative (NHFI) report, there were greenhouse operations in place in Oxford House, Wabowden and Pikwitonei. A greenhouse was being started in Thicket Portage. This has increased substantially in the intervening years, including York Landing, Leaf Rapids, and Fox Lake, to name a few.

There are at least 3 locations in northern Manitoba that could serve as models for small northern greenhouses.

Figure 10: Greenhouse Locations Directly Observed for This Report



There are many other greenhouses in these and other communities, of course. These are three that were observed directly as part of the research for this report.

4.3.1 GARDEN HILL GREENHOUSE

The greenhouses in Garden Hill First Nation are part of the Meechim Project. This project transported the necessary equipment up on the winter road in shipping containers, and then used those containers as the core structure of the farm buildings.

The farm equipment shipped in the containers included a tractor, an electric buggy, chicken pluckers, irrigation supplies, and building materials. The project was initiated by Aki Energy with significant contribution from Robert Guilford. Robert is an organic farmer from Clearwater Manitoba.

Figure 11: Garden Hill Greenhouse – Interior



Source: <http://www.akienergy.com>

The containers kept the equipment secure and dry until spring. Construction commenced with installation of a gravity-fed irrigation/watering system. A large water tank was installed on the roof of the shipping container and filled with lake water.

A chicken brooder was built inside the container. With the installation of ventilation and automatic watering systems, the shipping container provides a safe, temperature-controlled environment. Farm staff feed and check on the chicks three times daily.

A dual use greenhouse and chicken run was built upon the south side of the shipping container. Plants are started on raised planter beds, taking advantage of the warmer temperatures provided by the greenhouse. A small chicken run is under the beds, giving the young birds access to air and sunlight before they were ready to move outside into the outdoor runs.

An outdoor kitchen and chicken processing facility has been built on the north side of the building. A small living space has been built on top of the container for overnight stays.

At the end of the farm season, all of the operational equipment is put inside the shipping container at the end of the season, keeping it safely stored until the next season.

One of the most important approaches to food in northern Canada is happening on Garden Hill First Nation.

For the last few years, members of the community and a team gathered by Aki have been showing how the relationship between a community and food can be transformed.

This initiative—which combines local mixed farming, a local food market, and imported healthy foods—has been covered extensively elsewhere. For those not familiar with the initiative, <http://www.akienergy.com/local-food/>, <https://www.facebook.com/Aki-Food-169750876512675/> and <http://www.armyofproblemsolvers.com> are good places to start.

Figure 12: Aki Foods Facebook Header



Source: <https://www.facebook.com/Aki-Food-169750876512675/>

There are many aspects of the Garden Hill initiative that could be highlighted as relevant to this document:

- the integration of food solutions with health, education, sustainability, and economic development solutions
- the connection between fishing “waste” and soil development
- the use of a social enterprise as an organizing structure
- the potential for off-road electric vehicles in the north

For now, however, we focus on just two aspects of the Garden Hill project:

- the deliberate emphasis low-tech, and the resulting effect on jobs
- the synergy between the greenhouse and waste

4.3.1.1 LOW-TECH AND JOBS

It would probably have been easier to set up a high-tech food system in Garden Hill—a containerized greenhouse, complete with hydroponics, internal lighting, and electric heating, for instance.

The entire system could have been pre-built in Winnipeg and shipped up.

Aki took almost the opposite approach. They recruited an experienced mixed-use farmer, asked him to fill two shipping containers with the raw materials he would need to begin a small, mixed-use farm “from scratch”. The shipping containers contained everything from a large rain barrel to chicken wire. They shipped the containers and a small camping trailer up on the winter road. The farmer went up, recruited the local people he would need to start operating a farm, and started unpacking the shipping containers.

During the first summer, they cleared land, grew vegetables, and set up a small lean-to greenhouse.

Figure 13: Garden Hill Greenhouse Exterior (Shown Under Construction)



Source: <http://www.akienergy.com/whats-new/2015/7/27/building-a-farm-in-a-box>

Instead of the farm appearing in the middle of the community fully-developed, it was built step-by-step by community members and the mentor/farmer, working together. Together, they encountered problems, overcame them, and celebrated successes.

And because the farm is low-tech, the farm has more employment potential than a high-tech farm would have.

The skills developed in the community through this process are applicable to farming, of course, but they're also applicable to any community enterprise or business.

4.3.1.2 SYNERGY BETWEEN THE GREENHOUSE AND ANIMALS

The greenhouse included a small area to raise chicks.

Figure 14: Garden Hill Greenhouse Interior (with Chicks)



Source: <http://www.akienergy.com>

“Synergy” is an overused word. As a buzzword, it tends to get stuck on any two things that occur together. It should only be used when those two (or more) things actually contribute to each other’s success. Raising chicks in the Garden Hill greenhouse is an example of real synergy, not just a buzzword.

First, both the chicks and the plants need warmth. In higher-tech farming, the greenhouse plants and the chickens are raised separately—probably on completely different farms. The warmth required for each is separately supplied and separately controlled. At a large scale, this can be very efficient, but at a small scale, it’s results in duplicate heat resources, and energy inefficiency.

Second, chicks produce waste that makes a great soil amendment for greenhouse plants. One of the biggest challenges in northern greenhouses is soil. Northern communities are not located on farmland. Soil in the north is largely under-developed and lacking nutrients. The waste from raising animals, properly managed, composted and mixed, can be a crucial component in developing local soil.

4.3.2 **BARREN LANDS FIRST NATION/BROCHET YOUTH GARDEN PROJECT**

In 2014 the Barren Lands First Nation Health Department started their first community garden. The project was created to support meaningful employment opportunities for young people in the community, decrease dependency on the Northern Store during the growing season and increase skills and knowledge related to food and where it comes from. With a greater understanding of growing food and sharing of traditional ways of living off the land, people in the community will become self-reliant and young people

more prepared for the future. During the summer months youth care for the garden, as well as support local gardeners in building new garden beds and caring for garden when people are away. Over the years the garden project has continued to grow by supporting more local gardeners each year, now employs six community members and has two green houses.

Further north than Garden Hill (57.9°N vs. 53.9°N) and on the opposite side of the province, Barren Lands First Nation, in Brochet, also has an integrated community food initiative, called the “Food Plant”.

Figure 15: Barren Lands (Brochet) Young People in the Community Garden



Source: <http://tidescanada.org/food/community-stories-share-local-food-successes-northern-manitoba/>

The Food Plant is an excellent example of a local food initiative. Among other important initiatives, it:

- operates a community freezer, to store food to be distributed to elders
- runs a community garden to educate young people about gardening
- provides support for community members to grow their own gardens beside their houses

Last year, 30 families grew food by their houses. Building a culture of locally-grown food is, perhaps, the most difficult challenge northern food projects face, and the people of Brochet are achieving that.

The farm in Brochet is smaller than the one in Garden Hill, while the greenhouse operation is larger:

Figure 16: Barren Lands (Brochet) Community Garden and Greenhouses



Figure 17: Garden Crew in Barren Lands (Brochet)



From left: Logan Mersaty, Josh Bighetty, Cassandra Bighetty, Rachelle Bighetty, Alanna Disbrowe, and Malcolm Disbrowe. Source: <http://tidescanada.org/food/community-stories-share-local-food-successes-northern-manitoba/>

The two projects—the Garden Hill farm and the Brochet garden--share similarities of approach, particularly:

- a preference for low-tech
- the integration with community development, education and health initiatives

More information on the Brochet gardening project is available at http://www.nmfccc.ca/uploads/4/4/1/7/44170639/tides_roll-up_final_barren_land_fn_garden_20150326.pdf

4.3.2.1 POSSIBILITIES FOR INTEGRATION WITH RAISING ANIMALS

Less than 100 metres away from the Brochet garden and greenhouses is a rabbit hutch.

Figure 18: Rabbit Hutch in Barren Lands (Brochet)



We don't know if the waste these rabbits produce is being used as a soil amendment for the garden or greenhouse but, properly managed and mixed, it could be.

4.3.2.2 PERSONAL GREENHOUSE IN BARREN LANDS (BROCHET)

Greenhouses aren't only created as part of a community project. At least a few individuals in these communities have them as well.

Some of the ones in Brochet are part of a household garden. With the increase in gardening activity from the youth garden this encouraged a cultural shift that sees gardens as part of community life. Each year more people have opted to build garden beds and sometimes seek support from youth gardeners.

Figure 19: Household Garden and Greenhouse in Barren Lands (Brochet)



It would be easy to overlook a small structure like this, tucked in behind someone's house.

4.3.3 **NORTHLANDS DĚNESUŁINE FIRST NATION**

Roughly 90 km north of Brochet (58.6°N) is Northlands DĚnesułiné First Nation, whose community is located on the north shore of Lac Brochet.

Northlands DĚnesułiné is just starting to develop a community garden program.

What it does have is the beginnings of locally-initiated gardening.

This small, household greenhouse run by Marie Tsessaze is one of the more visible initiatives.

Figure 20: Marie Tsessaze's Greenhouse in Northlands (Lac Brochet)



Like the small, household greenhouse in Brochet noted earlier, this greenhouse would be easy to overlook.

But these sorts of minimally-funded projects, started and sustained by individuals and families, may have a significant effect on how food is grown and consumed in northern Manitoba communities.

They are projects that endure.

Figure 21: Marie Tssessaze's Greenhouse in Winter



Our challenge is to find ways to nurture them, and to enable other community members to follow suit.

4.3.4 OTHER EXAMPLES

The “Grow North” greenhouse and garden operation in Leaf Rapids is low-tech and experimental. However, it has been saving and developing seeds for ten years, and was a key training center for the Barren Lands youth gardeners.

Northern Manitoban projects often draw inspiration and information from projects even further north, including the Little Salmon Carmacks First Nations Greenhouse and Farm, Yukon Community Garden Collective, Iqaluit Community Greenhouse Society, and the Inuvik Community Greenhouse.

4.3.4.1 CHURCHILL SHIPPING CONTAINER HYDROPONICS

In January 2018, the Churchill Northern Studies Centre started growing vegetables hydroponically in a repurposed shipping container. The shipping container was outfitted with grow lights, hydroponics system, and heating & ventilating equipment supplied ready-to-use by The Growcer. They are from Ontario but the intellectual property was developed in Alaska by Vertical Harvest. This is their fourth model. The units are installed and monitored by Growcer in Canada with support from Vertical Harvest.

Figure 22: Growcer Shipping Container in Churchill, Manitoba



Source: <http://www.cbc.ca/news/canada/manitoba/churchill-hydroponic-produce-1.4568847>

What started as experiment to see if it could address local food security on a commercial scale became “Rocket Greens”. Rocket Greens signs people on as food subscribers. For eighty dollars a month, each subscriber gets a weekly Launch Box, a bag full of greens guaranteed fresher than any southern grocery store. It's delivered the same day it's picked.

4.3.4.2 NORTH OF 60

According to the website for Growing North, a geodesic design greenhouse is being used in Nunavut. These are built from a kit supplied by Growing Dome out of Colorado.

Figure 23: Nunavut Growing Dome



Source: <http://www.cbc.ca/news/canada/north/kale-in-the-arctic-inside-an-igloo-greenhouse-that-could-inspire-fresh-food-production-in-the-north-1.3698004>

Figure 24: Little Salmon Carmacks First Nation's Greenhouse



Source: http://www.yukonwellness.ca/stories_greenhouse.php#.WZorna0ZNE4

Figure 25: Inuvik Community Greenhouse



Source: <https://www.inuvikgreenhouse.com>

Figure 26: Iqaluit Community Greenhouse



Source: <https://iqaluitgreenhouse.com>

Figure 27: Kuujjuaq Greenhouse



Source: http://markcullen.com/wp-content/uploads/2014/07/blog_July2.jpg

The greenhouses in northern Manitoba tend to be smaller than those north of 60. It would appear that those involved in northern Manitoba are using the lessons of other initiatives to develop their own models.

4.4 Cold Frames

Cold frames are hybrid of gardening and greenhouses, which may have particular applications in these three communities.

In essence, a cold frame is a box with a transparent or translucent lid. The lid can be made of glass, plexiglass, or even just a covering of polyethylene ("poly") vapour barrier plastic.

The lid allows in sunlight and keeps the contents warm. Cold frames are mostly used in the spring as nurseries to help seedlings get a fuller start before being planted outdoors.

Cold frames can be bought fully assembled, or they can be hand built with local materials.

Figure 28: Cold Frame



Source: <https://homeplaceearth.wordpress.com/2011/09/20/managing-a-cold-frame-low-tunnel-or-mini-greenhouse/>

Cold frames that are insulated provide a bit more assurance that their contents won't be damaged by unexpected frost. For this reason, cold frames fashioned from repurposed, derelict freezers have advantages over simple wooden frames. Also, this is a means to recycle old appliances into a useful purpose.

4.5 *Aquaponics*

Aquaponics can be considered "greenhouses-plus". They combine hydroponics (growing plants without soil) with aquaculture (growing fish). Aquaponics combines these two in a simple system where growing plants get their nutrients from the water pumped up from the fish tank at the bottom of the rack.

Even though these systems are simple to build and operate, we know of no examples of this being done in northern Manitoba yet.

Figure 29: Vertical Aquaponics System



4.6 Country Foods

Most northern Indigenous people get much of their protein each year from hunting and fishing in traditional ways. This is true of virtually all of the people in our participating communities. However, there are ways to ensure a more equitable distribution (i.e. to elders and others who are not able to hunt and fish for themselves) and a more consistent supply of this source of nutrition.

4.6.1 COMMUNITY SUPPORTED HUNT

Community supported hunts or fisheries are run by a community for a community. Local people are able to hunt or fish to provide food for community members. People are able to depend on this way to feed their families.

4.6.2 LOCAL HUNTERS

Community supported hunts happen throughout the year to fill freezers with meat or fish that is shared with Elders, used for workshops, community feasts and families in-need of food. Community supported hunts are very beneficial because it provides meat to people that can no longer hunt, reflects a traditional way of living of the land and sharing of food. Sharing food from the hunt is rooted in traditional hunting practices that treated food from the land as a gift given to the whole community through the hunter. Most of the First Nations in northern Manitoba continue this practice at various levels, sometimes

hunters simply volunteer their meat to people that need it or local elders. Other communities, such as Nelson House Cree Nation have a dedicated fully staffed country food program. The program hires hunters and fishers to supply weekly boxes to every household with meat, fish, berries, teas, roots and other foods. The program is funded by the community trust fund. Pimicikamak Cree Nation purchase ammo, fuel, and a grub box to encourage hunters to go on the land and share the food with their families they are in their second year of the program.

4.6.3 **TOURIST HUNTERS**

Northern Manitoba has been known for attracting tourist hunters where local hunters are employed as guides and take them out onto the land. Meat that is harvested during tourist hunts may be given back to local communities. An example of this can be found at the Big Sand Lake Lodge which is located north of the community of South Indian Lake, it is a fly-in resort that hosts tourist hunters throughout the year on fishing or hunting trips. Local guides are hired from nearby communities creating seasonal employment and opportunities to share knowledge about their traditional territories. Hunters can take a small portion of the meat home, but the rest is donated to South Indian Lake country food program.

4.6.4 **COMMUNITY SUPPORTED FISHERY**

Some communities share fish harvest with members. Pimicikamak Cree Nation pays fishers to net fish during the summer season and the fish is distributed directly to community members.

Harvesting fish in the winter involves setting nets under ice. There is a skill to this that needs to be passed on to youth. The community could organize training sessions to pass this knowledge to youth. During her presentation on the Tri-community Food Tour, Marie Tssessaze shared photos and a story of setting nets with her family group during the winter of 2017-18.

Figure 30: Marie Tssessaze's Photo of Fish in Winter



4.6.5 **BERRY PICKING**

Besides being a source of food, berry picking remains an important aspect of the cultural life of these communities. The main berries gathered in these communities are blueberry, cranberry (lingonberry, squashberry, mooseberry), and wild strawberry. This gathering includes the collection of traditional medicines.

4.7 *Raising Animals*

There is a long tradition of acquiring meat and fish from hunting and fishing. Those practices are culturally and nutritionally very important and must continue. However, it is possible to supplement these sources by raising animals domestically.

4.7.1 **CHICKENS**

Chickens are being raised in a couple remote communities including Shamattawa and Garden Hill. The approach taken so far is to have the chicks flown up in the spring. The birds are raised in coops throughout the summer.

4.7.2 **RABBITS, DUCKS, AND TURKEYS**

Rabbits, ducks, and turkeys can be raised in enclosures very similar to what is required for chickens (except that rabbit enclosures are called hutches and chickens are kept in

coops). Ducks and turkeys are being raised in God's Lake, Nelson House, Cross Lake, Pukatawagan, Sherridon, and Thicket Portage

4.7.3 **BEEKEEPING**

The practice of raising bees for honey has been moving north. Food Matters Manitoba has held workshops to introduce people in northern Manitoba to beekeeping. For example, a workshop in 2015 was facilitated by Eugene and Steven Larocque from Northern Gold Honey Bee-Keepers in Thompson.

4.8 *Food Purchasing*

People in our participating communities depend upon traditional food sources but they have also become dependent upon outside sources to meet many of their needs. Much of this imported food is not healthy or affordable. Also, it usually arrives in packaging that becomes waste and a burden on the community. Currently, most food purchasing is done by individuals buying for themselves or to provide for a household.

We recommend creating alternate ways for importing food when local food sources lack sufficient quantity, quality, or variety to meet the needs of the community.

4.8.1 **BULK BUYING**

By purchasing food in bulk and distributing it in reusable containers, food can be provided to community members at a more affordable price and with less packaging to end up in the landfill.

The Northern Healthy Foods Initiative (NHFI) has facilitated some bulk food purchases by communities. It might be possible to use the Aki Foods example in Garden Hill where food is bought and shipped up once a month.

4.9 *Food Processing and Preservation*

After food is acquired, it needs to be preserved to prevent spoilage and it needs to be made ready to eat. See section [7.2.8. Food Preservation](#) for further information.

4.9.1 **COMMUNITY FREEZER**

A number of First Nations have community freezers (e.g. Northlands, Barren Lands, Oxford House, Nelson House, South Indian Lake, Fox Lake) This is where the meat and fish from community-supported hunting and fishing is stored after it is processed and wrapped.

Barren Lands FN has a large chest freezer in the Youth Centre that is used by the Brochet Food Plant. The animals harvested in the community supported hunt are brought to the Youth Centre for processing. Usually, this includes cutting up the meat and putting the various cuts into packages. These packages are stored in a chest freezer until they are distributed.

Figure 31: Community Freezer in Brochet



Every village in Nunavik has a kuakuvik, the Inuktitut word for community freezer or locker. Local Inuit share the country food in their lockers.

The Northern Healthy Foods Initiative (NHFI) has had the Revolving Loan Freezer Purchase Program. For example, this micro-loan program resulted in purchase of 488 freezers in 2013.

4.9.2 **COMMUNITY SMOKEHOUSE**

In most communities, smoking and drying of fish and game meat is done by each family in their own smokehouses or tents.

Nelson House and O-Pinon-na-piwin (South Indian Lake) First Nations have community smokehouses as part of their Country Food programs. Having a shared building for drying or smoking meat and fish is also a tradition in some parts of British Columbia such as Stellat'en First Nation.

Techniques for drying and smoking meats and fish could also be extended to vegetables to create shelf stable vegetables and soup mixes. Drying vegetables and berries can be done with passive and solar systems.

4.9.3 **CANNING**

Food Matters Manitoba partners with Manitoba Agriculture to provide training in various methods of preservation for meat, fish, vegetables, and berries. Methods includes pickling, jams, and pressure canning.

4.10 Cooking Classes

Many of the foods that might be grown by any of the methods above may be foreign to the palate of people in our participating communities. If people don't know how to prepare these foods, they will likely not want to eat them.

Many schools already provide some classes for their students on how to cook. Health Centres have also been involved in facilitating cooking classes for all ages in communities. These classes focus on preparing a variety of different foods and recipes; how to cook diabetic friendly meals, for example. As we introduce new foods into communities, it would be useful to work with the schools to provide recipes, lesson plans, and cooking classes for adults with an emphasis on how to cook with these new foods.

4.11 Food Distribution

Although the Northern Store is the most visible mechanism of food distribution in these communities, it is not the only one - and it is certainly not the one with the longest history.

There is a deep cultural history of food sharing between people in these communities. Hunters and fishers still regularly share with other family members. There are also systems for sharing food. Some of these have been alluded to in the sections above under "Community supported hunt", "Community supported fishery", and "Community freezer".

4.12 Restaurant or Café

Besides being a means to access food, cafés and restaurants are also informal gathering places. They provide opportunities for spontaneous social interaction. This can be an important way to strengthen community and neighbourhood bonds.

When anyone in our three participating communities are asked if they think a restaurant or café would be welcome in their communities, the answer is nearly always a "yes".

4.13 Food System Management

4.13.1 SOCIAL ENTERPRISE

A social enterprise is a non-profit business that has a focus on solving problems in the communities they operate in. By having an effort such as a local food initiative managed by a social enterprise rather than by any other entity, a number of advantages are achieved:

- Can take the politics out of ownership - If, for example, the enterprise was managed by the band council, there may be temptation to use any income from the enterprise for other purposes.

- Can provides continuity of management - If the enterprise were managed by the band council, its ownership may change every time council changes. This would not be helpful in establishing processes and systems that work over the long term
- Can provide a sense of community ownership - Social enterprises usually have a board of directors. This board can be set up in such a way as to ensure community members have membership and are adequately represented.

Aki Foods is an example of such a social enterprise. Aki Foods is a sister social enterprise of Aki Energy. It's a non-profit social enterprise that promotes food security and economic development opportunities for Indigenous communities like Garden Hill First Nation. Aki Foods received renewed funding from Community Futures Manitoba to enhance their social enterprise.

Aki's Meechim Project originated as a collaborative partnership between Aki Energy and Garden Hill First Nation in 2014. It was formed to address the community's need for an affordable, healthy food system. There are five initiatives involved in this project:

- The Meechim Healthy Food Market
- Alex Keno Memorial Farm
- School-to-Farm
- Farm School
- Healthy Foodbox

4.13.2 **ENTREPRENEURS**

There are also informal businesses that cater or cook food for local people in some First Nations. These are typically opportunistic and do not serve the healthiest options, but provide a window into the entrepreneurial spirit of some of the community members. Targeted support for these entrepreneurs has the potential to improve the local food system.

4.13.3 **TRADITIONAL SHARING AND RECIPROCITY**

Whatever food management system we adopt should include and support non-monetary exchange and sharing of food in a more traditional way. The Food Plant in Barren Lands and the Mechisowin in South Indian Lake are examples of food management that support this approach.

5 THREE-COMMUNITY FOOD DISCUSSION TOUR

Representatives listed above from Northlands Dënesų́łíné First Nation (Lac Brochet), and Barren Lands First Nation (Brochet) travelled with representatives from Food Matters Manitoba and Boke Consulting to the three subject communities. A brief tour was undertaken in each community to see what was being done there.

Each community hosted a “Food Options Community Gathering and Discussion Event”.

Figure 32: Flyer Distributed in Community



The Three-Community Food Discussion Tour participants (Community Food Experts, Northern Food Experts, and Project Consultants) travelled together to each of the three target communities over the course of 7 days and 6 nights. Preparations were made in each community gathering before the Tour participants arrived. Posters were placed in each community to make people aware and to invite them to attend.

Food and door prizes were presented at each event and a Grow-light for seed starting was presented to a person in each community who seemed most keen to use it.

Each gathering included a locally-prepared meal. The Community Food Experts on the tour shared stories of local food in their communities and their role in providing local food. The Northern Food Expert and project lead also shared why they are interested in helping to promote local food in these communities.

The meal and presentations were followed by facilitated group discussions to better understand what each community might want to implement in the project phases following the study.

We did not have any current councillors from any of the three target First Nations attend any of the events in any of the communities.

5.1 *Barren Lands First Nation (Brochet)*

Figure 33: Seed Starting Workshop in Barren Lands (Brochet)



Left to right: Fleurette Bighetty, Charmaine Cook and Son.

A Seed Starting Workshop was held in the Youth Centre on April 16, 2018 (the evening prior to the main community gathering). Six community members attended the workshop.

The Food Options Community Gathering event was held in the Youth Centre in Brochet on April 17, 2018. There were about 40 people of all ages in attendance.

After presentations and story-sharing, the attendees participated in discussion. During the discussion, two young people from the community were employed as scribes to capture people's ideas. After the discussion, these young people read the notes they had recorded back to the assembly. Everyone enjoyed the young people's participation.

Figure 34: Food Options Community Gathering in Barren Lands (Brochet)



Food Matters Manitoba and Boke Consulting presented a self-contained seed starter system with Grow Light to Principal Tiffany McEachern and teacher Emily Sheety at the Brochet School.

Figure 35: Barren Lands Seed Nursery Presentation



Left to right: Emily Sheety, Tiffany McEachern, Marie Tssessaze and Nicole Lamy.

Results of the discussion about what the people in the community would like to see happen included:

- Elders teaching traditions to young people.
- Community hunts and finishing.
- Berry and herb picking.
- Farmer's Market.

- Community Freezers.
- Gardening and Greenhouses
- Cooking Classes
- More choices of Healthier foods at better prices

5.2 Sayisi Dene First Nation (Tadoule Lake)

Figure 36: Food Sovereignty Discussion at Sayisi Dene (Tadoule Lake)



The Tadoule Lake Food Options Community Gathering event was held in the Sayisi Dene Band Hall during the afternoon on Thursday April 19. There were about 12 community members in attendance. A soup and bannock lunch was provided by two local women.

After the presentations by the visitors, videos of food projects in other remote Manitoba communities were also shown. (i.e. The Meechim Project, Churchill aquaculture sea-can, How to Compost!)

Figure 37: Sayisi Dene (Tadoule Lake) Seed Nursery Presentation



Left to right: Nicole Lamy, Curt Hull, Marie Tsessaze, Sherry Bighetty and Caroline Cheekie

There was a fruitful discussion by the attendees of what might be supported by the community and would contribute to food security and self-reliance.

All present agreed that a community greenhouse would be welcome. We collected names and contact information from at least four members who would pursue gardening if they could be supported with supplies and advice. One member suggested that the shipping container greenhouse employed in Churchill would be particularly appropriate for Sayisi. Key reasons that the shipping container greenhouse were attractive were that it could be secured and that it could be moved.

Food Matters Manitoba and Boke Consulting presented a Growlight Garden seed starter system to Sayisi Dene community member Caroline Cheekie. Caroline expressed her intention to start seeds this spring. (Food Matters and Boke will need to send soil and seeds to Caroline.)

As a result of the discussion with the community in Barren Lands First Nation (Brochet) Boke Consulting developed a short survey to better capture individuals thoughts on the popular ideas discussed at the community gathering. These surveys we used in both Sayisi Dene First Nation (Tadoule Lake) and Northlands Dënesųłíné First Nation (Lac Brochet).

Table 1: Survey Results - Sayisi Dene First Nation (Tadoule Lake)

Is the current state of food supply in your community a concern to you?		What would you like to see improved in your community?		What would you like to see developed in your community?	
I'm very concerned	11	Less processed food	6	Restaurant/cafe	11
I'm quite concerned	2	Lower cost healthy food	5	Community hunts	10
I'm sort of concerned		Less plastic packaging of food	4	Community freezer	9
I'm not concerned		Less cheap unhealthy food	1	Community smokehouse	8
What is good about your current food supply?		What would you like to see developed in your community:		Cooking classes	7
Fish, caribou, moose, ptarmigan, grouse, etc.		Community recycling		More youth involvement	7
Fresh milk		More real meat		Gardening club	6
Not good		Learn about traditional food, how to prepare and store it. Food like caribou meat, geese, moose, fish etc.		Aquaponics/Hydroponics	6
Northern store		Traditional ways		Buying club (bulk food)	5
Nothing				Spring seed starting classes	4
Lower cost of some foods				Raising Chickens	4
Wild food Access - good				Local soil development	4
				Bee keeping	3
Other comments					
Clean water, healthy fish. Caribou accessible, moose, subsidized produce, meat, etc.					
Think the mobile hydroponic units - would be the ideal way but training would be required. But personal gardening should be encouraged and promoted.					
Lots of caribou and fish					
Lots of wild meat, fresh vets come in weekly.					
more caribou meat.					
There should be more information about food, recycle, resorting, sorting, organized program					
No more process food in the store, no more energy drinks, teach community about healthy foods, teach how to cook. Community freezer is an excellent idea.					
Need more traditional food like fish, geese, caribou, swan, moose, etc.					

5.3 Northlands Dënesųliné First Nation (Lac Brochet)

The Northlands food discussion event took place on Friday April 20, 2018 in the Petit Casmir Memorial School gymnasium. The gathering was led by respected elder Simon Samuel. Much of the discussion was conducted in Dene language.

Sarah Samuel, Director of the Health Centre also contributed a number of cooking and kitchen items as door prizes on behalf of the Health Centre.

Figure 38: Food Sovereignty Discussion at Northlands Dënesųliné (Lac Brochet)



After the visitors' stories and the videos, discussion turned to concern about the winter road and what effect it would have on the community if climate change makes the road less reliable. Unless the community builds self-reliance and self-sufficiency, there is a risk that the community couldn't be sustained with its current population in its currently location.

There have been some greenhouses attempted in Lac Brochet, including one by Northlands' Community Expert Marie Tsessaze. Some years ago, Hydro had offered to build a greenhouse and supply heat to it from the diesel generator. This offer had not been accepted at that time.

There was general agreement among attendees that a community greenhouse and support for household greenhouses would be welcome in the community. The Growlight Garden seed starter system for Northlands was presented to Marie Tsessaze and Simon Samuel.

Figure 39: Northlands Dënesųliné Seed Nursery Presentation



Left to right: Nicole Lamy, Marie Tsessaze, Simon Samuel and Curt Hull.

Table 2: Survey Results - Northlands Dënesųłíné First Nation (Lac Brochet)

Is the current state of food supply in your community a concern to you?		What would you like to see improved in our community?		What would you like to see developed in our community?	
I'm very concerned	2	Lower cost healthy food	4	More youth involvement	6
I'm quite concerned	4	Less processed food	3	Gardening club	5
I'm sort of concerned		Less cheap unhealthy food	2	Community hunts	4
I'm not concerned	1	Less plastic packaging of food	1	Cooking classes	4
What is good about our current food supply?		What would you like to see developed in our community:		Buying club (bulk food)	4
Food subsidy at the northern but not so much difference		Community greenhouse (x5)		Spring seed starting classes	2
Wild food harvesting		Greenhouse (x2)		Local soil development	2
				Restaurant/cafe	1
				Community freezer	1
				Community smokehouse	1
				Aquaponics/Hydroponics	1
				Raising Chickens	1
				Bee keeping	1
Other comments					
We live off the caribou and we hunt and harvest that for the year. Sometimes hard as the caribou seems like it is in decline. If I had a choice I would live off wild food.					
Have a bigger community garden. Get more people together. The Northern store to ship less and less junk food.					
Best practices handbook with pictures from all communities for sharing. Ideas how to work with youths for youth involvement.					
To have a greenhouse one year and then next year expand every expand on greenhouse.					
Help youth how to garden and plant other stuffs that can grow.					

6 RECOMMENDATIONS

In all of the communities we visited and in all of the community discussions, greenhouses were felt to be something that each community wanted to either start or to continue to develop. An important food movement is starting to take hold in northern Manitoba.

With significant investment from the Government of Canada, and [TidesCanada](#), often with support of the [Northern Healthy Foods Initiative](#) and [Food Matters Manitoba](#), and gathered under the umbrella of [Northern Manitoba Food, Culture and Community Collaborative \(NMFCCC\)](#) small and mid-sized gardens and farms—some with associated greenhouses—are starting to appear across Manitoba's north.

These recommendations build on and extend this important work.

6.1 Five Year Plan for Three Communities

Table 3: Five Year Plan - Sayisi Dene First Nation (Tadoule Lake)

activities	Year	1	2	3	4	5
community development			Food Plant (Gardening Club)			
soil development		Northern Soils Project				
community greenhouse		relaunch		heat	upgrade	
community garden				tire beds	expand	
household gardens				nurseries	cold frames	verticals
land-based education		net fishing	hunting	picking	preserving	
raising animals					chickens	
food preservation				cold storage	dryers	
food distribution					cafe	buying club

Table 4: Five Year Plan - Northlands Dënesųliné First Nation (Lac Brochet)

activities	Year	1	2	3	4	5
community development		Food Plant (Gardening Club)				
soil development		Northern Soils Project				
community greenhouse		design/build	grow	heat	upgrade	
community garden		tire beds	expand			
household gardens		continue	nurseries	cold frames	verticals	
land-based education		net fishing	hunting	picking	preserving	
raising animals				chickens		
food preservation			cold storage	dryers		
food distribution					cafe	buying club

Table 5: Five Year Plan - Barren Lands First Nation (Brochet).

activities	Year				
	1	2	3	4	5
community development	continue Food Plant		curriculum development		
soil development	Northern Soils Project				
community greenhouse	continue		heat	upgrade	
community garden	continue				
household gardens	continue	nurseries	cold frames	verticals	
land-based education	net fishing	hunting	picking	preserving	
raising animals			chickens		
food preservation		cold storage	dryers		
food distribution				cafe	buying club

6.2 Five-Year Plan Components

The recommendations to implement the Northern Food Sovereignty Strategy (NFSS) is a five-year initiative. This section provides an explanation of the elements of the recommendation. Each element would be its own sub-project and, in many cases, would likely require its own funding.

6.2.1 COMMUNITY DEVELOPMENT

6.2.1.1 FOOD PLANT

The Kisipikamak Food Plant (Brochet Food Plant) has been built based on the Ithinto mechisowin: Food from the Land model in South Indian Lake/O-pinon-na-piwin. The goal of the Kisipikamak is to harvest food from the land that can distributed to families in-need and to Elders in the community. Food that has been harvested can also be used for traditional food workshops to continue passing on traditional knowledge. The program is also a way of creating employment that reflect the traditional way of life of the community. As the Food Plant evolves it will be a hub for food initiatives to work collaboratively to increase access to traditional foods and continue passing on food traditions in the community.

6.2.1.2 GARDENING CLUB

This would be an entity with an organization and support structure to encourage and provide support for people in the community who want to garden. The establishment of a community garden would, in most cases, be an intrinsic component of the Gardening Club initiative. Activities would include support for the community greenhouse and support for people who want to garden on their own.

6.2.1.3 REPURPOSING WASTE

There are a number of types of waste available in communities that can be valuable resources for this project. These include:

- Discarded pop bottles (both large and small) can be cut down to use for seedling and bedding plant planting trays and covers.

- Discarded building components, including wood and nails could be used to make cold frames.
- Wood chips and sawdust left over from harvesting trees for biomass heating, firewood, fencing, and building construction can be used as soil amendments.
- Leftover material from slaughtering animals, including fish and game, can be used as soil amendments, once they are properly composted in an in-vessel composter. An in-vessel composter went into Northlands Dënesų́liné (Lac Brochet) this past winter as part of a larger recycling and waste initiative. A similar system is needed in Barren Lands (Brochet) and Sayisi Dene (Tadoule Lake).
- Discarded containers, tires and insulated boxes can be used for cold storage and garden beds.

6.2.1.4 COMMUNITY AND AGENCY SUPPORT

Virtually every time a gardening, farming, or greenhouse initiative has been suggested in a northern community, the proposers discover that there are already people in the community interested in being involved.

Local health agencies are interested in integrating their healthy foods initiatives with a greenhouse initiative, particularly the Aboriginal Diabetes Initiative that has the mandate to run programs that encourage healthy food and recreation. Other initiatives such as the Brighter Futures Initiative and Jordan's Principle incorporate gardening and traditional food activities into their programs.

Local schools are interested in integrating their education with growing food. There are well-developed curriculum resources that can provide structure.

As noted at the beginning of this document, there is an important network of government and non-government entities that are already established and already interested in these types of initiatives.

6.2.2 THE NORTHERN SOILS PROJECT

There is little or no existing soil in these communities to grow the kind of plants contemplated. There are, however, components of soil locally available. Those components include:

- Sand
- Muskeg/peat
- Wood chips & sawdust
- Scrap paper and cardboard

- Material left over from slaughtering animals
- Post-consumer organics

A number of things are needed to turn these potential soil components into useable growing soil.

First and most importantly, we will need to sample and analyze these materials. Local people will need to be trained and paid to sample, package and ship these potential soil components. Soil experts in the University of Manitoba's Department of Agriculture will need to be involved to teach local people how to do this work, receive the samples, test them, and provide a "recipe" for turning these components into soil. They will then need to train local people in creating this soil.

Secondly, we will need some equipment to process the materials. This equipment includes:

- A wood chipper and equipment for acquiring wood.
- A paper and cardboard shredder
- An In-Vessel composter, which will combine wood chips, sawdust, scrap paper, cardboard, material left over from slaughtering, and post-consumer organics into finished, commercial-grade compost.
- A bobcat or other heavy equipment for moving bulk composted material, turning rows and adding in feeder stock

Fortunately, for Northlands, this equipment is being supplied through two currently-funded projects—ERAAES (the Environmental Remediation And Alternative Energy Systems project) and a Waste and Recycling project. Similar equipment would need to be purchased for the other communities.

Figure 40: In-Vessel Composter



6.2.2.1 LIMITATIONS

The Northern Soils Project is not designed to be commercially viable. The vegetables grown will be consumed by the households that grow them, and by the people they share them with.

6.2.2.2 BENEFITS

Despite this limitation, properly integrated with other food initiatives, the Northern Soils Project can set the groundwork needed for commercially-viable food production. In particular, it will develop a way to train people to work in food production.

Perhaps even more importantly, it has the potential to change what people eat, and to significantly increase local food production.

It also has the potential to be sustainable. Once the system, building structures and soils are in place, the only cost to continue will be seeds—and some of them can be harvested from the plants being grown.

Furthermore, diverting organic waste to build soil reduces landfill and greenhouse gases.

6.2.3 **COMMUNITY GREENHOUSES**

The greenhouse program proposed here is low cost and sustainable. It is integrated into the education system, health system and the local waste, recycling and energy systems. Most importantly it builds on work already being done by people living in these communities.

The greenhouse building structures it proposes use almost all local materials. They can be built by local people and are developed organically from the traditional and established building designs in the communities. These structures can cost the same, or less, than prefabricated greenhouse structures brought in from the south and can last as long, or longer, than those prefabricated structures.

If this approach proves viable in these communities, it could be duplicated elsewhere.

6.2.3.1 BUILDING COMMUNITY GREENHOUSES USING TRADITIONAL SKILLS

Community members also have expertise in some of the elements required for northern greenhouses. In particular, there is an expertise in building durable pole-based structures, using a combination of local-sourced materials and plastic sheeting.

The pole-based design almost certainly derives from tent-building.

The oldest structures in the communities using pole-based design appear to be shrines.

Figure 41: Shrine in Barren Lands (Brochet)



Figure 42: Shrine in Northlands Dënesųliné (Lac Brochet)



A number of features of pole-based design are particularly relevant for greenhouses in northern communities:

- holes are augured into the ground, and the poles are inserted directly into the holes, without a foundation
- the poles are local trees, stripped of bark
- the poles are arranged so that the joints require minimal connectors—usually only a few nails
- in addition to weather protection, the plastic tarpaulin provides structural strength
- they are built entirely with local labour and locally-owned tools

- only the nails and plastic tarpaulin needs to be brought up from the south
- they are derived from local, traditional design

Inserting the poles into the ground would be a significant problem in the south, where they can be expected to rot in a few years. In these northern communities, because of the density of the local wood, and the lack of organic material in the ground, rotting occurs much more slowly.

This pole design is not used only for public structures; it has been adapted for private gazebos and picnic shelters.

Figure 43: Older Picnic Shelter in Barren Lands (Brochet)



Figure 44: Newer Picnic Shelter in Barren Lands (Brochet)



Figure 45: Picnic Shelter Exterior Detail in Northlands Dënesų́liné (Lac Brochet)



Figure 46: Picnic Shelter Interior Detail in Northlands Dënesų́liné (Lac Brochet)



This approach has been adapted for the larger summer church located north of the Northlands Dënesų́liné community.

Figure 47: Summer Church Interior Detail at Northlands Dënesų́liné (Lac Brochet)



This church is approximately 80 feet long, 30 feet wide and 15 feet high at its central peak (25m x 10 m x 5 m). A greenhouse—especially the first greenhouse in a community.

Figure 48: Summer Church Frame at Northlands Dënesų́liné (Lac Brochet)



Each fall, the plastic tarpaulin is removed, so that the pole structure can survive the winter snow. In spring, any needed repairs are done and the plastic sheeting is put back on.

This pole-based design can be easily adapted to greenhouses. The only design change required would be the use of transparent or translucent sheeting.

Local people can be hired to design and construct these structures and the only materials that need to be brought in are the nails and plastic sheeting.

6.2.3.2 RELAUNCHING

The Sayisi Dene plan includes a suggestion to implement a project to replace the greenhouse that Geoff Bussidor ran earlier.

6.2.3.3 HEATING

This is the addition of supplementary heat to the greenhouse. The Lac Brochet ERAASE project includes a biomass boiler and district heating loop to provide a locally sustainable source of heat. Once such a system is established in a community, we could consider tying the community greenhouse into the district heating loop. This would lengthen the growing season within the greenhouse.

6.2.3.4 UPGRADING

Upgrading the community greenhouse might take many forms depending upon need and what is practically achievable. It could mean making it larger. It could mean building an additional greenhouse. It could mean adding insulation panels, passive heat systems, cooling fans, temperature sensitive ventilation, and LED grow lights to further extend the usable season of the greenhouse.

6.2.4 COMMUNITY GARDEN

The initial establishment of a community garden would be an intrinsic component of the Food Plant or Gardening Club initiative above.

The Brochet Youth Garden has been in operation since. For the summer of 2018, there is funding for two adults and four youth in Barren Lands as gardening advisors. Northern Manitoba Food, Culture, and Community Collaborative (NMFCCC) has been providing this funding since 2014. New sources of funding are necessary for this project to continue in 2019.

6.2.4.1 EXPAND

Once a community garden has been established, there may be a desire to either make the garden larger or to start another.

6.2.5 HOUSEHOLD GARDENS

Supporting interested community members in building gardens that serve their household. Raised bed gardens are the most suitable and flexible to add to back yards. The garden bed design has been developed to discourage animal, snow mobile, and human foot traffic to prevent degradation of the soil and protects growing plants. Frames also hold plastic or sheet covers to help with frosts and cold days.

6.2.5.1 POTATO TIRE TOWERS

By creating a tower out of old tires as a way to grow potato plants we are accomplishing a number of things

- First, we are creating a new use for otherwise discarded materials. There are many tires in each of these communities that are no longer in use.
- Second, we will have a tried and tested potato growing system. This design will allow each plant to yield a larger crop in a short period of time.
- Third, we are using only a small amount of soil.

Figure 49: Instructional Video on Using Old Tires to Grow Potatoes



Source: <https://www.youtube.com/watch?v=dHh79Bq-UQk>

6.2.5.2 COLD FRAMES

This portion of the project would be to build cold frames for community gardeners.

Once it is warm enough for the plants to survive outside the greenhouse, they would be transferred to cold frames and small greenhouses constructed adjacent to people's homes.

Of course, there will need to be a process well ahead of the transfer to find people who are interested in having cold frames and small greenhouses by their homes. Families of students most involved in growing seedlings and caring for the plants in the greenhouses would probably be the ones most interested in having a cold frame or greenhouse by their house, but other community members will also be interested.

Figure 50: Step-By-Step Guide to Building Cold Frames



Source: <http://maxwellsgarden.com/371/building-cold-frames/>

Local people will need to be recruited and paid to design and construct these cold frames and greenhouses. Depending on their circumstances, some of the people who will want these structures by their house will be able to contribute to their construction, but this will not be true for everyone.

6.2.5.3 NURSERIES

The outdoor growing season is so short in our communities that virtually all food plants need to be started indoors. This requires a heated space and grow lights. Grow lights and trays of seedlings can be setup in very simple vertical racking systems. A nursery project might mean setting up racks in a shared community building. The seedlings would be made available to gardeners when it is time either to plant in outdoor gardens or to transfer to individuals' greenhouses.

Growing seedlings in classrooms does not have to be expensive or complicated. With the development of LED lighting, it has become even more affordable.

Figure 51: Seedling Nursery



Source: https://www.amazon.ca/SunBlaster-1600220-Light-Garden-Large/dp/B07CKRLJW1/ref=sr_1_11?s=lawn-garden&ie=UTF8&qid=1529880163&sr=1-11&keywords=sunblaster+led

Students could be asked to bring small, discarded drink bottles. These can be cut down to make the containers for the seedlings. This repurposing of used pop bottles is not done, primarily, to save money. Instead, it is one small, specific step that can be taken to link waste and food production.

Students could also be asked to choose the seedlings they would prefer to grow.

In discussions we've had with community members, the vegetables they express the strongest interest in are onions and potatoes. These are fried up with fish, caribou and moose. These two vegetables should also be among the plants grown.

Once the seedlings have sprouted, they can be transferred to "pots" made from larger drink bottles and transferred to a greenhouse near the school.

Local people will need to be recruited and paid to design and build the greenhouse, and the components for it will need to be assembled.

Until the nights are warm enough for the plants to survive the night, students will need to take the plants out to the greenhouse each morning and bring them back into the school at the end of the day. Especially in the first year, we need to be careful not to grow too many seedlings, so that the effort of caring for the plants in the greenhouse isn't greater than student and community interest is able to sustain.

Because the plants are not intended to grow to maturity in the greenhouse, raised beds and tables are not needed. Lighting isn't needed and, at least initially, the greenhouses don't need to be heated.

6.2.6 LAND BASED EDUCATION

In Canada, “country food” refers to the traditional diets of First Nations, Metis, and Inuit peoples. These foods are fundamentally important to the people in our participating communities, both as sources of nutrition and as central to the cultural life of the communities. The projects proposed are intended to ensure that traditional practices are strengthened and passed on to future generations and to enhance people’s access to these food sources.

6.2.6.1 ELDERS/YOUTH TRADITIONS TRANSFER

All of the efforts to enhance country food access in these communities include getting elders and youth together so that the youth could learn from the elders. In fact, this land based education and transfer of knowledge and traditions from Elders to Youth is an important part of this entire document and process, and should be built into all food practices in the community. All of the conversations we had in all communities put great importance on educating and engaging youth. Being food secure is important for our future generations. There is a passing on of knowledge in all of these steps, new ways and old ways.

6.2.6.2 NET FISHING

Harvesting fish from surrounding lakes has been a way of sustaining life for Indigenous people living in northern Manitoba. Throughout the year, community members spend time catching fish to share with Elders and community members. Fish is also processed and stored in community freezers to be used for traditional food workshops, feasts or families that are in need. Fish is harvested in different ways during each season and is a way of gathering youth and Elder’s on the land to share about harvesting practices.

After catching the fish, they are cleaned. We will need a fish plant, a community building, where the fish can be cleaned and prepared for storage or consumption. Fish waste is an excellent additive to improving soil quality directly to the garden beds or in the in-vessel composter

6.2.6.3 HUNTING

Community hunting trips happen throughout the year where moose, caribou, geese, and ducks are harvested. Some hunting trips are organized with the local health centre or school to get youth onto the land and learning about their traditional food practices. Any extra meat harvested is also processed and stored in community freezers which can then be used for workshops, feast or Elders and families in need.

6.2.6.4 DRESSING

“Dressing” is all of the processes required to go from a freshly killed animal to something that is ready to preserve or eat, including skinning, eviscerating, and butchering.

Projects related to dressing could include constructing and outfitting a building where animals and/or fish could be processed.

Buildings or rooms could be dedicated to different processes to ensure food safety and reduce cross contamination. In particular some community members have fish allergies and would require separate equipment for processing fish.

6.2.6.5 BERRY AND MEDICINE PICKING

Local berries are harvested during the warmer months. Berries and medicines are used in a variety of different ways to improve health.

6.2.6.6 TRADITIONAL PRESERVING

Learning the traditional ways of food preservation is just as important as learning to catch, kill, or pick the food. Once the food has been collected, it is likely that it will need to be stored until needed. To prolong the storage of the food, it will need to be preserved by either smoking it or drying it in the sun.

6.2.7 **RAISING ANIMALS**

Members of all three communities expressed interest in having a chicken coop and system for raising chickens along the lines of the Meechim Project in Garden Hill First Nation.

6.2.8 **FOOD PRESERVATION**

6.2.8.1 COLD STORAGE

This could be as simple as a chest freezer for community use, such as currently exists in Barren Lands / Brochet. It could also be a larger community food locker where community members have secure access to locked boxes within a shared container.

There is potential to build cold storage rooms, and cellars. These can be buried and created out of insulated boxes, including old freezers and fridges for households. Cold storage is essential for maintaining the quality of root crops throughout the winter.

6.2.8.2 DRYING VEGETABLES

This involves building dehydrators. It might be possible to use heat from a sustainable biomass, district heating system for this. It is also possible to augment that heat source with some solar. Solar dehydrators are used at the Northern Sun Farm Co-op south of Steinbach.

6.2.8.3 CANNING

Canning is a process that will allow for the preservation of many types of food. This will include fish, fruits and vegetables. If this process becomes popular, shelving will need to be added to the storage lockers.

6.2.9 **FOOD DISTRIBUTION**

6.2.9.1 CAFÉ

Starting up a café or restaurant within the community. This would be as much a place for informal social interaction as it would be a place for accessing food. It could include a local grocery. Perhaps it might be an enterprise something like Neechi Commons.

6.2.9.2 BUYING CLUB

Groups of people or families can come together to purchase bulk quantities of food. This is a system that can be set up and run out of the cafe for the community. The food would be more cost efficient and likely bring less waste and packaging into the community.

6.2.9.3 SOCIAL MEDIA

We should use social media such as Facebook to increase the reach of whatever mechanisms we use or distribution of healthy, affordable food. This form of communication has really become popular and is widely used as remote communities get more Wi-Fi and internet connection.