

Geriatric Natural Herbalism in a Toronto Seniors' Community: A feasibility study of social enterprise through green living and agro-ecological herbal plant production and distribution

by

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- Abstract

This research paper describes a feasibility study of a possible business model to be supported by Canadian civil society organizations (CSO), Canadian social enterprises, seniors' facility centers and alternative food networks (AFN) to deliver fresh and nutritional food and natural herbal teas to seniors' facilities. Through the theories of "green living and environmental leadership" and supportive herbalism practices for an aging population, Canadian civil society organizations and social enterprises can highlight community engagement, decision building, environment sustainability, equity and social justice, agriculture and economy, health and wellbeing.

The research has been developed through qualitative research work with literature reviews, interviews, case studies, practical working experiences, illustrations, taking notes and examining critical theories.

- Foreword

This research paper is enacted in accordance with the requirement to fulfill the MES degree program at York University. It focuses on skills for social entrepreneurship and growth-based research subject based on observation in practice and in theory. The research explores the potential of a new business model of green living among seniors' community in Toronto, involving Canadian civil society organizations and social enterprises. I explore a possible business model that is supportive to seniors' community development, in a Toronto's neighborhood improvement area. As I have portrayed my personal experience in one of Toronto's neighborhood improvement areas, as a community engagement worker. I have concluded with a pilot project proposal of business model following community based participatory research combining the social enterprises and seniors' facility. The pilot project will navigate the ecological growing options of Ontario grown natural herbs that are to be

dried to make herbal tea would be packed and distributed for optimum use. The pilot project will analyze Good Food Box as the probable distribution model, added with green living approach through natural herbal tea including fresh fruits and vegetables, following the social enterprise-based business model as joined up alliance for healthy food and farming efforts.

A component of my area of concentration and a learning objective in my plan of study is to learn sustainable local food systems within a joined-up food policy for Canada (MacRae, 2011), that enhances a multicultural community's ecological, environmental, economic and social wellbeing. This research has tried to gain understanding of the potential socio-economic benefits from a local food system through its demand – supply management structures, distribution strategies, resource management processes. The research also highlights cross-sectoral policy coalitions to reform public policy, developing alliances for healthy food policy and sustainable farming endeavours. This research explores how availability, accessibility, acceptability and adequacy are acting as major factors for achieving food security in seniors' communities in Toronto. Food sustainability is a tool that serves to counter poverty, inequality, ill health and hunger.

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This research paper is an acknowledgement of my learning processes in the Masters

in Environmental Studies program at York University, synchronized with my personal journey of life in Canada as an immigrant mother, food worker, educator, cook, arts and crafts enthusiast, and volunteer at the Ontario Early Years program, a Seniors facility center, and a food bank. I am extremely grateful to my supervisor Dr. Rod MacRae for his continuous support throughout my program. All my professors in the MES program and FES writing tutor Mr. Ray Bennet have guided me to develop my academic writing and inner soft skills during the last two years, as I returned to school after 17 years and was struggling as a new immigrant in Canada. I must acknowledge Professor Ellie Perkins's kind support as she helped me to study qualitative research in a realistic way. I am thankful to my dear friends Clara Summerluke, Ama Leticia, Barbara Shiderman, Liane O'Keefe and Paige Locket and I will always remember my exceptionally enjoyable ecological agricultural field work along with Toronto District School Board high school students at Thistletown Collegiate Institution School Garden in Etobicoke. Fellow MES student artists Gloria Swain, Michaela Kennedy and Julia Fursova encouraged me to join art and craftivism at FES. I am thankful to MES graduate Martha Newbigging and my beloved teacher Lisa Myers for conducting design workshops to develop web and media based artistic literacy at Seneca College. I am greatly influenced by Professor Chris Cavanagh's popular education praxis, combining art works with academic writings to implicate systematic self-observation based qualitative research process. When I was going through a new transition period of my life, my family members, friends, neighbors in Canada, the USA, and India were my pillars of strength.

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- Introduction

This research examines the feasibility of promoting a food-based health and wellness approach, “geriatric natural herbalism,” rooted in urban agroecology, and alternative food network processes combining the Good Food Box initiatives and apothecary products based on concepts of retail pluralism, alternative food networks, and social marketing in public health. I intend to design a business model for agro-ecological natural herbal plant production delivered through Canadian social enterprises, civil society organizations and seniors’

facilities.

My research context is informed by the 2016 Census by Statistics Canada, which emphasized that senior citizens are now a larger percentage of the population than children in Canada. It has been estimated that Health Canada expenditures on gerontology and health care will increase including expenses for strengthening senior citizen's care, coordinated home and residential support for seniors, financial support and refundable tax credit benefits for family care facilities, a national strategy for palliative care, hospice and end-of-life care. Senior citizens are expected to comprise 24% of Toronto's population by 2041 (Oliver Moore, 2016).

According to the Canadian Medical Association (2015), 62% of health budgets in Canada will be spent on gerontology supports by 2036. Increased health care costs, growing costs of nutritious food, and rising income inequalities in old age are all burdens for senior citizens in Toronto. Toronto's vital signs 2016 reported increased poverty faced by senior citizens in Toronto, rising from 10.1% in 2010 to 12.1% in 2014 (Statistics Canada, 2016). Escalating costs of nutritious food are a burden for senior citizens living in lower income households. Frequency of visits to food banks in Toronto has dramatically increased by 48% since 2008.

Healthy food habits and green living are directly related to enhance health outcomes. Research has been conducted on improving the efficacy of alternative treatments at the University of Toronto, McGill University, and the University of Alberta, and on examining how natural herbalism-based approaches can be considered culturally appropriate remedies for supporting geriatric multicultural Canadians in palliative care. Recently, three institutions, the Brampton Civic Hospital, Ottawa Integrative Cancer Center, and the Ottawa Hospital Research Center, started applying culturally appropriate alternative natural herbal practices

(Adhopia, 2016). In a related effort, Access Alliance Multicultural Health and Community Services (2017) is also conducting research to determine challenges and planning implications of promoting green living and environmental leadership among newcomer communities. The research work has been constructed to strengthen environmental leadership, food security, social justice and environmental sustainability. Civil society organization and social enterprises, such as FoodShare in Toronto, run Good Food Box operations. As part of FoodShare's various community food security program, the Good Food Box is a "situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance, social justice and democratic decision making" (Hamm and Bellows, 2003). Good Food Box can be an effective model for distribution of natural herbal plants.

A critical presumption of my study is that geriatric natural herbalism is beneficial to institutional actors for assisting aging people for pain management, brain health innovation, palliative and end-of-life care. My study might help break the barriers of geriatric affordability, inaccessibility of food (Wakefield et al 2017).

According to Muratoglu (2014), Canadians are fond of tea, Canadians drink approximately 9.7 billion cups of tea per annum Agriculture and Agri-Food Canada (2012). Black, green or herbal tea is a hot drink, sold as tea bags or loose-leaf bag/tea, Tea is a healthy drink considering having several therapeutic properties. Tea contains flavonoids. Tea is said to protect one's heart. It is assumable that tea lower one's blood pressure. Tea can boost one's mood and helps to stay alert. Tea is also said to promote one's brain health, therefore reducing the risk of Alzheimer's disease. Tea can also help in weight management. Tea helps one to relax and refresh and helps to keep caffeine in check. Agriculture and food

chemistry (Serpen, et al. 2012) and (Josic, et al. 2010). Tea is an aromatic drink made from hot water and camellia sinensis leaves. Herbal tea is made from natural herbs, fruits, spices (any natural infusion rather than camellia sinensis leaves). Therefore, herbal tea is often called as “tisane”.

A commissioned report submitted by Agriculture and Agri-Food Canada has confirmed that the tea-based beverage industry was valued at C\$423.8 million in 2012. Tea consumption in Canada will increase by 40 per cent by 2020 (Agriculture and Agri-Food Canada, 2012). Tea is the fifth most popular beverage in Canada (Friend, 2013).

- Research

The research design and methods of analysis are following a case study.

Research Questions

My specific research question is can a new approach to support multicultural senior health be developed based on a business model for agro-ecological natural herbal plant production through Canadian social enterprises, civil society organizations, seniors’ facilities and alternative agro-ecological food networks? Why is this study important? Why seniors? Why Tea? Why a new approach involving Canadian civil society organizations social enterprises, a Canadian social enterprise, senior’s facilities and alternative food networks (AFN)?

To find answers to the questions, the business model explores the possibilities to engage the facility management teams at a senior’s facility center, food bank operations, and fresh and nutritional food delivering units. I have examined the efficacy of FoodShare’s Good Food Box, following the concepts of agriculture and human values, through different articles based on Good Food Box. I have considered that FoodShare’s Good Food Box is a program that fights against food insecurity, enhances community food security, scales joined up food

policy through social reproduction and social justice. The FoodShare's Good Food Box products containing fresh food and natural herbal tea to consumers and others could serve senior citizens in Toronto, and also speaks about food security, social enterprise-based budgeting and planning. I have examined the efficacy of Meals on Wheels on seniors' facility, considering that Meals on Wheels, Good Food Box, Community Gardens, Food Banks are Food Action Plans, followed by perspectives on community-based food security and food sovereignty projects. Provincial Health Services Authority in Vancouver, British Columbia (2006) has narrated, to describe the Provincial Healthy Food Service Initiatives, Prevention, Promotion and Protection Project. Though Meals on Wheels and Good Food Box programs are differently positioned, both programs are hostile against hunger, poverty and food security.

Delsie Hyatt (2008) argues that FoodShare provides Wellness Boxes to Seniors as a Good Food Box working in partnership with Meals on Wheels and Seniors Meal Programmes. Good Food Box are available at adult daycares, senior's facility centres, apartment buildings, churches, retirement homes and so on FoodShare (2013a). According to McMartin, Jacka and Colman (2013) justified, sustainable, healthy food system can be promoted by Good Food Box program and community health professionals.

As stated by Biberstein and Daalderop, (2008), the Good Food Box is a tool to fight against food insecurity by improving people's access to healthy food. When affordability and access to healthy food is an area of concern in Toronto for low-income families. (Jackson et al 2001) conducted many researches and studies have been done that show that consuming enough fruits and vegetables is the key to preventing diseases. Duncan, Trevoy, Health and Chan (2011) pointed out that people of low socioeconomic status are prone to premature coronary heart disease and tend to have more risk factors and worse health and mortality. Good Food Box is an initiative to fight against hunger, poverty.

Payette and Statenstein (2005) identified that food choice among seniors depends upon individual, cultural, social, familial and economic influences. “Collective Determinants of Healthy Eating” among senior citizens are depending upon marketing strategies of healthy eating message, handy food labels, suitable food spending environment, satisfactory social provision, efficient community motivated meal delivery services developed through Meals on Wheels Program. Payette and Roy (2006) see that Meals on Wheels program is a program that improves nutritional intake, energy involvement among elderly populations, thus challenges food insecurity.

Conceptual Framework

Food security, social determinants of health, and healthy community development are key analytical frameworks to design a probable business model. Based on analytical frameworks, we consider a new approach to create triple bottom line results, that is, positive social and environmental impacts engaging multiple stakeholders following edible action, food activism and alternative economics. This environmental leadership, social justice and environmental sustainability-oriented research is an approach to reinforce green living and healthy food system value. The lower-middle income multicultural senior citizens in Toronto are central points to this research.

Importance of site selection

Villa Colombo Homes for Aged Inc, as a component of the Villa Charities Inc. offers high quality long term residential care for approximately 400 residents and supporting community services to approximately another 800 seniors living in the community. Villa Colombo Homes is located in Ward 11, where mostly senior residents living there are economically well-off so that they could afford the high-quality in-house seniors support system including the food. Villa Colombo Kitchen serve culturally specific cuisine cooked

hot meals once every day to multicultural Canadian seniors living in seniors' residences, in condominiums, in semidetached / detached residences near the centre. For residents living outside the Villa Colombo homes, Meals on Wheels facility is working for weekdays and weekends. For seniors are relying on social support-based food system. Frozen meals are also available for weekend supply. Seniors facility driven Meals on Wheels program has financial partners like United Way, Toronto and York Region, City of Toronto, Commission on Accreditation of Rehabilitation Facilities (CARF), Toronto general local health integration network etc. Based on subsidized social support, meals have an average lower cost (\$2 to \$5), although \$10 is the proper price for each packed meal. Following the sociohistorical and sociocultural philanthropic concept of Canada, meals are often offered free of cost to the underprivileged seniors at Ward 11, following sufficient confidentiality, respect and honor.

Seniors mostly prefer hot soup, fresh green vegetables, freshly baked fish/chicken along with rice/bread, cakes and cookies. Though seniors are highly dependent on cooked meals delivered by the seniors' facility, they prepare tea and coffee-based beverages by themselves. Toronto has high number of senior, single women (Hudon, 2016). "The population of both females and males in Canada continues to age. On July 1, 2015, 3.2 million of Canada's 5.8 million seniors aged 65 and over were women, accounting for 54.7% of this age group and 17.5% of the female population" (Statistics Canada, 2016). I have observed that most therapeutic herbal teas in Canada can be prepared from dried Ontario grown natural herbal plants specifically – (1) St John's Wort; (2) Mountain Arnica; (3) Skull Caps; (4) Milkvetch Astragalus; (5) Evergreens; (6) Echinacea; (7) Devils Club; (8) Greater Celandine; (9) Lemon Balm; and (10) Yin Yang. These teas were chosen based on several criteria, including Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFARA)'s crop production procedures, socio cultural requirements and existing laws and regulations.

Popularity of natural herbal tea

As reported by Siddiqui, (2017) tea is the second most popular beverage in the world and continues to grow popular among Canadian consumers. The market research group Euromonitor International has concluded that in 2015, sales of tea has reached \$1.3 billion in Canada, showing 23% growth over the previous year. Euromonitor International has also predicted that tea will attain compound annual growth rate of 5% in volume and 8% in value based on 2016 prices. Even Starbucks has expanded its tea business in North American urban centers, shopping malls through brand name Tavana, a tea alternative to its main coffee products with price range from \$3 to \$6 per serving.

Based on reports from Agriculture and Agrifood Canada, (Roberge, 2015) seniors are a significant tea drinking demographic. As described by Agriculture and Agrifood Canada, Lousie Roberge, Head of Tea Association of Canada Tea Council established on 1954.

Age groups	BlackTea Consumption	GreenTea Consumption	HerbalTea Consumption	Other Specialty Tea Consumption
12-17 yrs	18%	18%	22%	42%
18-24 yrs	18%	23%	19%	40%
25-34 yrs	22%	25%	27%	26%
35-44 yrs	23%	26%	29%	23%
45-54 yrs	26%	27%	25%	23%
55-64 yrs	28%	26%	25%	22%
65-99 yrs	34%	27%	25%	14%
Total	0%	25%	50%	75%

Herbal tea is popular. Considering that it is helpful to increase fullness and satiety, herbal tea helps to fight against stress and anxiety. Making herbal tea is easy with high-quality herbal products available in natural food stores, herb shops and online shopping. Growing herbs for making one's own cup of tea is one step to a green living approach. When brewing a cup of natural herbal tea, one is performing an alchemic action, mixing and brewing the elemental essence of plant life, fire, water and earth. Drinking herbal tea enhances one's active desire of health and well-being (Reid, 2011). Since ancient time, tea has been considered as warming and soothing drink for body and mind, enhancing our natural healing process. I have studied The Right Tea blogs, Be Brain Fit Topics webpage, Live Strong Articles webpage, Rapha Tea recipe webpage, Buddha Tea webpage, Mountain Rose Herbs Inc webpage in order to follow the different varieties and price structures of natural herbal tea available at Canadian retail market. I have surveyed The Whole Foods Market in Mississauga and The Herbal Clinic and Dispensary in Roncesvalles, Toronto to observe the product acceptance, availability, price structure.

Villa Colombo Homes has 10-acre community complex, 40 Playfair Avenue, Toronto with a large ecological garden. I have explored the options of suitable ecological agriculture practices at the Villa Colombo garden that could support herbal tea production.

To design a site for procuring the most prominent natural herbal plant (considered as sample for this research), I have studied Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) factsheet for growing non-traditional crops in Ontario, order no (09-043W). Through my research work, I have examined two strategies to obtain the most prominent natural herbal plants: (1) from onsite garden and (2) procurement from organic farms, first nations and urban growers. I have considered selecting garden sites available with

(1) Villa Colombo Homes Inc, (2) sunshine CAMH garden through FoodShare's operation, and (3) sustenance garden operation through Six Nations growers. Looking into different environment and economic factors, these sites must consider different production life cycles, plant hardiness zones, germination periods, soil types, irrigation patterns, harvesting periods and quality parameters.

Research Methodology

My research strategy is grounded in a case study approach (Yin, 2013). The research examines the business model situated in a case study method, evaluated through a normative research approach. Data validation follows contextual validity by addressing credible, true phenomenon allowing maximum data transferability. Following a case study research design and methods, I have selected a small demographic area and small sample of people as a focus of my study. As stated by Zaniel (2007, 1984) the case study method is based on observed examination of a research phenomenon, using multiple resources of substantiation within a narrowed precise context. Case studies described by Goodrick (2014) are based on multiple-case design, following realistic lived experiences, exploring replicated multiple resources based on facts and figures to navigate case reason. Hypothesis generating / exploratory case studies are appropriate research tools to conduct organizational and management studies (Levy, 2008).

Research Tools

My research design is based on a descriptive, correlative methodology. My research uses interviews, document analysis, observations and area surveys as the basis of case study research strategy (Bartlett and Vavrus, 2017). These research tools have developed the succeeding case study method, answering the questions how similar procedures can be explained in different positions following a situational site for research. I have compared

unconditionally different units that have been placed in same relational and spatial position, in order to develop 10 interviews out of previously planned 12 interviews. Therefore, transversal comparisons in between diverse cohorts of case study helped me to conceptualize the assembling interrelationship through interview, survey-based research and archival research.

As narrated by Foddy (1994) interviewing is a research method to learn about human participation in different circumstances. Corresponding to the reflections on the purposes of situation-based inquiries, interviews are based on self-critical and partisan ideas. Interviews support best possible research methodologies involved in data collection, analysis and decision-making of qualitative research. The case study components in different components are community food security, alternative food networks, ecological agriculture, Good Food Box program, social justice, social reproduction, joined up food policy, place based social movements in Toronto, Canada. The most significant foci supporting iterative processes of the case study are to trace connectivity across spatially isolated attributes, interactions, meanings, reconsiderations within various possibilities of assessment.

Interview

I have conducted thirty-minute informal, semi-structured, open-ended interviews with each participant, and I have conducted interviews for ten people in Toronto. I have collected open-ended emerging data. Afterwards I have embedded interview data into a case study research. Participants made their own decision to participate as a volunteer, not to volunteer, to stop participating, or to refuse to answer any questions without influencing the research. This is a feasibility study with several core parameters that shape the investigation.

Research Strategy	Case Study Method	Case study is useful to generate hypothesis
Interviewing Professionals And Focussed Senior Groups	6 Institutional professionals	Social Enterprises, Civil Society organizations, Senior Facilities, Agroecological farms producing Natural Herbal Plants and Apothecary, Logistics and Supply Chain Management Group, Financial Support Group
	6 adults/seniors	At Toronto social segment/ seniors' facility
Total	Planned to conduct interviews on 12 people, ended up with 10 people	

I have tried to conduct interviews of at least twelve multicultural people of different ages including professionals in ecological, agricultural, horticultural, apothecary, natural herbalism, financial support member, logistics supply chain member who are farming, practicing, believing in natural herbalism and Ontario-grown natural herbal plants. Employees of and participants in Canadian social enterprises, civil society organizations, seniors' facilities, Good Food Box initiatives at neighborhoods, community gardens are key interviewees in my research. For interview purpose I have also selected people practicing natural herbal plant-based apothecary in City of Toronto, food sellers from health food retail stores in Greater Toronto Area and aboriginal knowledge experts to explore some general attributes of green apothecary and complementary Ontario grown plant-based medicines. During interviews, I have tried to identify the processes involved in scaffolding knowledge, acknowledging responsibilities and translating ideas.

Document analysis

I have analyzed exploratory documents that are best for understanding interventions;

testing theories, explanations, concepts or phenomenon. I have studied documents for situational analysis including guidelines to grow medicinal herbs in Ontario, following guidelines of the Ministry of Agriculture, Food and Rural Affairs.

- A) Natural Health Production Regulations from Parliament Research described Herb Regulations in Canada, Branch MR – 149 E does not govern the social cultural production of medicinal herbs but proclaims specified health remedial of advantages proclaimed during natural herbal product manufacturing and sale required for proper licenses followed by regulatory framework.
- B) Classification of Products, Food – Natural Health Product Interface narrated Products in Food Formats by Natural Health Products Directorate-Food Directorate.
- C) OMAFRA factsheet documented procedures for growing non-traditional crops in Ontario, order no 09-043W.
- D) Canadian journal of Plant Science and Review: Northern Ontario Medicinal Plants (Hassan et al 2012) represented core guidelines for studying ecological agricultural practice of the research.

A review of Northern Ontario Medicinal Plants documented St. John's Wort, Skull Caps, Evergreen, Devil's Club as most promising medicinal herbal plants in Ontario (Hassan et al 2012).

Among the four herbs, only St. John's Wort has been included in an Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)'s factsheet that is companion to the OMAFRA factsheet "Growing Non Traditional Crops in Ontario, Order no. 09-043 W".

When I explored the opportunities to procure and to distribute packed, dried tea based natural herbal plants, I have considered only St. John's Wort because of its prominent existence in this document (Hassan et al. 2012).

The feasibility study has paid attention to the regulatory structures of Health Canada regarding natural remedies. Among the 48 documented lists of Northern Ontario Natural Herbal Plants, and 33 documented herbal plants described by the Ontario Ministry of Agriculture, Food and Rural Affairs. I have selected 10 natural herbs because they are the 10 topmost Ontario grown medicines relative to their socio-cultural therapeutic aspects and beliefs.

Based on MacKinnon et al. (2009) WebMD webpage, Herbal Literacy at ABC, Herbal Monographs at Health Canada, Researcher on Herbs and Natural Health Products, Heather Boon (2010), Google Encyclopedia and Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) website, here are the therapeutic properties of 10 topmost Ontario grown natural herbal plants. From the literature, these natural herbal plants are said to have therapeutic properties for memory boosting, immunity building, pain management and anticancer, antibacterial and antifungal bioactive molecules.

St John's Wort (*Hypercom perforatum*)

Agronomic characteristics - St John's Wort is a hairless perennial herb, 30 cm to 1 m tall, flowers are bright yellow in colour, having five petals, with tiny black glands. Leaves are lance shaped, 1-3 cm long. The flowers, leaves and tiny black glands are steeped in water to brew into tea.

Therapeutic properties – St John's Wort is famous for acting to counter depression, anxiety, sleeping disorder, and to improve memory, tissue recovery, immunity, respiratory function,

pain management, and hormonal balance. St John's Wort tea is efficient to treat bladder problems, diarrhea, dysentery, worms, coughs and depression.

Mountain Arnica (*Arnica Montana*)

Agronomic characteristics - Arnica is a perennial herb with leaves that are oppositely positioned. Flowers are similar to sunflowers, having similar white hairs.

Therapeutic properties - Based on social cultural beliefs, Arnica has therapeutic properties that prevent sore, aching limbs, bones, joints; alleviate sprains, muscle pains, dislocations; improve wound healing, anti-microbial, anti-inflammatory, anti-bacterial; stimulates white blood cells in blood. Arnica should never be applied to broken skin, or else toxins can enter into the bloodstream. Sometimes Arnica can cause severe skin reactions.

Skullcaps (*Scutellaria baicalensis*)

Agronomic characteristics - Skullcaps are perennial herbs, precisely 80 cm tall, having weak 4-sided stems and oppositely positioned blunt-toothed leaves. Dried leaves and flowers of marsh skullcap were used to brew a tea that treats ulcers, sore throats, fever.

Therapeutic properties – Skullcaps has therapeutic properties and social cultural beliefs that it relieves anxiety; soothes nervous system; enhances memory; reduces pain; manages diabetes, cardiac health; removes toxins; helps in weight loss; prevents cancer. Skullcaps are used to treat rabies, epileptic seizures, smallpox and shingles. When mixed with American ginseng, Skullcaps can treat people “delirium tremens” of alcoholism.

Milkvetch *Astragalus (Astragalus australis)*

Agronomic characteristics - Milkvetch are perennial herbs having stems with bountiful leaves. Leaves are pinnately positioned and grouped into 7-12 leaflets. Milkvetch flowers are

white and lilac in colour with blue lines. The Milkvetch trees are 30 cm to 1 m tall, plant has unbranched stem, freely available at open woods, bogs, fens, forests, riverbanks etc.

Therapeutic properties – Positioned by social cultural beliefs, Milkvetch fights against infections, candidiasis, herpes simplex virus, physical exhaustion, chronic fatigue syndrome, low sugar hypoglycemia. First Nations eat the roots of Milkvetch in small amount, considering as a famine food. The traditional Chinese medicinal therapy has considered Milkvetch as a medicine to treat tiredness and to revive vital energy. The Cree people consider that Milkvetch can treat stomach-aches, cramps and stomach flu.

Evergreens (Hallan cypress)

Agronomic characteristics - Evergreen are falling under larger plant family consisting deciduous plants for instance a cypress, a honeysuckle, a sequoia etc. Most common in boreal forest, Evergreen leaves are rich in carbon – nitrogen content.

Therapeutic properties – Evergreen tastes like bitter, healthy tea smells like Christmas in a cup, anticancer, detoxifying cleaning up blood, reduces blood sugar level, heals pancreas, reduces cardio vascular disease, inflammation, stomach disorder. Situated on social cultural belief, evergreens have immense social cultural therapeutic properties.

Echinacea (Echinacea angustifolia)

Agronomic characteristics - Echinacea or coneflowers are large perennial herbs, up to 70 cm tall, with strong hairy stem. Leaves are lance shaped, 8-20 cm long. Flowers are single, daisy like, pinkish white to purple in color. Echinacea is a traditional North American herbal plant, adopted into European, Chinese and Ayurvedic medicine. Considering Echinacea is a strong “blood purifying” plant, First Nations people used to brew coneflower tea to treat sores, wounds, burns and bites of spiders, snakes or insects.

Therapeutic properties – Through therapeutic properties and social cultural beliefs, Echinacea has been positioned as an antiseptic, immunity booster, anti-viral, anti-fungal agent, improves immune system, fights against chronic tiredness, sore throat, gum infections, cold, cough, flu, respiratory problems, duodenal ulcers, candida, boils, acne and eczema.

Devils Club (Panacis quinquefolia)

Agronomic characteristics - Devils Club are 1-3 m tall shrubs with leaves that look like maple leaves. Devils Club has greenish white flowers, strong smells. Devils Club is a traditional North American herb, whose young leaves, roots, fleshy stems can be eaten and cooked.

Therapeutic properties – Established social cultural beliefs and therapeutic properties stated that Devils Club or Ginseng from Alaska is a Native American drink for good luck, spiritual improvement, medicine for physical ailments, high in vitamins, antioxidants, blood cleansers. Fresh stems are good to brew into teas to make a blood purifier, laxative tonic to get relieve from indigestion and constipation. Devils Club sticks are considered as protective charms, burned charcoal received from Devils Club are used as face paints.

Greater Calendine (Chelidonium majus)

Agronomic countenance - Greater Calendine is a perennial herb with 30 to 120 cm in height. Flowers are yellow in color, leaves are pinnate, up to 30 cm long. The leaves, flowers and roots are used in herbalism. When the stem is full of latex, the latex develops a very good source of medicinal alkaloids. Since long, Greater Calendine was used by romani and French people as a foot refresher. First Nations used Greater Calendine as digestive medicine.

Therapeutic properties – As specified by socio-cultural belief based therapeutic properties, Greater Celandine calms the nervous system, analgesic, sedative, reduces rheumatic pain,

removes skin disorders eczema, ringworm and warts, treats liver problems, digestive disorders, relieves spasms, cough, asthma, acts as anti-bacterial and anti-viral.

Lemon Balm (*Melissa officinalis*)

Agronomic characteristics – Lemon Balm plants are approximately 60 cm tall, grow well in rich, moist, well-drained soil. Lemon balm plants are perennial, enriched with small white flowers and plenty of leaves similar to mint shrubs.

Therapeutic properties – In compliance with popular social cultural beliefs and therapeutic properties, Lemon Balm fights against Alzheimers, dementia, insomnia, anxiety, depression, helpful for mental clarity, relaxation in Grave's disease, cold, fever, gastrointestinal problems, thyroid and chronic fatigue syndrome, post-menopausal management. Lemon Balm leaves are full of flavours, can be brewed to medicinal tea. Lemon Balm is strong antioxidant and anti-inflammatory agent, popular in European traditional medicinal uses.

Ashwagandha /YinYang (*Withania somnifera*) /American Ginseng (*Panax spp*)

Agronomic characteristics – Yin Yang or American Ginseng is 35 to 50 cm tall perennial herb with tiny flowers. Leaves are 12-30 cm long, each leaf divided into 5 sharp toothed leaflets. The roots, berries and flowers are edible parts of American Ginseng.

Therapeutic properties – In accordance with accepted socio-cultural beliefs and therapeutic properties, Ashwagandha or YinYang or American Ginseng (*Panax spp*) acts as an anticancer, anti-diabetes, anti-bacterial, immunity booster, memory enhancer, prevents seizures, arthritis, asthma, hypertension, stress, rheumatism, controls cholesterol, stimulates thyroid glands, improves blood production, counters ocular diseases. Leaves can be brewed into pleasant tea. Yin Tang according to Chinese medicinal theory, considered as a therapeutic agent to promote health, vitality and long life.

Significance of St. John's Wort considered as the most important herb

For ecological agriculture based on-site growing options, I have explored the opportunities to procure and to distribute packed, dried tea based natural herbal plants. As Northern Ontario Medicinal Plants documented St. John's Wort, Skull Caps, Evergreen, Devil's Club as the most promising medicinal herbal plants in Ontario (Hassan et al. 2012) and among the four herbs, only St. John's Wort has been included in Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)'s factsheet that is a companion to the Ontario Ministry's factsheet "Growing Non Traditional Crops in Ontario, Order no. 09-043 W". Therefore, I have considered the ecological agriculture growing of St. John's Wort first in an Alternative Food Network (AFN) context because of its prominence and socio-cultural belief based therapeutic properties described in these texts. I gathered findings from a series of interviews, conducted with ecological agriculture specialists regarding growing St. John's Wort at local urban ecological agriculture gardens as the first product of this project (with the ideal of expanding later into other herbs as identified earlier). My fellow students at MES, who are expert in ecological agriculture, who are urban growers, stated that it is very much possible. The peer group discussion helped me develop my knowledge of natural herbalism further. I have analyzed different documents to find sustaining encouragement to grow, to procure, and distribute dried tea-based Ontario grown natural herbal plants following Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFARA)'s crop production procedure based on socio cultural requirements guided by potential laws and regulations. Table 1 in Appendix further reveals the details of my natural herb selection procedure.

St. John's Wort therapeutic aspects

As stated by Hassan et al. (2012) since 1990, St. John's Wort (*Hyperfericum perforatum* and related species) has been considered the most prominent herb to help reduce

stress, anxiety and depression. Mostly flowers and leaves (70% flowers and 30% leaves approximately) of St John's Wort are used to make tinctures, oil, capsules and tea. For many centuries, St. John's Wort has been considered a "happy herb" to treat depression, anxiety, seasonal affective disorder, nerve damage, nervous tremor, burns, neuralgia, fibromyalgia, and chronic fatigues. The beautiful yellow flowers of St. John's Wort are used to make significant "trauma oil" that has possible potential effect to treat bruises, sprains, burns and injuries, wounds, bruises and sunburn. How St. John's Wort works is unknown. Though natural herbalists Gupta and Moller (2003) and Rowe and Baker (2009) suggest that based on medicinal speculations, St. John's Wort contains monoamine oxidase (MAO) inhibitor that inhibits antidepressant. Whereas recent studies reject that theory. Other common names for St. John's Wort are Warriors wound, amber, goat weed, touch and heal, hundred holes, terrestrial sun, grace of God and herb of St. John.

St. John's Wort agronomical aspects

As I considered growing St. John's Wort in ecological urban gardens in Toronto, I have navigated specialty crop growing opportunities in Ontario Ministry Factsheet Growing Non-Traditional Crops in Ontario, Order No 09-043W. Based on agronomics, St. John's Wort is a perennial herb, growing well in well drained sandy soils, acidic to alkaline soil PH, in hardiness zone 3, therefore the temperature during germination must be cool, to ensure uninterrupted germination (lower than 20 °C optimally 15 °C). The most common propagation method for St. John's Wort is transplantation from seedlings, although by direct seeding, spring and autumn root divisions, stem cutting processes are also quite common. St. John's Wort must not be planted too close to other plants to avoid its tendency to oppress other plants to grow. St. John's Wort is very much appropriate to grow in an isolated part of garden because it is a strong perennial with shrub like structure, protuberant stamen and beautiful

yellow flower petals. With very little care and very little moisture, this ornamental plant with beautiful flowers blooms around the midsummer and the blossoming goes on up to fall. Irrigation is advantageous at normal Ontario conditions, and the temperature climate is ideal for growing St. John's Wort in Ontario, whereas young plant tissues are frost sensitive. Forage harvesters are interested in flowering tops (top 20 cm optimal) with 1 to 2 annual harvestings either with machine or with hand.

As stated by Ontario Ministry's Factsheet for Growing Non Traditional Crops in Ontario, Order No 09-043W, several requirements to be fulfilled before non-traditional crop production. (1) Qualitative trials must be conducted before cultivation to evaluate rationalization of growing the herbs. (2) Endangered Species Act should be adhered at the time of growing natural herbs in Ontario following Ontario Ministry of Natural Resources. (3) Responsibility must be declared for production and sale of natural herbs followed by health claim stated by Health Canada. Although culture of natural herbs is ethical based on social, cultural and philosophical aspect of growing natural food.

As per Classification of Products at the Food – Natural Health Product Interface: Products in Food Formats by Natural Health Products Directorate-Health Directorate, Health Canada is a federal department accountable to uphold, to advance, to defend Canadians' health through eating healthy food with respect to multicultural preferences. Health Canada is entrusted to make certain that Canadians must have suitable access to natural health products and foods that are safe and sound, effectively maintaining high quality, respecting selection based on multicultural social, cultural, philosophical preferences. Based on the Natural Health Product Directorate dated 1st January 2004, regulated under Food and Drugs Act, energy drinks, vitamins, mineral supplements, juices, water are both natural health product and food. Therefore, they are considered food, subjected to Natural Health Product

Directorate and exempted from Food and Drugs Act. Food products are subjected to Food and Drugs Act and under the Food and Drug Regulations. Then the product in food format must have a Natural Health Product quantifying (1) the ingredients of the product, (2) the product depiction, (3) the configuration of the product, (4) the historical application and use of the product, and (5) the social, cultural, philosophical perceptions of the product. When food products are subjected to Food and Drug Regulations, they must maintain public health and safety rules. A product in food format, positioned by principles, outlines and considerations of natural health products and food principle, can be considered as a Natural Health Product.

According to Parliament Research Branch MR - 149 E Herb Regulations in Canada, 6th October 1997: Background and Issues, there are discussions based on specific issues, the Controlled Drugs and Substances Act, schedule 705, Bill C-85/C-7/C-8, law and government division-based cost recovery through division licensing fees and so on. Nancy Miller Chenier (political and social affairs division) and Gerald Lafreniere (law and government division) have documented different measures governed by the federal government since last decade to emphasize amplified consideration on herbal and botanical preparations in Canada. During last decades, since the middle of the 1980s, there has been contestation in Canada regarding herbal and botanical product regulations. The term “herb” describes the actual botanical plant as well as products amalgamated from the botanical plants. Though natural herbal products are quite popular in North America, it is difficult to forecast appropriate annual production data of natural herbal products in Canada. Researchers have reported that there are definite increases in sales and use. Based on estimated reports, North America herbal remedies represent a \$2 billion per annum natural herbal industry that has 15 percent annual growth. There were discussions on federal actions outlining four different segments as (1) proposed schedule 705 for assessment of natural herbal products as foods, (2) Controlled Drugs and

Substance Act with prospective to control natural herbs as drugs, (3) UN codex committee on nutrition and food that aspires synchronized management of natural herbs and (4) proposed cost recovery scheme of federal government that organizes licensing fees applicable to set up infrastructures to produce, to deal out natural herbal drugs. The Food and Drugs Act (FDA) configures different boundaries on selling, marketing, promoting, advertising “natural health products”. Options of “importing” “natural health products” and “sale” are strict decisive within opportunistic FDA framework, with declarations that “do not cause harm to humans”. Health Canada has declared statements asserting “natural health products”, “medicinal”, “harmful” aspects when sold as “foods”. Regulations of Food and Drug Act involve drug identification number and a public number of most required legislative parameters for marketing herbal products with medicinal properties. The drug identification number and the public number are most analytic parameters reviewing product articulation, labeling, lessons for product uses, assurance for holding “accurate health claims”. Health Canada made several public efforts to address different subjects related to directives of natural herbs. Health Canada made exertions that are not information based, but they are non-stop, vast, mostly supported by narratives and fractional evidences. Expert Advisory Committees on herbs and botanical preparations reviewed different issues related to natural herbs that are available as foods. Health Canada has established advisory panels on herbal medicines to recommend further advancement of suitable framework that controls herbal therapies. Health Canada has sanctioned contextual letters, strategies and policy declarations. On 4th October 1997, Health Canada Minister mandated that House of Commons and standing committee on health would be responsible for reviewing and conducting research of herbal regulations. Projected amendments to the food and drug regulations committee’s calculation followed by Canada Gazette Part I, the committee added discussions that were basement of Schedule 705. The outlined constituents of Schedule 705 mentioned the list of substances not allowed for use in

or as food and the substances those are acceptable as foods under specified circumstances. When Expert Advisory Committee is continuously reviewing the concerns, Health Canada and Schedule 705 have measured different options except the regulatory aspects. The Advisory Panel on natural herbal medicine is responsible for advising on frame work for natural herbal remedies. Based on Health Canada framework, accessibility of natural herbs and herbal products are regulated through the statutory authority of the Food and Drugs Act. Some natural herbal botanical products are already regulated, others are precisely mentioned in Schedule 705. The UN Codex Alimentarius Commission aims to complement food standards to maintain safe practices in food business and to protect customers compared to health hazards. Canada is considered as free nation to accept, to discard the ideals, strategies, endorsements developed by the UN Codex Alimentarius Commission. Health Canada has emphasized that the World Trade Organization (WTO) doesn't have the authority to enforce the Codex conclusions.

Limitations of geriatric herbalism

According to Case Studies in Geriatrics, Ahornheim, (2005) has narrated the reasons that senior citizens have degenerative physical and mental health. They have frequent complaints of poor driving skill, low vision, moderate dementia, occupational deterioration, chest pain, wheezing, insomnia, recurrent falls, osteoporosis, leg pain, hypo-hypertension, cough, diarrhea, lower gastrointestinal hemorrhage, upper gastrointestinal bleeding, acute ulcer and chronic ulcer, urinary inconstance, erectile dysfunction, weight loss, hypothermia, hyperthermia and so on. Sometimes seniors are relying on herbal remedies. The evidences of frequent purchase of "brown bag" medical center pharmacy products not only include vitamins and over the counter products, but also contain St John's Wort; echinaceas, palmetto, seesaw; yarrow; valerian root, ginkobiloba, glucosamine and chondroitins. Judith C. Ahornheim's (2005) research has confirmed that geriatric population is most likely

affected by cardio vascular disease and based on socio-cultural faith based therapeutic benefits of herbal products, patients might be taking these non-prescribed herbal remedies. Though patients are apparently relying on these natural herbal remedies to prevent persistent diseases, they are mostly unaware of supposed side effects and deficiency of effectiveness from conventional medicinal therapies. The efficacies of these non-prescribed herbal products are yet to be documented as evident through clinical trials. Even clinical trials are so far to be documented to demonstrate the probable harms (if any) caused by consuming these herbal non-prescribed remedies. Until now the effective application of herbal remedies are not addressed by primary health care providers. Thus, the public health and safety rules do not affect the sales and marketing of natural herbal tea, when there is no official proclamation of health benefits. The socio-cultural practice of drinking natural herbal tea described in my feasibility study does not have any controversy with public health and safety rules. Natural herbal tea without health claim is not a natural health product.

Observation of senior citizens in Toronto through field work visit

Villa Colombo Homes Inc under Villa Charities is a long-term care following the administrative parameters of Ontario Ministry of Health and Long-Term Care. I have only observed the seniors living inside Villa Colombo Homes, without having any conversations with them. I got the opportunity to talk, to observe the senior citizens living in independent homes at Ward 11, located close to Villa Colombo Homes. Based on workplace confidentiality at the seniors' facility, my fellow volunteers and working professionals at the seniors' facility were not ready to take part in the research with their own identity. They preferred to discuss the internal goings-on, trade secrets, and seniors' facility information with me through enough confidentiality.

As Meals on Wheels Coordinator volunteer, I was initially interested to conduct

interview among senior citizens who are clients of the seniors' facility. When I started working, I came to know that senior citizens who are living independently and receiving meals from Villa Charities through the seniors' facility centre are mostly frail, having mental and physical illness, sometimes suffering from terminal diseases and disability. The seniors' facility center under Villa Charities adheres to the norms of privacy and respect in seniors' lives. Seniors in independent living situation have their own liberty and self-decision-making ability while maintaining supportive relationship with family members, friends, social security system and community. Thus, as a volunteer, I was not permitted to conduct interviews among the senior clients. Based on the situation, I considered my senior coworking volunteers, who are also residing at York South – Weston (Ward -11) as most coveted ageing population for interview and I considered senior clients as valuable resource for observation based qualitative research.

In seven months of field visits at the case study site, I observed 10 multicultural senior citizens living in York South–Weston (Ward-11). I have taken notes of their food, beverage choices, glimpses of their food environment, their particular food behaviors, while respecting the confidentiality aspects of systematic observation in a qualitative research process. According to Goderick (2014) field visit is a systematic self-observation-based research method involving one individual's physical presence at the observatory location. I have combined art with academic writings as part of a popular education praxis. I use pictures to explain relevant points as visual rhetoric. As I was passionate about studying the ageing population at the backdrop of global ageing scenario, I have started working as Meals on Wheels coordinator in a seniors' facility connected with Villa Colombo Homes in Ward 11. With confidential protocol maintenance, I conducted interviews and I have drawn illustrations. I have embedded the findings in my own analysis. The illustrations are my own visual experiences, as Meals on Wheels coordinator volunteer, as I was closely associated

with 10 seniors independently living in houses in Ward 11. When I was serving their meals, I was friendly with the seniors, though I have never asked them any research question based on research ethics and respecting organizational confidentiality. Seniors welcomed me to come inside their living-dining rooms and kitchens to serve their meals. Consequently, the glimpses of their small food environment and friendly questions inspired me to create these observation-based visuals.



Figure 1: Food Habits – showing a senior person with regular food habit, prefers to drink plenty of water, tea, coffee to improve his blood circulation system

Picture 1 is showing food habits of seniors, “how we eat, how we drink” supports my sketch drawing that when seniors are not been able to prepare their meals, they are depending upon Meals on Wheels for cooked meals. At the same time, they are preparing tea and coffee by themselves. Fresh fruits and vegetables, milk and cereals, chocolates and cookies from grocery stores are integral part of dietary requirement in seniors’ daily routine. Diagrams and illustrations provide additional visual information about the context, when labels and captions provide more information to specific elements within visual illustrations (Jansen 2010).



Figure 2:Health Issues shows intergenerational dependency among seniors, juniors and care giving along with nutritious food and medication

Picture 2 demonstrates health issues amongst seniors, notably physical and mental health issues. Because of physical and mental illness, research with seniors must be obeyed with adequate confidentiality, respect and integrity. I have observed seniors are susceptible to suffer from depression, insomnia, muscular atrophy, cardiac irregularity and gastrointestinal disorders. Dennis Raphael (2004) in his “Social Determinants of Health” observes relationship between food security and health. Chronic food insecurity is responsible for problems like hypertension, diabetes, hypercholesterolemia. Researches and studies have linked food insecurity to be associated with likelihood of prevalence of heart disease, diabetes, high blood pressure even after adjusting the factors like age, sex, income adequacy and education. As per research-based data, people with severe food insecurity were two times more likely to have diabetes than those without food insecurity, even after adjusting socio demographic factors, physical activity levels and body mass index.



Figure 3: Human Animal and Nature are meticulously positioned in synergetic relationship.

Picture 3 has shown interrelationship between human, animal and nature following natural ecosystem. Human centric approach towards animal kingdom and natural world. Based on my observation, seniors who are ageing in place are healthier in physical and mental health, when they have synergetic relationship with social friends, pets and nature.



Figure 4: Gardening by Senior Citizens

Figure sketched in Picture 4 speaks about gardening practices amongst seniors. Some seniors enjoying gardening in summer and natural herbs can be grown in backyard gardens. Environment sustainable living, ecosystem protective living can be considered as “green living” when one’s individual practice of consuming locally grown green organic food and beverages. I have explored how Ontario grown “geriatric natural herbalism” can be practiced with ecological agriculture. Based on situational experience, I have observed, seniors discussing their backyard gardening as well as community gardening plans when they assembled in social gatherings, monthly meetings conducted by seniors’ facility center. There is an opportunity of seniors gardening educational program. A grow-to-learn backyard garden educational program for senior neighbours at seniors’ facility can help them to grow fresh, organic food produce, flowers and herbs. Proper utilization of land, adequate irrigation ability, food waste composting knowledge can help them to grow organic food produce, flowers, herbs and pollinator plants. Reinforced with knowledge cascading program, seniors can learn how to prepare natural herbal tea utilizing natural herbs grown at their own backyard garden.

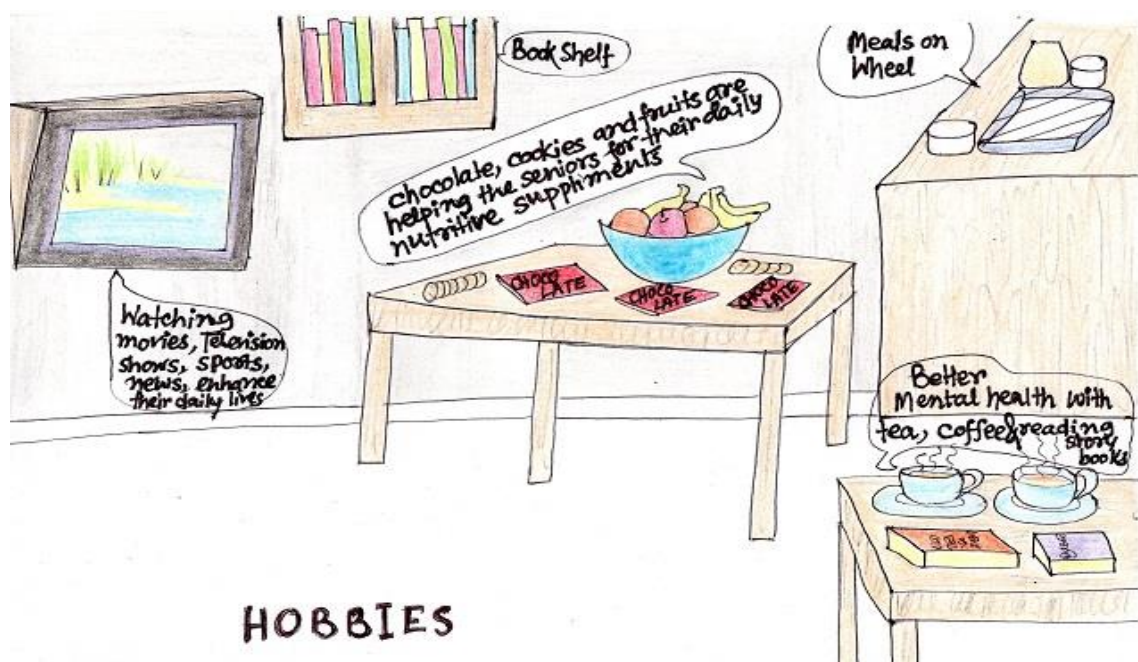


Figure 5: Hobbies among Seniors

Figure 5 is based on hobbies, “Tea, Coffee, Movies and Story Books” explaining how drinking tea, coffee along with food from Meals on Wheels is evident in seniors’ lives.



Figure 6 : Social Gathering

Figure 6 demonstrates social gathering amongst seniors in a seniors’ monthly day out program. That monthly day out program was effective at promoting social inclusiveness, equality and diversity through multicultural practices and healthy food habit in seniors’ community. I have observed Mount Dennis Neighborhood and FoodShare’s weekly and monthly activities on food security, accessing healthy food and ecological agriculture to understand the changing local food network. FoodShare (2017) as a non-profit civil society organization work for food justice among communities, seniors and children through Good Food Boxes and provide ‘affordable high quality healthy fresh food’ and ‘food education to grow and eat healthy food’.

Ontario grown natural herb production site selection: challenges and opportunities

For regular product supply including increased winter supply of natural herbal tea to

senior citizens, I have identified the civil society organization “Sustenance” as a supplier grounded on principles of environmental social justice and a different business philosophy amalgamating culture, heritage and environment. We discuss business practices as described by six nations' communities (Six Nations of the Grand River Development Corporation, 2018). “Sustenance” is a Six Nations of Grand River community organization dedicated to food security and sustainability through practices like farmers markets, Good Food Box, community gardens, greenhouses, herb gardens, apothecary, herbal meditation garden, market garden, bee keeping, healthy roots and so on. During my visit to the Six Nations at Grand River reserve along with fellow MES students and FES Professor Ellie Perkins, I have seen a huge natural herbal medicinal plant producing garden named the “turtle garden” and we discussed the efficacy of that garden with members and coordinators of “Sustenance”.

The Six Nations reserve is located at Ohsweken, on the banks of the Grand River near Brantford, Ontario. The reserve is home to the Mohawk, Onondaga, Oneida, Cayuga, Seneca, and Tuscarora Nations. Out of their 26,000 total members, 13,000 members live in another communicative community at Canada's Carolinian forest, (Deer Child, 2017). Six Nations community at the Grand River has developed Six Nations of the Grand River Development Corporation to diversify from tobacco businesses while targeting newer environmentally friendly green business opportunities. The revenue and assets generated through the operation are directly invested for further development of the Six Nations Community.

Based on the Government of Ontario, (Government of Ontario webpage, 2018), Six Nations Elected Council (SNEC) is continuously consulting with Six Nations community members to work toward better industrial business development. Since 2008, the Ministry of Aboriginal Affairs has been working toward improved quality of life among Aboriginal people including Six Nations communities in Ontario through development of sustainable economies and improved social circumstances. The Ministry of Aboriginal Affairs is

promoting collaboration, coordination-based programs in partnership with Six Nations at Ohsweken, Ontario through Six Nations of the Grand River Development Corporation (2018). The Six Nations Grand River Development Corporation is working on economic infrastructure, built environment, employment and education, community wellbeing, based on Aboriginal culture and the faith system that is grounded in environment friendly ecological concepts. As a result of agricultural restructuring of Ontario tobacco production, Ramsey et al. (2003), based on basic concept of restructuring of specialized tobacco agricultural production system, has been shifted to alternative agricultural practices. I have considered the “turtle garden” at Six Nations reserve as a potential site for natural herbal plant production.

At the beginning of my research process, I was trying to identify purpose of the natural herb procurement through “Sustenance”, focused to food security and sustainability building approach. Unfortunately, the “Sustenance” group is not currently ready to procure natural herbs for large scale manufacturing and sale.

On site urban ecological garden can procure Ontario grown natural herbs

Considering natural herbal plant procuring unit on site, I have tried to explore the green growing options provided by Toronto-based apothecary and agro-ecological natural herbal plant producers. Villa Colombo has a wonderful ecological garden with beautiful ornamental flowering plants. The ecological garden at Villa Colombo follows environmental strategies, excellent housekeeping, maintenance services to provide green healthy living environment to the seniors living in side. Community services, religious and spiritual services are reliant upon ecological garden at Villa Colombo.

Though I tried hard, I did not get the chance to discuss the natural herb growing options combining Villa Colombo ecological garden and inside kitchen as Villa Colombo

professionals were not available for interview. Based on my observation, Villa Colombo ecological garden is a source of conceptualized nature, influencing human life. I did not find the opportunity of ecological agriculture-based farming of Ontario grown natural herbs at Villa Colombo garden.

Situated with the similar research hypothesis, I have worked as a volunteer to gain knowledge about ecological agriculture based alternative food network during summer 2017. I have accomplished practical field experience at Thistle town CI and PACT “Grow to Learn” schoolyard gardening program and food initiative that has been designed to prove that schools and communities can grow their own food through ecological urban gardening. The “Grow to Learn” program illustrates how to grow, harvest and deliver organic food produce to the local communities, food banks, and to create safe, experiential and positive learning environments within marginalized neighborhoods. A not for profit organization PACT (Participation, Acknowledgement, Commitment, Transformation program in Toronto Urban Peace) has partnered with the Toronto District School Board and Toronto Catholic District School Board to establish schoolyard garden at Thistle town CI where the students and community volunteers learn about growing organic food acquiring valuable hands-on skills, under the supervision of PACT team and garden managers. The “Grow to Learn” garden and PACT program also provides the opportunities to students and compatible community core volunteers, get involved in gardening to produce food to support the community. The “Grow to Learn” PACT program also provides paid internships for students/at-risk youth and workshop assignments for college/university students during the harvesting periods.

The Thistle town CI urban and organic PACT Toronto school garden function at full capacity over the summer, employing two garden managers and impressively with the help of many full-time TDSB students and various enthusiastic community volunteers. During harvesting period, thousands of pounds of fresh, organic produce and herbs have been

cultivated. Organic food produces have been merchandized for low income neighboring communities, with exchange of compost scraps. Harvested organic food produces have been bestowed to local food banks, distributed among students and volunteers, used in school based culinary programs and retailed at weekly community garden markets. Funds raised through garden market used to put back into the Thistle town CI PACT school garden fund to purchase seeds and/or garden equipment. The PACT funding community group used to visit and operate TDSB School Curriculum Workshop program that provides free, in-garden education for local school children.

Students partnering with school culinary programs learn how to store, prepare and cook with the bountiful organic food produce of the gardens. There is a community involvement program at Thistle town Etobicoke neighborhood for trading one's kitchen scraps for 'Garden Bucks' that could be used toward the purchase of fresh, organic garden produce at Thistle town CI School PACT community garden market. The community compost exchange program turns kitchen waste into nutrient-rich compost for ecological agriculture. Neighboring community members, local families are encouraged to exchange kitchen scraps to obtain fresh, organic food produces. Weekly community garden market brings people together to enjoy natural ecological garden, to share food stories, meal plan, recipes with opportunities to have a full bag of veggies, fruits, herbs and flowers.

The "Grow to Learn" program involves motivated people to get involved in community food/culinary programs across the Toronto. The PACT "Grow to Learn" program also used to perform as a facilitator to promote healthy eating/nutrition, food security, environmental sustainability, and hunger alleviation among school children and local trivialized communities. PACT "Grow to learn" program helps in raising awareness and educating about central concerns related to urban ecological harvesting strategies, sustainability practices, building community outreach. Urban ecological gardens in Toronto

can follow the small Thistletown PACT garden model to grow St. John's Wort including regular harvesting agricultural crops. FoodShare Toronto and CAMH operated "Sunshine" garden is very much similar with Thistletown PACT garden.

The ideal ecological agriculture based social entrepreneurship approach may fit with the case study-based criteria following PACT "Grow to Learn" schoolyard gardening program and food initiative, falling similar in line with FoodShare and Toronto's CAMH "sunshine" garden network considering different functionalities, and urban locations.

I interviewed Liane O' Keefe (27th June, 2018), who is a sustainability professional, ecological agriculture expert associated with PACT Grow to Learn initiative at Thistle town CI School, Etobicoke, Toronto. Liane confirmed that growing medicinal herbs at small urban ecological garden will be beneficial. She also said that St. John's Wort is easily available at most of the urban ecological gardens though we need to conduct adequate qualitative trials before growing more natural herbs in urban ecological gardens. Liane suggested that, if we want to grown natural herbal tea at school gardens, and if we want to dry them and pack them eventually, we need to obtain TDSB's permission. TDSB is having collaborative relationship with PACT and FoodShare. Therefore, if required we could approach the TDSB to move forward with growing opportunities of St John's Wort at school garden.

I had a wonderful open-ended interview with FoodShare's Director of Programs Katie German on 24th May, 2018, who positively acknowledged growing natural herbs (St. John's Wort) at CAMH's, Sunshine garden in Toronto. As discussed with German, St. John's Wort is effective for depression, insomnia, anxiety, stress and emotional upheaval, following the socio-cultural belief, the herb could be most potentially operative for ageing population in Toronto. German also encouraged my logical thinking, and agreed, if the efficacy of St John's Wort tea is getting proved through pilot project trials and relationship with consumer's

compliances, that is a possibility of growing St John's Wort at FoodShare operated urban ecological gardens similar to CAMH partnership driven "Sunshine" garden.

Seniors' Communities

I went through several appropriate literatures that helped me to learn the modes established by authors, to constitute their chronicles in my research paper. Following the center of consciousness, described by authors in their narratives, I have scrutinized my own analytical accounts.

According to social determinants of health, socio economic factors, health and health care, financial aspects are vital to seniors' communities in Toronto. Seniors and their federal income are directly related to senior citizens health as narrated by (McIntyre, Fleish, and Emrey, 2013). Seniors' pensions or federal security benefits are major source of income for 80% of low-middle income senior citizens (aged 65 to 69) in Toronto. There are predictions of negative health impact due to constant food insecurity, likely to be increased with pension changes.

Public Health Canada reported that 20% of total health care spending has addressed negative health results associated with inequality in wellbeing (TorontoCityVitalReport, 2018). Due to structural socio-economic barriers, people living in poverty and food insecurity have reported negative individual health impact. Toronto Public Health (2014-2017) analysis on healthy eating found that 46% senior citizens in Toronto (aged 65+ years) used to eat fruits and vegetables five or more times a day. As reported by Dr Kwame McKenzie, CEO, of Wellesley Institute, it is really challenging to provide equitable access of services to the increased population of senior citizens' in Toronto. Social barriers act as gaps, decreasing senior citizens willingness to become dynamic citizens in Toronto. Physical disabilities, and limited mobility among senior citizens are responsible for higher provenances of diabetes and

cardio vascular diseases. “Our biggest challenge is our aging population and ensuring they get equitable access to the services that they need to stay well” (TorontoCityVitalReport, 2018, p 37).

Canadian civil society organizations addressing food security

Canadian civil society organizations and social enterprises are mostly responsible for social change, maintaining alternative food networks including access to fresh fruits and vegetables. Often community supported agricultural practices are involving neighboring communities to get access to the harvested food. Alternative food networks are involved in agricultural food procurement, production, operation, and consumption. Literature based at lessons on Food Citizenship and Community Food Security, Welsh and MacRae, (1998) were evident enough to create appropriate food advocacy embedded with concepts of food citizenship, food democracy, health, sustainability and food security. Toronto Food Policy Council was created during 1990s with assistance given by Toronto Board of Health, Ontario Public Health Association and Toronto City Council. To conceptualize food citizenship, all members are following best practices like providing all Ontarians acceptable, accessible, nutritious and affordable food, ensuring safe, sustainable and high-quality food supply in Ontario, promoting food consuming patterns to maximize health and minimize disease in Ontario considering Ontario as a dish with one spoon.

In accordance with Welsh and MacRae (1998), food security as a factor, is crucial for social justice and environmental sustainability. Toronto Food Policy Council is working along with municipal governments to design community food projects customized for developing food citizenship among low-income group population through steadily accessible, affordable nutritious food supply.

As described by Koc et al. (2008), the Canadian history of the food justice movement

is evidence of food activism through civil society development. In 1978, through the People's Food Commission, Canadian society started addressing food system unbalances through neoliberal capital associations, socio political responses and governance systems. Based on this commission's 1980 report "The Land of Milk and Money", Canadian corporate and governmental organizations were responsible for increased unemployment and poverty. The most prominent Canadian civil society response was to create food banks. All through the 1980s and 1990s, with support from the food industry and Health Canada, Canadian food banks had concluded significant accomplishment for having preferred societal role, fighting against hunger, poverty, food insecurity among children and pregnant women. The Montreal Diet Dispensary, the Healthiest Babies Possible in Toronto, and The Stop 103 Foodbank Toronto were most evident models of Canadian civil society organizations aimed at a new Canada Prenatal Nutrition Program, supported by Health Canada's capital, people and agencies. In 1985, to develop long term capacity-building of individuals and communities following community food security resolutions, CSO FoodShare in Toronto started alternative food networks through farmers markets, cooperative food buying systems, community kitchens and community gardens.

With strategic policy advocacy, effective planning, socio-political astuteness and adequate resources, successful Canadian social organizations are strengths in social movements. Thus, civil society organizations are fighting against hunger, poverty, homelessness, social justice and environmental degradation. "In March 2006, 753,458 hungry Canadians received food from 649 food banks across the country. During 2000–2001, almost 15% of Canadians, or an estimated 3.7 million people, were living at some point in a food-insecure household" (Koc et al, 2008, p 127). Food insecurity is a major problem in Canada. In March 2010, almost 867,948 people sought assistance from a local food bank or an affiliated emergency food program. This figure represents a 28% increase from March 2007

and is “the highest level of food bank use since 1997” (Food Banks Canada, 2010).

The report by Provincial Health Services Authority in Vancouver, British Columbia (2006), describes community food initiative planning, food security initiatives to improve the social health at British Columbia. The objective of the report is to enhance social mindfulness on provincial healthy food service initiatives including prevention, promotion, protection of food security and food sovereignty constructed projects. To fight against hunger and poverty is to improve the access to local grown, healthy food and to develop food knowledge and skills among the youth, as well as to strengthen the civic capacity development to hold local food security. When relating endorsements for suitable projects that enhance the community food action initiatives, the report enlisted community gardens, food banks, Good Food Boxes, Meals on Wheels, Food Security Action Plans and food waste reduction plans among others.

Food security and food sovereignty act as solution for changing communication, defining the problem of nutritious food supply and hunger Jarosz (2014). Jarosz traced the descriptive geographic histories of food security and food sovereignty in series to identify oppositions and relationship between them. Food security and food sovereignty vary by population, geography and scale, as well as by the theoretical and practical differences while discussions are taking place. Why, when and where these variations will develop and appear are the key points to understand their oppositions and convergences. In sequence to maintain a balance within conversation, it is also important to understand how they co-exist amicably or in opposition. In line with food security and food sovereignty discussions are interconnected to political and economic histories of human history, ecologies, and natural identities at the alien and domestic conditions. Food security and food sovereignty concepts have been deployed differentially, depending upon population based geographic circumstance and the political economy of development and underdevelopment demographics. Both the food situations are vibrant and dynamic in relation to their wider political, cultural and

financial aspects within food system dynamics across the range. Definitions of each term should be resisted to understand the phenomenology of their interlinked overlapping along the continuous differences.

The most authorized analysis of recent fundamental demand and supply based market, food price crisis and global north–south discord has been described by key instructive factors of indispensable crisis (Clapp 2009). Therefore, subsequent applications of food banks have focused on the market fundamentals of supply and demand chain, considering food as key livelihood factor. Most of the food positioned policies were developed from major international institutions. Mostly policies have recommended the procedures to provide and to satisfy the demand and supply of food produce. When international macroeconomic factors including price, susceptibility has played a pivotal role in encouraging food price unpredictability. Thus, with respect to the recent price volatility, the hypothetical economic prediction on crude oil price and assumption on demand of agricultural commodities has made detrimental effect on influenced agricultural prices. Through described price vulnerability over the last 30 years, global economic forces played negative role in demand supply curve by lowering the production encouragements in the world's poorest countries. Thus, unprofessional conduct in agriculture and horticulture has ended up to a situation of food import dependency. There is excessive demand of different food placed policies with immediate effect as well as for longer term impact to look after the food crisis, to address the justified roles of the broader international macroeconomic factors. Hence, we can accomplish that food security is previous to food sovereignty.

Similarly, Welsh and MacRae's (1998) Comparing food security and food sovereignty disclosure stated that when food security constitution is a very important legitimizing aspect within the food system by pointing out the ideology that accumulates processes by incorporating criticism in faces, the notions of independence, security and

justice had extended the crucial aspects of explaining how the spirit of capitalism is dominant ideologically.

On the same line, positive fiscal in sustainable urban development, social and environmental impacts engage multiple stakeholders following Sally Miller's (2009) edible action food activism, alternative economics and green revolution since 1960.

However, framework of food sovereignty has been incorporated in food policy agendas through establishing side to side examination of the positive and negative aspects of different policies described by Wittman and Desmarais, (2014) across diverse sectors of Canadian society, particularly among National Farmers Union, Québec's Union Paysanne and so on. While describing food Secure Canada and popular movements for food sovereignty, the analysis attracts both the challenges to understand food sovereignty, food security and interim tensions to describe food sovereignty interlinked policies. The narration has critically evaluated how the 'unity in diversity' opinion of food sovereignty performs in the multicultural Canadian context, paying adequate attention to the justified policy proposition of food sovereignty. Therefore, it is most prominent that food sovereignty movement in Canada, is a mass movement shaping the healthy food system and a growing union around ideals of social justice, environmental sustainability and ecological diversity. Food sovereignty is a fundamental transformation of the multicultural healthy food system.

Food security, Food sovereignty at multicultural Toronto

Corresponding to a status report of Food Reach Toronto (2015), Coleman et al. (2018) suggest that there are the greatest number of food insecure households among metropolitan census area in City of Toronto. Among 2.1 million households, approximately 12% low-income, about 252,000 households have experienced food insecurity. To bridge the gap, community organizations, are enthusiastically increasing their involvement in local food

supply chains. Organizations are trying to combat food insecurity and to promote healthy eating among the low-income households. In the backdrop of nonexistent Canadian national food system, to address food insecurity in City of Toronto, Food Reach Toronto 2015 is actively functioning to minimizing the food costs for social agencies and community groups. Following Action 11 C of the Toronto Seniors Strategy, Food Reach Toronto is a Canadian civil society organization and Health Canada based program helping community agencies get support to have affordable, fresh food. Food Reach Toronto purchases food, so that food can be cooked to prepare meals and snacks for children, adults, senior citizens from low-income families at Toronto. Often meals offered by Food Reach are the only source of daily healthy food, accessed by marginalized community groups. Through a collaborative approach involving public and private sector partners, Health Canada and Food Reach Toronto are trying to improve the effectiveness of food procurement among marginalized groups by consolidating their food purchasing socioeconomic power. Advisors and partners of Food Reach Toronto are: Canadian Diabetes Association; City of Toronto; City of Toronto social procurement working group; Creating Health Plus; Metcalf foundation; Ontario Food Terminal; Parkdale Activity-Recreation Centre; Public Health Agency of Canada. Food Reach Toronto is associated with Villa Colombo Homes for the aged people at Weston. Epicure Foundation supports Frontline's Front Burners Youth Kitchen program at Ward-11 to supply meals at events, businesses and food community agencies, (Rainford, 2018).

Following the New York City community dining model, there are approximately 60 community dining locations in Toronto particularly designed for senior citizens. The community kitchen at Villa Colombo Homes for the aged, is serving multiple culturally appropriate meals for long term care residents and senior citizens living in the neighborhood through senior's facility center. The community dining program encourages senior citizens living in long term care to share nourishing well balanced food in a shared dining hall. In

community dining facility, senior citizens can enjoy each other's company along with entertaining, collective and educational activities. Villa Colombo is part of the Toronto Seniors Strategy, supported by Food Reach Toronto program. Based on concepts of New York Community dining, congregate dining at Toronto has strengthened independent living.

Epicure Foundation supports Frontline's Front Burners Youth Kitchen program at York South-Weston location, a non-profit culinary training program to involve teenagers and young adults to learn culinary education, to obtain Smart Serve certificate, and to supply meals at events, businesses and food community agencies (Rainford, 2018). Through this Youth Kitchen program, young adults are preparing and serving meals to young, old and impoverished members within Frontlines community.

In the opinion of Neef, (2014), multicultural aspects of food and food anthropology are interlinked. Food anthropology is about how people in diverse cultures eat and their understanding of foodways. The study of food leads directly to consideration of the meanings given to feeding and body, especially gendered ones. Foodways influence the shaping of community, personality and family. Given worldwide variability in different foodways, food could denote expressions of cultural, ritual, spiritual, ethnic, natural herbal, emotional belongingness, faith and tradition. Food is a common language for one's personal as well as group identity.

The diverse population of senior citizens in Toronto must get access to healthy multicultural meals to remain well-nourished at advanced age of life. In Toronto, a few third-party food vendors are working to improve functional economy model based on concepts of multicultural food sharing. Meal Surfers, is a shared economy-based food vending third party, having similar working concept as Uber and Airbnb. They are serving multiple culturally appropriate meals at doorstep, with a reasonable price range (\$5 to \$18). Following

the concepts of social dining at local multicultural food experiences, Eat With, is committed to serve multicultural food experiences from 130+ countries in Toronto.

Traditional ways to know about natural herbs

Knowledge production and redistribution is completely based on oral traditions of natural herbalism in American culture. In compliance with Snively and Corsigila (1995: p 2,3) indigenous science “is contextual rather than universal and is moral rather than supposedly value free”, therefore biologists and ecologists are mostly reliant on documented oral traditional ecological knowledge and indigenous knowledge. Indigenous science generates knowledge on agriculture, horticulture, medicine, biology, botany and ecology and resulted in local cultural perspectives, concern for long term global environmentally sustainable societies (Wright, 1992). Traditional reciprocity and holism-based knowledge systems in America evolved through millions of people, constructed and deconstructed since 1492 (Weatherford, 1988, 1991). Traditional Native American natural herbal practitioners invented the application of wonder drugs like quinine, aspirin, ipecac and more than 500 lifesaving drugs. Traditional ecological knowledge is a characteristic of social life, most evident among less technologically equipped and less industrialized indigenous groupings. Through generation after generation, through folkloric conduction, traditional ecological knowledge specified significant interrelationships among human and natural environments.

Shippmann and Leaman (2002) spoke to the relationship between *in situ* and *ex situ* cultivation and conservation of natural herbal plant species that have implications in poverty alleviation, increase in labor, income, social capital, human dignity among local communities, public and private landowners, and entire industries. Identifying the conservation benefits and costs of the different production systems for natural herbal and aromatic plants should help to develop guiding policies as to whether species conservation

should take place in nature or the nursery, or both. In all countries, the trend is toward a greater demand on behalf of cultivated material. Standardized quality and quantity of production is the main rationale aimed at bringing a species into cultivation. However, high input costs are a substantial limitation of cultivation as long as sufficient volumes of material can still be obtained at a lower price from wild harvest. For economic reasons, the majority of natural herbal and aromatic plant species continue to be cultivated in home gardens, intercropping system and plantation crops (Padua et al. 1999). The priority conservation option is to encourage sustainable harvest of rare, endangered threatened ethno-natural herbal species with socio-cultural, economic, philosophical, spiritual values. Domesticated cultivation and harvesting of natural herbal plants are chances for the poorest members of society, particularly those who do not have access to farmland, to make at least some cash income. If collectors and collecting communities can be involved in the development of propagation and management methods, the likelihood of their having an interest in protecting the natural herbal plant populations from over-exploitation will be greater. Herbal medicines are economically beneficial, even small-scale cultivation in home gardens can support continuous and regular supply of natural herbal plants. Small-scale cultivation with low economic inputs can be a response to declining local stocks, generating income and supplying regional markets. Besides poverty and the break-down of traditional controls, the major challenges for sustainable cultivation of natural herbal plants include: lack of knowledge about sustainable harvest procedures and practices, undefined land use rights and lack of legislative and policy guidance.

Sustainable cultivation practices and harvesting of natural herbal plants needs to be recognized as the most important conservation strategy for most valuable natural herbal species and their habitats, given their current and potential contributions to local economies and their greater value to harvesters over the long term. Cultivating natural herbal plants will

uphold the characteristics of quality control, maintenance of product standard, policy regulations, consumer preferences, organic biodynamic certification etc. The basic idea is that protective cultivation, harvests and local benefits will maintain natural herbal plant populations, species and ecosystem diversity (Leaman 2002, Palevitch 1991, Pierce et al. 2002).

The research has also re-counted the necessity of measuring ecological conservation planning in urban areas to conserve useful socio-cultural plants with therapeutic aspects, potential ethno-natural herbal value to sustain biodiversity in urban cities to reinforce traditional knowledge. At the same time, the research has identified the need for eco-labeling, social, cultural, economic inputs to accelerate market credibility of natural herbal plants though there is insufficiency in law, agricultural policy to recognize environmental evaluation. I came to know that models of modern and global native herbal natural herbal plants can be combined with Ontario grown natural herbal approaches to be considered as natural health practices.

- Proposal for Pilot Project

A pilot project is part advocacy organization, think-tank, part data-driven start-up, and explores how to make the project economically efficient. The pilot project will be mission-oriented, and collaborative in nature, with possibilities to learn, develop, and strategize. The sales and marketing concept has been derived through population-based approaches to healthy food and environment (Kotler, Lee and Cheng 2011). Natural ecosystem conservation is central to the way herb production is viewed as it will preserve the natural resources that support sustainable livelihoods. At the later stage, I have derived the feasibility of herb production, promotion and distribution-based business model through this research paper.

I use the concepts of urban ecological agriculture to grow and sell fruits and

vegetables, Ontario grown natural herbal plants, apothecary products to prepare natural herbal tea. Kotler, Lee and Cheng (2011) have also narrated how the marketing mix concept of social marketing can be derived through people, place, product, promotion and price. Part of this social marketing in public health focuses on the complementary aspects of health behavior change, consumer behavioral patterns (emotion, motivation) dominating the “apparent tension between upstream downstream social marketing objectives” (Grier and Bryant 2004: p 324). The social marketing concept of “brand promotion” is a process to publicize Ontario grown natural herbal plants through a brand name to generate awareness, to promote “green living”. In relation to the hypothesis based on theories of ‘green living and environmental leadership approach’ and supportive herbalism practices for an aging population, green living is healthy living. Similarly, the research explored physical and mental health advantages of green space and gardening. The term “green living” refers to environmentally friendly activities and practices in our daily life to protect, preserve our natural environment. Green living helps to reduce carbon footprints and negative impacts on natural ecosystem responsible for climate change. Fresh organic fruits and vegetables and natural herbal tea can be considered as “green living” approach among senior citizens in Toronto.

Components of Case Study

This case study research paper examines people, promotion, product, place, price phenomenon to analyze, to induce feasibility study of geriatric natural herbalism in a Toronto seniors' community, engaging social enterprise through green living and agro-ecological herbal plant production and distribution. Subsequently, through the comparative investigation process, I have considered strategic mix of 5Ps (people, promotion, product, place, price) as 5 components of this case study. Following Rick (2013), I have analyzed my key interviewees as people, conservation as promotion, product procurement, packaging and distribution in

convenient place, value for price to develop a focused case study.

Component 1: People at senior's facility center, at York South-Weston, Ward-11

I have selected York South–Weston, Ward-11 for the following reasons –

York South–Weston Ward-11 is as multicultural as the City of Toronto, based on population by immigration and places of birth reports. Immigrants from Portugal, Jamaica, Vietnam, Philippines, Italy, Guyana, Trinidad and Tobago, India, Poland and United Kingdom are residents of Ward-11 (Statistics Canada, Ward-11 profile, 2011).

York South-Weston has 17.5% of population aged 85+ years, 2% aged 80-84 years, 1.3% aged 75-79 years, 1.5% people aged 70-74 years, 5.2% aged 65-69 years. Quite subsequent to the geriatric population at City of Toronto where 27.5% of population aged 85+ years, 5.6% people aged in between 80 to 84 years (Statistics Canada, Ward-11 profile, 2011).

Looking into the higher number of senior households, York South– Weston, Ward-11 follows the same demographic pattern as City of Toronto. Senior citizens aged 75 years and above are maintaining 10.1% of households, seniors aged 65 years to 74 years are maintaining 11.6% households in Ward-11 (Statistics Canada, Ward-11 profile, 2011).

York South–Weston Ward-11 follows the low-middle median income pattern of the City of Toronto. Approximately 34% people in Ward-11 are low-middle income within a range of \$20,000 to \$49,999. At the City of Toronto 28% people are in that low-middle range. (Statistics Canada, Ward-11 profile, 2011).

Toronto Seniors Portal has documented community-based activities at York South–Weston Ward-11 regarding seniors' policy advocacy, government programs, senior centers, community centers, healthy food activism and so on.

Toronto Seniors Strategy toward an age-friendly city (WHO, 2007) is based on concepts of community support, food and health services, communication and information, civic participation and income generation, social participation, green outdoor spaces and buildings, housing and transportation. These programs are mostly followed by senior's centers working in York South–Weston, Toronto (toronto.ca, 2018).

Canadian social enterprises, civil society organizations, and food justice movement partners like– Food Reach Toronto 2015 (Action-11C of Toronto Seniors Strategy), FoodShare's Mobile Good Food Market and Good Food Boxes, Eat With, Meal Surfers, Feastly are active in Western Downtown Toronto including South York–Weston Ward-11. As documented by Progress on the Implementation of Toronto Seniors Strategy 1.0, 2016 (CD 16.8 Appendix C), community dining benefits at New York City model and Toronto locations, Villa Colombo homes for the aged people is a community kitchen-based dining facility at Ward-11). To supply meals at events, businesses and food community agencies, (Rainford, 2018) Epicure Foundation supports Frontline's Front Burners Youth Kitchen program at Ward-11. Simultaneously food availability, accessibility, acceptability and adequacy are major factors to actualize food security and food sovereignty (Kurek, 2017).

The seniors' facility center supported by Villa Colombo Homes kitchen in York South–Weston, Toronto is responsible for Meals on Wheels program reducing food insecurity among senior citizens. The senior citizens who are heavily affected by physical, mental and cognitive impairment are served with food and transportation, therapeutic and recreational activities. The customized wellness programs, cultural programs, learning skill development programs are addressing the mental and physical wellbeing of the senior citizens. When disabled adults are not eligible for wheel-trans there are facilities arranging transportation so that seniors can be present at medical appointments, social appointments, shopping malls, points of attraction, theatre, art, craft shows, personal care and so on. The community kitchen

at Villa Colombo Homes for the aged is serving multiple culturally appropriate cuisine meals for long term care residents and senior citizens living in the neighborhood. During my personal involvement at Villa Colombo kitchen to collect packed hot foods for Meals on Wheels program, I have observed that the community or congregate dining encourages senior citizens living in long term care share nutritious well-balanced food in a common dining hall. In a community dining system, senior citizens get pleasure from each other's company when they eat food along with recreational, societal and learning activities. Villa Colombo is consistent with the Toronto Seniors Strategy, which has also been promoting food security and green living among senior citizens in Toronto. The kitchen at Villa Colombo Home is receiving food from E-commerce based Food Reach Toronto program and Mobile Good Food Market are other avenues at Weston, Toronto so that senior citizens could get access to regular supply of affordable healthy nutritious food including fresh fruits and vegetables. I have observed seniors and single-family homes operated by Toronto Community Housing Corporation (TCHC) located at 55 Outlook Avenue, Ward-11, Weston, Toronto and found that seniors and single-family homes are well equipped with facilities to support food, medical emergency, personal hygiene and housekeeping.

I have examined efficacy of Meals on Wheels program, compared with Good Food Box initiative. As both the programs are weapons to alleviate hunger and poverty, to improve nutritional risks among frail elders. As physical disability increases with disease and age.

Meals on Wheels and Good Food Box operations are enhancing long-term care facilities as well as independent living through community support services following the concept of "ageing in place" as narrated by Payette and Roy (2006). "Ageing in place" means supporting the senior citizens to live in their home as long as possible (Maurier, Northcott, 2000, p132).

Meals on Wheels and Good Food Box are recommended to facilitate healthy eating among senior citizens, to minimize nutritional risks, following concerned involvements of dietitians, food service providers, community support system, stated by Payette and Statenstein (2005).

As Payette and Roy (2006) explained, Meals on Wheels improves dietary intakes, energy and nutritional improvement among frail, seniors who are “ageing in place”.

York South–Weston Neighborhood is a food desert as stated by community grassroots group York South –Weston At The Table. Since 2015, the community grassroot group is trying to reduce food insecurity and to improve the neighboring York South Weston area through Mount Dennis community association. The joint action has been concluded by food justice movements, hosting public events, connecting food missions, community kitchens, gardens and free food programs. I have studied a seniors’ facility center’s functionality toward senior citizens of Ward-11, with a probable approach to include Good Food Box and natural herbal tea-based food and beverage procurement system into the existing facility. Meals on Wheel is effective in serving hot, ready to eat food to the seniors, minimizing the nutritional risk. Whereas the FoodShare’s Good Food Box program is effective in serving fresh natural vegetative products like fresh fruits and vegetables at subsidized price. Therefore, I have considered that FoodShare’s Good Food Box can add natural herbal tea in a dried and packed form.

Component 2: Promotion, FoodShare Toronto’s Good Food Box program

FoodShare as a pioneer social enterprise for social inclusion. Johnston and Baker (2005) analyze the strength and weakness of community food security programs and efficacy of Good Food Box attempting to coordinate social justice and ecological sustainability based on “concept of scale”. The study analyzes efficacy of Good Food Box following different

strategies, fluidities required to scale up social innovation as a complex process assisting in profound social changes. At the same time, following the importance of multiscale food policy, Good Food Box and FoodShare Toronto follow procedures, resources, authoritative movements, beliefs in socio-cultural system in which it works. “Concept of scale” has a focus on scale of social reproduction that also has fewer prominences in production focused studies after globalization. The Good Food Box operation is exploring the opportunities to engage maximum number of urban consumers in Toronto to get access to fresh, nutritious, healthy food. FoodShare Toronto’s Good Food Box initiative exemplifies different social focus, through the concepts of moral legitimacy observed by social enterprises in Canada. FoodShare’s Good Food Box operation is a good example of an alliance for healthy nutritious food initiatives, farming, and policy change to further civil society legitimacy and impacts.

The FoodShare and the Mount Dennis community association have food bank-based support systems, have facilities including storage, walk-in coolers / walk-in fridges in big warehouses at their facility located at 120 Industry Street, Toronto. FoodShare and the Mount Dennis community association used to pack Good Food Boxes full of fresh food costing as little as possible (within a range of \$9 to \$13) to be delivered across Toronto. FoodShare’s mobile good food market is another way to supply fresh fruits and vegetables to the York South–Weston, Ward-11. Mount Dennis Neighborhood and nearby Waterfront Neighborhood Centre through the 150 Dan Leckie Way distribution centre are most active hubs for distributing Good Food Box.

FoodShare also has a therapeutic “Sunshine Garden” for practicing ecological agriculture along with working professionals, volunteers and client members of the Centre for Addiction and Mental Health. I examined the possibilities of growing herbal medicinal plants in the “Sunshine Garden”. Interviews revealed that during summer time, fresh natural

herbal medicinal plant-based tea packed at the FoodShare and the Mount Dennis community association and Waterfront Neighbourhood Centre Good Food Boxes can reach the senior's community living at York South–Weston Neighborhood. Fresh natural herbal plants can be dried and packed as natural herbal tea. Packaging herbal tea at FoodShare's warehouse is mostly possible. Mostly FoodShare Toronto does loose packing of fruits and vegetables at their warehouse, not something more sophisticated like herbal tea. With adequate knowledge support, if herbal tea procuring organic farms are supplying the laminated paper packaging material to pack dried herbal tea at FoodShare's warehouse along with adequate care to fight against moisture and humidity, packaging of herbal tea will be quite possible at FoodShare's own warehouse. My interview session with the FoodShare Director revealed the challenges.

Component 3: Product – Ontario grown Natural Herbal Tea

I interviewed 5 volunteers (4 men and 1 woman) whose ages ranged from 65 to 80 years at the seniors' facility center at Weston, Toronto. They are not only fellow volunteers but also senior citizens living in this neighborhood, comprising multiple ethnicities, immigration status, socio-economic groups, and physical abilities. Most of the seniors living in the neighborhood are European settlers who have immigrated to Canada a long time ago, though, there are many immigrant senior citizens who are immigrants from Asia, the Caribbean, South America, Africa and Middle East are present in the neighborhood. They can speak multiple European languages including English. They are mostly physically fit, having wonderful driving skill, living independently at the time of the interviews and not living in any long-term care center. They were living either alone, or with their partners in houses, in apartments within the neighborhood. The Meals on Wheel program is mostly dependent on their time, energy and skills. The seniors' facility is responsible for the vehicle and fuel reimbursement for the meals on wheel carriers. The senior volunteers have wonderful interpersonal relationships with the seniors' community at that neighborhood. They are aware

of their meal choices, health issues, requirements of personal support workers including vacations and travel plans.

Interviewee 3 is a European settler from Scotland, who came to Canada 60 years ago. He is fluent in English, Italian, Portuguese and Dutch languages. He is a volunteer associated with this seniors' facility for more than 50 years. After downsizing his big detached house, he is living in an apartment with his wife. He is very interested in natural herbal tea and ready to grow a few herbs on his balcony. He helped me learn how most of the seniors in this neighborhood are busy with their small backyard gardens, gardens on their balcony, during this summer time.

Interviewee 4 told me "During last winter, I delivered food regularly, even under ice rain, when driving was completely risky". Most of the time senior citizens are depending on hot meals to be served through the program, they are rarely interested about frozen meals. He is a retired engineer from Denmark, immigrated to Canada during his childhood. He is also very much interested in natural herbal tea as a practice of green living among seniors.

Interviewee 5 informed me that "disability is dangerous in late life" as his wife cannot move after a stroke. They are an immigrant couple from Jamaica, came to Canada 30 years ago. He is responsible for delivering meals to some of the physically and mentally challenged seniors living in the neighborhood. He believes that natural herbalism with green living approach, physical exercise could definitely improve the vital health of senior citizens in Toronto.

For Interviewee 6, "serving seniors of my age on regular basis help me to improve my own mental and physical health. I keep myself busy when I work with seniors' facility." He is a senior gentleman born in Canada with European origin. He discussed affordable housing in Toronto, healthcare system, challenges in seniors' life quite vividly. He prefers to drink tea,

thus he liked the green living approach with herbal tea concept. He is very enthusiastic about community gardens in Ward 11 and this summer he is trying to grow some herbs in his garden.

Interview 7 was my discussion with a senior lady born in Canada with European origin. She is frail, having several health issues, still she is regularly serving the meals on wheel program so that she can support her senior friends. She said she is feeling encouraged after having discussions with me to grow herbal plants and prepare herbal tea.

Component 4: Place for growing Natural Herbal Tea at Ontario

During my case study-based research process, I explore the options of producing natural herbal plants at FoodShare Toronto and CAMH partnership driven “Sunshine” gardens that is a local urban ecological agricultural approach for alternative food network. I analyze my personal experience of working in a garden that supports urban ecological agriculture based alternative food network. I have selected FoodShare as an organization that participates in an alternative food network. I examined the feasibility options based on the idea that can support existing organizations that are participating in alternative food network and civil society organizations amalgamation. Even any small sized urban ecological garden like PACT Thistletown School garden has the potential of procuring natural herbs, with due consultation and permission coming from Toronto District School Board.

My first interview with natural herbalist Talal Al Hamad (14th May, 2018) was very informative. Talal Al Hamad is an herbalist, trainer, holistic healing expert and founder of Urban Apothecary in Little Italy, Toronto. Talal is very much interested in green sustainable business-based procurement of natural herbal tea, supporting green living among seniors living in Toronto. When I was searching for an ecological agriculture practicing farm growing Ontario grown natural herbs, I asked Talal to suggest any organic farm procuring

dried natural herbal tea, located close to Toronto. Talal suggests me the name of Foggy River Farm at Durham region, an hour north-east of Toronto.

My interview with Talal Al Hamad (14th May, 2018) revealed that presently Foggy River Farm at Durham Ontario, is growing 24 different varieties of natural herbal tea. Foggy River Farm is an hour north east to Toronto. Foggy River Farm was established by Phillip Collins, an educator landscape engineer for sustainable farming business, through strong principles of natural ecosystems, sustainable design methodologies, water restoration technologies, large scale farmland restoration techniques, interconnections between design principles and sustainable human settlements. Foggy River Farm is guided by the concepts of alternative land use services, multifunctional policy in Ontario, to create sustainable local food systems. I have included the interview observations with Talal as part of three major discussions:

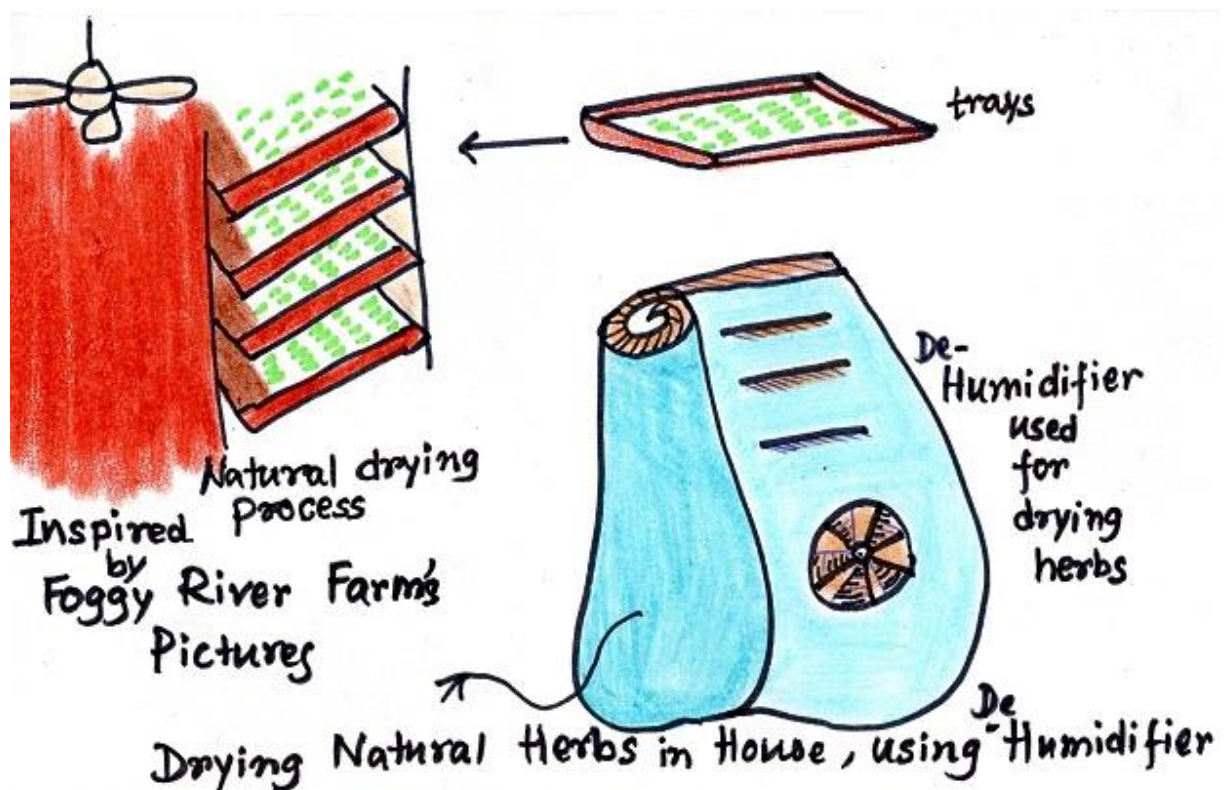
(1) Production: ecological agriculture based growing possibilities of natural herbal tea

I discussed local growing options of St. John's Wort at urban ecological gardens. Talal my opinion as he has emphasized that drying procedures, controlling humidity, moisture of natural herbal plants to prepare herbal tea is most vital in natural herbal tea making process. According to Talal, St. John's Wort is a wonderful herb, combatting anxiety, depression, and enhancing metabolism and hormone regulation. Talal also stated that such "natural herbalism" among seniors' communities in Toronto will support growing, utilizing food, natural plants and holistic medicine systems in a restorative manner to improvise the health of the ecosystem.

(2) Processing and Packaging: Health and Quality maintenance of natural herbal tea

Talal emphasized that drying natural herbs for tea is the most crucial part of the

operation. Herbs are sensitive towards humidity, rain and snow, the herbal leaves are prone to pull in the moisture from the atmosphere, so herbs that were almost dry can become moist again. Adequate dry airy space, dryers and dehumidifiers are most required to dry the natural herbs. Again, maintaining the quality of natural herbal tea is quite challenging, thus proper wax laminated brown paper packs, packs with puffing layers, tin packs are preferred to store and distribute natural herbal tea. Based on my discussions with Talal and following Foggy Rivers Farms pictures on packaged herbal tea, appended sketches are describing how to dry the natural herbal tea for proper quality maintenance, how to pack them for distribution, sales and marketing. All natural herbal products purchased for production of tea must be certified, with test reports proving their quality of plant vegetation phase, external signs, qualitative indicators. The manufacturer must have certificates specifying mass fraction of total weight, content of moisture, total ash, time, place of collection of produce, specific mention of leaf, flower, stem, root.



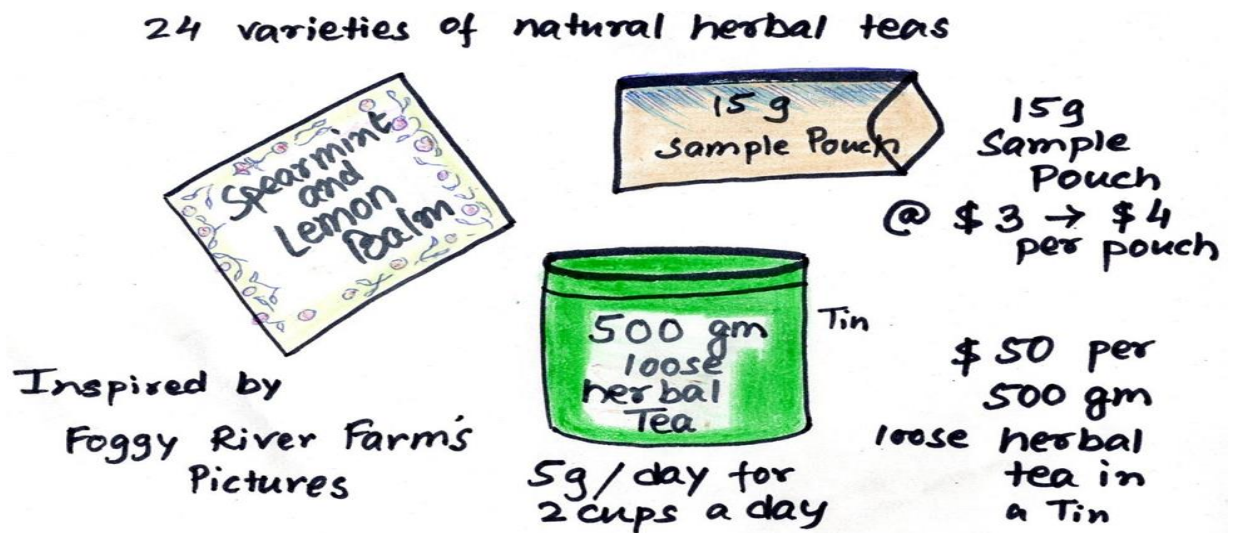


Figure X : Drying Natural Herbal Tea, using dehumidifier and packing tea leaves inside eco friendly packaging

(3) Distribution: Food chain system to be maintained to distribute dried natural herbal tea

Next, I started interviewing FoodShare officials who are coordinating the Good Food Box (GFB) program at FoodShare's Field to Table Community Food Hub at 120 Industry Street, Toronto. This program has objectives to connect and develop communities, to promote consumption of fresh fruits and vegetables through affordable fresh fruits and vegetables. According to FoodShare, (2013a), the FoodShare's Good Food Box program delivers seniors boxes to "daycares, apartment buildings, churches – anywhere there are 8-10 people who want to buy a box" (Hyatt, 2008). The Good Food Box Program aims to (1) increase food security, (2) stop chronic disease, (3) grow healthy communities. The Good Food Box program benefits society by maintaining the ecosystem, supporting local ecological agriculture practices, and local farmers. The local transportation system reduces carbon foot print, increases affordability compared to Meals on Wheel program. At the same time, while distributing multicultural healthy food through Good Food Box program, the recipient community can develop a community kitchen and ecological agricultural garden at the drop off site. As stated by FoodShare (2013a), success of the Good Food Box program is dependent upon "community engagement, intersectional partnership, political commitment,

healthy public policy and asset-based community development” (Biberstein and Daalddedrop, 2008). The FoodShare Good Food Box features are presented in The Good Food Box – A Manual, 2nd Edition. I discussed my research queries with FoodShare’s Director of Programs Katie German (24th May, 2018), who is the strength of FoodShare’s community and education-based program including urban agriculture, community food animation, nutrition and indigenous food access. German discussed the vision, mission, strategy of Good Food Box, positioned as a fight against poverty, food insecurity in Toronto.

When combatting food insecurity, maintaining social determinants of health are goals of Good Food Box, identifying targeted groups, making operational procedure of Good Food Box are required for the end users. Fresh produce distribution process, analyzing competition in food industry, inclusion of global food corporations for sustainable marketing, management, expansion and financial support is also important in Good Food Box operations. German suggests that FoodShare can try to accommodate dried herbal tea along with fresh fruit and vegetable based Good Food Box to seniors’ communities in Toronto, when any supportive social organization and organic farm, who is ready to donate the dried natural herbal tea. Though concepts of donating crops from organic farms cannot be encouraged because that limits possibilities of growth and it is not consistent with an economic development approach. Client based mobile markets, good food markets, Ontario Food Terminal, local farmers are suppliers of fresh fruits and vegetables to the Good Food Box. When I asked German to comment on the price factor of dried natural herbal tea, she answered that \$5 per pack will be too expensive for a Good Food Box program. Katie German included that considering high price structure of natural herbal tea produced by organic farms, local food movement initiatives in Toronto like Mama Earth Organics, Good Food, Fresh City, Chefs Plate, Prepd, Hello Fresh can considered adding natural herbal tea at their product portfolio.

Organic farms procuring natural herbal tea Good Food Box operations are depending upon strategies, federal, municipal budget, fundraising programs and support. Moorthi Senaratne, Program Manager of FoodShare Toronto discussed with me the warehouse and logistical aspects of distributing Good Food Boxes via emails.

Based on my volunteer position at the seniors' facility at Ward 11, and abiding by the norms of privacy, confidentiality, working norms with mutual respect, I have interviewed 6 senior volunteers over the age of 65 and 2 working professionals at a seniors' facility center at Weston, Toronto. People preferred not to share their own identity, though they were enormously supportive towards my research.

Interviewee 1 was a working professional at seniors' facility center, who the possibilities of combining fresh fruits and vegetables, Good Food Boxes, cookies, chocolates, dried natural herbal tea along with Meals on Wheels program, though there are tremendous procedural challenges. On previous occasions, such possibilities have explored the options of bringing Good Food Boxes to the adult day care center, but afterwards they discontinued the Good Food Box program as seniors at Adults Day Care Center did not show much interest towards the Good Food Box. Spending capacity is an area of concern among seniors living in Ward 11. Looking into the minimum requirement of dietary intake, people are considering Meals on Wheels as their main spending on food. Though "responsibility", "limited manpower", "infrastructure" is great area of concerns considering line expansion of Meals on Wheels food products. The seniors' facility has a small space, there is no storage. The Villa Colombo kitchen is taking responsibilities for packing food items and labelling them properly. In this situation, additional food products, like dried packed natural herbal tea combined with hot meals must be taken care of by professionals who are working at Villa Colombo kitchen. Based on the working norms and dietary regulations of Villa Colombo kitchen, seniors facility centre members were not so optimistic regarding distribution of

natural herbal tea along with Meals on Wheels program.

Seniors living in Villa Colombo Homes Inc are mostly having access to wonderful food inside the home. Villa Colombo Homes Toronto is proud for offering high quality nutritious, Italian-style home-cooked meals to the residents living inside. There is a steadily working residential food committee looking after the kitchen and cafeteria, regularly reviewing food facility, food choice-based menu with due consultation coming from an in-house registered dietitian. The food committee is trying their level best to deliver daily fresh fruits and vegetables from local fresh market, freshly baked bread from local baker, grilled chicken and fish from the kitchen, and tea, coffee and wine from best sources. The Villa Colombo also has special banquet dining facility, restaurant, cafeteria, special food events on weekends. It was not possible for me to judge food security situation at Villa Colombo, based on confidentiality. Villa Colombo Homes Inc is following the cost of living parameters fixed by Ministry of Health and Long-Term Care.

Interview 1 informed me Villa Colombo dietary services kitchen people are depending upon kitchen suppliers from St Lawrence Market for steady all year around supply of fresh fruits and vegetables. The kitchen at Villa Colombo long term care is driven by a nutritional management team, strictly adhering to dietary requirements of Public Health Canada.

Interview 2 stated that money is the most important factor, assuming linking of dried natural herbal tea with Meals on Wheels. Since seniors have limited resources, most probably they will never consider buying dried natural herbal tea in a packed form. The seniors' facility is a philanthropic organization, receiving financial support from Ontario Toronto Central Local Health Integration Network, United Way Toronto and York Region, City of Toronto, Federal Government of Canada and CARF Canada.

Component 5: Price for procuring Natural Herbal Tea

On the financing side, I have tried to explore the options of financial support from agencies supporting ecological agricultural farms that are growing natural herbal plants. I have discussed brand promotion and retailing perspectives of packed tea based on the 10 most promising natural herbs to be distributed through Canadian social enterprises, Canadian civil society organizations, Good Food Box initiatives and senior's facilities at Toronto.

Foggy River Farm produces and sells their organic fruits and vegetables, 24 variants of loose leaf herbal tea, herb induced body care products, perennial seedlings (greens, garlic, herbs, shrubs, trees etc) to wholesale markets, local businesses and restaurants. They have converted their harvest into value added herbal tea blends and body care products. With special support came from Ontario Green Belt Fund and FoodShare Toronto, Foggy River Farm uses dryers and dehumidifiers for drying the herbs. The paper packs and tins designed by Foggy River Farm for selling natural herbal tea are really unique.

According to Kate Collins, Co-owner, Farmer and Educator at Foggy River Farm, a 500 g tin of loose tea will cost \$50 and sample pouches weighing 15 g will cost around \$3 to \$4 per pack. Even stores at Canadian retail segment are also following the same price structure.

Pilot Project Implementation

Proper planning will help to get the answers like what are expected to result from the pilot project, how the pilot project will work, how accurately the pilot project will provision the full proposal.

The organizational model

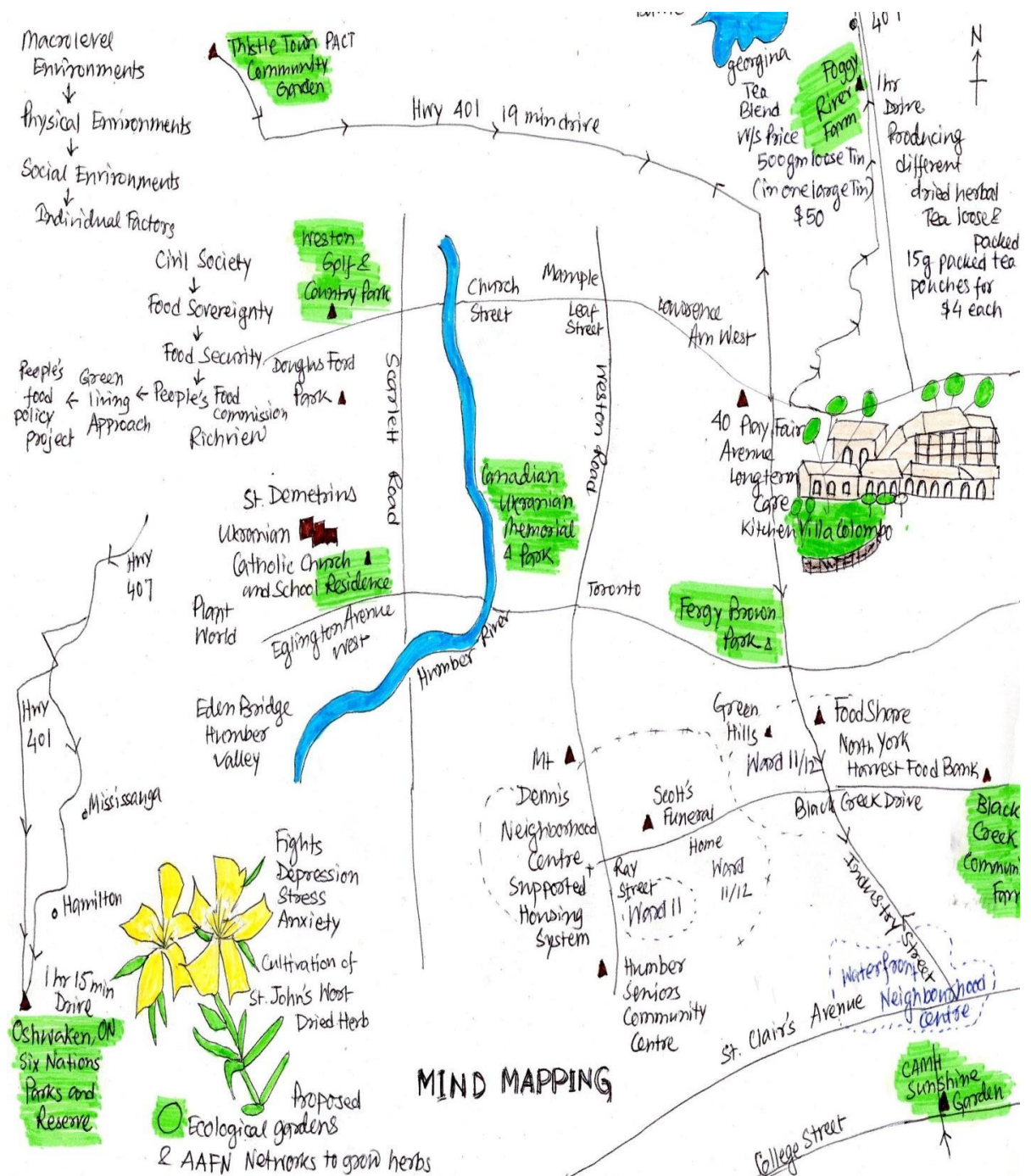
Following the pilot study model, I want to conclude a proposed hypothetical pilot

project linking organizations like – FoodShare Toronto’s Good Food Box as herbal tea distribution channel, Foggy River Organic Farm as herbal tea procuring unit, Mount Dennis Neighbourhood Centre, Waterfront Neighbourhood Centre as supporting hubs and not for profit organization serving seniors in Toronto. There will be requirements of two researchers, and twenty enthusiast senior citizens who are willing to take part to conduct the pilot project for a time period of one year. Twenty multicultural seniors must be selected from FoodShare’s existing Good Food Box consumers’ list. Researchers will examine Foggy River Farm as a natural herbal tea’s procurement site that has a potential for communicating green living approaches through Ontario grown natural herbs and FoodShare Toronto’s Good Food Box inventiveness. They will also assess the role of non-profit agencies including civil society organizations and social enterprises as production prototype within a local neighboring community.

After analyzing success rate of initial trial process of natural herbal tea, urban ecological gardens like FoodShare assisted CAMH “Sunshine” garden, could start growing natural herbs. The illustration available in picture “Mind Mapping – Natural Herbal Tea Good Food Box” demonstrates the components for pilot project study.

Foggy River Farm promotes the cultivation and sustainable harvesting of natural herbal plants following procedural regimes, implementation of permits to make sure natural herbal plant environmental conservation, and economic policies. Foggy River farm’s cultivation of natural herbal and natural herbal tea has highlighted interdisciplinary properties like social relations, processes, structures, institutional arrangements, public attention, solution for food related issues like hunger, poverty maintenance, health approaches, social science and humanities approach, human interactions with nature when other humans involving production, distribution, preparation, consumption of food and natural herbal plants that cover key analytical socio-cultural perspectives.

My pilot project research will look into the demand supply practices and resource management objectives aimed at selling Ontario grown natural herbal tea unifying with FoodShare's Good Food Box initiatives, among the senior citizens of Toronto. From the literature, these natural herbal plants appear to have therapeutic properties for memory boosting, immunity building, pain management and anticancer, antibacterial, antifungal bioactive molecules.



The theoretical pilot project cost analysis will be as per followings –

Cost on Head	Description	Number	Cost	Total Cost of Pilot Project
Researcher A	Working closely with seniors for research	1person, 3 days/week, 4 hours per day	\$14 per hour,	\$8736
Researcher B	Researching on FoodShare's Good Food Box Program	1person, 3 days/week, 4 hours per day	\$14 per hour	\$8736
Quantity Needed	2 teaspoon full herbal tea for 2 cups a day per person(therighttea.com)	100 g per day per person	700 gm per week	36.4 Kg per year
Product sample cost	50 cents per day	\$10 per day	\$70 per week	\$3640 per year
Product sample weight	5 gms per day per person	100 gm/day	700 gm/week	36.4 Kg/year
Number of seniors for study	20 seniors living in Toronto	20x2x7 times tea per week	20x2x365 times a year	14600 times a year
Time period for study	Total 52 weeks of trial by seniors	12 hours research/week	Total 52 weeks	624 manhours
Time period for study by researchers, program coordinators	4 hours per day, 3 days per week, total 52 weeks	12 hours research/week	Per person 12 hrs per week	624 manhours

Total Cost for Pilot Project	This calculation speculates cost of natural herbal tea only, while the cost of Good Food Box is not under consideration	\$21112 per year
References	Product sample weight calculation follows www.therighttea.com for preparing St John's Wort Tea	
	Product sample weight following www.uxbridgefarmersmarket.ca/vendors/foggyriverfarm	

Responsibilities of Pilot Project Researchers

- i. This pilot project study will be following the principles of FoodShare Good Food Boxes strategies and processes within the organization. At the same time the study will observe the ecological agriculture-based production and processing principles maintained by Foggy River Organic Farm.
- ii. Pilot project will adhere to internal as well as external legitimacy following program development and time bound delivery experience. Researcher B will be responsible for production support and distribution channel maintenance for better research effectiveness.
- iii. Researchers are to be involved with Foggy River Organic Farm to develop and establish relationships for improved ecological agriculture practicing patterns meant for herbal tea.
- iv. Both researchers will establish their pledge to the principles of social justice and food justice.
- v. Researchers will follow their passion for establishment of food policy development, policy influence and promotion.
- vi. The researchers will have effectiveness in member engagement through their

collaborative, interpersonal and public speaking skills.

- vii. Researchers are self-directed, positive team players with strong collaborating attitude following the research ethics of equality, diversity and inclusion.
- viii. Researchers will establish their nuances in organizing non-profit development activities, product promotion, quality control, packaging and storage maintenance of natural herbal tea.
- ix. Both researchers will submit time to time progress reports to justify the grant.
- x. Researchers will evaluate the pilot project with time to time report to the supervisor and FoodShare Toronto Officials, with priorities and deadlines.
- xi. Researchers must have strong ability to coordinate, to organize, to initiate, to network and to complete the pilot project in a timely basis.
- xii. Both Researcher A and Researcher B will use data systems to record, to monitor, to track, to ensure research data along with clear communication and detailed recordkeeping. As a team they will arrange member engagement with requisite skillset and knowledge to develop research data repository through pilot project program outlines and data management.
- xiii. Researchers as a team will coordinate the Good Food Box project team with thorough details to work with the seniors.
- xiv. They will solicit explicit knowledge production for micro economic based growth opportunity through social enterprise like FoodShare Toronto.
- xv. Both Researchers will participate, coordinate and organise Pilot Project's general meeting program for improved leadership skill.
- xvi. Researchers will serve as enthusiastic intersectional policy analysts for FoodShare and

Foggy River Organic Farm, so that improved coalition and sustainability will be developed. They will influence public policy on food and farming within their research periphery.

- xvii. Researcher A will work closely with 20 seniors in different neighborhood centers receiving regular supply of Good Food Box and herbal tea. The selection process of 20 seniors who will be ready to conduct the trial of natural herbal tea without any health claim, will be guided by FoodShare, Toronto.
- xviii. Researcher B at FoodShare Good Food Box program will participate in the creation of proposals for partnerships with natural herbal tea making organic farms.
- xix. Researcher A will liaise and work with tea producing partners. Researcher A will increase awareness of FoodShare's Good Food Box and natural herbal tea among seniors. Researcher A will calculate effectiveness of Good Food Box and natural herbal tea amongst the seniors.
- xx. Researcher B will coordinate with ecological agriculture practices at organic herb procurement site. At the FoodShare Toronto site, the fund management activities including time scheduling, product and packaging material development and product promotion will be taken care by Researcher B with due coordination of Researcher A.
- xxi. Researcher B will prepare governance stewardship reports for stakeholders, partners and confirm suitable acknowledgment.
- xxii. Researcher A will be working with the seniors for developing epistemological nuances and research-oriented communications.
- xxiii. Researcher B will coordinate with the FoodShare Toronto, Foggy River Organic Farm stakeholders to confirm cooperation and effective operation of the pilot project including thorough supply of product, support through grants and predetermined

commitments.

- Conclusions: Major Findings and Possible Implications, Limitations of the Study

My research methodology has explored the strengths of case study research by challenging conceptual and theoretical assumptions, has helped me to comprehend critical complex interrelationships in between different propositions. Based on case study methodology, I analyzed conflicts and similarities grounded on realism and “lived reality”. Case study method facilitated me exploring diverse unforeseen and curious comparing hypothesis. I have developed idiosyncratic significances of research situated on analyzing multiple subsets of case study. Even I have applied the processes implicated in informal systematic self-observation process. Despite all the advantages, case study positions qualitative method has quite a few limitations including excessive data collection for single and multiple hypothesis analysis. Sometimes large-scale cross compared data can be proved extensive in case study analysis.

For initial trial process, we can consider Foggy River farm as a production unit to produce natural herbal tea. My proposed feasible pilot project has identified that there are possibilities of onsite procurement of St John’s Wort at FoodShare Toronto’s CAMH “Sunshine” garden, even at urban ecological gardens similar in size and pattern as Thistletown PACT urban ecological garden. When writing the conclusion, St Johns’ Wort growing challenges helped me to think about positively thinking about growing St. John’s Wort at urban ecological gardens at Toronto. Canopy destruction by the Chysolina beetle made St. John’s Wort growing vulnerable (OMAFRA factsheet).

Price sensitivity will be another aspect for consideration. Price of \$5 per pack of Ontario grown natural herbal tea will definitely be on higher side. If seniors are interested to receive natural herbal tea along with Good Food Box, we must design fund-based support

with specific survey, study, trial at adults' day care center, long term care, seniors' home and so on. Free sampling and product promotion are absolutely a good option to find out interests of seniors, if any organic farm is ready to donate the natural herbal tea otherwise if there is any readily available project funding. To establish a feasible working project through sustainable financial support so that finances can make it work, the project or business organization must be defined as farm, not for profit organization or social enterprise. Ecological agricultural farms are mostly following the dominant features of capitalist economy, therefore clubbing dried herbal tea through Foggy River Organic Farm to FoodShare, Toronto's Good Food Box operation will be quite challenging. FoodShare Toronto is interested in financial support, environmental grant making procedures to operate their Good Food Box program to fight against hunger movement. FoodShare is willing to expand Good Food Box operations with natural herbal tea when adequate funds are coming from fund raising programs, foundations, donations and corporate, business and research grants.

The aspects of procuring natural herbal tea along with Good Food Box products in Ontario can follow two major goals and policy statements of effective resource organization and demand supply management as mentioned by a joined-up food policy for Canada (MacRae, 2011).

For MacRae (2011), a joined-up approach highlights ecological as well as social authenticity of food. (1) The primary goal confirms that anyone and everyone must have access to acquire abundant quality and quantity of food. (2) As environmental, social, cultural and economic requirement and prospective are situated on food processing, production and consumption pattern, changes on social, political, environmental, economic parameters have less influence on food supply and quality. (3) In joined-up approach, public health and education are interlinked with food system possession. (4) People who are involved in food

production, processing and consumption are well-connected to the food environment and social physical environment. (5) Waste and pollution must be preventable because natural biological resources including food, air, water, energy, soil, forests, wildlife, marine life are positioned in the equilibrium of ecosystem. (6) Food system ensures that people must have enough job and income to live their livelihood. (7) Every individual can contribute in food system determination. (8) Food system develops creative and rewarding work opportunities. (9) Food system supports community development through multicultural social interactions. (10) Canada's food system encourages other countries to develop their food system following international food trade, rationale and principles.

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- Appendices Table 1

Selection procedure: Herbs are selected by me as a researcher, based on documented social cultural beliefs based on therapeutic properties. From the literature, these natural herbal plants appear to have therapeutic properties for memory boosting, immunity building, pain management and anticancer, antibacterial, antifungal bioactive molecules. Analyzing “Growing Non – Traditional Crops in Ontario, Order no. 09-043 W”, (Hassan, Jiang, Syed, Qin, 2012) Review of Northern Ontario Medicinal Plants and Health Canada NHPS. Positioned as the most coveted herb for onsite procurement, I have considered St John’s Wort only. Considering urban ecological growing options of St John’s Wort, along with supporting agricultural practices, I have explored growing St John’s Wort at organizations that are participating in alternative food networking

(AFN) and Canadian social organizations (CSO) joint ventures.		
OMAFRA Listed 33 Herbs (omafra.gov.on.ca/english/crops/facts/12-033.htm)		
Sn	Medicinal Plants	Scientific Name
1	Yarrow	<i>Achillea millefolium</i>
2	Amaranthus	<i>Achyranthes bidentata</i>
3	Black Cohosh	<i>Acatea racemose</i>
4	Agrimony	<i>Agrimonia eupatoria</i>
5	Marshmallow	<i>Althaea officinalis</i>
6	European angelica	<i>Angelica archangelica</i>
7	Chinese angelica	<i>Angelica sinensis</i>
8	Yellow chamomile	<i>Anthemis tinctoria</i>
9	Japanese budrock	<i>Actium lappa</i>
10	Arnica	<i>Arnica montana</i>
11	Milkvetch	<i>Astragalus membranaceous</i>
12	Borage	<i>Borage officinalis</i>
13	Blue Cohosh	<i>Caulophyphylum thalictroides</i>
14	Devil's bit	<i>Chamaelirium luteum</i>
15	Calendine	<i>Chelidonium majus</i>
16	Devil's bones	<i>Dioscoria villosa</i>
17	Echinacea	<i>Echinacea spp.</i>
18	Genista broom	<i>Genista tinctorial</i>
19	Turmeric	<i>Hydrastis canadensis</i>
20	St. John's wort	<i>Hypericum perforatum</i>
21	Hyssop	<i>Hyssopus officinalis</i>
22	Wild Sunflower	<i>Inula helenium</i>
23	Love parsley	<i>Levisticum officinale</i>

24	German chamomile	Matricaria recutita
25	Lemon Balm	Melissa officinalis
26	Pudding grass	Mentha pulegium
27	Field Balm	Nepeta cataria
28	Evening primrose	Oenothera biennis
29	Madder	Rubia tinctorum
30	Skullcap	Scutellaria laterifolia
31	Feverfew	Tanacetum parthenium
32	Valerian	Valeriana officinalis
33	Vervain	Verbena officinalis

Canadian Journal of Plant Science (nresearchpress.com/doi/full/10.4141/cjps2012-006#.WvJKjDZK3v8) and Review: Northern Ontario Medicinal Plants, 4th May 2012 By Haider M. Hassan, Zi - Hua Jiang, Tarannum A.Syed, Wenshen Qin. (flash.lakeheadu.ca/~wqin/2012%20H2%20Northern%20medicinal%20plants.pdf) Total 48 = (33 herbs + 6 trees + 4 shrubs + 2 fern and allied plants + 2 sedges and grasses + 1 vine) and (MacKinnon, Kershaw, Arnason, Owen, Karst, Hamersley-Chambers, 2009) ***Edible and Medicinal Plants of Canada***, LPP Publisher, Canada, 2009

Sn	Medicinal Plants	Scientific Name
1	Northern St. John's Wort	Hypericum
2	Plantains	Plantaginaceae plantain
3	Shepherd's purse	Brassicaceae mustard
4	Skull Caps	Lamiaceae mint
5	Sorrels	Oxalidaceae wood sorrel
6	Skunk Cabbage	Arum
7	Spreading dog bane	Papocynaceae dog bane
8	Sundews	Droseraceae sundew

9	Swamp and Common Milkweed	Asclepiadaceae milkweed
10	Sweet flag	Alimataceae water plantin
11	Sweet colts foot	Asteraceae sunflower
12	Wild onions and wild chives	Liliaceae lily
13	Wild ginger	Aristolochiaceae birthwort
14	Common yarrow	Asteraceae sunflower
15	Common and rough dandelion	Asteraceae sunflower
16	Fireweeds	Onagraceae evening primrose
17	Flax	Linaceae flax
18	Gentians	Gentianaceae gentian
19	Gumweed	Asteraceae sunflower
20	Heal-all	Lumiaceae mint
21	Knotweeds and Smartweed	Polygonaceae back wheat
22	Leaf mustard and wild turnip	Brassicaceae mustard
23	Marsh yellow cress	Rorippa Palustris
24	Pearly everlasting	Asteraceae sunflower
25	Pitcher plant	Sarraceniaceae pitcher plant
26	Dogwood or bunchberry	cornaceae dogwood
27	Common bearberry	Ericaceae heath
28	Price's Pine	Pyrolaceae wintergreen
29	Anthophyta Common hops	Cannabaceae hemp
30	Magnolophyta Bitter cress and cuckoo flower	Brassicaceae mustard
31	Black eyed Susan and wild golden glow	Asteraceae sunflower
32	Blood root	Papareraceae poppy
33	Blue cohosh	Berberidaceae barberry
34	Canadian goldenrod	Asteraceae sunflower
35	Chamomiles	Marthicana recutita

36	Cocklebur	Pelargonium spp.
37	Common geranium	Geraniceae geranium
38	Fillicinophyta clubmosses	Lycopodiceae clubmoss
39	Common horsetail	Equisetaceae "Horse tail"
40	Plant Balsam poplar	Salicaceae willow
41	Horse chestnut	Hippocastanaceae buckeye
42	Juniper	caprissaceae juniper
43	Mossy cup oak	Fagaceae beech
44	White elm	Ulmaceae elm
45	White spruce	Pinaceae pine
46	Magnoliophyta Quack grass	Poaceae grass
47	Sweet grass	Hierochloe odorata, Anthoxanthum nitens
48	Coniferophyta Devil's Club	Apcynaceae dog bane

Appendix A

Interview Code	Date	Description
Interview 1	23 rd May 2018	Working professional
Interview 2	23 rd May 2018	Working professional
Interview 3	23 rd May 2018	Senior Volunteer
Interview 4	16 th May 2018	Senior Volunteer
Interview 5	16 th May 2018	Senior Volunteer

Interview 6	9 th May 2018	Senior Volunteer
Interview 7	9 th May 2018	Senior Volunteer

Sample questionnaire for qualitative interviews are as per followings -

- Are the following 10 herbs being most appropriate for a business plan (St John's Wort, Skull Caps, Evergreens, Devil's Club, Arnica Montana, Milkvetch, Yin-Yang, Greater Celandine, Echinacea's, Bee Balm/Lemon balm)?
- Given increasing cost of institutional, pharmaceutical based health-care, is there a role for herbal remedies in your institution?
- Do you consider that herbal/ medicinal Tea as a consumed beverage is thriving well with a trend of good business potential?
- How do you select buying "Good Food Box" and tea based "Ontario grown Natural Herbal Plants" from ecological agricultural procurement as green lifestyle management approach at mature adulthood/late stage of life? How frequently you are ready to purchase "Good Food Box" and "Ontario grown Natural Herbal Plants"?
Question for FoodShare.
- One more (tentative qualitative interviewing) question for each Professional
I have considered 6 core questions (6 each) for ecological agriculture practitioner / herb producers/ herb distributors, seniors' facilities, Canadian civil society organizations, aboriginal knowledge experts.
- Do you consider Canadian social enterprises, Canadian Civil Society Organizations (CSO) Good Food Box initiatives selling Natural Herbal Plants will encourage

consumers to grow, gather and prepare organic foods and Ontario grown Natural Herbal Plants at their home so that they can use them to relive a wide array of health problems at mature adulthood/late stage of life? If you are hesitant with the concept, what are the reasons? How do you consider any hypothetical brand for promoting natural herbal plants? Looking into different hardness zone, sensitivity, quality issues, it is not possible to grow many herbs altogether in urban ecological garden. Thus, can we consider growing “St. John’s Wort” along with Alternative Food Network (AFN)?

- Do you consider Natural Herbal Plants procurement at Agroecological farms selling through Canadian social enterprises, Canadian Civil Society Organizations (CSO), Good Food Box initiatives will encourage consumers to grow, gather and prepare Natural Herbal Plants at their home so that they can use them to relive a wide array of health problems at mature adulthood/late stage of life? If you are hesitant with the concept, what are the reasons? How do you consider any hypothetical brand promotion of natural herbal plants?
- How do you reflect on 10 topmost “Ontario grown Natural Herbal Plants” (St John’s Wort, Skull Caps, Evergreens, Devil’s Club, Arnica Montana, Milkvetch, Yin-Yang, Greater Celandine, Echinacea’s, Bee Balm/Lemon balm) based tea as they are having natural herbal properties to ratify as anticancer, antibacterial, antifungal herbal medicines?
- Please comment on cautionary aspects/regulatory structure of Health Canada to club in concepts of natural remedies to promote long term good health effect?
- Do you consider therapeutic aspects of socio cultural plant related belief will encourage consumers to grow, gather and prepare organic foods and Ontario grown Natural Herbal Plants at their home so that they can use them to relive a wide array of

health problems at mature adulthood/late stage of life? If you are hesitant with the concept, what are the reasons?

- Please comment on financial support aspects of Canadian social enterprises, Canadian Civil Society Organizations (CSO), Good Food Box and agroecological farms growing Natural Herbal Plants to sell organic foods and Ontario grown Natural Herbal Plants as instrument for poverty alleviation, increase in labor, income, social capital, human dignity? Please comment on price effective easy placement possibilities of Good Food Box and Natural Herbal Plants through ecological agricultural practice?
- Please comment on logistics and supply chain management aspects of Canadian social enterprises, Canadian Civil Society Organizations (CSO), Good Food Box and Natural Herbal Plant farming at agroecological plants to sell organic foods and Ontario grown Natural Herbal Plants as instrument for poverty alleviation, increase in labor, income, social capital, human dignity?
- Based on traditional natural herbalism knowledge system how do you reflect on 10 topmost “Ontario grown Natural Herbal Plants” (St John’s Wort, Skull Caps, Evergreens, Devil’s Club, Arnica Montana, Milkvetch, Yin-Yang, Greater Celandine, Echinacea’s, Bee Balm/Lemon balm) and natural herbal tea as they are having natural herbal properties to ratify as anticancer, antibacterial, antifungal herbal medicines? Please suggest different applications of these natural herbal herbs?

