

Ingredients for Sustainable Campus Food Systems:

A Case Study of the University of Waterloo

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Abstract

The last decade has seen a burgeoning concern about food security and food system sustainability in both academic circles and among practitioners in government and community organizations. Local and organic foods are manifestations of an alternative way to feed the fast growing urban populations with a healthy, affordable and nutritious diet while protecting the rights to know the origins of food and promoting social justice related to the conditions of food production. Public institutions as well as a variety of other food system stakeholders have become champions of food system change. At the University of Waterloo (UW), there has yet to be a comprehensive assessment that takes stock of and analyzes where the UW food system is at in terms of a healthy and sustainable food system. Through a literature review and case study, this research designed a framework (report card) to assess the health and sustainability of a campus food system operating in higher educational institutions in North America. It also both identifies priorities and analyzes challenges facing UW in establishing a healthy and sustainable food system through an analysis of UW's food system procurement and sustainability initiatives. This paper then presents a series of recommendations to improve food system sustainability at UW by using other pioneering institutions as a reference. Recommendations include, among other things, expanding vegetarian and vegan options, improving students' food literacy, and engaging more campus members in food system decision making.

It is hoped that this study will draw more attention to food system sustainability issues on university campuses. By creating more awareness about various initiatives for a healthy and more sustainable campus food system, student, staff, and faculty members will hopefully be encouraged to proactively seek and demand healthy and sustainable food options that are available on campus, to critically evaluate campus food system sustainability, and to create an environment that supports campus and community sustainable food initiatives. Finally, the framework (report card) developed in this paper is intended to act as a pilot, to broaden the influence of this research within universities, colleges and surrounding communities in North America by educating everyone on the health and sustainability aspects of a campus food system as well as encouraging the adoption and exchange of sustainable food initiatives between organizations.

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Chapter 1. Introduction

1.1 Food Security and Sustainability in Campus Food Systems

Food has always played a prominent role in the course of the development of human society. In her book “Hungry City: How Food Shapes Our Lives”, Carolyn Steel (2008) asserts that cities and food systems are bound to each other from prehistory to the present. However, the relationship between citizens and urban food systems has been increasingly intense since the commencement of urbanization. Steel (2008) harshly criticizes industrial food systems, arguing that they have caused such changes between cities and urban food systems. Operating in a global context, industrial food systems are usually associated with large-scale corporations, placeless production and the commodification of food, and they are currently operating with dominance in the world especially in developed countries (Fonte & Papadopoulos, 2010). Regardless of the high efficiency of the industrial food production, the competitiveness of the price of their food products, and their immense power to feed a growing number of urban residents, various issues emerging from industrial food systems have negative impacts on the associated food environments.

The current food environment is defective and extremely problematic due to the fact that it is glutted with pseudo-food, which is common in most developed countries (Winson, 2012). Winson (2012) has defined pseudo-food as “those nutrient-poor edible products that are typically high in fat, sugar, and salt and often provide over-abundant calories. They are notably low in nutrients such as proteins, minerals, and vitamins essential for health” (p.188). In addition, the exceedingly high rate of obesity and incidence of diabetes that is closely associated with pseudo-food has become a critical issue for policy makers. Two major outlets that carry pseudo-foods, namely supermarkets and high schools, have exacerbated the health crisis (Winson, 2012). Another problem in industrial food systems is that consumers are only given superficial information from the foods’ labels such as the price, brand and the country of origin. People are barely informed of where the foods are grown, when the foods are harvested, or how long they have been stored before they are transported into retail stores, let alone their associated environmental costs. Compared to the foods that are locally grown, these “unknown” foods are advantageous, as they tend to be cheaper. However, there is relatively little exposure of their healthful aspects (e.g., nutrition and harmful effects) to consumers. Attention-getting issues such as drug use in food production, risks associated with genetically modified foods, environmental degradation (with a focus on GHGs), and inhuman working environments for migrant agricultural workers have been reported by the people of all circles. Furthermore, often overlooked

by the public struggling in industrial food systems, small farmers and food producers have suffered as a result from the immense loss of farmland, sharply decreasing market share, and increasing distance to the consumer base for the last three decades.

As a result, the concept of sustainable diets has gained momentum in the last decade, and there has been burgeoning concern for food security and sustainability in both the academic field and in practice (Ashe & Sonnino, 2013). Many studies have also addressed the importance and urgency of social equity in food systems. Thus, our society is calling for ways to feed a fast growing urban population with healthy, affordable and nutritious food while protecting consumers' rights to knowing the origins of their food, as well as the impact that their food has had on the environment and social justice. The urban food system is a complex concept that involves various actors from food production to consumption such as farmers, growers, processors, distributors, retailers, restaurants, governments, not-for-profit organizations, researchers, individual consumers and among others. Therefore, it is important to develop a food system perspective in order to understand the issues facing food security and food sustainability (Lang & Barling, 2012). Notably, the term "sustainable" used in this research paper to define the food system always refers to a broad sense that includes both environmental concerns and social equity.

In response to the food system challenges regarding food insecurity, food sustainability and public health, a food movement has emerged to promote a sustainable food system that is both socially and environmentally concerned. During this food movement, a wide range of stakeholders including an increasing number of researchers, civil society organizations, food system practitioners, and food businesses over the last decade or two have sourced growing volumes of food from local farmers, among many other 'food movement' initiatives such as reduction of meat consumption, fair trade, and food waste composting. In contrast to the commodity nature of industrial food systems, local or alternative food systems are active at the community level, containing close linkages with small farmers or producers (Fonte & Papadopoulos, 2010). More importantly, these local or alternative food networks incorporate a wider range of missions including "social justice and inclusion", "ecological sustainability", and "economic viability" (Jarosz, 2008, p.1).

Among the food system stakeholders, public institutions such as municipalities, universities, schools, and hospitals are becoming champions of food system change through their purchasing choices. As Martin and Andree (2011) address a significant trend in North America: "[a]cademics, social movement organizations, and food system

practitioners are calling for public institutions to support local farmers with their substantial food service budgets” (p.162), such institutions wield considerable resources and power to influence the transition to a more sustainable food system. Specifically, food procurement and dining services account for a huge proportion of public institutions’ operational expenses; therefore, their buying power can exert a great impact on local farmers and producers’ living conditions. Additionally, as one of the significant civil efforts, sustainable food initiatives have been rapidly received and implemented as vital tools towards sustainability in higher education in North America (Barlett, 2011). This effort started among students, faculty or staff members who call for solutions to food security or sustainability issues that emerge from the problematic industrial food system and has been further highlighted to contribute to campus sustainability (Barlett, 2011). Amidst sustainable food production practices, buying food that is locally and organically grown is perceived to be a core practice among initiatives taken by institutions across the United States (Barlett, 2011). Importantly, food system related issues affect economic, social and environmental-all three dimensions of human society, and they provide a “strong location for campus sustainability efforts because of its economic clout, corporate connections, and emotional resonance with family traditions, place, and identity” (Gibson-Graham, 2006) (as cited in Barlett, 2011, p.102). A campus food system is also a microcosm that reflects every single step from food production to food waste disposal within the entire food chain, providing an experimental space for multiple local actors to innovate and collaborate in order to pursue a healthy and sustainable food system (Ashe & Sonnino, 2013). Thus, the rise of campus food initiatives or projects contains immense value to foster the reform and transformation of the industrial food system into a sustainable one.

Apart from the perspective of public institutions’ being socially responsible, another concern surrounding food security and sustainability is settled in an institution per se, as research shows to meet the daily needs for food of students who are paying high tuition fee is difficult and challenging. Among the post-secondary student population, the rising expenses of living and attending an educational institution pose a significant challenge for them to afford food (Canadian Federation of Students-Ontario, 2013). The over-priced food served on campus is also staggeringly limiting students’ options for nutritious food (Canadian Federation of Students-Ontario, 2013). Their poor perceptions of nutritious food and inadequate food skills cause other potential barriers for students to follow a healthy diet. The report *Task Force on Campus Food Services* captures three pillars that affect food security among students (Canadian Federation of Students-Ontario, 2013, p.2):

- 1) Food availability: sufficient quantities of food available on a consistent basis;
- 2) Food access: having sufficient resources to obtain appropriate foods for a nutritious diet;
- 3) Food use: nutritious and safe food preparation based on knowledge of basic nutrition and food care, as well as adequate water and sanitation.

Therefore, campus food system initiatives are needed to help students maintain their health and wellbeing while they pursue academic achievements. This research paper aims to use the University of Waterloo as a case study to achieve three objectives.

1.2 Problem Statement and Research Objectives

Like many institutions in North America, the University of Waterloo (UW) has joined the sustainable campus food movement and has taken several food initiatives to enhance its food sustainability as well as to better feed its student and staff members. However, there has yet to be a comprehensive assessment that takes stock of and analyzes where UW's food system is at in terms of a healthy and sustainable food system and where it is moving towards in the next few years. In fact, UW does not currently possess a food vision that is explicitly stated or any specific food sustainability goals that help each department to collaborate on or even written food policy that oversees the whole campus food system. Therefore, this research paper's primary objective is to design a framework (report card) that can be used to assess the health and sustainability of a campus food system operating in higher educational institutions in North America.

The secondary objective of this research is built on a set of principles or priorities adapted from the Waterloo Region Food System Roundtable and the National Student Food Charter. This paper identifies priorities, and analyzes challenges, for the University of Waterloo to establish a healthy and sustainable food system, through an analysis of the UW's food system procurement and sustainability initiatives.

Lastly, this research develops a set of recommendations of opportunities for the University of Waterloo to improve food system sustainability by using other pioneering institutions as a reference. In order to find the best practices in campus food system sustainability, this study conducted a preliminary overview of campus sustainable food projects across North America.

1.3 Introduction of Research Framework and Scope

To achieve the three objectives, this research paper adopts a framework that is adapted from the six priorities identified in the report *'The Health of Waterloo Region's Food System: An Update'* published by the Waterloo Region Food System Roundtable (The Roundtable) in 2013, the *Waterloo Region Food Charter* drafted by the Roundtable in 2013 as well as the *National Student Food Charter* proposed by Meal Exchange in 2012. The final framework preserves the overall structure of the principles presented in the report and the Waterloo Region's Food Charter. However, challenges remain in reconciling principles for assessing food systems at the level of a region versus a university or college, or rather a campus food system involves a different set of stakeholders and key functions. Thus, this research drew on the National Student Food Charter that is oriented to food systems at universities and colleges. This charter was developed in 2012 by post-secondary students from across Canada with a key mission to "guide their work in collaboration with student unions, administrations, food service providers, health services, and staff and faculty; as well as food businesses, local producers, governments, and non-government agencies in their communities" (Meal Exchange, 2012). The following dimensions of the campus food system assessment framework guided the research design for this paper:

1. Sustainable Food Procurement
2. Food Sovereignty and Connecting People to the Food System
3. Access to Affordable and Healthy Food (and Social Justice)
4. Food Waste Management

This research has chosen urban food systems to study. The University of Waterloo and its surrounding community are equally a research focus. In cooperation with the case study setting, the best practices in campus food system sustainability reviewed in this study are all based in universities and colleges across North America (only Canada and the United States were included).

1.4 Structure of Research Paper

Chapter 1 provides an introduction to the key issues emerging from food security and food sustainability in general and in a campus setting. It also explains the research gap and introduces the three main research objectives. The chapter then introduces the dimensions of the research framework and the scope. Chapter 2 is a literature review that explores a series of topics in campus food sustainability including understanding and assessments of food systems, a food system perspective, roles of public institutions

and food system change, and best practices of campus food sustainability. Chapter 3 provides additional research with an overview of Waterloo Region's geography and agricultural sector and the regional food initiatives. Chapter 4 presents how the research was designed and how data were gathered and analyzed. It also indicates a few principal limitations within the research. Chapter 5 provides the case study of the University of Waterloo's food system. Chapter 6 discusses the overall assessment of the University of Waterloo's food system and makes recommendations for future plans. Lastly, Chapter 7 concludes the research paper and provides a direction for future studies.

Chapter 2. Campus Food Sustainability and A Food System Perspective

2.1 Understanding and Assessing Food Systems

Food systems have existed and been central to the operation and the development of human society for a historically long time. In the olden days, people used to sustain their own food consumptions. However, the growing number of residents living in urban areas marks a long separation between the place where food is produced and where most eaters dwell in. Chapter 2 provides a broad understanding of food systems through breaking-down thinking and analysis. First of all, Kaufman (2004) argues that a food system is composed of a series of activities: it starts with food production and proceeds to encompass the processing, distribution, wholesaling, retailing, and consumption of food, and ends with the disposal of food waste (as cited in Sumner, 2012, p.326). After eight years, with opposing to the linear relationships existing within food systems that Kaufman (2004) proposes, Sumner (2012) visions a food system as “an interdependent web of activities that include the production, processing, distribution, consumption, and disposal of food” (p.327) by drawing upon on Hay’s (2000) theories of a system which each element in the ‘web’ is interdependent. This interdependent, web idea regarding food system lays a foundation of the analysis and discussion in this research paper.

The concept of sustainability has now also been adopted in food system studies. Being coined in 1972, the idea of sustainability provides a new perspective to the economic world and was applied to food systems for the first time in 1984 by Stuart Hill (1984: 1): he argues that “our food producing systems must be operated in a sustainable way, for to do otherwise would be to practice delayed genocide on our descendants” (as cited in Sumner, 2012, p.330). Hill (1984: 1) depicts six important themes (i.e., nourishment for everyone, fulfillment, justice, flexibility, evolution, and sustainability) for any kind of food system to be qualified as ‘sustainable’, yet this conceptualization does not characterize the definitive stakeholders or activities that are essential to food system sustainability. In fact, little was done in finding a comprehensive definition of sustainable food systems for many years after the first appearance among scholars (Sumner, 2012). However, many researcher and scholars have explored and provided useful insights on the idea’s development.

Moving on from conventional food system problems, concerns such as social justice and environmental interests are incorporated into academic studies, and they have led a sustainability transformation in the food sector (Kloppenburger, Jr., Lezberg, De

Master, Stevenson & Hendrickson, 2000). Surrounding the sustainable food system concept, many terms have emerged: a "regenerative food system" (Dahlberg 1993); a "local food system" (Feenstra 1997); or a "foodshed" (Kloppenburger, Hendrickson, and Stevenson 1996). Kloppenburger, Jr., Lezberg, De Master, Stevenson and Hendrickson (2000) also collected important input on how "competent" and "ordinary" people would think of sustainable food systems during an urban-rural conference hosted by the Michael Fields Agricultural Institute (MFAI) in 1998, wherein several themes were identified: "ecologically sustainable", "knowledge or communicative", "proximate", "ecologically sustaining", "participatory", "just or ethical", "sustainably regulated", "sacred", "healthful", "diverse", "culturally nourishing", "seasonal or temporal", "value-oriented (associative) economics", and "relational". Yet, Kloppenburger Jr. et al. (2000) is not intended to provide a concise definition of food system sustainability. There is obviously a gap remaining in defining a sustainable food system.

Progress has been achieved by Gail Feenstra (2002) since she characterizes sustainable food systems as "more environmentally sound, more economically viable for a larger percentage of community members, and more socially, culturally, and spiritually healthful" (p.100). Additionally, she embodies the term sustainable food systems with several explanations that are more concrete:

They are more decentralized and invite the democratic participation of community residents in their food systems; they encourage more direct and authentic connections between all parties in the food system, particularly between farmers and those who enjoy the fruits of their labor-consumers or eaters; they attempt to recognize, respect, and more adequately compensate the laborers we often take for granted-farmworkers, food service workers, and laborers in food processing facilities, for example; and they tend to be place-based, drawing on the unique attributes of a particular bio-region and its population to define and support themselves (p.100).

Therefore, a sustainable food system should also be more decentralized, more place-based, wherein all stakeholders are more connected with a focus on strengthening the links between food growers and consumers, and all food laborers are more sufficiently compensated (Feenstra, 2002). Up till now, Feenstra has consolidated the most momentous themes surrounding a sustainable food system including the fundamental principle of 'an interdependent web of activities' in a food system.

Drawing upon Feenstra's research, Sumner (2012) illustrates a perspective that a sustainable food system is "anchored in the public domain" (p. 331) by resonating the attributes of a sustainable food system with the civil commons. Food, which plays an indispensable role in human society, is seen as "a public good" and "a just system would make healthy food accessible, affordable and universal by bringing more of it into the public sphere" (Webb 2011, p.28). Viewing food as a public good expands on how people would usually think of the influences of food and food systems, especially for those who are unable to access healthy and affordable food. Sumner (2012) and other scholars come to agree that a sustainable food system is far beyond a single activity, as it "involves an interdependent web of activities that build the civil commons with respect to the production, processing, distribution, consumption and disposal of food" (p.330). This statement also implies that all food system activities should be designed to pursue public interests-to enable "universal access to the life-good of food" (Sumner, 2012, p.330).

Practitioners in government and community organizations have also made several attempts to define a sustainable food system however with a focus on different perspectives. The City of Calgary defines a sustainable food system as "a collaborative network that integrates several components in order to enhance a community's environmental, economic and social well-being" and argues that a sustainable food system possesses the characteristics as follows (based upon Pothukuchi, K. and Jufman, J.L., 1999) (as cited in The City of Calgary, 2015):

- Is secure, and therefore reliable and resilient to change (including climate change, rising energy prices, etc.) and accessible and affordable to all members of society;
- Is energy efficient;
- Is an economic generator for farmers, whole communities and regions;
- Is healthy and safe;
- Is environmentally beneficial or benign;
- Uses creative water reclamation and conservation strategies for agricultural irrigation;
- Balances food imports with local capacity;
- Adopts regionally-appropriate agricultural practices and crop choices;
- Works towards organic farming;
- Contributes to both community and ecological health;
- Builds soil quality and farmland through the recycling of organic waste;
- Supports multiple forms of urban as well as rural food production;

- Ensures that food processing facilities are available to farmers and processors;
- Is celebrated through community events, markets, restaurants, etc.;
- Preserves biodiversity in agro-ecosystems as well as in the crop selection;
- Has a strong educational focus to create awareness of food and agricultural issues; and
- Is fairly traded by providing a fair wage to producers and processors locally and abroad.

The long, precise list shown above is in tune with enhancing the city's sustainability, as it incorporates all three critical aspects 'environment', 'society', and 'business' into the definition of a sustainable food system. The initiative of Fair Trade has also been highlighted by the city to tackle ethical and social issues containing in local food producers and processor's wages. However, the health aspect of a food system is less stressed in this definition. A more definitive meaning of healthy and safe food could be added in the future. In addition, even though the list is not concise enough to immediately convey the key ideas to readers, it is a valuable and comprehensive guide tailored to the development plan for the city's economic development office.

In June 2010, The Academy of Nutrition and Dietetics (formerly the American Dietetic Association), American Nurses Association, American Planning Association, and American Public Health Association unprecedentedly worked in collaboration, developed, and endorsed a set of shared food system principles to stimulate the food system change (American Planning Association, 2015). The principles are to support a food system that is socially, economically and ecologically sustainable in addition to enhance the health of individuals, communities and the natural environment (American Planning Association, 2015). A healthy, sustainable food system is one that

emphasizes, strengthens, and makes visible the interdependent and inseparable relationships between individual sectors (from production to waste disposal) and characteristics (health-promoting, sustainable, resilient, diverse in, fair, economically balanced, and transparent) of the system (American Planning Association, 2015).

Compared to the definition provided by the City of Calgary, the definition above is based on another perspective: as it is originated with collaboration from four organizations and is finally proposed by the American Planning Association, the definition is looked at from a macroscopic angle and emphasizes more the

interdependent networks between different food system stakeholders as well as the pivotal characteristics of a healthy and sustainable food system. In a nutshell, this definition provides a general direction in promoting health, sustainability, resilience, diversity, fairness, economic balance, and transparency of a food system as opposed to the comprehensive guidance given by the City of Calgary.

As discussed earlier, the Region of Waterloo Public Health also provides a definition of a healthy food system:

one in which all residents have access to, and can afford to buy, safe, nutritious, and culturally-acceptable food that has been produced in an environmentally sustainable way and that sustains our rural communities (The Region of Waterloo Public Health, 2013).

Different from the two definitions put forward in this section, the one proposed by the Region of Waterloo Public Health is relatively precise and highlights the essential characteristics of the food that the region's community members consume on a daily basis. These characteristics such as 'accessible', 'affordable', 'safe' and 'nutritious' all reflect the role of the Public Health department which is to monitor and improve individuals' health. Therefore, this definition stresses less the close and interdependent networks within the region's food system. Without a doubt, variations exist in many aspects and dimensions while the academic circles and practitioners attempt to define a healthy and sustainable food system. Perspectives vary depending on the organization's mission, objectives, and values.

There is another challenge remaining in defining a healthy and sustainable food system. Some scholars have recognized a prominent issue in food system change that urban planners must be wary of: "a local trap" (Brown & Purcell, 2005; Purcell & Brown, 2005) (as cited in Born & Purcell, 2006). The 'local trap' problem refers to "the tendency of food activists and researchers to assume something inherent about the local scale. The local is assumed to be desirable; it is preferred a priori to larger scales" (Born & Purcell, 2006, p.195). Born and Purcell's (2006) argument does not conclude that a local scale attracts criticisms. Instead, their purpose is to reveal how an assumption of 'local is desirable' can seduce urban planners and governments to make incorrect decisions. Specifically, they may overlook various outcomes resulted from the action to establish a local-scaled food system; their solely pursuing 'local' may cause them to deviate from their original goals; and they may even confound the definition of sustainability and localization and fail to accept food-system development approaches that are more

effective but performed in larger scales (Born & Purcell, 2006). Thus, even though this research paper reviews many local food initiatives at the University of Waterloo, I hold a belief that a local scale is ideal but not inherently better than the larger scale. For example, Stagl (2002) argues that local food markets only serve a minority of total food consumers, and the food supply is unstable during a year, as it is inevitably restricted by the local growing season.

To critically look at local food systems, there are limitations remaining in the aspect of ecological sustainability in spite of the merits associated with a local scale. Namely, a local food system is not equivalent to an environmentally sound or sustainable food system. Relying on the establishment of local food system alone does not automatically solve problems resulted from the use of agrochemicals and the high volume of meat consumed. Weis (2015) illustrates that it requires “a series of resource-intensive inputs” (p.298) to produce an increasing number of meat needed, and the process “generates an array of ecological costs, from persistent toxins to greenhouse gas emissions (GHGs)” (p.298). He also states that people’s tendency to eat meat is not a necessity but palate pleasure, and it causes many kinds of health-related issues (Weis, 2015). Therefore, it should be brought to people’s attention that local food systems do not incorporate every concern identified in regards to a healthy and sustainable food system, while localization has almost become a prominent item on the agenda of community development.

Another limitation is that many scholars argue that “local food” is a buzzword, and its definitive meaning can be varied in different contexts. There is no definition of local foods in a UK’s context (Defra, 2003, cited in O’Neill, 2014; Kirwan, J. & Maye, D. 2013). Sacks (2012) claims that the definition of local foods is in relation to “geography”, “social relationships”, and “food quality” (p.215). An observation is made that local foods are often interchanged with characteristics of quality, nature or sustainability (Tregear, 2011; Dalmeny, 2008; Holloway, Kneafsey, Cox, Venn, Dowler & Tuomainen, 2007; Parrott, Wilson & Murdoch, 2002; Murdoch and Miele, 2004, cited in O’Neill, 2014). Involving several broad parameters, there is considerable controversy over an explicit definition of local foods (O’Neill, 2014; Alonso & O’Neill, 2010; Environmental Defense Fund, 2010; Fonte & Papadopoulos, 2010). Diverse measurements with respect to geography have caused a high variance in defining local foods. For example, one of the US state governments uses the state border to distinguish local food from non-local food (Alonso & O’Neill, 2010), while Yepsen’s (2008) benchmark relies on the distance from the farm to the restaurant. Other factors like ‘origin’ can be involved as well: the Sustainable Business Association (2008) uses the place of where the foods are produced

to measure its locality. Moreover, different groups of people interpret the meaning of local foods differently, as the contexts vary for them. For instance, in the case study done by Selfa and Qazi (2005), the uniqueness of their living environments decide how producers and consumers, and people from urban areas and rural areas hold different understanding toward local foods.

In spite of the variations containing in the definition of healthy, sustainable food systems and local food, food system planners and practitioners have now included food as a significant division in their planning practices. In reality, food system planning has recently been seen as “an emerging field that engages citizens, food policy councils, planning professionals, civic officials, and others interested in creating more sustainable food systems” (Freedgood, Pierce-Quinonez & Meter, 2011, p.83). Planners also work hard to address and evaluate the whole life cycle of food systems: from resource management, food production, through food processing and distribution, to food consumption and the disposal or composting of food waste (Freedgood, Pierce-Quinonez & Meter, 2011). In these years, since food system planners are determined to build a strong food system, they have become more dependent on the tools of food system assessments in the process of the local and regional food system planning: (Freedgood, Pierce-Quinonez & Meter, 2011). By using these assessment tools, food system planners are able to set clear objectives and plan a food system with safety, security and resilience for communities (Freedgood, Pierce-Quinonez & Meter, 2011). Food system assessments (FSAs) help identify the merits, needs and prospects within food sustainability and other food system related issues in local or regional communities. Not limited to economic values, FSAs also help reveal food system problems containing in social justice, regulations, and politics for community governors to better identify the local priorities and make policy change more accurately (Dunning, Creamer, Massey, Lelekacs, O’Sullivan, Thraves & Wymore, 2012; Freedgood, Pierce-Quinonez & Meter, 2011). In addition, FSAs have been done quite eclectically using diverse methods and approaches and at different scales. Categories such as local or regional foodshed assessment, comprehensive food system assessment, and community food security assessment are all included in common FSAs. Although food system planners seem to have a wide range of options of FSAs to choose from, they face a major limitation that comes in the current FSAs: an environmental analysis tends to be missing (Freedgood, Pierce-Quinonez and Meter, 2011). One factor can be inferred from Freedgood, Pierce-Quinonez and Meter’s (2011) research that not pinpointing the origin of food and how it is transported to the market may have caused difficulty in quantifying the environmental impacts on a food system. However, further research and analysis are needed to examine the reasons behind why the environmental aspects are not included

in FSAs. Additionally, the health issues also seem to be less emphasized in numerous assessment tools. Therefore, my research paper has incorporated these two components in attempting to fulfill the comprehensiveness in assessing a food system.

Regardless of the variations existing in the definitions of a healthy and sustainable food system reviewed in this section, it can be generally acknowledged that a healthy and sustainable food system comprises an interdependent web of food system activities and stakeholders and requires multi-faceted efforts from the community including the environment, economy, society, health, and culture. There has also seen an overall trend of localization in the development of a healthy and sustainable food system.

2.2 Food System Decision Makers: A Food System Perspective

The increasing attention in characterizing a healthy and sustainable food system reveals that the food environment of Canada and many other developed countries is extremely problematic due to the fact that pseudo-food, which is known as low in nutrients and associated with high rate of obesity and incidence of diabetes, has flooded the food system of these countries (Winson, 2012). Many scholars have been using the term spatial colonization of food environments to describe the adverse impacts of highly profitable pseudo-food, food corporation concentration and mass advertising (Winson, 2012). Furthermore, the effects of this 'nutrition transition' have already spread to less developed areas due to trade liberalization (Thow & Hawkes, 2009). Central to that is the trend of globalization. As a result, there is now burgeoning concern for food security and sustainability in both academic circles and practice (Ashe & Sonnino, 2013). The current dilemma facing food system decision makers is the question of how to feed a fast growing urban population with affordable and nutritious food while protecting consumers' rights to know the origins of food.

Many studies including the definitions reviewed previously have addressed the importance and urgency of social equity and sustainability issues in food systems. The contemporary trend in economic development theories and practices symbolizes that food system studies are now beyond a single realm; rather, they are closely linked with all three facets of sustainability. There has observed a food movement towards a sustainable food system that is both socially and environmentally concerned and involves various groups or individuals in a community. As discussed in many definitions of a healthy and sustainable food system, food system activities operate within a web that involves a wide range of individuals from food growers to eaters or consumers and

therefore constitute the interdependent and dynamic networks between the stakeholders along the food supply chain in urban areas. The decision making process in urban food systems used to be governed by the federal governments. However, Mendes (2012) identifies a recent trend that governments or the state no longer hold the conspicuous role of the only decision maker in urban food systems. In this transition, municipal and regional governments now act as interdependent stakeholders as opposed to the state who reigns over the political jurisdictions. They have become key decision makers in the Canadian food system, and it is important for these demographics to convene skills and expertise from their communities and to serve in their community units as well (MacRae & Donahue, 2013). In fact, federal governments have not done effective work to address the severe issues in the food environment through policy making (Winson, 2012). In terms of the looming health crisis and increasing health concerns, the state's laissez-faire response may seem disappointing. Facing such challenges and trends, communities have come to know that governments are not going to take full responsibilities due to political sensitivity, unshakable power of global corporations and limited state resources. The concept of food governance can now be understood in a more transparent and participatory way, as its decision making process equally engages the civil society in addition to the formal institutions of the state (Mendes, 2012).

Emerging as another new and powerful decision maker in the to build a healthy and sustainable food system with resilience, civil society now executes different functions compared to formal institutions of the state. The civil society sector has been given a more accurate definition with regards to food systems in "Menu 2020: Ten Good Food Ideas for Ontario": "The sector includes non-profit community groups, environmental organizations, small and medium-sized food enterprises, municipal agencies, health units, commodity organizations, and educational institutions-all working to fix broken food systems" (Baker, Campsie & Rabinowicz, 2010, p.7). The analysis in this research involves the majority on this list: non-profit community groups, small and medium-sized food enterprises, municipal agencies, health units, and educational institutions. This research has specifically chosen higher educational institutions as a study focus. Further discussion on this topic can be found in section 2.3. The involvement of the civil society sector increases the accountability, transparency and inclusiveness of food system governance. Mendes (2012) makes an emphasis on governance and participatory decision making of urban food systems in her study, wherein she asserts that informed community decision making about food systems now relies on a variety of stakeholders who share different sets of skills, interests and expertise. These actors or stakeholders come from civil society, also being called citizen

groups. They bring valuable perspectives and solutions to the various aspects in a wide range of food issues such as public health, food security, food sovereignty and local economic development. As a result, the civil society sector has become a backbone force in the battle to eradicate food insecurity and build a sustainable food system. In this movement, the civil society sector is also actively engaged in food policy advocacy and activities (Desjardins, Roberts, McGibbon, Garrison, Field, Davids, Stevens, Elliott, & Glynn, 2002; Lang, 2003; Koc, MacRae, Desjardins, & Roberts, 2008). Scholars have recognized the great value of blending resources and expertise from both the civil society and public sector, and they are in favour of this new structure being employed by food policy organizations (MacRae & Donahue, 2013; Harper, Alkon, Shattuck, Holt-Gimenez & Lambrick, 2009; Scherb, Palmer, Frattaroli & Pollack, 2012; Schiff, 2007).

This tremendous shift from state-reign to governance indicates that a diversity of groups now participates in the process of providing services to the local needs of food and seeking out the best practices pertaining to food system issues in urban community development (Mendes, 2012). Urban food governance now enters into a new stage with strong municipal governance and “citizen participation, inclusiveness, broad accountability, and cross-cutting approaches to food system issues that simultaneously benefit the economy, environment, and public health” (Mendes, 2012; Wekerle, 2004; Toronto Food Policy Council, 2015; MacRae, 1999; Welsh & MacRae, 1998). For instance, a groundbreaking collaborative initiative has been taken by “all provincial government ministries, local governments, schools, employers, communities, farmers, and professional organizations to connect public health and food security with agriculture and the sustainability of the food supply” (Koc et al., 2008, p.129; Kendall, 2005) in British Columbia, Canada in order to tackle the defects of the food environment. Many scholars define this approach as a “food system” approach or perspective meaning that one should recognize the connections between “supply chain players and other sectors, and among players within other sectors, and between these diverse players and consumers” in order to solve issues and challenges remaining in achieving food sustainability. The approach “ensures reliable food production and supply and the sustainable use of natural capital” (MacRae & Donahue, 2013, p.5). A food system is a complex concept that involves various actors from food production to consumption. Therefore, it is important to develop a food system perspective to understand the issues emerging from food security and food sustainability (Lang & Barling, 2012). There has been an involvement of a wider range of stakeholders in today’s food movement. Recent events have seen various local actors such as farmers, researchers, institutions, and governmental agents convening to discuss challenges and to collaborate on food initiatives and solutions. For example, the Waterloo Region Food System Roundtable as

well as many other not-for-profit organizations plays an essential role in gathering community stakeholders.

2.3 Public Institutions and Food System Change

2.3.1 The Role of Public Institutions in Food System Change

In the current food movement, an increasing number of researchers, civil society organizations, food system practitioners, and food businesses have shown their support for a local or alternative food system in response to the food system challenges regarding food security, food sustainability and public health. This phenomenon could be ascribed to a strong sense of community belonging or social responsibility. Martin and Andrée (2011) identify a trend in North America that “[a]cademics, social movement organizations, and food system practitioners are calling for public institutions to support local farmers with their substantial foodservice budgets” (p.162). For public institutions like municipalities, universities, schools, and hospitals, food procurement and dining services account for a huge proportion of their operational expenses. They also possess a great number of diverse resources such as finances, professionals, and research findings to manage these operations. The statistics indicate that on a global scale, institutional food procurement accounts for 35% of the entire food service market, where cafes and restaurants’ accumulates to 46% and fast food occupies 18% (Datamonitor, 2009, as cited in Martin & Andrée, 2011). Therefore, their buying power exerts considerable impacts on the income and living conditions of local farmers. Moreover, persuading these public food procurements to join the wave of food system change will potentially benefit the development of local food distribution infrastructures and expand the networks between local producers, processors, and consumers (Martin & Andrée, 2011; Andrée, Dibden, Higgins, & Cocklin, 2010; Goodman, 2003; Renting, Marsden, & Banks, 2003). More importantly, public institutions’ substantial volume of local food purchases greatly contributes to public policy goals with regard to aspects of sustainable agriculture, health and sustainability (Martin and Andrée, 2011). Support from schools and universities can enhance individuals’ understanding of social and ecological values of local food through a variety of practical initiatives and activities. Harriet Friedmann (2007) further explains why “academics, social movement organizations, and food system practitioners are calling for public institutions” to undertake the purchases of local foods in her research (as cited in Martin and Andrée, 2011, p.162). First, she claims that there is barely room for local community food organizations to increase their capacity in food supplying and delivering (Friedmann, 2007). She uses the example of FoodShare, a pioneering civil organization based in Toronto that mainly distributes and delivers food boxes, to illustrate that there is an

obvious limit ahead of these kinds of organizations for them to move up and forward since their operations traditionally rely on public funds (Friedmann, 2007). Thus, they call for a stronger force to eradicate economic and social problems in food systems.

Friedmann (2007) then argues that the structure of the food retailing industry poses a barrier for itself to make radical changes in a short period. Additionally, it is difficult for small organic businesses, which are often associated and interconnected with local food networks, to stand firm in the marketplace since they face fierce competition from industrial organic retailers (Friedmann, 2007). Changes are not impossible but are hard to be planned. As a result, the potential of public institutions has been recognized to bring about “a transition to a local, sustainable food system” (Friedmann, 2007, p.391). However, Martin and Andrée (2011) affirm in their research that public institutions confront a major obstacle to proactively source local food: in North America, three large food service corporations, which are Compass Group, ARAMARK, and Sodexo, control the institutional food sector. Although these large corporations are not the only food service providers among public institutions, they seize incomparable competitiveness in the global food service sector. Yet, opportunities exist in altering the corporations’ purchase preferences.

Since this research paper focuses on evaluating the University of Waterloo’s endeavor to establish a healthy, sustainable food system on campus, it has reviewed the food movement that is occurring among higher educational institutions (universities and colleges). There has been substantial support from higher educational institutions across North America to foster the transformation to a sustainable food system in communities. Chiefly, four specific emerging trends in college and university communities are tracked: firstly, the study of food now penetrates a growing amount of schools’ academic work and engages more and more students and faculty members; secondly, schools’ co-curricular activity design encompasses a broad range of campus food issues; thirdly, educational institutions have been developing a collaborative relationship with their surrounding communities to acquire steady food sources; and the local food initiative has become an important and advancing focus for educational institutions (Sacks, 2012). This research paper incorporates these recent changes into the analysis of the UW’s food system assessment in Chapter 5 and Chapter 6.

2.3.2 Food System Sustainability in Higher Education

Apart from envisioning a transition to a healthier and more sustainable food system per se, an aspiration to enhance the campus sustainability in all aspects including the food sector is now motivating universities and colleges to adopt and contrive various

food initiatives. The sustainability movement has become a compelling wave in higher education since 2000 (Walton & Matson, 2012), which can be demonstrated by the burgeoning volume of campus sustainability reporting. In addition, there has been a growing interest among higher education's senior management level to assess campus sustainability as well as the effectiveness of campus sustainability initiatives (Walton & Matson, 2012). By joining the wave, many institutions start their sustainability initiatives with reducing energy consumption. However, campus sustainability encompasses more than institutional operations that are commonly seen as building operations or energy consumption (Martin & Samels, 2012). Instead, sustainability assessment in higher education incorporates diverse activities, for example, waste reduction, and the institutions per se are called on to be creative in finding new solutions to higher sustainability (Martin & Samels, 2012). Among many other initiatives, Fair Trade is highlighted as one that contributes to community benefits and ethical and social justice in campus food purchasing (Barlett, 2011).

Endorsed by the Higher Education Associations Sustainability Consortium (HEASC), the Sustainability Tracking, Assessment & Rating System (STARS) is a currently prevailing reporting system implemented voluntarily by many universities and colleges to assess campus sustainability. Being managed by the Association for the Advancement of Sustainability in Higher Education (AASHE), this system is now open to all higher educational institutions in the United States or Canada¹. The system is advantageous, as it "address all the dimensions of sustainability (health, social, economic and ecological) and all the sectors and functions of campus, including curriculum, facilities, operations, and collaboration with communities" (Walton & Matson, 2012) (as cited in Martin & Samels, 2012, p.49). Not surprisingly, *Dining Services* is included as one of the key assessment areas. However, a defect of STARS is that the assessment has not yet included curriculum or marketing activities taking place in a campus food system. Indeed, sustainable food initiatives have been rapidly received as indispensable guidance in addition to other initiatives toward enhanced sustainability in higher education across North America including air and climate, buildings, energy, transportation, waste, water, and among other aspects (Barlett, 2011). It is asserted that food system related issues affect economic, social and environmental-all three dimensions of human society, and they provide a "strong location for campus sustainability efforts because of its economic clout, corporate connections, and emotional resonance with family traditions, place, and identity" (Gibson-Graham, 2006, as cited in Barlett, 2011, p.102). Barlett (2011) claims that several excellent institutions

¹ The University of Waterloo is using the STARS system

where people were calling for solutions to the emerging food security issues resulted from the problematic industrial food system roused the motivation at the rear of campus food system change. People now care about more than receiving adequate food; or rather the quality and health value of food influences their purchasing choices.

Achieving food sustainability now has been highlighted as a major area to move toward campus sustainability. This change was fuelled by the fact that food system sustainability is linked to the various aspects of the society including environmental concerns, public health and social justice (Barlett, 2011; Grey 2000; Hamm, 2008). Many researchers and scholars have identified that food production including agricultural and livestock farming is a major contributor to greenhouse emissions worldwide (Barlett, 2011; Carlsson-Kanyama, 1998; Casey & Holden, 2005; Donald & Blay-Palmer, 2006; Garnett, 2011; O'Mara, 2011). Additionally, the existence of under-nutrition and malnutrition has caused worldwide concern (Reisch, Eberle & Lorek, 2013). People's imbalanced diets and eating habits as well as their sedentary lifestyles are also increasing the likelihood of health problems such as diabetes, obesity and cardiovascular diseases (Reisch, Eberle & Lorek, 2013). In terms of a healthy dietary and food supply, the current agricultural food production system has to increase the capacity of growing fruit and vegetable (e.g., land use) to meet the healthy diet needs of everyone (Hamm, 2008). People have also greatly raised their food security consciousness and paid greater attention to the decent living wages and fair and safe working conditions of farmers (Reisch et al., 2013). Sustainable food initiatives originate from the various kinds of food system activities taking place in higher education. For example, the first criteria of *Food and Beverage Purchasing* (under *STARS-Dining Services*) is to assess whether the institution's dining services purchase food and beverages that are certified by a third party and are local and community-based (Association for the Advancement of Sustainability in Higher Education, 2015). Purchasing food that is locally grown is perceived to be a core food sustainability practice taken by institutions in the United States, despite the fact that further research requires to be done to prove its equivalence to sustainable food production practice (Barlett, 2011; Sacks, 2012).

Notably, universities and colleges should be aware that 'buy local' might be an outcome of the pressure associated with social media across North America. Sacks (2012) expresses his concerns in a circumstance where 'local' is being blindly pursued since buying local foods for their dining services has almost become a focus for most universities and colleges to envision a sustainable food system. He also points out that "the American higher education has become preoccupied with the power of local food systems, rightly or wrongly defining as sustainable, organic, and holistic" (Sacks, 2012)

(as cited in Martin & Samels, 2012, p.214). There indeed have been debates going on concerning the relationship between local foods and a healthy, sustainable food system in the academic circles. Without attempting to make any conclusions in this research paper, I would admit that sourcing local foods possesses many merits in the current phase. In relation to institutions' inherent development objectives, Sacks (2012) identifies that fostering local food services on campus are bound to the fundamental, institutional mission such as "providing a new, more flexible model for interdisciplinary study", "expanding approaches to engage diversity", "enlarging opportunities for original scholarly and creative work", and "fostering meaningful experiential learning" (p.215). In other words, universities and colleges can align their ultimate goals with the work of enhancing local food services and initiating food projects. For instance, community gardens and farmers markets provide student participants with excellent opportunities to learn food knowledge and skills from practical experience.

Who would be involved in campus food sustainable initiatives? And what elements would these initiatives comprise? In Barlett's research (2011), she identifies several stakeholders that are commonly critical to the creation of sustainable food initiatives on campus: they include students, faculty and administrative members, and food service directors or staff. She then proposes the following four components to categorize the majority of the existing campus sustainable food initiatives (Barlett, 2011, p.102):

- Dining-service innovation in procurement, menus, and kitchen operations;
- Academic and co-curricular programs, including courses, concentrations, and internships;
- Direct-marketing opportunities, including farmers markets and community supported agriculture (CSAs);
- Hands-on experience in community gardens and campus farms.

However, she argues that it is still fairly challenging for educational institutions to execute all the aspects above. Another limitation that she ascertains is that challenges remain in identifying how higher educational institutions move towards campus food system sustainability.

2.4 Best Practices of Campus Food Sustainability

This section reviews the best practices taken by universities and colleges in North America to gain a better understanding of the concept of campus food sustainability and

namely the four components of campus sustainable food projects proposed by Barlett (2011) as well as to supplement the analysis of the healthful and sustainable aspects of UW's food system. The section is divided into parts according to the four dimensions of the research framework.

2.4.1 Sustainable Food Procurement

Among campus sustainable food projects, the initiative of farmers' markets has become prevalent. For example, being launched in 2012, the farm market event hosted at the University of Alberta (UA) was open weekly in the Students' Union Building from January to April 2015 (University of Alberta, 2015a). This event was also organized with a same schedule through September 2015 to December 2015. UA owns a Dining Services team; however, the farm market initiative is led by Sustain SU which is a service of the University of Alberta Students' Union (SU). Sustain SU is a team that provides learning opportunities and support for students to "incorporate sustainability into every aspect of their university experience" (University of Alberta Students' Union, 2016a). Sponsored by the Office of Sustainability, the Sustain SU is also supported by over 60 Campus Sustainability Volunteers (CSVs) to "provide sustainability-based services to the entire campus community, as well as opportunities to facilitate change on a larger scale" (University of Alberta Students' Union, 2016a). The University of Alberta's farm market initiative is also interdependent with the campus sustainability office and is connected to other initiatives that contribute to the overall sustainability of UA's campus. More interestingly, apart from a variety of local food business vendors, the University of Alberta's farm markets offer students opportunities to be the food vendors in the market.

Elsewhere, the University of British Columbia (UBC) provides students with access to three different farm markets in a week through early June to mid-October. Notably, UBC has its own farm. The produce grown in this farm conforms to British Columbia Certified Organic Management Standards, and the farm is working towards the organic certification (University of British Columbia, 2016a). Therefore, the farm becomes a best location to host UBC's Farm Market events. Each market features different local products through the week. The Saturday Market at UBC farm is open from 9:00 am to 1:00 pm, featuring "farm-fresh veggies, fruits, herbs, flowers and free-range eggs from the UBC Farm, prepared foods and a variety of other local growers, bakers, craftspeople, and live musicians" (University of British Columbia, 2016b). The Tuesday Evening Market is also held in the UBC Farm from 4:00pm to 6:30pm, featuring "an assortment of fresh UBC Farm produce and flowers"(University of British Columbia, 2016b). The Wednesday Market (11:30 am - 1:30pm) is located at UBC's campus

bookstore, also selling produce and flowers grown in the UBC farm. Similar to the innovation of the University of Alberta's farm market initiative, UBC also strongly engages students by allowing them to become vendors in selling various food products including produce, cheese/dairy, meat/seafood, mushrooms, honey, prepared food, and whole grains/flour as well as craft products (e.g. knitwear), nursery products, and service vendors (e.g. knife sharpening) (University of British Columbia, 2016c). This is considered an innovation in farm market projects, and it enables students to be highly engaged as an active group in the development of local food infrastructure: they become familiar with local food supply chain by playing the roles of volunteers, vendors, and consumers; they are provided with bi-weekly access to local, organic, sustainable, and fresh food; and they acquire food knowledge and other learning experience.

Many institutions strive to adhere to the strategy of using more local foods in their dining services. The University of Guelph now sources up to about 45 per cent local produce in season (Pitman, 2012, February, 28). Prominently, its Hospitality Services has earned one of five Ontario's Local Foods Champions awards through its strong support in "local economy and educating consumers both on and off campus about the benefits of buying local food" (Pitman, 2012, February, 28). The University of Guelph claims to be a major buyer that purchases local foods at the Elmira Produce Auction Co-operative (EPAC), and the amount sourced from EPAC is reported to be doubled since 2009 (Pitman, 2012, February, 28). All the honey used campus as well as other foods such as come from University of Guelph research farms and other suppliers (e.g. Don's Produce) (Pitman, 2012, February, 28). The Executive Chef, Gordon Cooledge and Hospitality Services Purchasing Coordinator, Mark Kenny, are two of the key drivers behind local, sustainable food initiatives at the University of Guelph.

Kenny and Cooledge successfully obtained a grant from the Friends of the Greenbelt Foundation to build a produce processing facility in the basement of Creelman Hall (Pitman, 2012, February, 28). This initiative enables the University of Guelph's Hospitality Services to directly process the local produce they purchase in season and store and freeze the food to be served in winter. More importantly, it not only helps local farmers greatly increase their sales through the University of Guelph's strong buying power but also avoids importing higher-cost produce from other countries after the growing season (Pitman, 2012, February, 28). In addition, many institutions find that lacking storage hinders their ability to service large amount of local food (Lammers-helps, 2014, July 29). However, Kenny and Cooledge solved this problem by making use of basements in the old building on campus as well as contracting with local

farmers to provide cold storage for some vegetables and other frozen produce (Pitman, 2012, February, 28; Lammers-helps, 2014, July 29).

Like other universities, the University of Guelph also operates weekly organic farm markets on campus. However, it has taken another remarkable initiative to support local food infrastructure: Kenny and Cooledge established the 100 Mile Grille, a restaurant in Creelman Hall at the University of Guelph. Operating from September to April, the restaurant serves students on meal plans as well as faculty, staff and the general public with food that is only grown within a 100 mile radius of the City of Guelph, in collaboration with many local farmers and growers including the University's Elora Beef Research Station, Bright's Cheese, Hayter's Farms, Woolwich Dairy, Grainharvest Breadhouse, and Downey Farms, EPAC, and Don's Produce (a Cambridge Distributor) (Lammers-helps, 2014, July 29). Remarkably, the University of Guelph processes most of the food served in Hospitality Services, and it only contracts the rest work to local food processors to support local economic development (Lammers-helps, 2014, July 29).

Trent University also opened a non-profit, vegetarian, cooperative café "*The Seasoned Spoon*" in Champlain College. The café sources local, seasonal, and organic foods from small-scale producers to "revitalize our regional agricultural system" (Seasoned Spoon Café, n.d.). In addition to serving students, faculty members and staff with affordable and local food, the café delivers a number of educational initiatives to connect people to the campus food system. By offering volunteering opportunities, workshops, speakers and conferences, the Seasoned Spoon engages over 400 campus members, and around 40 to 50 individuals are directly involved in operating the café on a weekly basis (Seasoned Spoon Café, n.d.).

In a Canadian context, sixteen higher educational institutions stand out in terms of their support of Fair Trade. Fair Trade is another key food system sustainability initiatives implemented by higher educational institutions to support the benefits of local farmers and growers. Through directly selling foods to consumers in local markets, farmers are able to earn higher prices for their products. Fair Trade USA (2015a) defines Fair Trade as follows:

We seek to empower family farmers and workers around the world, while enriching the lives of those struggling in poverty. Rather than creating dependency on aid, we use a market-based approach that empowers farmers to get a fair price for their harvest, helps workers create safe working conditions, provides a decent living wage and guarantees the right to organize. Through

direct, equitable trade, farming and working families are able to eat better, keep their kids in school, improve health and housing, and invest in the future. Keeping families, local economies, the natural environment, and the larger community strong today and for generations to come; these are the results we seek through Fair Trade.

Fair Trade principles include multiple facets (Fair Trade USA, 2015b):

- ◆ **Fair prices and credit:** Democratically organized farming groups receive a guaranteed minimum floor price (or the market price if it's higher) and an additional premium for certified organic products. Farming organizations are also eligible for pre-harvest credit
- ◆ **Fair labor conditions:** Workers on Fair Trade farms enjoy freedom of association, safe working conditions and sustainable wages. Forced child and slave labor are strictly prohibited
- ◆ **Direct trade:** With Fair Trade, importers purchase from Fair Trade producer groups as directly as possible to eliminate unnecessary middlemen and empower farmers to develop the business capacity necessary to compete in the global marketplace
- ◆ **Democratic and transparent organizations:** Fair Trade farmers and workers decide democratically how to invest Fair Trade premiums, which are funds for community development
- ◆ **Community development:** Fair Trade farmers and farm workers invest Fair Trade premiums in social and business development projects like scholarships, schools, quality improvement and leadership training, and organic certification
- ◆ **Environmental sustainability:** Harmful agrochemicals and GMOs are strictly prohibited in favor of environmentally sustainable farming methods that protect farmers' health and preserve valuable ecosystems for future generations (Fair Trade USA, 2015b)

Through purchasing products that are fair trade certified, higher educational institutions show their determination to defend the rights of the farmers who produce these products, in the hope that they are financially and socially compensated fairly for their efforts. By looking at the multiple facets containing the Fair Trade principles, this initiative also helps enabling profitable livelihoods for local farmers. The Canadian Fair Trade Network has a list of campuses that are Designated Fair Trade including Selkirk College, University of British Columbia, University of Northern BC, McGill University, University of Guelph, Brock University, Simon Fraser University, Trent University,

University of Ottawa, University of Calgary, and etc. (The Canadian Fair Trade Network, 2015). For example, the University of Ottawa became the 7th in 2013. The majority of Canadian institutions including UW are moving towards Fair Trade Designation. For instance, at the north campus of the University of Alberta, its food service provider ARMARK is committed to purchase only Organic Fair Trade™ and Rainforest Alliance Certified™ coffee (University of Alberta, 2016c). Another example is the University of Guelph, which was recognized as the first fair trade campus in Ontario (University of Guelph, 2016a), and it has given a definition to the designation as a Fair Trade Campus by Fair Trade Canada:

[A]ll of the coffee served at non-franchise locations on campus is Fair Trade Certified coffee, and at least three Fair Trade Certified tea options and one Fair Trade Certified chocolate is available everywhere such products are available. It also means that Hospitality Services and the University administration will continue to work towards providing more and more Fair Trade options to students, and will work towards to raise awareness about Fair Trade through signage, auxiliary information and events (University of Guelph, 2016a).

The fair trade initiative at most educational institutions does not include any franchises yet. However, the University of British Columbia (UBC) plays a leading role among Canadian universities and colleges. At UBC, “100 per cent Fair Trade organic and shade grown coffee, and Fair Trade tea, are available at all non-franchise UBC Food Services, AMS outlets and Triple O’s, as well as through all on-campus catering providers ” (University of British Columbia, 2015). It also offers a greater variety of fairly traded foods. In addition to hot beverages, “Fair Trade chocolate bars and sweets are available at UBC Food Services locations and Fair Trade bananas and other fair trade fruits are offered when available at Place Vanier Residence Dining Hall” (University of British Columbia, 2015). Moreover, UBC provides an even wider variety of fair trade certified products: the UBC Bookstore now carries “tea, chocolate, accessories and gifts, including No Sweat clothing”. It is also partnering with the Sauder School of Business, AMS (Alma Mater Society), SEEDS (Social, Ecological, Economic Development Studies) Program and UBC Food Services to “increase the awareness of and range of fair trade products across campus” (University of British Columbia, 2015). Notably, Starbucks at UBC now carries a Fair Trade coffee option at all campus locations (University of British Columbia, 2015). Therefore, UBC’s example is a representative indicator to what UW is hoping to work towards: “UBC was designated the first Fair Trade Campus in Canada” in 2011 (University of British Columbia, 2015).

2.4.2 Food Sovereignty and Connecting People to the Food System

Launched in 2001, the UBC Food System Project (UBCFSP) is a collaborative, community-based action research project initiated jointly by the UBC Faculty of Land and Food Systems and the UBC SEEDS Program (University of British Columbia, 2016d). This initiative has engaged more than 1,700 students, campus food staff representatives and faculty members (University of British Columbia, 2016d). This large networking group collaboratively acts as a facilitator, a coordinator, and a leader in responding to challenges and opportunities emerging in the transition to a sustainable campus food system, working towards a sustainable campus food system, impacting the sustainability of the larger BC, Canadian, North American and global food systems, and offering students hands-on learning opportunities with potential for positive impact on ecological and human health (University of British Columbia, 2016d). In addition, the benefits of this initiative are not limited to a single aspect but incorporate many facets of connecting people to the food system. It operates through a course titled Land, Food and Community III (LFS 450) which is a mandatory capstone course for most fourth year Faculty of Land and Food System students (University of British Columbia, 2016d). The project has achieved many accomplishments since 2001 with strong involvement of students (see **Appendix A** for a full review). Some examples are as follows:

- In 2006, students ran educational booths and related activities in the first “UBC Sustainability Fair” to increase awareness of campus food system sustainability initiatives (*Food Marketing, Education & Promotion*) (University of British Columbia, 2012, p.7);
- In 2007, working with Agora Café, students developed and implemented the idea to pre-prepare foods after hours. This idea was an answer to logistical and volunteer challenges experienced by the café (*Food Preparation and Menu*) (University of British Columbia, 2012, p.4);
- In 2007, students proposed that the UBC Food Services put a ‘green-tax’ on to-go containers at the Totem and Vanier Residences to encourage students to eat in and not waste to-go containers. UBC Food Services accepted and implemented the proposal (*Waste Management*) (University of British Columbia, 2012, p.6);
- From 2007 to 2008, students participated in the initial consultations to create a sustainable food purchasing policy to guide procurement of meat, poultry, fruits and vegetables by the Alma Mater Society Food and Beverage Department (*Food Procurement*) (University of British Columbia, 2012, p.5).

UBC has given each accomplishment of the UBC Food System Project a category, and these highlighted themes in this document are incorporated into this research paper's methods to create a framework that assesses the health and sustainability of a campus food system. These categories include food procurement, food marketing, education and promotion, food policy, guidelines, and best practices, waste management, food production, and food preparation and menu (University of British Columbia, 2012).

The sustainability office at Indiana University Bloomington in the United States created an active Food Working Group to address sustainability issues in the campus food system and surrounding community in 2007 (Indiana University, 2016). Consisting of students, staff, faculty, and community members, this group aims to make more sustainable decisions in terms of food procurement, food waste management, food education and a food networking place that engages diverse stakeholders (Indiana University, 2016). It strives to establish "an environmentally and financially sustainable food system focusing on quality, taste, and nutrition, as well as the social, ecological, and public health costs of food production and consumption" (Indiana University, 2016). For example, the group held the first Indianan University Food Summits in 2013 to "discuss the development of a sustainable food procurement policy" (Indiana University, 2016). In 2014, the group held two consecutive Food Summits to discuss "sustainable food options and data tracking with our vendors" and collected information on "student perceptions and demand for sustainable food" (Indiana University, 2016).

In terms of the development of food monitoring (policy/regulation/guide), few institutions have written food policies, or even sustainable food policies, regardless of the flourishing of their innovative food initiatives. Nothing specific regarding food monitoring documents exists to my knowledge at UW, Wilfrid Laurier University, the University of Guelph, or the University of Victoria. Without any regulation particularly designed for food system sustainability, the University of Calgary has implemented an Alcohol Policy. Furthermore, the University of Toronto has other sets of food policies in addition to an Alcohol Policy: Food Services Operating Principles and Food Services Rules and Regulations, and Water Policy – On Tap. The Food Services Operating Principles and Food Services Rules and Regulations are most relevant to campus food sustainability, as they have addressed environmental responsibility by monitoring activities such as water conservation, food waste diversion and packaging, food education, food procurement, and vegetarian and vegan options. They also monitor student engagement ("student run operations") and food safety (University of Toronto, 2016). Some prominent statements in the Food Services Rules and Regulations include "All residence dining operations are

encouraged to become trayless”(University of Toronto, 2016, p.4), “Menus will take seasonal food into account. When available, operators must aim to use local, local sustainable certified (LFP), and in-season ingredients” (University of Toronto, 2016, p.5), and “When feasible, staff of food service operations will take the initiative to educate customers about sustainable options²”(University of Toronto, 2016, p.5).

Although UBC does not have a set of sustainable food policies for campus food system, students there participated in the initial consultations to create a sustainable food purchasing policy to guide procurement of meat, poultry, fruits and vegetables by the Alma Matter Society Food and Beverage Department (AMSFBD) back in 2007 and 2008 (University of British Columbia, 2011, p.5). In addition, even though there is no food policy currently in place to monitor all campuses at the University of Alberta, its Augustana Campus has its own sustainable food policy that oversees and supervises the dining services in all the cafeterias (see **Appendix B**). For instance, one of the commitments is to “contribute to the economic, social and environmental sustainability of our home region and the planet, through campus balanced and responsible procurement decisions” (University of Alberta, 2016d). The Augustana Campus is also committed to purchase certain food from local suppliers, and these items include eggs, potatoes, carrots, onions, meats (chicken, beef, pork), mushrooms, cucumbers, flour, rolled oat cereal, saskatoons, bean sprouts, barley and cabbage (University of Alberta, 2016d). The policy claims that Augustana Campus has two preferences (University of Alberta, 2016d):

1) to purchase food that is produced within our home region (approximately a 200-km radius), before looking to provincial, national and global sources; and 2) to purchase from farmers and processors who are taking steps towards sustainability in the methods they employ.

UBC has also formulated a comprehensive *Sustainable Campus Food Guide*³ that profiles all campus food system sustainability initiatives. This guide is a useful, educational tool that introduces the key concepts of food system sustainability and the UBC’s campus food system from food production to waste management. It familiarizes the readers with all aspects of UBC’s food system, current sustainable food initiatives,

² “For example, front-of-house staff can ask if the customers: would like to eat in a reusable container, want to try the local menu or would like a smaller portion size so as to reduce waste” (University of Toronto, 2016, p.5).

³ <https://sustain.ubc.ca/sites/sustain.ubc.ca/files/images/UBCSustainableCampusFoodGuide.pdf>

information of campus food outlets (e.g. which eateries possess Fair Trade certificates), access to local foods (e.g. local farms and CSA programs), composting projects, and multiple ways (e.g. seminars and volunteers) to be engaged in those projects and activities (University of British Columbia, n.d.). For example, the guide provides readers with sustainable food choices by clearly indicating which certificates (e.g. Fairtrade) the eateries possess. This food system initiative is still leading among Canadian universities and colleges. The Food Service Annual Report (2009-2010) done by University of Toronto is similar to UBC's *Sustainable Campus Food Guide* but with a different title. The report features information regarding introduction of new food locations, halal standards, food system sustainability initiatives, cooking recipes, and opportunities to be involved in the food system.

Another best practice among universities and colleges in North America is a food system sustainability report card. The University of Toronto has one available for both 2010 and 2011. Serviced by the website GreenReportCard.org, this report card is an interactive tool that provides transparent assessment and in-depth profiles of campus sustainability for hundreds of universities or colleges in all 50 U.S. states and in Canada and enables user institutions to establish more effective sustainability policies on a basis of shared data (Sustainable Endowments Institutes, 2011). For example, the University of Toronto's food system sustainability report card tracks almost every aspect of the campus food system such as food recycling and composting, community gardens or farms, fair trade options, local and or organic food procurement, and reusable dishware. More specifically, one of the criteria is to assess the number of local forms or growers an institution purchases (excluding on-campus farms/gardens). Many North American universities and colleges have become participants of this initiative such as the University of Alberta, the University of British Columbia, the University of Guelph, the University of Calgary, the University of Western Ontario, Boston University, and the University of California.

In addition to food monitoring initiatives, many universities and colleges provide curriculum activities to enhance students' food literacy. University of Manitoba offers a various selection of food-system related undergraduate and graduate courses that incorporate diverse food issues of broad and current interest (e.g., Feeding the World and Sustaining Livelihoods, Urban Agriculture, Nutrition in Public Policy, and Food Safety Today and Tomorrow). Importantly, these 17 courses adhere to the University's goal of "promoting safe, healthy, just and sustainable food-systems" and conform to the rules of the "promotion of cross-departmental learning" (University of Manitoba, n.d.).

The University of Guelph acts as a great supporter in terms of the education of urban agriculture. It offers an ad-hoc spring/summer course for students to advance their knowledge and skills concerning urban agriculture. Through this initiative, students are able to pursue the certificate of the Horticulturist Diploma that will “enhance your knowledge and skills relating to residential gardens, urban spaces and small public recreational areas” as well as “offer a high standard of horticultural understanding and insight encouraging students to locate, analyze and put into practice sound horticultural knowledge” (University of Guelph, 2016b). The University of Guelph also offers the first-ever undergraduate major program in organic agriculture in Canada: Students will acquire practical learning experience in addition to traditional academic courses at the Guelph Urban Organic Farm (GCUOF) (University of Guelph, 2016b). The Ryerson University’s G. Raymond Chang School of Continuing Education also offers a Certificate in Food Security designed to help food study professionals gain career-related knowledge and skills through four summer courses.

Starting in 2009, the Marylhurst University in the United States even offers a two-year graduate program in Food Systems and Society where students are guided to delve into societal factors in and perspectives on food system equity, expand their critical thinking, collaboration, and synthesis skills for engaging social change as well as develop and communicate knowledge about food system equity and social change (University of Alberta, 2014; Marylhurst University, n.d.).

In terms of internships regarding sustainable food practices, only a small handful of institutions offer students those opportunities to my knowledge. For example, the University of British Columbia supports the creation of more than 100 courses, studies and research projects as well as internship opportunities. Furthermore, Yale University in the United States claims that graduate and undergraduate students from all backgrounds have access to food-system based paid internships opportunities year round. However, no further detail regarding these internships opportunities is available.

In the light of supporting food production or urban agriculture, the University of Alberta operates six community gardens. Almost each community garden has its own website which documents the stories from the garden and announces upcoming events. For example, on the website of the Edmonton Organic Grower’s Guild Garden, posts from August 2010 to September 2015 are available for reading. To some extent, presenting successful food practices and participants testimonial stories in the gardens is an effective and interesting way to educate students about food knowledge and food skills. Additionally, the University of Alberta’s Prairie Urban Farm organizes a variety of

educational workshops with themes “ranging from composting and beekeeping to planting and canning” as well as mentorship learning opportunities for students to further improve their food growing knowledge and skills (University of Alberta, 2015a). Moreover, the Edmonton Organic Grower’s Guild Garden has been working with University of Alberta’s faculties and research groups (i.e., Faculty of Agricultural, Life and Environmental Sciences, School of Public Health, Alberta Public Interest Research Group, and Community Service-Learning-Faculty of Arts) to combine the laboratory of the garden and future educational programs to help develop students’ understanding of food insecurity and hands-on skills.

The University of British Columbia has also successfully incorporated food gardening into academic research learning process. The Orchard Garden and the Geo Garden at UBC provide opportunities such as seasonal workshops, class case studies, and educational activities to students’ classes and research projects to help them gain outdoor food growing experiences while they absorb academic knowledge (University of British Columbia, n.d.). This type of initiative offers an effective platform for students, professors and faculty members to network with each other.

In addition, the Edmonton Organic Grower’s Guild Garden at the University of Alberta aims to satisfy the food demand from garden volunteers at harvest time and donates thousands of pounds of food to the Campus Food Bank and organizations across the city (University of Alberta, 2015a). Some of the campus community gardens (especially the Prairie Urban Farm and the Edmonton Organic Grower’s Guild Garden) have even established close relationships with food banks within the community through food donations. It may further explain why the essential goal of the Prairie Urban Farm is to “increase food security: access to nutritious, sufficient, and safe food for all” (University of Alberta, 2015a). Notably, the benefits of the University of Alberta’s gardens are not limited to students on campus but are made accessible to all community members who are having struggles with eating a healthy diet. Overall, food security is also emphasized in the majority of UA’s community garden initiatives in coordination with enhancing participants’ food literacy and fostering their community engagement.

2.4.3 Access to Affordable and Healthy Food (and Social Justice)

Even though the use of food banks has been increasing lately among Canadian campuses, this initiative is still considered a ‘band-aid’ solution to food insecurity among students. The majority of the food banks merely provide non-perishable can foods; therefore, it calls for an innovation in this ‘band aid’ solution. In addition, considering

the difficulty in retrieving the data for each Canadian campus food bank, this research paper is focused on finding other best practices that tackle the issue of needing affordable and healthy food options on campuses. As discussed in the previous section, a noteworthy initiative is that the Edmonton Organic Grower's Guild Garden at the University of Alberta collaborates with its campus food bank by donating fresh produce to the latter. The UBC food bank also seems to be supportive to students in need, as the staff there will provide referrals to other Lower Mainland food banks and sources of financial assistance to people who have used up six visits per semester (AMS, n.d.). Notably, Meal Exchange, a national registered charity that empowers youth to work with communities to increase food security and access to healthy, sustainable food, is now working toward a project called "Beyond Campus Food Banks" which is launched in 2014. Through this initiative, Meal Exchange hopes to empower students to receive "dignified good food access", and it will use donations to support three main activities:

- **Raises awareness about the hidden problem of student hunger** by linking campus food banks together in a network, and coordinating National Days of Action on Student Poverty
- **Shows the real extent of the problem** through Campus Hunger Reports that address the gap in knowledge about student food insecurity and enable advocacy efforts at the campus, provincial and national levels
- **Builds student leadership for change at the campus food bank** by providing training and sharing knowledge to transform campus food banks into welcoming spaces that promote dignity, health and community (Meal Exchange, n.d.).

Apart from using food banks, UBC has taken several innovative initiatives to improve individual's access to healthy, local, fair-trade, and affordable foods on campus. There are three options for Community-Supported Agriculture (CSA) & Food Boxes available at UBC. Both the UBC Farm and the Orchard Garden offer weekly food boxes through June to October each year (University of British Columbia, n.d.). Additionally, in 2008, UBC's *Sprouts* was renovated and reopened as a completely volunteer and student-run café, grocery store, and community space that serves hot lunches, coffee, and baked goods and sells organic, locally-grown produce and minimally-packaged staple and snack items (*Sprouts*, n.d.a). In collaboration with the *AMS Bike Co-op* at UBC, *Sprouts* also provides a weekly *Sprouts Box* delivery program that delivers by bike affordable, local produce to five campus residence buildings and the University Neighborhood Association Communities (about ten times per term) (University of British Columbia, n.d.). Furthermore, *Sprouts* operates a Bulk Buying Club for all UBC

community members to purchase foods offered by the three distributors that the organization orders from - *Horizon*, *Discovery*, and *Pro-Organics* at a wholesale price (Sprouts, n.d.b).

Sprouts also hosts the event Community Eats on Fridays in the UBC community from 11:30-1:30 pm. Aiming to reduce potential food waste that is still edible as well as to build community outreach and awareness, this event collects food donations (i.e. Van-Whole Produce, Terra Breads, and other local grocery stores) from the community and then serves hot, nutritious, and vegetarian lunches made from the donations to hundreds of people (Sprouts, n.d.c). People only need to bring their own containers and cutlery to enjoy the free food and support a sustainable food system at the same time. To further connect people to the food system, *Sprouts* offers various educational workshops with themes such as cooking cauliflowers, craft fair, and gluten-free and vegan baking that may enhance food related knowledge and skills (Sprouts, n.d.d).

Trent University also has a student-run café *The Seasoned Spoon*, that receives abundant produce from an on-campus roof-top garden and serves vegetarian-only meals based on local and seasonal foods (The Seasoned Spoon, n.d.). Similarly, the vegetarian restaurant Village Greens (VGs) at the University of Victoria offers a variety of foods such as stir fries, veggie entrees, and sushi, and it has been winning awards from People for the Ethical Treatment for Animals for being one of the most vegetarian and vegan-friendly universities in Canada (University of Victoria, n.d.). More importantly, the University of Victoria claims to have kept the prices of VGs affordable and that it is 100 per cent non-trans-fat campus wide since 1994 (University of Victoria, n.d.).

Limiting people's access to non-nutritious food is another key component to improve healthy eating habits: as one of the first higher educational institutions in the province to advocate the idea of 'eating healthy' on campus, the Vanier College in St. Laurence, Quebec, has banned the sale of fried foods and soft drinks on campus (Vanier College, 2014; University of Alberta, 2014). In addition, the University of Florida has developed an educational guide that transparently shows the nutrition facts and health recommendations of each campus food outlet (including the franchise stores) to help students make healthy choices (University of Florida, n.d.). This guide also shows that the university values students' health over the sales of its dining services, as some notable recommendations in the guide include:

Side orders can up your fat and calories quickly, so limit your portions of these foods (for Burger King); [i]f you are watching your fat and calories, avoid adding

extra meat or bacon to your sandwich (for Boar's Head Deli); and [w]hen choosing frozen yogurt, choose a small size and pick fruit for toppings instead of candy. With any frozen dessert, portion control is very important (for Freshens) (University of Florida, n.d., p.5-7).

As another innovative initiative, the University of Calgary creates active food spaces on campus by contracting two food truck locations with local vendors to sell prepared foods to all campus members, which is especially accessible to those living on campus (University of Alberta, 2014; University of Calgary, n.d.). Elsewhere, the University of Winnipeg created an alternative food services delivery model called "*Diversity Food Services Inc.*" to provide nutritious, fairly-priced and ethnically diverse food options, with a focus on locally sourced foods, organic ingredients, and a commitment to fair-trade practices (University of Winnipeg, n.d.). Lastly, the University of Alberta has an active student group "*Healthnuts*" that is committed to demonstrate cooking techniques and offer free group kitchen space for students to enhance their skills to prepare healthy and affordable meals (University of Alberta, 2014).

In summary, this section has discussed many campus sustainable food initiatives that would improve the access to affordable and healthy food. Some of them, for example, UBC's providing free meals to community members once a week, help tackle the social equity issue. However, this study has not found any specific initiatives with a clear proclamation to address the principle of social justice.

2.4.4 Food Waste Management

Recycling and composting appear to be the biggest opportunities that lie in food waste management on campus. Therefore, having a clear goal of what to achieve in the food sector helps connecting food initiatives with other sustainability areas and eventually makes the entire campus under the 'umbrella' of the campus sustainability office. For example, the University of Guelph is currently at a 45 per cent diversion rate but has made a goal to divert 60 per cent of its waste and to prevent which from going to landfills through reusing, recycling and composting initiatives (University of Guelph, 2016c). The University of Alberta's website also shows that a previous goal was to divert 50 per cent of waste from the landfills by 2015, and the rate of 2014 was 42 per cent (University of Alberta, 2016e). In its *Sustainable Food System Opportunity Assessment*, the University of Alberta claims to divert 15 per cent of food scraps and yard waste in 2014 but is seeking to reach 75 per cent diversion of organics in particular by 2017 (University of Alberta, 2014).

In terms of the recycling initiatives, the University of Victoria collaborates with a third party to transfer all the food waste collected from the campus to an industrial composting system. The recycling-site map⁴ available online shows that the organic collection bins are placed throughout the campus. The University of Victoria also keeps track of the amount of composted waste as well as a capture rate. Another example is the use of on-site food composting facilities at the University of North Carolina at Charlotte. Having been doing for over ten years, the University of North Carolina at Charlotte currently owns three composting programs and collects about 2000lbs food waste per week (University of North Carolina at Charlotte, 2016). This composting initiative also seems to maintain most of the food waste in the campus system and surrounding community loop, as the finished product is used for on-campus gardening and landscaping as well as by local businesses (University of Alberta, 2014; University of North Carolina at Charlotte, 2016). Moreover, in collaboration with the Office of Waste Reduction & Recycling, the university has designed an informational PowerPoint⁵ to educate people on the general knowledge of composting, the history, process, and statistics of and the campus composting initiative in detail. Although many universities and colleges have taken various initiatives to encourage the participation of campus members in recycling and composting services, they tend to overlook two critical factors in relation to the effectiveness of a diversion program. The University of Victoria has identified that education and promotion are necessary to the success a recycling-composting program: the university should educate their campus members on the use and the meaning of waste diversion; it should also ensure all recycling bins are present consistently and conveniently available, in addition, the university should motivate people to participate in recycling by attaching educational materials to the packages prepared for first-year students or organizing activities with a theme of recycling (University of Victoria, 2011).

As people have come to be aware that the increased consumption of meat, dairy and highly processed food exerts adverse impacts on the environment and human health (Veeramani, 2015), many higher educational institutions are controlling the production of food waste from the source in addition to increasing the diversion rate of food waste. Being launched in 2003 in the United States as a global movement, Meatless Monday is a non-profit initiative of *The Monday Campaigns* that works toward reducing meat consumption by 15 per cent for people's personal health and the health of the planet (The Monday Campaigns, 2016a). Thus, dozens of colleges and universities

⁴ <https://www.uvic.ca/sustainability/assets/docs/waste/compost-map-web.pdf>

⁵ <http://facilities.uncc.edu/sites/facilities.uncc.edu/files/media/Housekeeping/UNC%20composting%202010.pdf>

have adopted this initiative in their dining services and have become the promoters of the Meatless Monday movement in the United States (The Monday Campaigns, 2016b). Educational institutions like Arizona State University, Brown University, California State U, Fresno, and University of California, Davis are all on the participant list (see **Appendix C** for a detailed list). In Canada, many pioneer institutions have also joined the Meatless Monday movement by including the idea on the agenda of their food system or campus sustainability development. St. Paul's University College at UW already began the journey in October 2015. The University of British Columbia is among the pioneers in promoting this initiative. At the University of Toronto, a similar initiative "Veggie Mondays" is being taken, and it offers students a discount card to receive 10 per cent off featured veggie and vegan meals on Mondays (University of Toronto, 2015). As one of the leading-edge food initiatives, 'Meatless Monday' is an effective way to reduce carbon footprint, and in the mean time it promotes a healthy lifestyle.

Many universities and colleges also encourage and incentivize campus members to use reusable food containers, dishes, and mugs at campus dining facilities helps effectively reducing unnecessary food packaging. The University of Alberta has taken an "Eco-Discounts" initiative to reduce waste generated by food packaging and other dining facilities (University of Alberta, 2016f). Many food locations at the University of Alberta offer eco-discounts when students bring a personal food container or mug (University of Alberta, 2016f). Even though many campuses have already taken this initiative, this program has included several franchise partners. For example, students will receive a 25 cent discount when they purchase food or drink from Subway, Tim Horton's or Starbucks at the University of Alberta. The University of Alberta offers another program to further reduce unnecessary waste produced on campus: the Reusable Dish Program provides reusable dish rentals to individuals during regular business hours, and the plates are "available for use at any vendor in the SUB food court, and can be returned to the designated drop-off location at the main Zero Waste Station near the sink" (University of Alberta Students' Union, 2016b). The University of Western Ontario has a Travel Mug Program: individuals received 10 cents off the price in call campus location and they can fill out a ballot for a chance to win prize when they purchase a coffee in a travel mug (Western University, 2016).

Lastly, in terms of the use of bottled water, many campuses have been working to promote the use of public water and limit the consumption of bottled water. The University of Ottawa became a bottled water free campus in 2010, meaning that no bottled water is served on its campus in any occasion (University of Ottawa, 2015).

Chapter 3 Regional Context: Food Initiatives in Waterloo Region

As the focus of this research paper is to conduct an analysis of the University of Waterloo's food system as well as to create a framework ("report card") to assess campus food system in a North American context, this Chapter reviews information concerning the Waterloo Region's geography and agricultural sector, the Region's food system, and the Role of Public Health and Emergency Food Services to supplement the understanding of the relations between a campus food system and the community where it is situated in.

3.1 Overview of Waterloo Region's Geography & Agricultural Sector

The Regional Municipality of Waterloo (Waterloo Region) is a two-tiered municipality encompassing both urban and rural municipalities in southern Ontario. The region is composed of three cities and four rural townships which are Kitchener, Waterloo, Cambridge, North Dumfries, Wellesley, Wilmot, and Woolwich. Waterloo Region is home to three post-secondary institutions: the University of Waterloo (UW), Wilfrid Laurier University (WLU), and Conestoga College. In particular, UW and Conestoga College provide a pool of highly skilled labour pool for the region, and are especially important to the local information, communications and technology sector (Vinodrai, Nathu, Ross, Robson, Scott & Parker, 2012).

The region is home to 507,096 residents, with increase of 28,975 from 2006 (Statistic Canada, 2011). The total land area of the region is roughly 1369 km² (Region of Waterloo, 2011). The agricultural land accounts for the majority (65 per cent) of the land use across the Waterloo Region (Region of Waterloo, 2011). However, the number of farms has decreased from 1,444 in 2006 (and 2001) to 1,398 in 2011, with a net decline of 4 per cent (Region of Waterloo, 2011). The largest percentage decrease in the number of farms occurred in the three cities of Waterloo Region, with a total loss of 29 farms (Region of Waterloo, 2011). The amount of land area of farms headquartered in Waterloo Region has also shrunk by around 5,000 net acres (equivalent to 2.3 per cent), to a total of 221,087 acres for 2011 since 2006 (Region of Waterloo, 2011). Again, the biggest numbers of losses were collected from the urban municipalities (the three cities), which were reduced by 62 per cent from 2006 (Region of Waterloo, 2011).

In contrast to the wane in the quantity of farms, there was an increase of 25,925 in the urban population in Waterloo Region (Kitchener-Waterloo-Cambridge) from 2006 (451,235) to 2011 (477,160). Compared to the population change of the entire Region, it

is found that the increasing number of urban dwellers accounts for the largest percentage. Thus, considering the decreasing trend in the number of farms, it should bring attention to the municipal governments' food system planning and policy making process on examining the living conditions of local farmers and the ways of accommodating for the emerged demands for food from urban areas.

In terms of the specific types of farms in Waterloo Region, it is reported in 2011 that 70 per cent of all farms were for the purpose of livestock, among which dairy and beef cattle ranching and farming accounts for 37 per cent (Region of Waterloo, 2011). It can be inferred that 30 per cent of all farms were considered crop farms, and this kind of farms increased by 4 per cent from 2006 to 2011 (mainly oilseed and grain & vegetable and fruit farming) (Region of Waterloo, 2011). Moreover, the number of farms that sell certified organic products increased from 35 in 2006 to 40 in 2011, with an additional 44 farms claiming that they sold uncertified products (Region of Waterloo, 2011). In addition, seven more farms "were actively adopting practices that comply with organic standards (transitional organic)" (Region of Waterloo, 2011).

In terms of farm workers' income, Table 1.1 shows that 482 farms' annual gross receipts are under \$50,000 in 2001. This circumstance was not improved by 2006, as the number increased to 491 this year (Statistics Canada, 2006).

Table 3.1 Gross Farm Receipts of Farms in Waterloo Region of Year 2001 and 2006

Year	2001		
Waterloo Region	<i>Under \$10,000</i>	<i>\$10,000 to \$24,999</i>	<i>\$25,000 to \$49,999</i>
Numbers of Farms	205	163	114
Total number of 2001	482		
Year	2006		
Waterloo Region	<i>Under \$10,000</i>	<i>\$10,000 to \$24,999</i>	<i>\$25,000 to \$49,999</i>
Numbers of Farms	199	162	130
Total number of 2006	491		

Adapted from Statistics Canada, 2006 Census of Agriculture, *Farm Data and Farm Operator Data*, catalogue no. 95-629-XWE. Retrieved from <http://www.statcan.gc.ca/pub/95-629-x/2007000/4182411-eng.htm>

The number reveals some severe concerns on the living conditions of farm workers, as around 34 per cent (491 out of 1444) of Waterloo Region's farms' income is under the average income of economic families in 2006. In reality, the after-tax income of "economic families, two persons or more" is reported to be \$64,100 in 2008 and \$63,800 in 2009 (Statistics Canada, 2013). However, this situation was slightly improved by 2010, as the data from the year shows that 31.5 per cent of the farms' annual gross receipts are under \$50,000 (Region of Waterloo, 2011).

Overall, there is a strong local food movement in Waterloo Region's agricultural sector. The three cities in the region each operate a farmers' market. The one in Cambridge is one of the oldest markets in the country since it has been running since 1830, and St. Jacobs Farmers' market is one of Canada's largest year-round farmers' market (Explore Waterloo Region, 2016). Established in 2004, Elmira Produce Auction Cooperative Inc. (EPAC) is a locally owned corporation that supports local growers by creating a new market for regional produce and offers a platform for a public auction to connect all buyers from the Waterloo community (Foodlink Waterloo Region, 2015). The growth of community gardens is also encouraging in the region: Public Health claims in its report that community garden plots have increased by 77%, from 679 plots in 2005 to 1,200 in 2012 and they are found in both schools and workplaces (Region of Waterloo Public Health, 2013). Furthermore, the statistics discussed earlier show an increasing trend of organic producers. The national charitable organization Perth-Waterloo-Wellington chapter of Canadian Organic Growers has done a number of studies analyzing the organic farming sector, workshops, and resources to support growers that desire to employ more sustainable farming methods (Region of Waterloo Public Health, 2013). Bailey's Local Foods is another significant food initiative in the region: It started as a small-scale buying club but has expanded to an online farmers' market by working with over 80 farmers and producers to bring locally grown or produced foods to its members year round; notably, Bailey acts as a great supporter to sustainable farming methods, and most of Bailey's farmers are certified organic or follow natural practices (Bailey's Local Foods, 2014).

3.2 The Region's Food System: The Role of Public Health and Emergency Food Services

Since 2000, the Waterloo Region has become acknowledged nationally and internationally for its “innovative and comprehensive approach to creating a healthy community food system” (Food Secure Canada, 2016). As one of the six departments managed by the Waterloo Region, the Region of Waterloo Public Health and Emergency Services (Public Health) has done much work for the region's food systems. Reflections are seen from the organization's mission that is to “build healthy and supportive communities in partnership” (Region of Waterloo, 2010). The organization's website shows that between 2003 and 2014, approximately twenty reports were published by Public Health in relation to Waterloo's community food system. As introduced earlier, one of the reports serves as the framework of this research paper. The changing topics of the reports reflect a few trends that have happened in the region through the past decade (see **Appendix D**). First, eating healthy has become a focus in addition to environmentally-friendliness. There also has been strong connections between the food sector and local economic development. Furthermore, municipal governments have become more involved in the food system development. In addition, community engagement has been enhanced in the food system. The trends tell that building a healthy and sustainable food system cannot be achieved by one single stakeholder but relies on the collaboration and cooperation within the community. In fact, the work of Public Health is greatly supported by the following two not-for-profit organizations based in the community through effective food education and other activities. These civic partnerships exert broad influences over the entire community and its food system as well as other regions that have similar concerns and are passionate to change.

A. The Foodlink Waterloo Region

The first not-for-profit organization Foodlink Waterloo Region is considered a leader among agricultural regions across Ontario and Canada and is recognized as “a pioneer of the local food movement” (Desjardins, 2014, p.7). Many places have replicated the successful model that promotes local food (Foodlink Waterloo Region, 2016; Desjardins, 2014). The organization has been working towards three key mandates since 2002:

- 1) promote healthy, local food;
- 2) add value to local agricultural production; and
- 3) improve consumer access to local food (Desjardins, 2014, p.7).

The various and inclusive composition of the organization's board members proves the implementation of the food system perspective, as Foodlink Waterloo Region collects the voices of "farmers, food processors, distributors, retailers, restaurants and other rural and urban stakeholders who have an interest in promoting the local food sector" (Desjardins, 2014, p.7). By 2005, Public Health has already set an objective to "forge a dynamic partnership to implement the community food system plan", and it includes Foodlink Waterloo Region as one of the key stakeholders in the region (Region of Waterloo Public Health, 2005). Foodlink Waterloo Region closely works with the community and the stakeholders along the food chain. One of Public Health's priorities is to enhance community members' understanding of healthy food and the change of food systems. Foodlink Waterloo Region's project, which is to create a "Buy Local! Buy Fresh! Map", helps educate community members where to search for produce that is locally grown. Since 2002, the map has been released and updated every year. The organization's another project "Local Harvest" newsletter has been offering information on "what local products are in season, where to find them, and what dishes you can make with them" since 2004 (Region of Waterloo Public Health, 2013, p.20). Through organizations like Foodlink Waterloo Region, Public Health is in a position to expand its networks and engage food consumers more effectively and more efficiently via a variety of events and activities. The ultimate goal or benefit of these projects is to connect the two ends -production and consumption of the community's food chain through "building sustainable relationships and making locally-grown food more viable to produce and easier to buy" (Desjardins, 2014, p.7). Foodlink Waterloo Region is concerned about people's health and is devoted to build a broader awareness of why people should eat local food. By striving for that, it helps build necessary partnerships in the community. For example, the key initiative of its project "Taste Local! Taste Fresh!" connects farms and food processors to local restaurants. It also takes an active role in public events and social media to promote local food and farms and their role in a healthy community (Foodlink Waterloo Region, 2016). Lastly, Foodlink Waterloo Region has made many efforts in lobbying activities at all three governmental levels in order to stimulate the food policy and regulation change for the benefits of local farmers and growers.

B. The Waterloo Region Food System Roundtable

The Waterloo Region Food System Roundtable ("WRFSR" or "Roundtable") is another important civil organization that facilitates the implementation of many food initiatives in Waterloo Region. The creation of the Roundtable is a great example of the food system perspective in practice. Additionally, the report "*A Healthy Community Food System Plan*", a food system plan published by Public Health in April 2007,

indicates that establishing the Roundtable is a result of Public Health's food system planning (Region of Waterloo Public Health, 2007). It was acknowledged in 2005 in their report *"Towards a Healthy Community Food System in Waterloo Region"*, that "achieving a healthy food system would require the cooperation of many different organization and individuals" (Waterloo Region Food System Roundtable, 2016). Created in 2006, the Roundtable works as "a networking and policy-making group working on building a strong voice for a healthy food system in Waterloo Region" (Waterloo Region Food System Roundtable, 2016). The group engages "representatives from key sectors and interests of the local food system who share the goal of a healthier food system in Waterloo Region", and the individuals include "local farmers; emergency food providers; food processing, distributing, and retail businesspeople; health professionals; and more" (Waterloo Region Food System Round Table, 2016). Being such an important network in the community, the organization has so far been a success in the sense of fostering the establishment of a healthy and sustainable food system. The Roundtable collaborates with Public Health in many ways. The report *"A Healthy Community Food System Plan"* indicates that Public Health facilitates the development of the Roundtable and strengthens networking to implement the actions (Region of Waterloo Public Health, 2007). A recommendation was raised in the same report that "Public Health continue[s] to provide administrative and research support to the Roundtable" (Region of Waterloo Public Health, 2007). Importantly, Public Health used the six priorities (presented by the Roundtable in 2010) in their report *"The Health of Waterloo Region's Food System: An Update"*: 1) local food structure 2) food sovereignty 3) food policy 4) urban agriculture 5) farm viability and 6) access to healthy food (Region of Waterloo Public Health, 2013). These priorities are used to measure the healthiness of Waterloo's food system and serve as a solid base to guide the community's goals and objectives. In addition, the website of the Roundtable compiles food system reports published by Public Health as well as local student research on food system issues. The Roundtable's key campaign "Food Spaces, Vibrant Places" makes it more convenient for community members to access community gardens and farmers' markets. The organization's numerous events have also helped food system stakeholders (e.g., food businesses, growers or gardeners, researchers) network and collaborate with each other. Another valuable accomplishment done by the Roundtable is the Waterloo Region's Food Charter which has been endorsed by the Region of Waterloo.

Waterloo Region's local food networks are multi-faceted. Pigott, Oaderi-Attayi & Scott (2013) claim in their presentation that Public Health is a facilitator of building a healthy food system in respect to the work of "research, economic development, community-based partnerships, policy development, organizational change, capacity

building for policy development, food system plan, and systems-wide network”. The presentation reveals the importance of having a community-university partnership in the Waterloo Region food system.

Chapter 4. Methodology

This chapter provides an overview of the methods and frameworks undertaken throughout this research paper. It begins with an introduction to the research design. It is followed by the interpretation of the frameworks implemented in this research to assess the health and sustainability of UW's food system. The section then provides an outline of the specific sources that are explored and reviewed to collect data for each key section in this research.

4.1 Research Design and Framework(s)

For this study, qualitative data were collected including an extensive review of academic literature, a case study, personal communication with individuals who have access to the basic information of UW's food system activities, and initiatives and secondary data from the internet. The following dimensions of the campus food system assessment frameworks guided the research design for this paper:

1. Sustainable Food Procurement
2. Food Sovereignty and Connecting People to the Food System
3. Access to Affordable and Healthy Food (and Social Justice)
4. Food Waste Management

This research uses the dimensions above to perform the health and sustainability assessment of the University of Waterloo's food system. The design of this framework was inspired by the principles and priorities drawn from two sources that are closely interconnected. The first one is the report *'The Health of Waterloo Region's Food System: An Update'* prepared by the Region of Waterloo Public Health in 2013. Specifically, this research paper adopts the six priorities for improving the health of the Waterloo Region's food system proposed by the Waterloo Region Food System Roundtable (The Roundtable) to be the cardinal components of the final framework. The other important source is the Waterloo Region Food Charter (see **Appendix E**) drafted by the Roundtable in the same year. A thorough review shows that the themes of supporting local food infrastructure or community economic development, food sovereignty or empowerment, food education, access to healthy food, urban agriculture, and food policy are salient in both sources. However, as these principles or categories are structured at a broader level to study a regional food system, there is vagueness remaining in applying them to the analysis of a campus food system. Therefore, these principles serve as background research in this study for formulating the final

framework. Four general ideas originated from the key two sources are incorporated into the final framework that may represent a healthy, sustainable food system for UW and other similar universities and colleges in Canada: 'Local Food Infrastructure & Community Economic Development', 'Food Sovereignty-Connecting People to the Food System', 'Access to Healthy Food', and 'Ecological Health'. The following paragraphs will explain how these guiding principles have been chosen to support the final framework. In the report *'The Health of Waterloo Region's Food System: An Update'*, local food infrastructure is characterized as "[r]ebuilding the processing and distribution interface required to make more local foods available to local residents. Also includes convincing public institutions to buy more local foods" (The Region of Waterloo Public Health, 2013). This concept is stated slightly different as supporting "community economic development" in the Waterloo Region's Food Charter. Notably, there is a significantly overlapping part between the definition of *'Local Food Infrastructure'* and another priority *'Farm Viability'*: Farm viability is interpreted as "Pursuing policies and other initiatives that return a larger portion of the food dollar to farmers, especially for producing healthy foods for local sale. Also includes paying farmers more and encouraging more sustainable farming" in the report *The Health of Waterloo Region's Food System: An Update* (The Region of Waterloo Public Health, 2013). Therefore, this concept has been incorporated into the principle of *'Local Food Infrastructure & Community Economic Development'*.

The second principle is "Food Sovereignty-Connecting People to the Local Food System". 'Food Sovereignty' is defined as "working towards giving people greater knowledge about, engagement in, and control over the food in our communities. Also includes food democracy, food skills and a food education" in the report *The Health of Waterloo Region's Food System: An Update* (The Region of Waterloo Public Health, 2013). In order to simplify the understanding of food sovereignty, the idea of "connecting people to the local food system" is borrowed from the Waterloo Region's Food Charter, as these two statements share many common themes, and the definition provided by the Roundtable once again underscores the importance of splicing the consumer end and the food system end:

We support connecting people to our local food system by enhancing knowledge about, and engagement in, the food in our communities. This includes empowering people to participate in the local food system, improving our skills for growing, preserving, and preparing food, educating ourselves and others about the food system, encouraging respect for food and ecosystems to which it

is bound, and supporting the expansion of food grown or raised in urban and rural areas (Waterloo Region Food System Roundtable, 2013).

'Urban Agriculture' is the fourth priority proposed in the report *The Health of Waterloo Region's Food System: An Update* referring to "encouraging and supporting the expansion of food grown or raised in urban areas" (The Region of Waterloo Public Health, 2013). This study has incorporated the principle of urban agriculture (i.e. community gardens in this research) as a sub-principle under *'Food Sovereignty-Connecting People to the Food System'*.

As the third priority discussed in the report *The Health of Waterloo Region's Food System: An Update*, *'Food Policy'* is defined as "[a]dvocating for "joined-up" food policies at local, provincial, and federal levels of government and monitoring their implementation" (The Region of Waterloo Public Health, 2013). The Waterloo Region's Food Charter further explains that *'food policy'* is to "ensure that healthy, environmentally sustainable food is available to everyone and recognizing the importance of comprehensive food strategies and policies that promote a profitable, viable and ecologically sustainable food system" (Waterloo Region Food System Roundtable, 2013, p.2).

The criterion for food policy does not necessarily apply to a university or college case. Challenges remain in assessing food policy at a university or college level, as little food policy of educational institutions is found existing (including UW) through a cursory review across Canada. However, many institutions have developed documents such as a food and or food system guide or regulation to educate their campus members. As a result, adjustment has been made to use the criterion more effectively. This priority has now alternatively become whether an educational institution has developed regulations or guides that are relevant to campus food sustainability, and it is incorporated as a key element into the principle of "Food Sovereignty-Connecting People to the Local Food System".

The next principle is *'Access to Healthy Food'*. It is defined as "advocacy for policies and other initiatives that ensure everyone has access to enough nutritious food. Also includes adequate income, emergency food, walkability, and cultural appropriateness" in the report *The Health of Waterloo Region's Food System: An Update* (The Region of Waterloo Public Health, 2013). There is a same value in the Waterloo Region's Food Charter but with an expansion of details on the meaning.

Notably, there is a major gap remaining in the process of merging ideas and concepts from the two sources. The Region of Waterloo Public Health structured the report *'The Health of Waterloo Region's Food System: An Update'* along the lines of six priorities identified by Waterloo Region Food System Roundtable: 1) local food infrastructure; 2) food sovereignty; 3) food policy; 4) urban agriculture; 5) farm viability; and 6) access to healthy food. However, the report does not justify why only these six priorities are chosen from their meetings to conduct the assessment of Waterloo Region's food system. Therefore, the Waterloo Region's Food Charter was reviewed and compared to achieve higher adequacy for my research framework. The aspect of ecological health or environmental concerns turns out to be missing in the report. In contrast, this facet is an integral principle in the Waterloo Region's Food Charter. This principle essentially claims that the region supports ecological health

- by promoting and supporting food production and processing methods that reduce greenhouse gas emissions; use less fossil-fuel energy; sustain or enhance wildlife habitats, watersheds, biological and seed diversity, and soil health; and that optimize or reduce the use of local natural resources to ensure long-term ecological sustainability
- by ensuring access to safe and sustainable water supply for all residents of Waterloo Region
- by encouraging the reduction of food waste and excessive food packaging, and supporting initiatives that strive to reduce or reuse food waste, such as composting (Waterloo Region Food System Roundtable, 2013).

It can be seen from above that the definition of supporting ecological health emphasizes the idea of reducing food waste and unnecessary food packaging as well as reusing food waste (e.g. composting). In addition, the best practices of sustainable campus food initiatives reviewed in Chapter 2 show that food waste management is prioritized as an urgent task towards enhanced food system sustainability in many higher educational institutions. As a result, this research later on endorses the theme of food waste management (in a broader sense: environmental sustainability or ecological health) as a principle to assess the health and sustainability of UW's food system.

The four guiding principles - 1) Local Food Infrastructure & Community Economic Development; 2) Food Sovereignty-Connecting People to the Food System; 3) Access to Healthy Food and 4) Ecological Health discussed above lay the foundation of this study's research frameworks. However, challenges remain in reconciling a region's food system assessment principles and a university's food system analysis. Primarily, the campus

food system involves a different set of stakeholders and critical tasks compared to that of the Waterloo Region's food system. In Chapter 2, the four key emerging food system trends among college and university communities identified by Sacks (2012) can prove this point. Therefore, the National Student Food Charter is used in this study to further adjust the research frameworks to be implemented at the level of a university or college's food system. This charter is created by post-secondary students from across Canada with a key mission to "guide their work in collaboration with students' unions, administrations, food service providers, health services, and staff and faculty; as well as food businesses, local producers, governments, and non-government agencies in their communities" (Meal Exchange, 2012).

After thoroughly reviewing this National Student Food Charter, '*Social Justice*' was a key goal highlighted in addition to the other guiding principles listed above. This refers to the idea of creating a campus food system that is based on the principles of equality by understanding values and human rights, and by recognizing the dignity of every human being (Meal Exchange, 2012). Campus food systems can demonstrate social justice by ensuring equal access and availability of affordable, healthy, and culturally-appropriate foods.

Another important document used to enrich the frameworks encompasses a full list of accomplishments since the inception of the UBC (University of British Columbia) Food System Project (see **Appendix A**). This UBC Food System Project Accomplishments Report has highlighted many important sustainable food initiative categories that can be implemented to create a framework tailored to the campus sustainable food system including food procurement, food marketing, education and promotion, food policy, guidelines, and best practices, waste management, food production, and food preparation and menu (University of British Columbia, 2012).

As a result, this study incorporates key values stated in the National Student Food Charter (see **Appendix F**) as well as the six categories defined by UBC into the final framework. The principle of *Social Justice* is incorporated into the framework in terms of the *Access to Affordable and Healthy Food* principle. The complete adapted research framework (report card) of a campus food system assessment contains the following criteria:

1. Sustainable Food Procurement

This principle includes encouraging procurement of locally and sustainably produced and fairly traded food, seeking partnerships that enable campuses to host local

businesses and purchases from local and sustainable suppliers (Meal Exchange, 2012), and playing a role in building regional food infrastructure, economies, and coordinating food chain linkages (Meal Exchange, 2012)

2. Food Sovereignty and Connecting People to the Food System

This is a broad principle that includes many significant aspects:

- 1) Enabling decision-making processes that include the meaningful participation of students and multiple stakeholders as valuable contributors to decisions made about food on campus (Meal Exchange, 2012);
- 2) Encouraging food education by supporting research, curriculum and internship development relating to food systems that is interdisciplinary, applied and community engaged and contributing to the development of food literacy and skills to encourage healthy food choices (Meal Exchange, 2012);
- 3) Promoting healthy and sustainable food policy, guidelines, and best practices;
- 4) Supporting food production or urban agriculture by using campus space as a resource to produce and share food, model local food practices and provide educational opportunities for students around food (Meal Exchange, 2012); and
- 5) Encouraging food marketing and promotion materials, activities, and events that may provide a variety of opportunities to connect campus community members with local and sustainable food production

3. Access to Affordable and Healthy Food (and Social Justice)

This principle includes fostering healthy, nutritious and affordable diet options on campus that contribute to the physical, mental, spiritual and emotional well-being and academic success of all students (Meal Exchange, 2012), providing accessible, comprehensive information about food offered on campus (Meal Exchange, 2012), and affirming that access to affordable, healthy, culturally appropriate food is essential to the well-being of individuals and communities (Meal Exchange, 2012).

4. Food Waste Management

This principle includes supporting ecologically-sound food production by optimizing inputs (e.g. food packaging) and outputs (e.g. food waste) of the food system to sustain or enhance the environment (Meal Exchange, 2012).

Based on this framework, this research paper takes a case study approach to collect data for UW's campus food system assessment. The University of Waterloo was selected as an ideal case study for three primary reasons: 1) the community (Waterloo Region) that UW is located in has a strong background of civic capital and stakeholder

collaborative activities; 2) UW's efforts for food system sustainability has not been well documented and assessed; and 3) UW is a place that gives birth to a considerable amount of student research regarding food system sustainability. In Chapter 2, a case study approach was also employed for a preliminary review of best sustainable food practices taken by other educational institutions across North America.

4.2 Data Sources and Collection

This research paper incorporates data from several different sources for the purpose of increasing the comprehensiveness of the data collected. One major source is the secondary literature review in this research. The academic publications that this research engages present the common recognition as well as entangling debates and different perspectives of food system sustainability issues. Documents published by the regional government and not-for-profit organizations are also used to provide data with regard to census information, food related sector profiles of Waterloo Region, context, historical events, and government official plan, decisions and policy making.

In the case study section, data with respect to UW's various food system initiatives were collected from UW's documents and websites that are publicly available and personal communication with individuals who are involved in the initiatives and who have access to the essential statistics. As a food system is associated with a wide range of activities, the personal communication comprises a variety of student and faculty members on campus such as the UW Food Services financial coordinator, the Federation of Students services manager, and a staff member at the Waterloo Public Interest Research Group (WPIRG). The process was mainly through emails, as the case study in this research does not require further opinions from those stakeholders. In addition, emailing is considered more effective to convey detailed data regarding the operations of food initiatives. Some data (e.g. local food procurement) were later transformed into visual diagrams and presented in the research paper.

In contemplation of making recommendations to UW's future direction in the development of food system sustainability, a literature review or case study approach was used to collect data on what other universities and colleges have done with sustainable food initiatives as well as to find the best practices to learn from. Various sources were searched and reviewed including institutional documents, school websites, academic journals, and news. Similar ideas between institutions were combined and incorporated to provide insights for UW.

4.3 Limitations

This research has several limitations. It potentially has not documented all the food sustainability initiatives taking place at UW due to the restricted access to the information of food initiatives taken by each affiliated college of UW and time constraints to fully research each of them. Another limitation is that as this paper investigated only one university in Ontario, Canada, the integrity of the framework designed for this study should be tested to a greater level with other universities and colleges across North America. Since the qualitative nature of this study limits generalizability, any generalization made from the analysis, conclusions and recommendations put forward in this study will require a more thorough analytical process. However, the results of this research may be transferable to other higher educational institution contexts.

Chapter 5. Case Study: The University of Waterloo

5.1 Overview of the University of Waterloo's Food System

Apart from its main campus, the University of Waterloo (UW) has four affiliated and federated institutions: St. Paul's University College, Renison University College, St. Jerome's University, and Conrad Grebel University College. In consideration of these colleges, UW's food systems comprise six principal components (see Figure 4.1). The largest food service provider on the main campus of UW is UW Food Services (UWFS). The next paragraph will introduce this organization in detail. Franchises (e.g. Starbucks, Tim Hortons, and Subway) and individual student-run coffee shops (e.g. EV1 Coffee Shop) are also included in the campus food environment. The four affiliated institutions (university colleges) each have a separate food service management team. Food services at both the Renison University College and the St. Jerome's University are delivered by Chartwells (Dine-On-Campus). Chartwells is a business that provides food services and nutrition specialists to the academic community across Canada (Chartwells, 2015). Watson's Eatery at St. Paul's University College's is operated by the Chartwells division of Compass Group. The Grebel's Kitchen at Conrad Grebel University College is self-operated. Lastly, Graduate House (Grad House) is another independent food service provider on UW campus. It is funded and managed by the Graduate Student Association as an exclusive private club to UW's graduate students and members of the greater university community (Graduate House, 2015a) (see **Figure 5.1** below).

Figure 5.1 Structures of the University of Waterloo's Food Service Providers.

Structure of the University of Waterloo's Food Service Providers




Operating as UW main campus' core food service provider, UW Food Services is a self-operated ancillary unit that serves students, faculty, staff, and the broader community through the operation of 25 outlets (UW Food Services, 2015a). Catering to different food-related needs, the department of Food Services offers “meal plans, food-related wellness and nutritional programs, in addition to a range of initiatives supporting student life, diversity and culture” (UW Food Services, 2015a). Saliiently, UW Food Services sees buying fresh local food as “a priority to promote nutrition awareness, availability and selection for their customers”, which supports its goal to “create and cultivate a comprehensive service that promotes a healthy, sustainable university environment” (UW Food Services, 2015a). On a basis of the four priorities regarding a healthy, sustainable food system introduced in previous sections, this section details where UW has gone so far and analyzes and assesses its various food system sustainability initiatives, with a focus on its main campus. A summary of food initiatives taken by UW is incorporated into a diagram for an educational purpose (see **Figure 5.2** below). Following the analysis and assessment, this research paper will continue to explore best practices implemented by other institutions in order to provide recommendations for the future development of UW's food system sustainability.

Figure 5.2 UW Food Initiatives: Four Dimensions.


UW Food Initiatives: Four Dimensions

1. Sustainable Food Procurement 

<p>Local & Sustainable Food: UW Food Services: UW's Farm Markets Other Local Food Purchases</p> <p>St. Paul's: Sustainable Purchasing Local Food Purchases</p> <p>The Graduate House: Purchases of Local Meats and Drinks</p>	<p>Fair Trade Certified Coffee & Teas:</p> <p>a. Most of the UW Food Services Locations</p> <p>b. St. Paul's University College: Fair Trade Certified Organic Coffee and Teas at Watson's Mug</p> <p>c. Campus Independent Coffee Shops</p>
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3. Access to Affordable and Healthy Food (Social Justice) 

<p>UW Food Services:</p> <p>a. Nutritional Information Listed and Displayed</p> <p>b. Online Resources Regarding Nutrition Facts and Recipes</p> <p>c. Vegetarian Options Available in Some UWFS Locations</p> <p>d. Halal (Chicken) Option Available at the Grad House</p> <p>e. The Feds Food Bank</p>	<p>St. Paul's:</p> <p>a. 'Meatless Monday' Initiative (*also associated with Food Waste Management)</p> <p>b. 'Bag Lunch and Late Dinner Request' Program</p>
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2. Food Sovereignty and Connecting People to the Food System 

<p>a. Food Advisory Board</p> <p>b. "Recipes for a Healthy and Sustainable Campus Food System at the University of Waterloo" Workshop</p> <p>c. Courses & Research Groups Relevant to Food Sustainability and Food Policy</p> <p>d. <i>The Environmental Sustainability Report & The Sustainable Campus Initiative Green Guide</i></p>	<p>e. The Community Garden in North Campus</p> <p>f. St. Paul's Community Garden</p> <p>g. Food Services' Chef's Garden at the University Club</p> <p>h. Ecology Lab Workshops</p> <p>i. UW Vegetarian Club</p> <p>j. <i>ENVigorate workshops & Local Food Cooking Show</i></p>
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4. Food Waste Management 

<p>a. Environmentally Friendly Disposable Cutlery</p> <p>b. Eco-friendly, Compostable Containers or PET Recyclable Friendly Containers & New Cafeteria Trays Made from Recycle Material</p> <p>c. Blue Bins (Recycling)</p>	<p>e. "Lug-a-mug" program</p> <p>f. Composting: *Green Bins-Both Food Services and St. Paul's Collaborated with the Region of Waterloo * Campus Compost (Mainly Serves Environment and Arts buildings)</p>
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5.2 Assessment of UW's Food System Based on the Framework (Report Card)

5.2.1 Sustainable Food Procurement

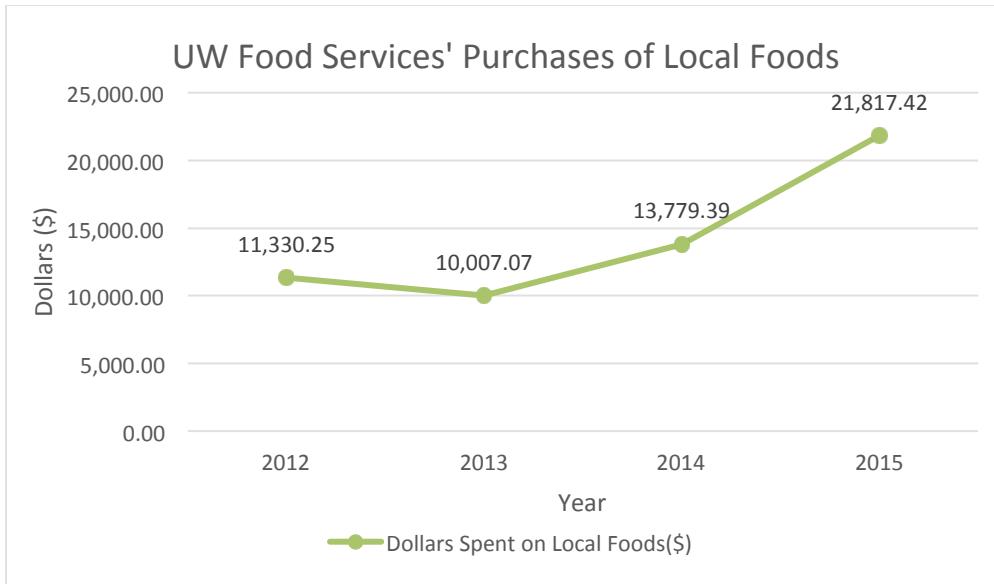
This principle includes encouraging procurement of locally and sustainably produced and fairly traded food, seeking partnerships that enable campuses to host local businesses and purchases from local and sustainable suppliers (Meal Exchange, 2012), and playing a role in building regional food infrastructure, economies, and coordinating food chain linkages (Meal Exchange, 2012).

Current Assessment (Grade: B):

In terms of supporting the development of local food infrastructure and community economy, three food service providers at UW have shown their strong support. UW Food Services started sourcing local food as well as organizing farm market events to increase the visibility and availability on campus of locally-grown food. In addition, St. Paul's University College's cafeteria is also involved in sustainable purchasing and purchasing local food products. The cafeteria has taken many other initiatives (e.g. energy saving and composting) to move towards a more sustainable food system. Furthermore, the UW Graduate House acts as another 'local' supporter by procuring meats and drinks from local businesses.

The statement that UW Food Services has made regarding food purchases tells their position on local food procurement is firm and straightforward: "Food Services purchases as much food locally as possible, supporting the regional economy and minimizing the environmental impact from transporting food long distances" (UW Food Services, 2015b). There has been an increasing trend in the procurement of local foods in the recent four years despite a slight drop in 2013. The rising amount of money spent between 2014 and 2015 is especially sharp, with an increase of around \$ 8,000 (see **Figure 5.3**):

Figure 5.3 Dollars Spent on Local Food Purchased by UW through 2012 to 2015.



Adapted from Personal Communication with Annette Carroll from UW Food Services (December 2015).

As to support sustainable food procurement, seasonal farm markets have been offered as a service at UW to all students, staff and faculty members, and even the public since September 2006 (UW Food Services, 2015c). This market is not-for-profit, operated by volunteer students, while the purchasing and transportation are managed by UW Food Services (UW Food Services, 2015c). This event is held for five days per term in the spring and fall. Food Services is committed to support the local food market by shortening the distance between local food producers and UW buyers (UW Food Services, 2015c). By showing support, the produce and other products available for sale at UW's farm markets are mainly sourced from the Elmira Produce Auction Cooperative Inc. (EPAC). Established in 2004, EPAC is a local corporation owned and operated by members of the farming community (Foodlink Waterloo Region, 2015), it "supports local growers by creating a new market for regional produce". Being recognized in the report of *'The Health of Waterloo Region's Food System: An Update'*, the success of EPAC creates and grows the market for local produce and "has improved farm incomes for hundreds of Mennonite farm families" (The Region of Waterloo Public Health, 2013, p.34). In addition, the co-operative model of EPAC "gives farmers control over the business, while putting a high percentage of the sales directly into farmers' pockets" (The Region of Waterloo Public Health, 2013, p.34). As discussed earlier, sourcing foods from EPAC is UW Food Services' key target in terms of local food procurement. All the foods (except the baked goods) sold at UW farm markets are purchased from EPAC. In addition to the fresh harvest of local farms, preserves and honeys made in Waterloo

County, UW's farm market provides freshly baked goods from their own UW Village Bakery to serve various eating needs (UW Food Services, 2015c). Through this direct marketing initiative, it saves UW members' time in travelling to purchase foods that are fresh, nutritious and local. It also prevents food growers from individually transporting foods to UW campus every week. Some brochures and description concerning local foods and producers are displayed at the farm market. Food Services members are also prepared to answer any questions that consumers may have. Therefore, the food buyers that shop at UW farm markets are in a position to gain knowledge with regard to local food production. Furthermore, the initiative of farm market shows how institutional buying power may influence farmer livelihoods in the region. In 2015, \$18,523 was spent at EPAC during the farm market months, and \$3,294 was spent at EPAC after the activities of the farm market. Compared with the total amount of money spent on local food in 2015, the farm market's purchases occupy the majority.

Food Services strives to source as much local food as possible to operate its department's services such as residence cafeterias, catering services, and conference services. However, challenges remain in the reporting of local food consumption at UW Food Services and the local food distribution channels between UW and local farmers. The number in UW's 2014 environmental sustainability report shows that 13.5 per cent of all food purchased by Food Services was sourced from local suppliers (Ontario) in (University of Waterloo, 2014). However, the reality is that Food Services' operation system does not capture local product on the invoices or inventory program, although a recommendation was made regarding this issue back in 2011⁶. The issue means that unless Food Services reviews each invoice, its system will not recognize the fact that the items are local. Additionally, the master list can indicate either local or not in the description only, so the same item would need to be local all the time to be listed as 'local'⁷. However, the same item may not always be sourced from a local producer due to seasonal constraints or other possible reasons. As a result, the actual number of locally purchased food is presumed to be higher than what was reported in 2014. According to Food Services, the total spend on food year to date (May 1st, 2015 - December 12th, 2015) is \$4.7 million (\$4,700,000). By comparison, it almost makes the percentage of local food purchased from EPAC not reportable.

In fact, Food Services is committed to buy from many other local suppliers as well: 1) items that are sourced from EPAC are guaranteed to be local; 2) in addition to EPAC, Food Services purchase produce and products from the Honey Man Farm and Oak

⁶ Personal Communication with Annette Carroll from Food Services, December 2015

⁷ Personal Communication with Annette Carroll from Food Services, December 2015

Manor Farm, which are also local producers; 3) over the summer, most of the produce provided by Food Services' another major supplier-Don's Produce, is from local farmers (Don's Produce deals with 62-68 local farms); 4) many other items especially produce purchased in the summer such as tomatoes, mushrooms, potatoes, onions, and other vegetables are locally grown; 5) Food Services' primary distributor-GFS, also has a significant local list⁸. Therefore, it is worth a change in UW Food Services operation system for more accurate reporting of local food purchases as well as better documenting of the efforts and effectiveness of food system sustainability initiatives. For example, the manager at UW Grad House claims that they work with several local suppliers (the list is available on their website) and track expenses from local suppliers in the same manner they track other expenses⁹. He also claims that all Grad House's beef and chicken comes from local farmers; all their fresh breads come from a local bakery; all their produce comes from a local company (it is as local as possible, especially in summer months), and they feature local, micro-brewed beers on tap and Ontario wines¹⁰. Making this change at UW Food Services will benefit building better local food distribution channels between UW and local farmers. Food Services' past records indicate that little of the food was directly bought from local farmers due to the payment process difficulty¹¹. Through a more systematic and organizational payment procedure, it will encourage more dynamic sourcing of foods from local farmers.

UW's other food service providers are jointly working towards the goal of supporting the relationship of local food production-consumption. The cafeteria at St. Paul's-Watson's Eatery has received the prestigious Green Dining Award from Compass Group Canada out of over 2,000 food service providers: "Watson's Eatery is the fourth to receive this award. It is presented to food service providers for their demonstrated implementation of a comprehensive set of sustainability initiatives" (St. Paul's University College, 2015a). It is one of the leaders on campus in terms of its sustainable purchasing and local product using. The cafeteria is committed to "using a local meat supplier", "buying local seasonal produce whenever possible", and "purchasing 100 percent sustainable seafood" (St. Paul's University College, 2015b). The following charts (see **Figure 5.3 & Figure 5.4**) show the origin of food purchases at St. Paul's in 2012 and 2014. They depict where the produce and products "were grown or manufactured" (St. Paul's University College, 2015b). However, these charts only show 90 percent of products purchased by Watson's Eatery, and the remaining percentage is of "unknown

⁸ Personal Communication with Annette Carroll from Food Services, December 2015

⁹ Personal Communication with Henry Ensley from Graduate House, July, 2016

¹⁰ Personal Communication with Henry Ensley from Graduate House, July, 2016

¹¹ Personal Communication with Annette Carroll from Food Services, December 2015

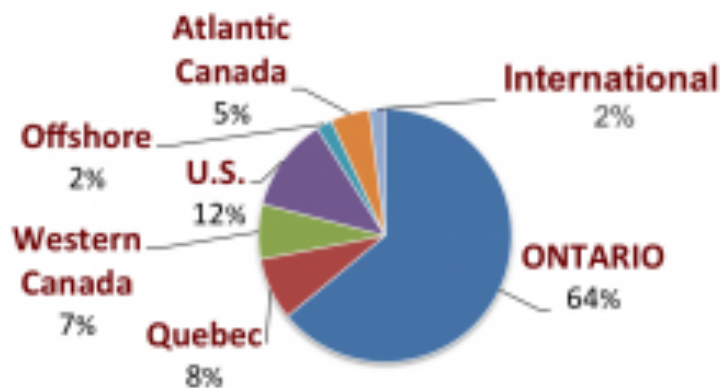
origin” (St. Paul’s University College, 2015b). Among the different sources, seafood purchased through Canadian companies is categorized as “Offshore product” (St. Paul’s University College, 2015b). By looking at Figure 5.3 and Figure 5.4, there were 10 percent increases of Ontarian food purchases between 2012 and 2014. In 2014 (the most currently available statistic), close to 65 percent of St. Paul’s food is sourced from local-Ontario despite the fact that the definition of local food varies.

Figure 5.4 Origin of Food Purchases at Watson's Eatery at St. Paul’s in 2012.



Source: Retrieved June 30th, 2016 from <https://uwaterloo.ca/stpauls/food-services/food/sustainability>

Figure 5.5 Origin of Food Purchases at Watson's Eatery at St. Paul’s in 2014.



Source: Retrieved June 30th, 2016 from <https://uwaterloo.ca/stpauls/food-services/food/sustainability>

UW's another on-campus food service provider, Grad House (operated by the Graduate Student Association), has done impressive work in pursuing a sustainable food system on campus. Its kitchen is committed to using fresh and local products such as local grass-fed, drug-free Black Angus beef and halal chicken breasts to prepare food (Graduate House, 2015b). One of its meat suppliers is Oakridge Acres Farm, which is a fair trade meat store that supports sustainable farming and produces meats that are antibiotic-free, GMO-free, and naturally and ethically raised (Oakridge Acres, 2015). According to the manager at Grad House, it sources all the beef and chicken from local farmers and all the fresh breads come from a local bakery¹². In addition, Grad House purchases halal chicken from Sargent Farms, which only "processes chicken that is raised on family farms in Ontario, and every one of [its] chicken is individually blessed and hand-processed to the highest of Halal standards" (Sargent Farms, 2015). In terms of the produce, Grad House purchases from a local company that is committed to supply as local as possible, especially in summer months. The pickles served at Grad House also come from a Canadian company¹³. Furthermore, the coffee and teas sold at the Graduate House are "organic and fairly traded" (The Graduate House, 2015c). It also "encourage[s] members to use [its] cups, or bring their own" (The Graduate House, 2015c). Another impressive initiative taken by the Grad House is that it features local or micro-brewed beers on tap and Ontarian wines in its cellar¹⁴. The Ontario Craft Brewers Association has recognized the Grad House's commitment to microbrew culture (The Graduate House, 2015c). Notably, one of its beer suppliers, Beau's All Natural Brewin, is "an award-winning, local, family-run, organic, and totally DIY brewery" (Beau's All Natural Brewing Company, 2015). Finally, the manager at Grad House stresses that beer and burgers, which are mostly made from local ingredients, are two pillars of their business.

UW has contributed much to the growth of local, sustainable and fairly traded food sale. UW Food Services has been working with Sustainable Campus Initiative (SCI) and Engineers Without Borders Waterloo (EWB) to provide Fair Trade certified coffee

¹² Personal Communication with Henry Ensley from Grad House, July 2016

¹³ Personal Communication with Henry Ensley from Grad House, July 2016

¹⁴ Personal Communication with Henry Ensley from Grad House, July 2016

and tea options across campus. Based on the purchasing data of the past year, approximately two third of current coffee sold at Food Services locations (Browsers, Brubakers, Needles Hall, PAS Lounge, BMH Coffee Shop, Eye Opener (OPT), CEIT, Co-Op, and Liquid Assets) across campus is Fair Trade certified. The university now has seven hot beverage vendors including its two residential outlets (Needles Hall Pastry Plus, BMH Coffee Shop, PAS Lounge, CEIT Café, Eye Opener (OPT), REV, and Mudie's at V1) that are Fair Trade certified (UW Food Services, 2015b). Additionally, the current coffee provider of Food Services, Baden Coffee, has pulled together a list of Fair Trade coffees that can easily replace any of Food Services' non-FairTrade coffee. According to Food Services, each campus unit is slowly transitioning, and it can now report that 100 per cent of coffee sold at UWFS locations is fair trade certified since the supplier has worked with all the units to convert any stragglers¹⁵. Apart from coffee, Food Services is simultaneously working on the tea component sold on campus. It reports that all its outlets that sell chocolate now carry the Cadbury's Dairy Milk which is a Fair Trade product. UW's Sustainable Development Report 2014 incorporates the percentage of Fair Trade products available on campus: "[a]pproximately 66 percent of hot beverages purchased by Food Services, excluding franchises, are Fair Trade Certified" (University of Waterloo, 2014). This number excludes large businesses like Tim Hortons, Williams, and Starbucks. Although UWFS operates franchises, Food Services has not converted them to be Fair Trade certified, but it claims to be working on tea, hot chocolate and all franchises¹⁶.

UW's Fair Trade Campus designation does not require franchises to follow the Fair trade initiative, but it does require any student or faculty-run coffee shop to conform. As such, Engineers Without Borders (EWB) and Sustainable Campus Initiative (SCI) are working with the different student societies to assist them to switch suppliers or find Fair Trade options. However, Williams is exclusively Fair Trade among the on-campus franchised businesses. Both Tim Hortons and Starbucks have corporate responsible sourcing policies that include both environmental and social responsibility criteria that are somewhat aligned with Fair Trade; however, their current efforts may not qualify them for certification yet¹⁷. In addition to Food Services' outlets, many on-campus individual coffee shops are included in the Fair Trade certification: they are Federation Of Students run coffee shops as well as the ones belonging to the Department of Engineering, Math and Computer, and Environment. Furthermore, Food Services has made some new purchasing agreements at the end of this year 2015 that

¹⁵ Personal Communication with Annette Carroll from Food Services, December 2015

¹⁶ Personal Communication with Annette Carroll from Food Services, December 2015

¹⁷ Personal Communication with Annette Carroll from Food Services, December 2015

will boost that number much higher in 2016¹⁸. It appears on target for early 2016 compliance in all Food Services outlets excluding franchises.

UW's other affiliated and federated institutions have answered the call to support fairly traded food as well. St. Paul's University College has undertaken to offer students and staff members only Fair Trade certified organic coffee (St. Paul's University College, 2015c). Watson's Mug, which is a coffee shop at St. Paul's, serves organic fair trade coffee and teas. The beverage is sourced from a local company-*Planet Bean*, that is also motivated to expand organic and fair trade coffee (St. Paul's University College, 2015c). Planet Bean has received certificates from Transfair (Fairtrade) Canada, Fairtrade International, and Canadian Worker Coop Federation. St. Jerome's University at UW has also established a partnership with this local business to supply its coffee shop on campus.

5.2.2 Food Sovereignty and Connecting People to the Local Food System

This is a broad principle that includes many significant aspects:

1. Enabling decision-making processes that include the meaningful participation of students and multiple stakeholders as valuable contributors to decisions made about food on campus (Meal Exchange, 2012);
2. Encouraging food education by supporting research, curriculum and internship development relating to food systems that is interdisciplinary, applied and community engaged and contributing to the development of food literacy and skills to encourage healthy food choices (Meal Exchange, 2012);
3. Promoting healthy and sustainable food policy, guidelines, and best practices;
4. Supporting food production or urban agriculture by using campus space as a resource to produce and share food, model local food practices and provide educational opportunities for students around food (Meal Exchange, 2012); and
5. Encouraging food marketing and promotion materials, activities, and events that may provide a variety of opportunities to connect campus community members with local and sustainable food production.

Current Assessment (Ranking B):

UW has established a few projects or initiatives relevant to food sovereignty, or connecting people to the food system, to build a more sustainable food system on

¹⁸ Personal Communication with Annette Carroll from Food Services, December 2015

campus. Therefore, this section consists of five major sub-sections, and each sub-section contains and details the related initiative(s) taken at UW as well as advantages and shortcomings of each initiative.

1. Enabling decision-making processes that include the meaningful participation of students and multiple stakeholders as valuable contributors to decisions made about food on campus (Meal Exchange, 2012);

a. UW Food Services operates a Food Advisory Board (FAB)

b. "Recipes for a Healthy and Sustainable Campus Food System at the University of Waterloo" Workshop

2. Encouraging food education by supporting research, curriculum and internship development relating to food systems that is interdisciplinary, applied and community engaged and contributing to the development of food literacy and skills to encourage healthy food choices (Meal Exchange, 2012);

a. UW main campus offers courses and research groups with a theme on food sustainability, food policy and related issues

3. Promoting healthy and sustainable food policy, guidelines, and best practices;

UW main campus has incorporated the food sector in both following publications:

a. Environmental Sustainability Report

b. Sustainable Campus Initiative Green Guide

4. Supporting food production or urban agriculture by using campus space as a resource to produce and share food, model local food practices and provide educational opportunities for students around food (Meal Exchange, 2012);

a. UW main campus established the Community Garden in north campus; the Waterloo Public Interest Research Group (WPIRG) manages the garden

b. St. Paul's University Colleges owns the St. Paul's Community Garden; the garden is student-run

c. UW Food Services manages a Chef's Garden at the University Club

d. The Faculty of Environment provides workshops (e.g. growing oyster mushrooms) at the UW Ecology Lab

5. Encouraging food marketing and promotion materials, activities, and events that may provide a variety of opportunities to connect campus community members with local and sustainable food production;

a. UW Vegetarian Club

b. Food Marketing and Promotion Materials

c. Food Marketing and Promotion Activities and Events

1. Enabling decision-making processes that include the meaningful participation of students and multiple stakeholders as valuable contributors to decisions made about food on campus (Meal Exchange, 2012)

a. Food Advisory Board-Work of UWFS

In regards to connecting people to the local food system, UW Food Services operates a Food Advisory Board (FAB) that includes students and Food Services staff and meets three times per term to collect students input on assessing and evaluating food services, identifying the specific needs of the organization, making recommendations, and committing to outreach program activities (UW Food Services, 2015d). Being briefly mentioned in the residence guide, Renison University College also has a Food Committee that meets monthly to address concerns, suggest alterations to the menu and provide constructive feedback (Renison University College, n.d.). Participants include the director, student engagement and housing, Chartwells unit manager and a student from each floor (Renison University College, n.d.). Since there is student representation on the FAB team, it is an important initiative that engages the student group in Food Services' decision-making process so that they can have a say in what types of services they want to receive. In terms of joining the board, FAB requires members to submit applications along with resumes prior to each term but only selects a few candidates to possess a position on the board. For the semester of Winter 2016, FAB will recruit ten voting members: two members from Village 1, two members from Ron Eydt Village, one member from Mackenzie King Village, one member from Columbia Lake Village, one member from UW Place, one member from Minota Hagey, and two off-campus students (UW Food Services, 2015d). There will also be several positions open for non-voting members, but details are not revealed. The main duties and responsibilities of the board are as follows:

- Discuss requests made by students, staff and faculty
- Evaluate existing department policies
- Assess the financial implications of
 - Hours of operations of each unit
 - Opening and closing of one or more outlets
 - Changes in operations of an outlet
 - Food and labour costs
- Receive, evaluate and distribute all sub-committee reports and surveys

- Make recommendations to marketing strategies, events and community outreach projects (UW Food Services, 2015d)

Even though the general agenda does not seem to fully deal with campus sustainable food system issues since the duties and responsibilities are vague and general, FAB plays an indispensable role in the campus food system. In particular, the Fair Trade initiative is driven by a student, Ambika Opal who is on the President's Advisory committee on Sustainability and Engineers without Borders. The role of FAB is to meet with the Fair Trade certifying body to ensure the "buy in" of fair trade products across campus. Therefore, this initiative needs student support to coordinate the relevant affairs due to the spread operations of UW Food Services outlets and many individual coffee shops on campus. Included in the Fair Trade certification, the individual coffee shops encompass the Federation of Students run coffee shops as well as the ones belonging to the Department of Engineering, Math and Computer, and Environment¹⁹. Through these activities, students have many opportunities to participate in the movement of food system change. Apart from fair trade certified products, the scope of FAB could be extended to incorporate more themes rotating around food system sustainability on campus to enhance students' food knowledge and food skills as subordinate achievement. In addition, UW Food Services may consider inviting a broader range of participants pertaining the need of engaging "multiple stakeholders as valuable contributors" in FAB, as many other non-students campus members (e.g. researchers, professors, and staff members) are equally concerned about how decisions are made in the UW's food system.

b. "Recipes for a Healthy and Sustainable Campus Food System at the University of Waterloo" Workshop

There was a recent workshop themed as "*Recipes for a Healthy and Sustainable Campus Food System at the University of Waterloo*". This workshop was co-hosted by Professor Steffanie Scott and a group of food study master and PhD students on May 6th, 2016 in attempt to identify the current initiatives that aim to establish a healthy and sustainable food system across UW and to provide recommendations for future action based on a review of these efforts as well as best practices elsewhere. Attendees of this workshop include a wide range of twenty two stakeholders from the campus food system including Food Services, Federations of Students, Watson Eatery at St. Paul's University College, Conrad Grebel University College, the Grad House, Sustainability Office, Health Services, School of Environment, School of Public Health and Health

¹⁹ Personal Communication with Annette Carroll from Food Services, December 2015

Systems, and Campus Market Garden. A potential outcome of this workshop was to establish a UW campus food system strategy committee in the future to respond to challenges and opportunities emerging in the transition to a sustainable campus food system. However, this workshop was only advertised and circulated among selected campus food system stakeholders due to limited space and budgets.

2. Encouraging food education by supporting research, curriculum and internship development relating to food systems that is interdisciplinary, applied and community engaged and contributing to the development of food literacy and skills to encourage healthy food choices (Meal Exchange, 2012)

a. Courses & Research Groups Relevant to Food Sustainability and Food Policy

Several courses that highlight food sustainability, food policy and related themes are offered at UW. For instance, Dr. Steffanie Scott, an Associate Professor in the Department of Geography and Environmental Management at UW, offers a course on Food Systems and Sustainability (GEOG/ERS 461). This course “examines dimensions of food systems sustainability and food security, from production to consumption, from local to global scales, in the global north and south” (UW Online Syllabus²⁰, 2015) and incorporates several timely themes:

technological changes and social justice issues in the food system; resource depletion and wider environmental impacts of the industrial food system; and policy-related, market-oriented, and civil society initiatives to facilitate change towards more sustainable food systems.

Another professor at UW, Professor Jennifer Clapp, from the School of Environment, Resources and Sustainability (SERS), teaches a few courses on governing global food and agriculture: ERS 462 - Global Food and Agricultural Politics, ERS 606 - Governing Global Food, and ERS 464 - Economics and Sustainability. For instance, the course ERS 606 “examines the international rules and organizations that have emerged to govern the increasingly global system of food and agriculture”; important themes such as “governance issues related to the rise of global food corporations, agricultural trade liberalization and the WTO, food aid distribution, international agricultural

²⁰ https://uwaterloo.ca/geography-environmental-management/sites/ca.geography-environmental-management/files/uploads/files/geog_ers_461_outline_w15.pdf

assistance, the global agro-chemical industry, and agricultural biotechnology” are also incorporated in the content (UW Online Course Syllabus²¹, 2011).

Dr. Clapp is also involved in a research group-The Global Food Politics Group (GFPG), which is composed of a number of grad student researchers based at the University of Waterloo “working on projects that focus on the political, social, economic and ecological dimensions of various global food and environmental issues” (The Global Food Politics Group, 2015). Furthermore, back in 2006, Dr. Scott and Dr. Clapp founded the Waterloo Food Issues Group (WatFIG), which is “a community of students, researchers, and faculty at the University of Waterloo and Wilfrid Laurier University working on a variety of food and agriculture issues across disciplines” (The Waterloo Food Issues Group, 2015). WatFIG held the fourth edition of its multidisciplinary graduate student conference, with the theme “Food Systems in Flux”, at the University of Waterloo, Faculty of Environment on April 22nd, 2016. This conference hopes to provide graduate students from various disciplines with a forum to present their research on food and agriculture issues and receive feedback from their colleagues, faculty, and the external experts as well as to network with other young and more experienced researchers in the food studies community (WatFIG, 2016). By being open to various topics such as food security and hunger, local food systems, sustainable agriculture and governance of food and agriculture, WatFIG also aims to use this opportunity to capture the diversity of perspectives that attempt to understand and provide alternatives to the immense challenges and changes that global and local food systems are facing today (WatFIG, 2016). Both GFPG and WatFIG research groups provide an effective and convenient platform for community members who are interested in and dedicated to food issues to share their findings, exchange ideas, and learn from each other.

In sum, UW plays a supportive role in building the research and curriculum system for university members to increase their food literacy and skills by participating in academic activities that are interdisciplinary and practical. However, UW may want to create more space and opportunities (namely internships) in the community for students and researchers to apply their food system knowledge to real-life cases.

3. Promoting healthy and sustainable food policy, guidelines, and best practices

a. Environmental Sustainability Report

²¹ <https://uwaterloo.ca/political-science/sites/ca.political-science/files/uploads/files/P606-G621-1111.pdf>

In terms of food sovereignty or connecting people to the local food system, little was reported on the food sector in the UW's first *Sustainable Development Report* in 2010. The five key performance areas in the 2010 report include energy, water, land use, waste management, and CO₂ emissions. 'Food' was not even an individual sector in the university's sustainability assessment system, and it was only discussed as a contribution to the campus' waste management. The data were mostly collected from food waste management or food composting. In contrast, there is considerable improvement in the latest *Sustainable Development Report (2014-2015)*, as 'food' has been included as a separate category in addition to energy, climate change, water, waste, transportation, grounds, and procurement. In UW's 2014 *Sustainable Development/Environmental Sustainability Report*, the statistics indicate that 13.5 per cent of Food Services' total food purchases are sourced from local food suppliers (University of Waterloo, 2014). Although no further data are collected and released at that point, the report claims that UW Farm Markets account for the core increase in the number of locally purchased food (University of Waterloo, 2014). Additionally, the report indicates that 66 per cent of the hot beverages being sold on campus are Fair-trade products (University of Waterloo, 2014). Furthermore, the reporting on reduction of food packaging indicates that food waste still counts for a big proportion of waste overall (University of Waterloo, 2014). Notably, the report emphasizes supporting the expansion of local food in urban areas and engaging students and faculty members in local food production (University of Waterloo, 2014). Knowing these statistics and facts is important to raise students or other campus community members' awareness to be concerned about food sustainability. However, other indicative numbers such as the percent of local food purchases in previous years, total money spent on local food, and the conversation rate between organic waste and composting need to be collected and analyzed in future reports.

b. Sustainable Campus Initiative Green Guide

As discussed earlier in the section on research design, the principle of 'Food Policy' does not apply to the UW case. Challenges remain in assessing food policy at a university or college level, as little food policy has been found existing in the case of an educational institution through a cursory review across Canada. Therefore, the assessment now focuses on whether an institution (UW) has developed adequate food monitoring tools in the form of regulations or guides that manage the sustainability of the campus food system. UW does not possess any food policy in the current phase; however, the *Sustainable Campus Initiative Green Guide* includes a food section that helps educate students and faculty members on Food Services' food initiatives. The document comprises an excerpt of an introduction of UW farmers' markets and all the

environmental sustainability projects that Food Services has been working on. Additionally, the section in the guide promotes the idea of eating less meat, as the consumption of animal products threatens sustainability (Sustainable Campus Initiative, 2014). Furthermore, this guide provides students with a list of certifications that are delivered to businesses that implement local and sustainable food practices such as Foodland Ontario, Marine Stewardship Council, and Canada Organic and USDA Organic (Sustainable Campus Initiative, 2014). The guide seeks to enhance campus members' understanding of food sustainability and protecting their consumer rights. However, a guide per se is voluntary, and it is not sufficient to monitor the sustainability of the campus food system. Thus, UW calls for applied regulations pertaining to monitoring and enhancing the sustainability of campus food system in the future to fulfill the mission of “ensur[ing] that healthy, environmentally sustainable food is available to everyone and recognizing the importance of comprehensive food strategies and policies that promote a profitable, viable and ecologically sustainable food system” (Waterloo Region Food System Roundtable, 2013, p.2).

4. Supporting food production or urban agriculture by using campus space as a resource to produce and share food, model local food practices and provide educational opportunities for students around food (Meal Exchange, 2012)

Urban agriculture or food production is thriving at the University of Waterloo, as the latter is currently home to three community gardens (see Figure 5.6 below): the Waterloo Public Interest Research Group (WPIRG) maintains a community garden next to the greenhouse in north campus, where students and volunteers grow local organic produce (University of Waterloo, 2015a). In 2014, St. Paul's University College also launched a community garden next to its residential building. St. Paul's food service provider, Watson's Eatery, has agreed to purchase the produce at market value, which provides a source of local food in the cafeteria and helps sustain the gardens financially (University of Waterloo, 2015a). Furthermore, Food Services maintains a chef's garden next to the University Club, where they now grow spices, herbs, vegetables, and fruit trees on-site (University of Waterloo, 2015a). In addition to the campus gardens, the UW Ecology Lab in the Faculty of Environment offers a variety of workshop projects to student and faculty members and staff such as engaging participants in the oyster mushroom growing process from scratch, teaching them the skill of foraging wild edible plants and helping them learn other food skills (e.g. DIY planter pots, seed bombs, and sprouting) through annual ENVigorate event held by the Faculty of Environment (started in 2015).

Figure 5.6 The Three Gardens at UW

Three Gardens at UW

a. The Community Garden in North Campus



b. St. Paul's Community



c. Food Services' Chef's Garden at the University Club



a. The Community Garden in North Campus

The community garden in north campus is located adjacent to the Columbia Lake greenhouse that belongs to UW's Plant Operations department. It is seasonal, mainly operating from May to October. The garden is self-managed without any external partnerships: WPIRG supports it but allows participants to direct its growth. With its small size (10 plots plus a communal garden; plot size: 10' x 10'), the garden is not intended for large-scale food distribution among UW students. Instead, it acts as a learning space for all participants involved in growing produce and maintaining the garden each season²². The garden's target audience is primarily UW students, but members of the broader community are able to participate without any restrictions. The garden also contributes to the donation needs of WPIRG's other action groups, Food Not Bombs, which serves weekly meals in downtown Kitchener²³. Since the garden does not distribute its produce to a wide range of campus consumers, the garden participants consume the vast majority of the harvest, and they pass on some of the food to members of other WPIRG groups²⁴. The diversity of the produce grown in the garden changes each year depends on what participants would like to learn to grow and

²² Personal Communication with Kalin Stacey from WPIRG, December 2015

²³ Personal Communication with Kalin Stacey from WPIRG, December 2015

²⁴ Personal Communication with Kalin Stacey from WPIRG, December 2015

experiment with, and there are generally between 1~10 different crops²⁵. Therefore, this garden provides effective and practical learning space for a few students to improve their food growing skills. However, a major challenge may be that students are unaware that they can participate and expand the garden at all²⁶.

b. St. Paul's Community Garden

The St. Paul's Community Garden's major partners are St. Paul's University College (STP), Chartwells, and Centre for Aboriginal Services (at St. Paul's). The garden in 2015 was granted use of 1/4 acre of land from Steckle Heritage Homestead in Kitchener²⁷. This project was launched and active for the past growing season in 2015. Participants of the garden did not weigh the harvested food. However, with the garden's expansion plot, it was estimated to grow 2500-5000 lbs of food before the growing season started²⁸. This garden is also outdoor, seasonal and without access to a greenhouse. The majority of the produce it grows is late harvest (fall season), since there are not many students at St. Paul's University College in the summer. However, the college has a full house to feed in the fall. The garden also tries to grow root vegetables that will store well.

The original plan of the community garden was to sell all of the food directly to Chartwells, the food service provider for the STP cafeteria-Watson's Eatery. This food would then be incorporated into meals, and distributed to the students living at STP. The head chef at Watson's is committed to highlighting and featuring the produce the garden grows in his meals whenever possible, even to the point where he will change the menu slightly to feature this produce. For example, if the garden has a large harvest of squash, the head chef will cook a squash soup and write on the cafeteria board that the squash was grown in St. Paul's garden. However, the garden ended up selling the produce through several different markets since it ran into a few health and safety concerns with Chartwells from around mid-July to August in the summer of 2015²⁹. Several organic pest management practices that the garden used were not approved by Chartwells' Quality Assurance Department. Thus, the garden was limited on what it could sell to them. Nevertheless, the garden successfully sold cherry tomatoes, carrots, bunch onions, and kale to Chartwells. For all of the produce that was left after supplying Chartwells, people at the garden found other ways to distribute this food:

²⁵ Personal Communication with Kalin Stacey from WPIRG, December, 2015

²⁶ Personal Communication with Kalin Stacey from WPIRG, December 2015

²⁷ Personal communication with Samantha Johns from St. Paul's Community Garden, December 2015

²⁸ Personal communication with Samantha Johns from St. Paul's Community Garden, December 2015

²⁹ Personal communication with Samantha Johns from St. Paul's Community Garden, December 2015

1) In July, some produce was either sold directly to students or staff at the garden or on campus. Leftovers were either donated to Food Not Bombs or the Waterloo Region Foodbank or were preserved into pickles and jarred goods by Samantha Johns³⁰;

2) The issue was not resolved in August. Therefore, in addition to directly selling or donating produce, a FoodBox Program was also created for four St. Paul's Staff members: they received a weekly wood box with a minimum of \$10 worth of produce in it for 4 weeks (month of August 2015)³¹;

3) Simultaneously, they started a Farm Market in the EV3 Foyer to sell the bulk of the produce directly to students and faculty on campus³². In September, the issue with Chartwells was resolved, so they were able to sell some items (tomatoes, green onions, kale, and carrots) to the business. However, since the EV3 Farm Market had become popular on campus among students and staff members, St. Paul's community garden members continued to sell the majority of their produce through this Market. The event lasted from mid to late August in the summer and continued to serve students in September and October. The Farm Market was not closed until late October, as the garden's crops were finished by then, and the garden's beds were put to rest for winter³³.

This community garden is primarily targeting UW students to engage them in food growing, harvesting and selling activities, particularly to enhance the current understanding of the food systems and the benefits of local, organic food systems. However, this initiative is accessible to any community member who is interested. The design of this community garden initiative is strictly student-run, with one St. Paul's staff advisor, Steve Prentice, as a supervisor to assist Human Resource processes such as creating contacts of newly hired work-study students and filing the hours to payroll³⁴. Steven is also the primary contact person at St. Paul's dealing with garden issues, administrative needs and proposals submitted by student volunteers. For example,

³⁰ Personal communication with Samantha Johns from St. Paul's Community Garden, December 2015

³¹ Personal communication with Samantha Johns from St. Paul's Community Garden, December 2015

³² Personal communication with Samantha Johns from St. Paul's Community Garden, December 2015

³³ Personal communication with Samantha Johns from St. Paul's Community Garden, December 2015

³⁴ Personal communication with Samantha Johns from St. Paul's Community Garden, December 2015

Samantha proposed to have a small greenhouse set up beside the garden at St. Paul's, so she had to create a proposal and send it to Steve to get approval from St. Paul's³⁵.

For the year 2015, the garden had about ten consistent volunteers come to help out at the farm in the months of September and October to help with harvest and delivery on its Farmer's Market day (Wednesdays)³⁶. Samantha also ran a salsa-canning workshop to teach students about the principles of safe canning and preserving. Approximately ten students attended the workshop and brought home their homemade jar of salsa.

Notably, a potential barrier exists in the operation of these campus community gardens: it turns out that not many student volunteers are committed to working in the garden throughout the growing season. As a result, the majority of the gardening work may still rest on the shoulders of the key coordinator at the garden³⁷.

c. Food Services' Chef's Garden at the University Club

UW Food Services maintains a garden next to the University Club. At the beginning of a few years ago, the garden grew spices and herbs on-site (University of Waterloo, 2015a), but now the University Club grows many vegetables and incorporates these into their menus, even making salsa or chutney³⁸. Some fruit trees have not matured yet but are expected to bloom in 2016. Additionally, many of the peppers, tomatoes, carrots, broccoli and other root vegetables and herbs are now standard items in the Summer-Fall menus. All tomatillos have been harvested and used in chutney and salsa as part of the preparation work to set the garden to be ready for winter 2016³⁹.

d. Ecology Lab Workshops (e.g. Growing Oyster Mushrooms on Campus)

The UW Ecology Lab is a resource facility for members of the Faculty of Environment and is a place that caters to different course and research needs providing student and faculty members and staff with opportunities to experience a variety of workshops such as field trips and laboratory experiments (University of Waterloo, 2016). The main duties of the lab also include other services such as "identification of plants, invertebrates, insects, and other fauna", "determination of sampling design, field collection, testing and analysis" and "maintain naturalized gardens surrounding ENV

³⁵ Personal communication with Samantha Johns from St. Paul's Community Garden, December 2015

³⁶ Personal communication with Samantha Johns from St. Paul's Community Garden, December 2015

³⁷ Personal communication with Joel Knight from Steckle Heritage Farm, May 2016

³⁸ Personal communication with Annette Carroll from UW Food Services, December 2015

³⁹ Personal communication with Annette Carroll from UW Food Services, December 2015

buildings (including green roof and constructed wetland)” (University of Waterloo, 2016). Starting in 2015, the Ecology Lab collected the recycled coffee grounds from the ESS coffee shop in the same building. This first step of growing oyster mushrooms also benefits the ecological health of the UW campus since the unneeded coffee grounds would usually be transferred to a composting site or landfilled. Instructions on how to begin the mushroom growing venture and successfully harvest mushrooms are provided on the lab’s website: detailed lists of materials and steps required as well as a mushroom growth log are both available. Further video information on real-life practices of mushroom growing in the Ecology Lab can be easily accessed on the same web page. In addition to engaging participants in the oyster mushroom growing process from scratch, the Ecology Lab teaches and demonstrates the skill of foraging wild edible plants to campus members. Two UW students Laurel McConnell and Bounmy Inthavong even made an attempt to create a map or project⁴⁰ of edible landscapes on campus in December 2010, and they were able to identify 36 edible species at UW within the scope of their knowledge. These kinds of educational activities go hand-in-hand with understanding seasonal eating, for eating seasonally is often less expensive. Moreover, the Ecology Lab promotes hands-on food skills and experiences by hosting workshops themed as DIY planter pots, seed bombs, and sprouting at the annual *ENVigorate* event held by the Faculty of Environment (starting in 2015).

Along with the campus gardens, the initiatives reviewed above contribute to sustaining the supply of or access to local and fresh produce at UW as well as expanding local food production in urban areas.

5. Encouraging food marketing and promotion materials, activities, and events that may provide a variety of opportunities to connect campus community members with local and sustainable food production

a. UW Vegetarian Club

Food education takes place in various ways at UW. In addition to the growing academic networks, the University of Waterloo’s Vegetarian and Vegan Club: Vegetation, acts as another resource of promoting healthy food choices and personal connections. This campus-based club aggregates individuals that are vegetarian, vegan, or interested in becoming one to socialize and share ideas and experiences in the Waterloo community through holding social events such as potlucks, road trips, and bake sales as

⁴⁰ http://www.wrfoodsystem.ca/files/www/Urban_Foraging.pdf

well as hosting speakers and films for education purposes. Additionally, this group has an activist purpose of educating the Waterloo community members on the disadvantageous effects that meat consumption has with respect to human health, the environment, and the animals exploited. Interestingly, this club is not limited to UW members but is open to the public. However, the club's website seems to be under development, as there are few records pertaining events that had been held in the past several years. Instead, Vegetation has a huge reliance on its Facebook page to advertise social events.

b. Food Marketing and Promotion Materials

The majority of UW Food Services' eateries are crowded with franchised stores and selections. Few signage of local farms or choices of local foods are erected in those areas. However, some of the campus residence cafeterias provide an avenue to source local foods as well as to educate consumers on choosing a healthy diet. For instance, the propaganda posters of Bamfords Farm in St. Paul's cafeteria at Watson Eatery (see **Figure 5.7** below) have been designed and displayed to help customers make the connection between local food production and the food they are consuming. In addition, Watson Eatery has erected a signage attached to marketing materials by Foodland Ontario to guide customers to source locally. Established in 1977, Foodland Ontario is a consumer promotion program of the Ontario Ministry of Agriculture, Food and Rural Affairs, and it collaborates with producers to "champion, promote and support the consumption of fresh Ontario produce and processes agricultural foods" (Foodland Ontario, 2016).

Figure 5.7 Propaganda Posters of Bamfords Farm in St. Paul's cafeteria at Watson Eatery



c. Food Marketing and Promotion Activities and Events

During the past annual event *ENVigorate* hosted by the Faculty of Environment in March 2016, Dr. Steffanie Scott gave a workshop themed with the sustainable food system to educate participants on the introduction of the components and practices of a sustainable food system. UW Food Services has also played a significant role in organizing local and sustainable food events on campus besides the regular farmers' markets events in summer and fall. For example, they held an event called "Local Food Cooking Show" to demonstrate cooking with local produce at the Federation Hall on March 10th in 2016. This event was only available to UW students, and attendees would be called upon to present Watcard at the door. From March 7th to 10th 2016, UW Food Services also had a "Local Week" event with locally grown features across campus to support the local economy, fresh and nutritious foods, safer food supply and future farming (UW Food Services, 2016). An equivalent event was held again by Food Services from June 6th to 10th 2016. In addition, UW Food Services hosted a "Strawberry Week" from July 4th to 8th 2016 at Village 1 for campus members to taste some strawberry treats made from local fruit, and in same place it held a "Raspberry Week" from August

2nd to 5th 2016. As a key driver behind the promotion of fairly traded products on campus, the team of Sustainable Campus Initiatives also held a workshop on June 30th, 2016 at Student Life Centre Courtyard to teach campus members how to make their own iced mocha using fair trade ingredients.

5.2.3 Access to Affordable and Healthy Food (and Social Justice)

This principle includes fostering healthy, nutritious and affordable diet options on campus that contribute to the physical, mental, spiritual and emotional well-being and academic success of all students (Meal Exchange, 2012), providing accessible, comprehensive information about food offered on campus (Meal Exchange, 2012), and affirming that access to affordable, healthy, culturally appropriate food is essential to the well-being of individuals and communities (Meal Exchange, 2012).

Current Assessment (Grade: B):

The structure of this section is slightly different from other sections in Chapter 4, as the data are fragmented and difficult to collect under this principle. It will firstly draw on the results from the report *“Task Force on Campus Food Services”* prepared by the Canadian Federation of Students-Ontario (2013) and provide background information on the issue of food insecurity among post-secondary students in Canada. Then it will illustrate the issues by analyzing initiatives and concerns emerging from the UW food system.

University students, including at UW, usually have limited financial budgets to afford fresh, healthy, and nutritious food on a regular basis (Maynard, 2016). The report *“Take Force on Campus Food Services”* prepared by the Canadian Federation of Students-Ontario (2013) introduces the issue of food security among students who attend post-secondary institutions. The main components of food security are provided in the report: “[f]ood security is built on three pillars: availability, access and usage” (Canadian Federation of Students-Ontario, 2013, p.2). The major reason causing students’ financial difficulty in affording food is also addressed: Students in Ontario are required to pay relatively high tuition fees in Canada, “with an average of \$7,200 a year going towards education, spending money on food day to day can be a daunting task” (Canadian Federation of Students-Ontario, 2013, p.2). International and graduate students are paying even more. This figure (\$7200) was expected to rise to \$7,867 by 2015, on a basis of a 3 per cent increase per year (Canadian Federation of Students-Ontario, 2013). For instance, at University of Waterloo, an Environment Student (non-

international) in year 1 (regular) had to pay \$3,333 per term in 2013, \$3,444 per term in 2014, and \$3,564 in 2015 (University of Waterloo, 2015c).

Apart from the rising costs of attending institutions, the increasing cost of living expenses and the over-priced food sold on campus are staggeringly limiting students' options for nutritious food (Canadian Federation of Students-Ontario, 2013). There are two ways to understand overpricing. One is in relation to the fact that on-campus eating services are controlled by a few "food monopolies" such as Subway and Pizza Pizza (Canadian Federation of Students-Ontario, 2013, p.4). The statement is identified as true in the case of University of Waterloo since franchises or big commercial brands supply the majority of the food sold at UW Food Services eating venues (on the main campus). Almost every Food Services eatery is equipped with a large fridge of major brands of soft drinks. However, food sold on campus is priced higher than that of off-campus locations. For example, a 6-inch Oven Roasted Chicken Sandwich costs \$4.25 at off-campus Subway. In contrast, the outlet at UW charges \$7.00 for the same item, although prices vary for other Subway items.

The other barrier is the unreasonable pricing of healthy food on-campus, which hinders the ability of many students to afford wholesome and nutritious food (Canadian Federation of Students-Ontario, 2013). Students eventually may buy nothing or are compelled to turn to fast food options (Canadian Federation of Students-Ontario, 2013). The phrase "food desert environment" (Canadian Federation of Students-Ontario, 2013, p.4) or namely a food swamp is used to describe Ontarian students' eating conditions, and it implies the excess of unhealthy, highly-processed and low-nutrient food and the unmet demand of students for nutritious and fresh food. The report maintains that accessing cheap food with little nutrition tends to be a phenomenon across North America (Canadian Federation of Students-Ontario, 2013). The consumer nutrition environment is problematic on the UW campus. The affordability of healthy food items is a major concern. A rough environmental scanning of UW Food Services shows that healthy food is often much more expensive than fast food. Apart from the UW cafeterias and franchises, healthy food is usually sold in the format of grab n' go foods (Lee, 2016). However, the pricing is not tempting for students. For example, Food Services prices a small box of sushi for \$6-\$11 before tax depending on the amount of fish at their on-campus eateries. Even though UW Food Services units provide students and staff members with a small selection of fresh fruit daily that is less pricy⁴¹, it is insufficient to meet the needs of a healthy diet. The surprising fact is that over 80

⁴¹ Personal Communication with Annette Carroll from UW Food Services, December, 2015

percent of students “are purchasing food on campus ranging from one to two times a month to more than once a day”, meaning that UW has most likely yet addressed the demand for affordable and healthy food on campus (Canadian Federation of Students-Ontario, 2013, p.4). Furthermore, 61 per cent of students “are going to cafeterias to purchase meals” demonstrating the huge number of food consumption expenses of students, but 61 per cent of them complain about unsatisfactory quality and quantity of food they pay for (Canadian Federation of Students-Ontario, 2013, p.4). Without a doubt, students suffer from being exploited by some large food suppliers and lacking healthy food options (large food corporations) on campus.

Educational institutions can provide guidance to students to help them make healthy eating choices. At UW, in collaboration with the food company suppliers, giant promotion signage is displayed in conspicuous spots of Food Services venues, and therefore, students are influenced by this “unhealthy eating guidance” every day. However, Food Services has taken several initiatives to inform and educate students about nutritious food, although more attention is focused on the two UW residence cafeterias, where the students are eating three meals per day in many cases⁴². All steam table offerings have nutritional information listed and displayed at each steam table at UW main campus’ residence cafeterias and other Food Services’ eateries. In addition, Food Services’ website has a nutritional component where serving sizes, meal types (e.g. vegan), ingredient, and nutrition facts of UWFS’s most food items can be easily searched and reviewed by web users (UW Food Services, 2015e). An online tool is also available to view the weekly menus of certain food outlets for students to preview. Furthermore, Food Services’ website establishes a connection to a one-page tips and graphics on Nutrition Works brochure for residences. This brochure educates students to understand what nutritious meals consist of and what healthy foods are to help them establish a balanced diet to sustain their energy, health, and academic performance (UW Food Services, 2015e; Personal Communication with Annette Carroll from UW Food Services, December 2015). In addition to nutrition guides, Food Services offers the Recipes segment that lists a few Superfood cooking recipes such as edamame dip, roasted butternut squash, and kale and quinoa dolmas for people to cook at home, and this information is still being built up by Food Services⁴³.

Notably, the Watson’s Eatery at St. Paul’s has done much work to advocate for local and fresh food as well as healthy eating. Specifically, it displays the percentage of the Ontario purchases for each respective category (dairy, eggs cheese, fruit and

⁴² Personal Communication with Annette Carroll from UW Food Services, December, 2015

⁴³ Personal Communication with Annette Carroll from UW Food Services, December, 2015

vegetables, etc.) of its food system supply chain (see Figure 4.2.3 below). On the side, it also advertises a local brand (The Bamford Produce) that carries produce grown in Ontario. In addition, the cafeteria offers a nutrition guide of different types of foods, a variety of recipes regarding how to cook with local produce, and a guide that informs people of the availability of fruits and vegetables grown in Ontario. Foodland Ontario supports the research of these three informational materials. The signage of eating local, reducing food waste and supporting sustainability is discernable in the cafeteria.

The report “*Task Force on Campus Food Services*” further reveals that many campus food operators ignore students’ specific needs for various foods. Vegetarian students, Muslim students, and or those who have other food concerns do not find adequate options for their own eating styles (Canadian Federation of Students-Ontario, 2013). Scant information is available regarding the initiatives taken by UW Food Services to cater to various eating habits, except that Food Services made a statement to encourage “students with special dietary needs [to] speak to [their] senior chef to make sure their needs are met as effectively as possible” (UW Food Services, 2015e). Therefore, it is potentially possible for students to request vegetarian and ethnic dishes at UW main campus.

The St. Paul’s Watson’s Eatery now has implemented the ‘Meatless Monday’ initiative which is organized by its Green Team (a student group that is passionate about creating positive socio-ecological change on the community level). Essentially, the cafeteria cuts the consumption of meat once a week by offering vegetarian and or vegan meals. Meat options are still offered on ‘Meatless’ Mondays, but the vegetarian option is promoted through signage. Additionally, Green Team members will stand right in front of the cafeteria and remind people to support ‘Meatless’ Monday. In addition to the ‘Meatless Monday’ initiative, the Watson’s Eatery serves vegetarian food options (e.g. veggie burger) on a regular basis. Similarly, the Grad House offers a number of vegetarian options on its regular menu as well as a number of value-priced specials on a weekly basis. Notably, the kitchen of the Grad House purchases halal chicken from a local farm - Sargent Farms, and it advertises this initiative on the website.

For individuals who regularly purchase food on campus, the rigid operating hours of campus food providers pose a direct threat to students’ eating habits (Canadian Federation of Students-Ontario, 2013). According to UW Food Services’ website, the *Bon Appétit Café*, located at the Davis Centre, operates from 10:30 am to 7:00 pm from Monday to Thursday, and 10:30 am to 3:00 pm on Fridays, and it is closed over the weekends. With some extended hours, the *Brubakers Café*, located in the Student Life

Centre, operates from 9:00 am to 7:00 pm through weekdays. Similar schedules are in effect at most Food Services eateries except that the two residence cafeterias (*Mudie's* at Village 1 & *REvelation* at Ron Eydt Village) are open on weekends. As a result, the stringent schedules cause difficulty for non-resident students to access food after a normal dinnertime or during weekends. It is even harder for students to access healthy food on campus during those times. A vending machine may be the only option for students during their study breaks. Unfortunately, no particular initiatives are taken by UW Food Services to address this food problem.

The Watson's Eatery at St. Paul's has implemented a "*bag lunch and late dinner request*" program to help relieve the difficulty of students to access food after hours. The cafeteria provides students with paper slips every day (see **Appendix G**) to sign their needs of "bag lunch" (i.e. sandwiches, fruit or vegetables, snack, and beverage) and late dinner with a specific pick up date. However, this initiative has not been extended to other UW eateries yet.

The report "*Task Force on Campus Food Services*" has identified another major concern: considering the widespread financial constraint amongst students, how many individuals are using the food bank services on campuses signals the alarming situation of food security in Ontario (Canadian Federation of Students-Ontario, 2013). The report also shows that "[i]n March 2012, 412,998 individuals accessed Ontario food banks across the province", and "[c]ampus food banks have also seen spikes in recent years" (Canadian Federation of Students-Ontario, 2013, p.2). The University of Waterloo's Feds Food Bank, located in the Student Life Centre, caters to approximately 900 students enrolled at UW per year including the repeat visits, among which there are 600 or so unique visitors accessing the food bank on a regular basis⁴⁴. It has two coordinators, six executives (Office, Administration, Donations and Research, and Promotions and Communications), and 120 volunteers⁴⁵.

The Feds Food Bank is open seven days a week. For instance, the operation hours of food bank in the winter term of 2016 are 9:30am to 10:20pm on weekdays, 11:30am to 3:20pm on Saturdays, and 11:30am to 1:20pm on Sundays (Feds Student Food Bank Facebook Page, January 2016). The Food Bank has an administrative budget of approximately \$3,100 that is entirely funded by Feds through the Feds Fee which is paid for by undergraduate students⁴⁶. The coordinators and the services manager at

⁴⁴ Personal Communication with Brendan Lowther from the Federation of Students, December 2015

⁴⁵ Personal Communication with Brendan Lowther from the Federation of Students, December 2015

⁴⁶ Personal Communication with Brendan Lowther from the Federation of Students, December 2015

the Food Bank work together to budget the money to logistical needs (e.g., new scales to weigh items, new shelving, new wooden boxes for donations) and various events (e.g., 2-3 volunteer and executive appreciation events per semester with a small budget for each) throughout the semester⁴⁷. The Feds Food Bank is also supplemented by occasional private donations each year, but it does not budget for this part. For example, in 2015, it received over \$2000 from a former staff member of IST who passed away and wanted the donations in her memory to be given to the Feds Food Bank⁴⁸. She was a longtime supporter, and she often organized food drives in her office area. In terms of the donations of food items, the Food Bank typically receives almost 100 per cent from student and staff food drives in winter terms⁴⁹. In spring terms, it generally receives about 75 per cent from student or staff food drives and 25 per cent from the Regional Food Bank⁵⁰. In fall terms, it relies heavily on the Trick-or-Eat program, and therefore, about 80 per cent of its food donations come from the community during this event, with the rest 20 per cent coming from staff and students⁵¹. In winter terms, CanBuild is a campus-wide food drive event aiming to collect food donations for the Feds Food Bank and the Food Bank of Waterloo Region (Community Relations, 2016). This is a joint undertaking led by the Community Relations & Events Team and the Federation of Students.

Besides monetary donations, the majority of the food donations are leftover non-perishables from on-campus residence halls and other off-campus resources including picking up needed items from the regional food bank⁵². The Food Bank offers food hampers that are available at all times at the Turnkey desk which is open 24/7/365. The marketing strategy of the Food Bank's services is a combination of the assertiveness of the coordinators and their connection with the Marketing department at Feds⁵³. Additionally, the Feds Student Food Bank collaborates with the UW Cooking Club to offer cooking classes to students. On February 28th, 2016, an event was held at St. Paul's kitchen to teach students how to cook with a small budget or foods that can be accessed at a food bank.

⁴⁷ Personal Communication with Merryn Maynard from the Feds Student Food Bank, July 2016

⁴⁸ Personal Communication with Brendan Lowther from the Federation of Students, December 2015

⁴⁹ Personal Communication with Brendan Lowther from the Federation of Students, December 2015

⁵⁰ Personal Communication with Brendan Lowther from the Federation of Students, December 2015

⁵¹ Personal Communication with Brendan Lowther from the Federation of Students, December 2015

⁵² Personal Communication with Brendan Lowther from the Federation of Students, December 2015

⁵³ Personal Communication with Brendan Lowther from the Federation of Students, December 2015

Despite the efforts made by UW Food Bank, from the student's perspective, services provided at the Food Bank are overall limited given physical barriers. The Food Bank office functions out of a small storage closet with no space for expansion and no dignified location to store and distribute monthly food hampers to students in need (Rais, Simms, Persaud, Cai, & Nikaein, 2015). In addition, the website associated with the Food Bank is not well designed to inform students of who are qualified to access these food emergency services. In addition, staff at the Food Bank has been active in making changes. For example, it is in the process of acquiring a fridge for the coming semesters. However, changes are taking place slowly due to a potential barrier caused by the frequent turnover of executive staff and coordinators each semester⁵⁴. As a result, there is a desire for a more accessible and empowering experience for people who struggle with purchasing healthy and affordable food on campus.

5.2.4 Food Waste Management

This principle includes supporting ecologically-sound food production by optimizing inputs (e.g. food packaging) and outputs (e.g. food waste) of the food system to sustain or enhance the environment (Meal Exchange, 2012).

Current Assessment (Grade: B-):

The UW food system is a microcosm of the global food system. The contributions it makes to its local ecological health are critical in a wider sense. This research paper has identified that UW Food Services has been working on a few sustainability initiatives in regards to food waste management, although it has been difficult to gather details of these projects. The section that follows will review these efforts.

UW Food Services has done much to reduce environmental costs resulting from its food dining services through replacing old materials and recycling. It advertises that cutlery that are "environmentally friendly disposable" are available in food outlets on the main campus (UW Food Services, 2015b). Food Services' kitchen has also "switched all the take-out packaging to eco-friendly, compostable containers or PET recyclable friendly containers" (UW Food Services, 2015b). In addition, it uses blue bins to recycle its "glass, tin, cardboard and cooking oil - diverting over 4 tonnes of material going to the landfill each year" (UW Food Services, 2015b). Moreover, each UW Food Services location provides recycling containers, and "new cafeteria trays are made from recycled

⁵⁴ Personal Communication with Merryn Maynard from the Feds Student Food Bank, July 2016

material” (UW Food Services, 2015b). In most food outlets, Food Services has also “switched to bulk condiments” (UW Food Services, 2015b). The "lug-a-mug" program is another initiative concerning reuse and energy saving, since it offers “discount coffee prices if students bring their own reusable coffee mug to any of the outlets” (UW Food Services, 2015b). Furthermore, UW Food Services “provide reusable mugs and water bottles to all residents of V1 and REV at the beginning of the school year and encourage all residents to use them daily” (UW Food Services, 2015b).

In terms of the results of recycling programs on campus, UW does not track the number of any weights for items collected from recycling bins, as to what it has agreed on with the Region of Waterloo. However, the bins in place capture a significant portion of recyclables (paper & containers). Summarized from UW’s 2013 Waste Audit of Food-Services related facilities, Table 3.2 below shows the percent of total disposed to landfill (i.e., thrown in the garbage) for items that could be captured by the blue bin. The relatively low rate of plastics/papers being thrown into the garbage demonstrates that the blue bins are certainly effective at diverting the majority of the waste on campus. In reality, not all containers can be successfully recycled. Only a part of the residue is acceptable by the Region of Waterloo. At curbside pickup sites, items with a large amount of food waste left inside will not be processed at the Region’s recycling facility⁵⁵. However, no further data are available at this point.

Table 3.2 Waste Audit of Food-Services Related Facilities of Year 2013

Waste Type	Student Life Centre	Village 1
Mixed papers	6.6%	3.5%
Mixed Containers	6.1%	4.5%
#6 Plastics	3.5%	--
Coffee Cups	1.1%	1.3%
Cardboard	1.1%	0.7%
#4 Plastics	0.8%	--
Scrap metals, E-waste	Each <0.5%	--
#6 Plastics, Scrap Metal, E-waste		Each <0.5%

⁵⁵ Personal Communication with Mat Thijssen, UW’s Sustainability Coordinator, December 2015

Source: Personal Communication with Mat Thijssen, UW's Sustainability Coordinator, December 2015

According to the Sustainability Coordinator at UW, the biggest waste reduction opportunity lies in organic waste collection⁵⁶. Paper towels are a part of an organic waste collection program, as they cannot be recycled through the blue bin. A few years ago (no specific date is tracked), UW Food Services introduced a pilot program in collaboration with the Region of Waterloo to implement green bins in all kitchens to compost organic materials (e.g. prep waste, spoiled food, etc.). It is not possible to expand this to the public collection at the moment⁵⁷, and this program will end in 2017. The pick-up of the organics is three times a week in the busier terms⁵⁸. This initiative has helped divert food waste from preparation and spoilage that would otherwise go to landfill (UW Food Services, 2015b). Similar to the Blue Bin program, UW does not track any statistics⁵⁹. The Region of Waterloo includes UW Food Services' organic waste alongside that from all curbside pickup, which is initially shipped to a processing facility in Guelph and then changed midstream to St Catherine's. Unfortunately, the amount of the organics stored in each green bin pick-up is not recorded when the operator of UW takes the green bin out to the curb. There is also no interaction between the driver and the unit when he or she is picking up; thus, the Region does not have the total weight of the "compostable product" taken away from campus. Notably, although this Green Bin initiative is not campus-wide, both St. Paul's Watson Eatery and the kitchen of Conrad Grebel University College are also participants of this recycling initiative with the Region of Waterloo, meaning that waste such as food scraps, napkins, stir sticks and other organics are sent to the Region's composting facility.

Apart from UW Food Services and UW's affiliated colleges, the students who are determined to make a change on campus have also come to realize the salience of composting work. A group of UW students together launched a team, which is called Campus Compost, in 2014. The team is dedicated to collecting organic food waste and processing it in the on-site compost cow (a 55 cubic food tumbler that gobbles up food waste), mainly serving Environment and Arts buildings (University of Waterloo, 2015b).

⁵⁶ Personal Communication with Mat Thijssen, UW's Sustainability Coordinator, December 2015

⁵⁷ Personal Communication with Mat Thijssen, UW's Sustainability Coordinator, December 2015

⁵⁸ Personal Communication with Annette Carroll from Food Service, December 2015

⁵⁹ *The Region has no data on this because it is a third party that does the collection, and they have been feuding with them.

In 2014, over 2,000 pounds of biodegradable waste were composted (University of Waterloo, 2015b). The resulting compost collected from the campus compost site is used by Plant Operations to fertilize multiple gardens on campus. The capacity of the team's composting work has been doubled for the academic year of 2015, as the team continues to obtain funds from the Waterloo Environment Students Endowment Fund⁶⁰ to install one more compost location (University of Waterloo, 2015b). As UW's first public organics collections, Campus Compost currently operates two compost cows, with plans to expand in future terms.

Adding on to the prominent efforts made by UW main campus, a few UW's affiliated and federated institutions have taken various initiatives to reduce their food waste and related environmental costs as well. For instance, St. Jerome's University's cafeteria is trayless, and it uses 100% compostable or recyclable take-away containers in servery (St. Jerome's University, 2016). Additionally, both the vending and conference centre areas of St. Jerome's University is water bottle free. The university has also achieved 100% capture composting in community centre and has enhanced its recycling capture through replacing the old bins with new ones. As discussed in previous sections, St. Paul's University College won a Green Dining Award from Compass Group Canada. Apart from its diligent work in sustainable purchasing and local food sourcing, it has implemented many initiatives that improve ecological health including saving energy by not running equipment all day long, water conservation, buying biodegradable products, purchasing fair trade coffee, operating proper waste management, recycling, and composting all food waste in cooperation with the Region of Waterloo (St. Paul's University College, 2015b). Prominently, St. Paul's Watson's Eatery now has implemented the 'Meatless Monday' initiative. By cutting the consumption of meat once a week, this project aims to reduce its carbon footprint (St. Paul's University College, 2016). There is an informative post advertising 'Why Go Meatless' at the Watson's Eatery (see **Figure 5.8** below). It encourages people to think about three principal aspects of eating less meat: animal welfare ethical issues or the animals' lives, environmental concerns, and health issues. Specifically, consuming less meat will help reducing greenhouse gas emissions, conserving water, and reducing the use of fuel. More importantly, having a less meat based diet will help reducing risk of heart disease, stroke, type 2 diabetes as well as cancer. The 'Meatless Monday' campaign was launched on October 19th, 2015 by St. Paul's Green Team. The goal of the Green Team is to make an impact on the community, and it displays a 'pledge tree' to advocate their

⁶⁰ <https://uwaterloo.ca/waterloo-environment-students-endowment-fund/>

determination to improve the sustainability of the campus food system (see **Figure 5.9** below).

Figure 5.8 An Educational Post of ‘Why Go Meatless’ at the Watson’s Eatery.



Figure 5.9 A ‘Pledge Tree’ of Advocating ‘Meatless Monday’ at the Watson’s Eatery.



5.3 Summary

Overall, the contributions from a wide range of actors have allowed for great strides in developing a more sustainable campus food system at UW (see **Figure 5.2**). The case study in Chapter 5 shows that sustainable food initiatives on campus include multiple aspects such as operating farm markets, purchasing from local farmers, enabling students to lead and participate in campus community gardens, recycling and composting. UW's latest *Environmental Sustainability Report* has made a breakthrough by including a section on the campus food system and highlighting several sustainability indicators that track progress in local food purchases, Fair Trade certificates, vegetarian options, and food waste collection. While these efforts deserve recognition and praise, there are important steps that could be taken to further advance towards a sustainable and healthy food system at UW. Next section in this research paper will further explore these potential opportunities to make recommendations for UW's food system sustainability development.

Chapter 6. Discussion

The discussion section incorporates the literature review of the best practices taken by other institutions across North America. It first of all presents the recommendations for UW's imminent improvement in the areas of sustainability and health of the campus food system. The following paragraph elaborates on how these recommendations are achieved through an overall assessment of the sustainability and health of UW's food system by highlighting UW's efforts as well as the challenges remaining in the establishment of a healthy and sustainable food system on campus.

6.1 Recommendations: Higher Sustainability for UW Campus Food System

Based on the four-part framework (report card) outlined in this research paper, the following recommendations are proposed for the University of Waterloo to improve the sustainability and healthfulness of the campus food system. Some inputs of the generation of these recommendations are inspired by the workshop *"Recipes for a Healthy and Sustainable Campus Food System at the University of Waterloo"*. These recommendations focus on improving the access and availability of healthy, affordable and culturally appropriate food options at UW, while also fostering stronger support for sustainable food initiatives on campus. The organizations specified in the brackets are relevant campus food system stakeholders that are expected to take an action on the recommendations of opportunities.

1. Sustainable Food Procurement

- a. Encourage food procurement for campus food menus from sources that are locally and sustainably produced, fairly traded, and organic (to reduce pesticide exposure) by operating on-campus restaurants and cafés (operated by Food Services) or students' own cooperative cafés [UW Food Services, Watson's Eatery, all other food service providers on campus, and individual students];
- b. Develop a more systematic and organizational payment procedure to encourage more diverse sourcing of foods from local farmers [UW Food Services];
- c. Expand vegetarian, vegan, and low-meat meal options at all UW Food Services outlets [UW Food Services];
- d. Increase the frequency of campus farm markets through sourcing fresh produce from local farms or farm markets in winter [UW Food Services];
- e. Offer students opportunities to become local vendors at campus farm markets [UW Food Services];
- f. Forge closer relationships between food system initiatives and the UW Sustainability Office [UW Food Services, UW Sustainability Office];

- g. Encourage Food Services to build a produce processing facility on campus by making use of basements in the old building on campus [UW Food Services];
- h. Expand food storage space for campus food dining services by making use of basements in the old building on campus as well as contracting with local farmers to provide cold storage for some vegetables and other frozen produce [UW Food Services];
- i. Encourage the campus Fair Trade initiative to include more products such as chocolate bars, sweets, fruits, accessories, and gifts in addition to hot beverages [UW Food Services, Engineers Without Borders (EWB), and Sustainable Campus Initiative (SCI)].

2. Food Sovereignty and Connecting People to the Food System

- a. Recruit more participants for the Food Advisory Board (FAB) and expand FAB's agenda to incorporate a wide range of sustainability issues around campus food system [UW Food Services];
- b. Develop a UW Campus Food Strategy Committee that works towards developing a campus food strategy, including goals for food system sustainability and sustainable food policies, and considering establishing partnerships with campus food service providers, UW Food Services management team, and not-for-profit food organizations (e.g., Meal Exchange)[UW Food Services, UW Sustainability Office, faculty and staff members, and interested students and researchers];
- c. Publicize sustainable food system accomplishments at UW [UW Food Services, UW Sustainability Office, and Sustainable Campus Initiative (SCI)];
- d. Include a comprehensive analysis of the campus food system sustainability in UW's annual sustainability report [UW Sustainability Office];
- e. Improve food literacy (e.g., through workshops on cooking, other food skills, food budgeting, and food planning) [UW Food Services, faculties, and campus gardens];
- f. Develop campus food system sustainability visions and policies [UW Food Services, UW Sustainability Office];
- g. Offer a wide selection of both undergraduate and graduate courses as well as internship opportunities that incorporate diverse food system issues and hands-on learning experience [Faculties];
- h. Develop websites or blogs to advertise and document community garden activities [Campus gardens and UW Food Services];
- i. Encourage collaboration between the UW gardens and faculties and research groups to use the gardens as a laboratory to support future educational programs [Campus gardens, faculties, and research groups].

3. Access to Affordable and Healthy Food (and Social Justice)

- a. Reduce the prices of healthier food options through subsidies [UW Food Services];
- b. Increase the availability of healthy vegetarian and vegan options on campus: e.g., implement 'Meatless Monday' or 'Veggie Monday' initiative at UWFS-operated food outlets, and learn from experience of 'Meatless Monday' at Watson's Eatery at St. Paul's University College [UW Food Services and other food service providers on campus];
- c. Offer food information that is more transparent and comprehensive as well as healthy eating recommendations for all UW Food Services eateries and the franchise stores on campus [UW Food Services];
- d. Limit the promotion of fried foods, soft drinks, and other fast-food options that are cheaper but less healthy, and eventually ban the sale of fried foods and soft drinks on campus [UW Food Services];
- e. Erect more signage for choosing healthy food that is locally and sustainably produced and fairly traded [UW Food Services];
- f. Increase healthful food offerings beyond 'grab and go' options through programs such as Community-Supported Agriculture (CSA) and food boxes, on-campus grocery stores, free or cheap vegetarian meals, and food trucks [UW Food Services];
- g. Encourage collaboration between campus gardens and the Feds Student Food Bank [UW Food Services and the Feds Student Food Bank];
- h. Participate in Meal Exchange's project "Beyond Campus Food Bank" [UW Food Services and the Feds Student Food Bank];
- i. Improve access to meal preparation space on campus and increase cooking facilities for campus residents (e.g. make the new Student Life Centre extension kitchen accessible for individual students) [UW Food Services];
- j. Think beyond a campus food bank solution and recognize the existing social and economic barriers for students to access healthy, affordable food at UW and therefore to bring the concern of social justice in the food system to the forefront [UW Sustainability Office, UW Food Services, and the food service providers of UW's affiliated institutions].

4. Food Waste Management

- a. Expand composting (green bin) programs at all campus eateries and staff lounges, and link to campus gardening or landscaping to make use of the compost on site if possible [UW Food Services and UW Sustainability Office];
- b. Improve work in tracking the effectiveness of existing recycling and composting programs and incorporate the results or evaluations in the UW sustainability report for the purpose of educating campus members and setting seasonal objectives; in addition,

- make all the statistics more accessible (website content) to the public [UW Food Services and UW Sustainability Office];
- c. Develop explicit recycling and composting goals for food waste management and make them accessible (website content) to the public [UW Food Services and UW Sustainability Office];
 - d. Keep track of the amount of composted waste as well as a capture rate [UW Food Services and UW Sustainability Office];
 - e. Enhance the education and promotion of recycling and composting programs through distributing educational materials and ensuring the recycling bins are present consistently and conveniently [UW Food Services, UW Sustainability Office, faculties];
 - f. Explore options to encourage the use of reusable food containers, dishes and mugs at UW campus dining facilities [UW Food Services];
 - g. Collaborate with on-campus franchise stores to provide discounts on food purchases when campus members bring their own containers [UW Food Services];
 - h. Limit the sale of water bottles and eventually develop campus-wide ‘water-bottle-free’ zones at UW [UW Food Services].

6.2 Overall Assessment of UW’s Food System

a. Sustainable Food Procurement (Grade: B)

This principle includes encouraging procurement of locally and sustainably produced and fairly traded food, seeking partnerships that enable campuses to host local businesses and purchases from local and sustainable suppliers (Meal Exchange, 2012), and playing a role in building regional food infrastructure, economies, and coordinating food chain linkages (Meal Exchange, 2012).

The case study in Chapter 5 profiles most sustainable food initiatives now happening at UW. The support of UW in local food infrastructure and community economic development is salient, including hosting on-campus farm market events and sourcing food and produce from EPAC, selected local farms, and businesses that carry local foods. The growth of local food purchases that are supported by UW Food Services is sharp between 2014 and 2015. However, barriers still exist for enlarging Food Services’ purchases of local food directly from local farmers. A more systematic and organizational payment procedure would encourage more diverse sourcing of foods from local farmers. In addition, UW Food Services may consider increasing the frequency of campus farm markets since the service is currently only offered ten times per year (June to October). With more students enrolled, the winter term (January to April) is busier than the spring one. However, no services of farmers’ markets are

available in the winter to feed the full house. In contrast, the University of Alberta (UA) hosts weekly weekday farmers' market from January to April. The only interruption of UA's farmers' markets services is the spring break (May to August). Therefore, UW Food Services could consider opening another one from January to April. As EPAC is closed in winter, Food Services may find alternative food providers to ensure the supply of local and fresh produce.

More importantly, UA's farmers' market initiative is more interdependent with UA's campus sustainability office by receiving sponsorship and volunteers from the latter. As a result of the positive interaction of the sustainability office, this initiative is also more connected to other initiatives that contribute to the overall sustainability of UA's campus. Interestingly, both University of Alberta and University of British Columbia (UBC) have made an innovation in their farmers' market initiative by offering students opportunities to become vendors to sell their own products along with other local food suppliers. UW could borrow this idea to develop a more engaging and more interactive environment for its campus members, as trying the roles of volunteers, vendors and consumers helps familiarize themselves with the real-life operation of the local food supply chain in addition to the advantages of having access to foods that are locally and sustainably grown and enhancing food knowledge and skills.

Other food service providers at UW's affiliated colleges and universities also show compelling support to build a sustainable food system, including sourcing local meat, local produce, local drinks, halal chicken, and sustainable seafood. Nevertheless, not all of these initiatives have been promoted to an entire-campus level. Therefore, a higher level of communication and exchange of best food practices should be encouraged between UW Food Services, St. Paul's University College, the Grad House, and other food service providers.

From the achievement standpoint, UW has contributed much to the growth of local food sale and the benefits of local farmers and growers. However, there is room for UW to continue to increase the amount of locally sourced foods as well as enhance the rate of Fair Trade products on campus. In addition to vending fresh produce, the campus dining service accounts for a major part of consuming local and sustainable foods. For instance, the executive chef and the hospitality services purchasing coordinator at University of Guelph work jointly and have become the key drivers behind local and sustainable food procurement. Considering the fact that vegetables and fruit are perishable foods, the chef and the coordinator were able to pursue a grant from the Friends of the Greenbelt Foundation to build an on-campus produce

processing facility to directly process the local produce they purchase in season and store and freeze the food to be served in winter; thereby, they can significantly increase the purchases of local food during growing season as well as save up on the expenses on fresh produce in winter. In addition, they were able to tackle the issue confronted by many institutions of lacking storage space for foods by accommodating the basements in the old building on campus and contracting with local farmers to lease their cold storage for some vegetables and other frozen produce (Pitman, 2012, February 28; Lammers-helps, 2014, July 29). Another success at both University of Guelph and Trent University is to operate an on-campus restaurant or café that sources from local producers and caters to the needs of local, sustainable, and affordable foods. With about one tenth of the volunteers being directly involved in operating the café at Trent University on a weekly basis, the café even offers many educational initiatives in the format of volunteering opportunities, workshops, speakers, and conferences to connect more campus members to the food system (The Seasoned Spoon Café, n.d.).

Based on the statistics of the year 2014, UW Food Services has not converted one third of the hot beverages they purchase to be Fair Trade certified yet. As discussed in Chapter 2, sixteen Canadian institutions (e.g., University of British Columbia, University of Guelph, and University of Ottawa) are Designated Fair Trade (The Canadian Fair Trade Network, 2015). The majority of Canadian institutions including UW are moving towards Fair Trade Designation. As University of British Columbia was designated the first Fair Trade Campus in Canada in 2011 (University of British Columbia, 2015), its fair trade initiatives representatively indicate where UW is working towards: “100 per cent Fair Trade organic and shade grown coffee, and Fair Trade tea” (University of British Columbia, 2015) will be made available at all non-franchise UW Food Services outlets and other on-campus catering providers. Furthermore, University of British Columbia’s accomplishments are far beyond UW’s current ones as to the wide variety of Fair Trade certified products available to campus members: in addition to hot beverages, UW Food Services could consider sourcing Fair Trade sweets and fruits for its outlets; the UW Bookstore and gift shop could consider carrying Fair Trade accessories and gifts; importantly, marketing activities and events are necessary for UW Food Services to increase the awareness of fair trade products across campus (University of British Columbia, 2015).

As a result, UW Food Services could learn from the examples above and explore these diversified sustainable food procurement initiatives in the future to immensely increase its purchases of local, sustainable, and fairly-traded foods as well as strengthen

its role in building regional food infrastructure, economies, and coordinating food chain linkages.

b. Food Sovereignty and Connecting People to the Food System (Grade: B)

1. Enabling decision-making processes that include the meaningful participation of students and multiple stakeholders as valuable contributors to decisions made about food on campus (Meal Exchange, 2012);

There is much encouraging progress in the development of UW's food system sustainability in terms of the Food Sovereignty principle. Engaging people in the campus food system is the most promising effort in accordance with using a food system perspective to solve sustainable issues emerging in the food system. The Food Advisory Board (FAB) established by UW Food Services is a great starting point to connect people to the food system decision-making process. However, since the number of board members does not seem to be large, it may be important for Food Services to recruit more participants. In other words, if Food Services can adequately advertise their work and encourage individuals who are concerned about having sustainable food systems or even have a background in food studies to join the board, then FAB will readily begin to expand their agenda to incorporate a wide range of sustainability issues around campus food system. Concurrently, UW Food Services could establish additional food working groups to increase individuals' knowledge of food origins, production process, and distribution channels as well as to allow them to influence the key factors along the campus food chain. Insights on how these food working groups may operate could be drawn from the recent workshop "*Recipes for a Healthy and Sustainable Campus Food System at the University of Waterloo*" discussed in Chapter 5.

In relation to expanding UW's FAB's scale as well as extending its scope, a few successful examples from other institutions could be referred to in Chapter 2. University of British Columbia (UBC) has been working on a UBC Food System Project (UBCFSP) since 2001. Unlike the small scale of UW's Food Advisory Board, this initiative has engaged more than 1,700 students, campus food staff representatives, and faculty members in a large networking group in responding to challenges and opportunities emerging in the transition to a sustainable campus food system, working towards a sustainable campus food system, impacting the sustainability of the larger BC, Canadian, North American and global food systems (University of British Columbia, 2016d). As briefly discussed in Chapter 4, this project has accomplished a significant number of sustainable food initiatives, categories of which including food procurement, food marketing, education and promotion, food policy, guidelines, and best practices, waste

management, food production, and food preparation and menu (University of British Columbia, 2012). In addition, Indiana University Bloomington in the United States has an active Food Working Group (FWG) composed of students, staff, faculty, and community members working towards more sustainable food purchasing decisions on campus (Indiana University, 2016). This group envisions a food system that is environmentally and financially sustainable and socially just, and it strives for an enhanced food production-consumption relationship by achieving better quality, taste, nutrition of the food as well as lower resulted social, ecological, and public health costs (Indiana University, 2016).

2. Encouraging food education by supporting research, curriculum and internship development relating to food systems that is interdisciplinary, applied and community engaged and contributing to the development of food literacy and skills to encourage healthy food choices (Meal Exchange, 2012);

3. Promoting healthy and sustainable food policy, guidelines, and best practices;

UW has made great progress in educating students, faculty members and staff about the environmental impacts of the current UW food system and approaches to support a sustainable campus by including the a brief analysis of the food sector in the environmental sustainability report and providing food purchase and dietary guidance in the *Sustainable Campus Initiative Green Guide*. However, other indicative numbers such as the percent of local food purchases in previous years, total money spent on local food, and the conversation rate between organic waste and composting need to be collected and analyzed in future reports and other educational materials. The guide is a valuable tool to advise individuals to do their part for campus food sustainability. The food section in *Sustainable Campus Initiative Green Guide* is just a starting point in terms of how much information is currently available. From there, to strive for a comprehensive food guide or regulation could be UW or UW Food Services' next step. Similar to UW's *Sustainable Campus Initiative Green Guide*, University of British Columbia has formulated a *Sustainable Campus Food Guide*⁶¹ which provides a relatively comprehensive review of initiatives happening in the campus food system from food production to waste management, and therefore it is more connected to the big picture of campus food system sustainability. This guide acts as a resource for educating campus members on the key concepts of a sustainable food system in general and of University of British Columbia. It familiarizes the audience with the components of the campus food system, the current sustainable food initiatives, information of campus

⁶¹ <https://sustain.ubc.ca/sites/sustain.ubc.ca/files/images/UBCSustainableCampusFoodGuide.pdf>

food outlets, access to local foods, and various ways for campus members to be engaged in food projects and activities (University of British Columbia, n.d.). This initiative of having a comprehensive sustainable campus food guide is still leading among Canadian higher educational institutions.

Another best practice among universities and colleges in North America is a food system sustainability report card. Many higher educational institutions have participated in this initiative such as University of Toronto, University of Alberta, University of British Columbia, University of Guelph, Boston University, and University of California. Serviced by the website GreenReportCard.org, a campus food system report card is an interactive tool that provides in-depth food system sustainability profiles for a university or college to support identifying the improvement areas and establishing its sustainability regulations or policies. Compared to UW's brief analysis of the food sector in its environmental sustainability report, this initiative helps campus members see the food system in a more critical and transparent way. For example, the University of Toronto's report card tracks multiple aspects such as local or organic food procurement, food recycling and composting, community gardens or farms, and fair trade products of the campus food system (see **Appendix H**). However, the criteria in this existing report card is not as comprehensive as the dimensions developed in this research paper, as components of the principle "Food Sovereignty and Connecting People to the Food System" and "Access to Affordable and Healthy Foods (and Social Justice)" are not emphasized. A same defect was identified earlier in STARS (Sustainability Tracking, Assessment & Rating System) as well. In particular, examples of meaningful participation of students in the food system decision making process, food education, food marketing activities, and access to nutritious foods are missing in the report card.

In terms of food regulation, few institutions have written food policies or even sustainable food policies regardless of the flourishing food initiatives. For example, both the University of Calgary and the University of Toronto have their own Alcohol Policy. To my knowledge, the University of Toronto is one of the few universities and colleges that have Food Services Operating Principles, Food Services Rules and Regulations as well as Water Policy-On Tap. Both Food Services Operating Principles and Food Services Rules and Regulations have addressed environmental responsibility by monitoring items such as water conservation, food waste diversion and packaging, food education, food procurement, and vegetarian and vegan options. Some prominent statements regarding "trayless" and using local ingredients in the Food Services Rules and Regulations can be referred to in Chapter 2. Furthermore, the cafeteria at the Augustana Campus of the

University of Alberta is guided by its own sustainable food policy and is committed to purchase certain food from local suppliers.

Although University of British Columbia does not have a set of sustainable food policies for campus food system, students there participated in the initial consultations to create a sustainable food purchasing policy to guide procurement of meat, poultry, fruits and vegetables by the Alma Matter Society Food and Beverage Department (AMSFBD) back in 2007 and 2008 (University of British Columbia, 2011, p.5). In contrast, UW is still in the process of formulating its own food vision and stating what it may aim to achieve in the development of a sustainable campus food system in the next five to ten years. It will also need to clarify who (UW or UW Food Services) should be in charge of the goals and what roles should be created. Together with an explicitly stated food vision, some existing documents can be used as a reference to create UW's own food regulation or guide: 1) *The National Student Food Charter conceptualized at the National Student Food Summit by Meal Exchange*⁶²; 2) *A student-researched food charter proposed for UW*⁶³.

In addition to the statistics and facts presented in the report, courses and research groups relevant to food sustainability and food policy altogether enhance individuals' understanding of food system sustainability. The two research groups, Global Food Politics Group (GFPG) and the Waterloo Food Issues Group (WatFIG), both provide an effective learning space for community members who are interested in and dedicated to food issues to share their findings and exchange thoughts. However, UW could amplify the impact of the curriculum activities by offering a wider selection of both undergraduate and graduate courses that incorporate diverse food system issues and hands-on learning experience. For instance, the University of Manitoba currently provides students with 17 courses that comprehend various themes (e.g., feeding the world and sustaining livelihoods, urban agriculture, nutrition in public policy) (University of Manitoba, n.d.). Many other universities also act as a great supporter in terms of the education of food system studies including the certificate of the Horticulturist Diploma and the first-ever undergraduate major program in organic agriculture in Canada at the University of Guelph (University of Guelph, 2016b), the Certificate in Food Security at the Ryerson University's G. Raymond Chang School of Continuing Education, and the two-year graduate program in Food Systems and Society at the Marylhurst University. As a result, plenty room exists for UW to plan more academic courses and programs in the future to meet the increasing needs for today's food security professionals.

⁶² http://foodsecurecanada.org/sites/default/files/nsfc_final.pdf

⁶³ http://www.wrfoodsystem.ca/files/www/Jason_Vistoli_411_thesis_FINAL.pdf

It is also worth mentioning that few institutions have offered students internship opportunities regarding sustainable food practices. UW could learn from the examples of University of British Columbia and Yale University discussed in Chapter 2 to build links between students, researchers, farms, schools, and surrounding communities through these action opportunities.

4. Supporting food production or urban agriculture by using campus space as a resource to produce and share food, model local food practices and provide educational opportunities for students around food (Meal Exchange, 2012);

The three on-campus gardens and the Ecology Lab workshops demonstrate UW's supportive role in using campus space as a resource to expand food production and harvesting in urban areas as well as modeling local food practices and providing educational opportunities for students around food. Two of the gardens are community gardens. The St. Paul's Community Garden is considered the more active one since it provided various activities (food growing, farm markets, FoodBox programs, workshops) to engage students, faculty members and staff in the past. In addition, the St. Paul's Community Garden sold a large portion of the harvested produce to students and faculty members in the past. Surprisingly, little advertisement of the gardens and relevant activities are made accessible on UW's website. In contrast, almost each of the University of Alberta's six community gardens has its own website that documents the stories from the garden and announces upcoming events. Therefore, people can take advantage of the accessibility to review the "past" and the "future" of the gardens between 2010 and 2016 to enhance their food interests and knowledge. From reading the content of a well developed website, even outsiders can enjoy people's testimonials and gain a certain amount of knowledge of sustainable food practices. In addition, there is currently no observed collaboration between UW's gardens and other departments or services on campus. However, many of the University of Alberta's community gardens work closely with the university's faculties and research groups to combine the laboratory of the garden with a variety of educational workshops and mentorship learning opportunities to advance students' food security knowledge and practical skills (University of Alberta, 2015a). University of British Columbia has also successfully incorporated food gardening into academic research learning process. Two of its gardens provide seasonal workshops, class case studies, and educational activities to students' classes and research projects to help them gain outdoor food growing experience while they absorb academic knowledge (University of British Columbia, n.d.). Prominently, two gardens at the University of Alberta have established a collaborative

relationship with the food bank on campus and other organizations across the city by donating fresh and harvested foods to them. This initiative not only shows that the University of Alberta cares about food security among its own students but also presents a strong community social responsibility towards the rest of the city's community members. Considering the fact that the scale of UW's community gardens is relatively small, this initiative may not be immediately replicated; however, UW could still initiate a conversation between its Feds Food Bank and the two community gardens on campus and put the idea in future agenda.

5. Encouraging food marketing and promotion materials, activities, and events that may provide a variety of opportunities to connect campus community members with local and sustainable food production;

Like many universities and colleges, UW has been running sporadic food marketing and promotion activities and events such as the Vegetarian Club and the "Local Food Cooking Show"; however, it lacks a strategic plan to connect campus community members with local and sustainable food production through hosting regular campus-wide events themed with food marketing and promotion. Several examples can be referred to from the accomplishments at the University of British Columbia: Between 2010 and 2011, its annual 'Meet your Farmer' event, which was designed to raise student awareness of the UBC farm and BC products, "was expanded to an annual 'Meet your Maker' event and now includes representatives of other aspects of the food system and more campus partners including *Sprouts*" (University of British Columbia, p.2); it has developed UBC campus food labels to "help consumers identify which products are local, produced on campus, vegan/vegetarian, contain UBC Farm products, and more" (University of British Columbia, p.2); and it has developed a "Google Map of the UBC Campus sustainability initiatives 2010 as a tool for students and faculty to be able to more easily locate campus sustainability initiatives" (University of British Columbia, 2012, p.3). Therefore, UW has great potential both in expanding its current "local fruit" events to a larger scale and learning new ideas from the University of British Columbia.

c. Access to Affordable and Healthy Food (and Social Justice) (Grade: B)

This principle includes fostering healthy, nutritious and affordable diet options on campus that contribute to the physical, mental, spiritual and emotional well-being and academic success of all students (Meal Exchange, 2012), providing accessible, comprehensive information about food offered on campus (Meal Exchange, 2012), and affirming that access to affordable, healthy,

culturally appropriate food is essential to the well-being of individuals and communities (Meal Exchange, 2012).

UW Food Services and some UW's affiliated colleges have made great progress in improving campus members' access to healthy food. One prominent effort is that they provide accessible materials that educate people on food nutrition facts and meal types (e.g. vegan) of food offered on campus, tips for nutritious meals, recipes of cooking local and fresh produce, and availability of seasonal vegetables and fruits to encourage people to buy and eat local food. However, there is still some room for improvement on this initiative. UW could offer food information that is more transparent and comprehensive for all food eateries on campus including the franchise stores. For example, the food guide developed by the University of Florida comprises not only nutrition facts but also health recommendations of each food outlet. What makes this initiative most distinguished from that of other institutions is that the University of Florida values students' health over the sales of its dining services. An example recommendation in the guide is that "side orders can up your fat and calories quickly, so limit your portions of these foods (for Burger King) (University of Florida, n.d., p.5).

The growing use of food banks among Canadian campuses also signals that students are confronting challenges in feeding themselves well. However, the initiative of using a food bank is a 'band aid' solution to food insecurity among students. The Feds Student Food Bank at UW only provides regular non-perishable can foods that other food banks would normally offer; therefore, it calls for an innovation in this 'band aid' solution. A remarkable example is that the organic garden at the University of Alberta collaborates with the campus food bank by donating fresh produce to the latter. Furthermore, Meal Exchange's project "Beyond Campus Food Bank" aims to empower students to have "dignified good food access" through "linking campus food banks together in a network, and coordinating National Days of Action on Student Poverty", using Campus Hunger Reports to address the gap in knowledge about student food insecurity and "enable advocacy efforts at the campus, provincial and national levels", and "providing training and sharing knowledge to transform campus food banks into welcoming spaces that promote dignity, health and community" (Meal Exchange, n.d.).

Other barriers exist in enabling all UW students to access healthy, nutritious, and affordable food. One major obstacle observed at UW is the easy access to unhealthy food choices that are relatively cheap versus the unreasonably high pricing of healthy food ones on campus. In other words, fast food options are still more accessible than

healthy and affordable food choices at UW and many other institutions. Prominently, as one of the first higher educational institutions in the province to advocate the habit of healthy eating, Vanier College in St. Laurence, Quebec has banned the sale of fried foods and soft drinks on campus (Vanier College, 2014). Therefore, UW's next step could be to limit the promotion of fried foods, soft drinks, and other fast-food options that are cheaper but less healthy. Instead, UW could erect more signage of choosing healthy food that is locally and sustainably produced and fairly traded.

In fact, UW is lacking an affirmation that access to affordable, healthy, culturally appropriate food is essential to the wellbeing of individuals and communities. The food available on campus has not adequately catered to the needs of healthy, affordable food or different eating preferences (e.g. vegetarian, vegan, kosher, organic, etc.). Therefore, UW could learn from a few institutions' initiatives to incorporate those needs into its campus food services. For example, University of British Columbia offers three options of Community-Supported Agriculture (CSA) and Food Boxes to deliver weekly fresh produce to campus members. Many other campus food projects also play a significant role in enhancing the availability of and access to healthy, affordable on campus as discussed in Chapter 2, such as the University of British Columbia's *Sprouts*, a volunteer and student-run café, grocery store, and community space, the student-run café, *Seasoned Spoon*, at Trent University, the vegetarian restaurant Village Greens (VGs) at the University of Victoria, and the two food truck locations operated by local vendors at the University of Calgary.

Apart from accessing food that is prepared and made from local and sustainable ingredients, there is very restrained meal preparation space at UW. Apart from the various food retailers and providers at the University of Waterloo, there are limited options for students to prepare their own meals. Only students living in UW Place (UWP), Mackenzie King Village (MKV), and Columbia Lake Village (CLV) residences have access to a shared kitchen space; the remainder of students living on campus must rely on a meal plan. While the Federation of Students recently announced plans for a new community kitchen in the Student Life Centre, this kitchen can only be rented by student groups and services, not individual students. However, no specific initiatives have been found relevant from other universities and colleges to address this issue to my knowledge.

Lastly, although UW has many accomplishments of sustainable food initiatives, it has not yet recognized the social and economic barriers to access healthy, affordable food among students. To my knowledge, the Feds Student Food Bank and Fair Trade are

the only initiatives that specifically deal with social justice at UW. However, from the perspective of UW students, it is generally perceived as a demeaning experience for people who use the food bank service (Maynard, 2016). Furthermore, UW does not provide any fairly traded food in addition to hot beverages on campus, so there is much room for UW to expand the varieties of fairly traded foods on campus. In view of these issues, to acknowledge the significance of food insecurity and recognize the existing social and economic barriers for students to access healthy, affordable food on campus could be UW's next critical step to bring the concern of social justice in food system to the forefront and for future efforts to enhance the overall social justice in campus food system.

d. Food Waste Management (Grade: B-)

This principle includes supporting ecologically-sound food production by optimizing inputs (e.g. food packaging) and outputs (e.g. food waste) of the food system to sustain or enhance the environment (Meal Exchange, 2012).

There has been considerable progress in improving the campus environment through a variety of food waste management initiatives that refine the inputs and outputs of UW's food system. These initiatives such as recycling, composting and reducing food packaging in a common sense help reduce the carbon footprint of UW Food Services' operations; however, UW could do a better job in tracking the effectiveness of these programs and incorporate the results or evaluations in their environmental sustainability report for the purpose of educating campus members as well as setting seasonal sustainability objectives. Even its own environmental sustainability report states that "[f]uture effort should also be made to quantify blue bin and green bin data to determine an accurate diversion rate for the whole university" (University of Waterloo, 2014, p.20). Furthermore, as discussed earlier, UW has not developed a food sustainability vision or goal yet, and to my knowledge the sustainability report tends to only report on the decreased or increased statistics of each sustainability-monitoring area. Therefore, UW could learn from some other higher educational institutions that have done it differently. As discussed in Chapter 2, both the University of Guelph and the University of Alberta set specific goals to increase their waste diversion rate from year to year. Adopting this initiative at UW would make it easier for UW Campus Sustainability Office to monitor the change of the overall sustainability at UW through connecting the food system sustainability statistics with other sustainability areas. UW could also make all the statistics more accessible to the public, as now people will need to delve into the *Sustainable Development Report* for

the information of campus sustainability initiatives. This is considered as a barrier in terms of educational purposes.

In many universities and colleges, composting seems to be a major focus among food waste management initiatives. UW's sustainability management team has also acknowledged that the biggest opportunity of reducing food waste lies in organic waste collection. However, UW's Green Bin initiative currently only serves Food Services and a few other food service providers on campus, and it does not track the weight of the collected food waste from the green bins. In contrast, the University of Victoria has placed its organic collection bins throughout the campus and transfers all the food waste collected from the campus to an industrial composting system in collaboration with a third party. More importantly, the University of Victoria keeps a tally of the amount of composted waste as well as a capture rate. Therefore, UW could consider starting to collect data on how much waste is produced and calculate how much percent of the waste is diverted on a regular basis. For further improvement, UW could seek opportunities to maintain its food waste in the campus system and surrounding community loop (i.e., on-campus gardening, landscaping, and local businesses) by learning from the example of the University of North Carolina at Charlotte (University of Alberta, 2014; University of North Carolina at Charlotte, 2016).

As discussed in Chapter 2, UW should also pay attention to monitoring and improving the effectiveness of a diversion program through educational and promotional programs. For example, a university should educate their campus members on the proper use and the meaning of waste diversion (University of Victoria, 2011), and this information could potentially be added into UW's sustainable campus initiative guide.

In terms of the 'Meatless Monday' initiative, the St. Paul's University College at UW has already been working on it since October 2015; however, this food initiative is not campus-wide; thus, there is an opportunity for UW Food Services to learn from the affiliated colleges through a campus committee with regular meetings to enhance the overall sustainability of the UW campus food system.

Lastly, although UW has a 'lug-a-mug' program that offers discounted coffee purchases at all Food Services outlets (franchise stores excluded) if people bring their own reusable mugs, campus members do not have much flexibility in the choices of their beverages. In contrast, the University of Alberta has made a leap forward to collaborates with several on-campus franchise partners (i.e., Subway, Tim Horton's and

Starbucks) to provide a 25 per cent discount on both food and beverage purchases if people are able to bring their reusable containers and mugs (University of Alberta, 2016f). Moreover, it is impressive that the vending and conference centre areas of St. Jerome's University are the 'water-bottle-free' zones at UW; however, the University of Ottawa has been a bottled water free campus since 2010 (University of Ottawa, 2015). Therefore, UW could promote this 'water-bottle-free' initiative to be campus-wide in the future.

Chapter 7. Conclusions

Social, environmental and health concerns have risen in profile over the past few decades. As a result, efforts to transition to a more sustainable food system have now entered into the realm of higher educational institutions. Food system sustainability is a complex issue due to the interdependency between links among food supply chain activities. Therefore, this issue requires persistent efforts and innovative ideas from all stakeholders along the food system supply chain. As one of the key stakeholders and drivers behind the food system change, the universities and colleges across North America have shown substantial support to foster the transformation to a sustainable food system with greater food security and sustainability on campus as well as in surrounding communities. Through their extensive demand for food and dining services, an incomparable buying power, and choices for sustainable and healthy food purchasing, universities and colleges exert significant impacts on the food system. However, such public institutions' advantages are not limited to their large capacity for sustainable food procurement. As precisely summarized in the four trends in the food movement propelled by higher educational institutions that Sacks (2012) has identified, an increasing number of universities and colleges are contributing to the sustainable food movement through connecting food studies to their academic work and co-curricular activities, collaborating with their surrounding communities, and adopting local and sustainable food initiatives. Thus, the framework developed in this research paper highlights four significant dimensions for campus food system sustainability: 1) Sustainable Food Procurement; 2) Food Sovereignty and Connecting People to the Food System; 3) Access to Affordable and Healthy Food (and Social Justice); and 4) Food Waste Management. By virtue of their dynamic educational systems, universities and colleges offer a solid and interactive platform to help enhancing individuals' food literacy and understanding of the multiple facets of economic, health, social, and ecological and values of a food system within and outside the campus community. Apart from the stand point of establishing a more sustainable food system that reduces food insecurity and increases public health, the current food system change taking place in campuses is driven by a wider shift of 'greening' campuses or namely consummating overall higher sustainability, as the operation of a food system such as meat consumption and food waste disposals cause significant environmental concerns.

Functioning as one of the food system microcosms, the University of Waterloo has achieved laudable accomplishments to endorse the food system change by adopting and concocting food initiatives that to create a sustainable campus food system. The analysis in this study identifies that all associated student, staff, and faculty members at

UW have opportunities to access local and organic food, enhance food literacy, participate in food decision-making process, adopt a healthy diet, and contribute to ecologically-sound food production. However, UW has plenty of room to make progress and become an innovative leader among campuses in the food system change in consideration of the existing campus sustainable food initiatives. These opportunities are with respect to enriching its local food infrastructure to increase the capacity of distributing local and organic foods, developing improved reporting systems and sustainable food policies that oversee the campus food system, helping campus members engage in the food system through various learning opportunities such as gardening, curriculums, and internships, empowering campus members to access affordable and healthy food, increasing vegetarian and vegan options across campus and expanding the capacity of food waste receding and composting. Amongst this list, one important aspect that unlocks the door to all sustainable campus food initiatives but tends to be neglected by universities and colleges (including UW) is to recognize the food security issues among students as well as to acknowledge the existing social and economic barriers for students to access healthy and affordable food on campus, to bring the concern of social justice in food system to the forefront.

Another important takeaway from this research is that there is not yet a consensus on what a healthy and sustainable food system looks like. In addition, localization is acknowledged to be ideal, but it is relative. Other dimensions need to be considered alongside it. Universities and colleges, including UW, should be aware of this 'local trap' issue by knowing that 'buy local' might be an outcome of the pressure associated with social media across North America. Considering the ongoing debates around the relationship between local foods and a healthy, sustainable food system, this research paper recommends that UW and other higher educational institutions acknowledge the merits of sourcing local foods while continuing to explore the various perspectives on what defines a sustainable and healthy food system, as well as seek improvement that is compatible with their own advantages to establish a sustainable campus food system.

Principally, it is hoped that this study will serve as a stepping stone for drawing more attention to food system sustainability issues at UW and other higher educational institutions in North America. It also intends to provide a general picture of the current food system change, an overview of campus food system sustainability issues and best practices, and an understanding of how universities and colleges can be well-positioned to take advantage of enormous opportunities to wield their considerable resources and power to influence the transition to a more sustainable food system. As part of the

potential contributions, this study concludes that connecting people to the food system is a critical step to create more awareness about various initiatives for a healthy and more sustainable campus food system, to encourage student, staff, and faculty members to critically evaluate campus food system sustainability, proactively seek and demand healthy and sustainable food options on campus whenever possible, and ultimately to create an environment that incorporates a wider range of food system decision makers and supports campus-community food system sustainability.

Finally, the four dimensions (i.e., Sustainable Food Procurement, Food Sovereignty and Connecting People to the Food System, Access to Affordable and Healthy Food (and Social Justice), and Food Waste Management) incorporated in the framework developed in this paper intend to act as a pilot, to broaden the influence of this research within universities, colleges and surrounding communities in North America by educating everyone on the health and sustainability aspects of a campus food system as well as promoting the adoption and exchange of sustainable food initiatives between organizations. However, future research regarding conceptualizing a sustainable campus food system as well as conducting more case studies of universities and colleges across North America would be welcomed in order to improve the accuracy and comprehensiveness of the framework developed in this study, and to create deeper changes in campus food systems.

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Appendices

Appendix A

UNIVERSITY OF BRITISH COLUMBIA

FOOD SYSTEM PROJECT

ACCOMPLISHMENTS

The following document summarizes a selection of key UBC Food System Project (UBCFSP) accomplishments that have contributed to the continued enhancement of the sustainability of our campus food system. The accomplishments are the direct results of student projects. Many of these accomplishments were realized with the support of the project partners and the UBCFSP Coordinator. Due to the iterative nature of the project, many accomplishments may have been set in motion in prior to the year for which it is listed.

Abbreviations:

UBCFSP= UBC Food System Project
AMSFBD= Alma Mater Society Food and Beverage Department
UBCF= UBC Food Services
SUB= Student Union Building

2011-2012 Accomplishments

Coming soon...

For a detailed list of annual accomplishments from 2001-2011, please see the final pages of the annual summary reports in the 'publications' section of this blog.

2010-2011 Accomplishments

- UBCFS has now sourced Fair-Trade sugar packets, which are available for all Wescadia, catered events and select outlets (The Loop). UBCFS continues to work with distributors and vendors to negotiate the best price possible for other organic fair-trade sugar products to incorporate in other items. **(Food Procurement)**
- As the result of UBCFSP student work, the first Fair-Trade UBC-made food item was prepared for the "Fair-Trade Day" held outside the Bookstore in summer 2011. This came about as a result of UBC's new status as a "Fair-Trade certified campus". **(Food Procurement)**
- Student proposed Fair-Trade marketing strategies were approved and will be implemented. **(Food Marketing, Education & Promotion)**
- Lesson plans were provided to the Think and Eat Green team members for use and implementation. **(Food Marketing, Education & Promotion)**
- The developed "Instructional Waste Sorting Pamphlet" was provided to SHHS for incorporation in the beginning of the year UBC Residences packages. **(Food Marketing, Education & Promotion)**
- The proposal for a root cellar in the New SUB was submitted for review by the AMS New SUB Committee for review. **(Food Policy, Guidelines & Best Practices)**

FOOD SYSTEM PROJECT

- Annual "Meet your Farmer" event was expanded to an annual "Meet your Maker" event and now includes representatives of other aspects of the food system and more campus partners including Sprouts. **(Food Marketing, Education & Promotion)**
- New UBC campus food labels (based on the LOV labels developed in 2008) are being developed. The labels will help consumers identify which products are local, produced on campus, vegan/vegetarian, contain UBC Farm products, and more. **(Food Marketing, Education & Promotion)**
- The "Eco-to-go" program is a program that provides reusable food containers to students at the point of sale. Students can exchange a membership card for an Eco-go box and a dirty Eco-go box for a membership card. The Eco-boxes are washed and sanitized by UBCFS. The program was trialed in 2011 and expanded to all non-franchise UBCFS food outlets. **(Waste Management)**

2009-2010 Accomplishments

- The AMS New SUB Committee reviewed and accepted the group's proposal for a rooftop garden to be included in the plans for the New SUB. As a result, the building will be built with infrastructure to accommodate a future garden. The committee agreed that a second project phase is needed; as a result a project proposal to create a formal business plan for the garden will be offered to UBC MBA students and a formal crop production plan proposal will be completed by a directed studies student in Fall, 2010. **(Food Production)**
- As recommended by the procurement scenario groups, UBCFS has replaced all their tofu with Victoria based Dayspring's organic and locally produced tofu line, which also resulted in cost savings as recommended by groups. Requests for tofu have increased from one to 35 requests per day in UBCFSs' Place Vanier residence cafeteria according to head chef Steve Golob. **(Food Procurement)**
- Beginning in September, 2010, the AMSFBD's 'The Honour Roll' will offer a brown and white rice combination in their sushi as recommended by a 2010 group. This was done in an effort to increase the nutritional value of the sushi and to introduce less processed foods to the menu items. **(Food Preparation and Menu)**
- In 2010, the Head Chef, Steve Golob, of UBCFS's Place Vanier has developed 140 new recipes focusing on local food. These new items will be featured in a three day menu that is color coded to highlight alternative food choices such as vegan, vegetarian, iron rich and gluten free. Some of these recipes have been nutritionally analyzed and added to the Cropedia site as a summer initiative. **(Food Preparation and Menu)**
- In 2010, SUB became a member of the official Climate Action Partnership's (CAP) Food Action Team and will report to the team on a semi-annual basis. This came as the result of the 2008 participation in the development of the UBC Sustainability Office- Climate Action Partnership (CAP)'s Climate Action Framework (CAF). The CAF is intended to help UBC move beyond climate neutral, as part of the president's Climate Change Statement of Action, which commits UBC to reduce its GHG emissions, and the BC legislation requiring all public sector organizations be carbon neutral. **(Food Policy, Guidelines & Best Practices)**

FOOD SYSTEM PROJECT

- The 'Meet the Farmer Event' was held in March 2010 to raise student awareness of UBCFS' increased use of UBC Farm and BC products. The event will be held again in September 2010 in the SUB plaza and/or concourse and will be expanded to include the AMSFBD (2010). **(Food Marketing, Education & Promotion)**
- Sprouts Management will begin to offer the 2010 UBCFSP student designed educational workshops over the course of the next year. These workshops focus on local food system sustainability issues and offer participants an opportunity to learn new skills. Some workshops include: Apartment Sized Vegetable Gardens, Drying your Own Fruit, and Wild Campus Foraging. **(Food Marketing, Education & Promotion)**
- Sprouts will advertise their student oriented services in the campus residences in September 2010 to help raise awareness of the programs to students who may not otherwise seek them out. **(Food Marketing, Education & Promotion)**
- The UBC Food System resource titled 'Cropedia' was developed in 2010 as a resource for UBC food system members. The site details growing, harvesting, preparation, and nutrition information as well as recipes for 44 crops grown at the UBC Farm and the LFS Orchard Garden. The site can be found at http://cropedia.landfood.ubc.ca/wiki/Main_Page. Regular recipes with links to the Cropedia will also be featured in UBC's Health Safety and Environment (HSE) Healthy Promotions Program (HPP) Healthy UBC blog and in their monthly Healthy UBC Newsletter. **(Food Marketing, Education & Promotion)**
- A Google Map of the UBC Campus sustainability initiatives was developed in 2010 as a tool for students and faculty to be able to more easily locate campus sustainability initiatives. It is now available at <http://ubcsfsi.blogspot.com/p/ubc-sustainable-food-system-initiatives.html>. **(Food Marketing, Education & Promotion)**
- In 2010, UBC Farm signage in UBCFS cafeteria at Place Vanier has been designed and erected to help customers make the connection between campus food production and the food they are consuming. **(Food Marketing, Education & Promotion)**
- The AMS Sustainability Coordinator put forward the student proposal for an Eco-Box program in the new SUB as a measure to eliminate waste generated from to-go containers. The idea will be pursued by an Applied Biology course in September 2010. **(Waste Management)**
- In 2010, the LFS Orchard Garden established and maintained a three bin composting system as recommended by 2009 UBCFSP students. **(Waste Management)**

2008-2009 Accomplishments

- LFS Orchard Garden coordinator, Jay Baker-French, implemented the 2009 group's recommendations to consult with Agora Café and AgUS in his crop choice for the 2010 summer season. The Agora Café is now purchasing summer produce from the garden and processing and freezing the goods for winter use. **(Food Production)**
- The construction of the LFS Garden enclosure began in April, 2009 was completed during the 2009 summer months. The LFS Orchard Garden enclosure was planted with blueberries, kiwi and dwarf apple trees among other crops recommended by the 2009 group LFSOG proposed plans. **(Food Production)**

FOOD SYSTEM PROJECT

- In 2009, students performed specific project tasks at the UBC Farm including: thinning forest stands, managing hedgerows, managing canola, working with the chickens and helping remove plastic drip tape from the fields. **(Food Production)**
- The proposed LFS Orchard Garden three-bin compost system was built in adherence with the Greater Vancouver Regional District's recommended design for a three-bin pest resistant compost system. The materials were purchased through a grant from the AMS Student Environmental Society obtained in March, 2009. Information on effective composting was compiled in the Orchard Garden Website. **(Food Production)**
- As recommended, since 2009 a summer work-study student has been hired to maintain the LFS Orchard Garden over the summer months. **(Food Production)**
- Students created an Integrated Pest Management Plan, an improved production and harvesting management plan, and a garden management plan for the Orchard Garden. The plan includes a time-line for major events. **(Food Production)**
- A communal vision statement for the UBC Orchard Garden was prepared along with a layout of levels of management within the committee. **(Food Production)**
- UBC Farm sales to Place Vanier increased 30% over the last year from \$800 in 2008 to \$1400 in 2009. **(Food Procurement)**
- As a result of previous LFS 450 groups' recommendations, UBC Farm flowers are now procured by UBCFS at both Place Vanier and Totem Residence to display on their dining tables and at special events. **(Food Procurement)**
- In summer 2009, the Agora Café began to preserve summer harvest produce from the LFS Orchard Garden and UBC Farm for use during winter months in an effort to provide local foods for a larger portion of the year. **(Food Preparation and Menu)**
- A selection of AMS Lighter Footprint "LOV" label (Local, Organic, Vegan) menu items created by UBCFS students were made available at AMS food outlets. These include a vegan granola bar (Pendulum Café, 2009), vegan ginger cookie (Blue Chip Cookies, 2009), apple and beet salad (Pendulum Café, 2008) and cheese-less pizza (Pie R Squared, 2008). These items have increased the environmentally healthy menu options in the AMS food outlets. **(Food Preparation and Menu)**
- The 2009 recommended UBC Farm Carbon Smart food guide was published and is being dispersed at the weekly UBC Farm markets. The 'Eat Carbon Smart' website offers supporting information about a carbon smart diet and is located at <http://eatcarbonsmart.ca/>. **(Food Marketing, Education & Promotion)**

2007-2008 Accomplishments

- UBCFSP students and UBC Farm representatives submitted an application on behalf of the LFS Orchard Garden and successfully obtained a portion of the 2008 Grad Council Class Gift. As a result, a student in the Faculty of Land and Food Systems was hired to serve as the Land and Food Systems Orchard Garden Coordinator. **(Food Production)**
- With help from a UBCFSP student group, a LFS Orchard Garden Advisory Committee was established to provide mentorship to the garden coordinator and volunteers and to help oversee ongoing garden activities and future development. **(Food Production)**

FOOD SYSTEM PROJECT

- The relationships established between UBCFS and Discovery Organics in 2007/2008 led to the procurement of the first local organic apples on campus, UBCSFS is now purchasing 100% local and organic whole fruit from Discover Organics throughout the school year.
- AMSFBD implemented proposals to procure cage free eggs at AMSFBD outlets in an effort to support more humane animal welfare practices. **(Food Procurement)**
- The proposal to create buyer seller relationships between the AgUS, Agora Café and the LFS Orchard Garden was implemented with the intention of modeling a local urban food system within the Faculty of Land and Food Systems. **(Food Procurement)**
- Student proposals to sell a selection of UBC Farm produce to Place Vanier, Sage Bistro and Pie R Squared were implemented with the intention of increasing awareness of the UBC Farm on campus and to model a local food system. **(Food Procurement)**
- Students participated in the initial consultations to create a sustainable food purchasing policy to guide procurement of meat, poultry, fruits and vegetables by the AMSFBD. **(Food Procurement)**
- The AgUS incorporated elements of group's proposed seasonal cookbooks into the weekly AgUS BBQ's for the September to April term. **(Food Preparation and Menu)**
- Student proposals to include principles of food system sustainability in the development of the new Beaty Biodiversity Building Café were prepared. **(Food Preparation and Menu)**
- Students helped inform the further development of the AMS Lighter Footprint Strategy, aimed at enhancing the sustainability of AMS operations. Subsequently, student worked with AMS food outlets to incorporate more environmentally friendly food options. **(Food Policy, Guidelines & Best Practices)**
- The AMS FBD has implemented a new seasonal menu campaign including the Fall Harvest Items as a spin-off of the Eco-label LOV items, which a UBFSP student group proposed and implemented in 2008. **(Food Marketing, Education & Promotion)**
- AMSFBD implemented the 2008 proposal for a sustainable food discount program, based upon a group's template for an "Eating Ecologically" stamp-card, where a customer receives a discount after purchasing ten lighter footprint menu items. **(Food Marketing, Education & Promotion)**
- The AMSFBD incorporated the 2008 proposals for a monthly one day event – "Eco-friendly Day," where all AMSFBD outlets promote various sustainability initiatives. **(Food Marketing, Education & Promotion)**
- The 2008 marketing strategies to promote AMSFBD sustainability initiatives, including promoting green discounts, reusable containers, lighter footprint menu options, etc. were implemented. **(Food Marketing, Education & Promotion)**
- As recommended in 2008, waste management signage was harmonized between UBCFS and AMSFBD, where all composting, recycling and waste signs share the same template. **(Food Marketing, Education & Promotion)**
- In 2008 students developed the "Composting Road Signs," which was later erected. The sign directs people to the nearest composting bin with the intention to increase composting behaviour among faculty, staff and students around food outlets in the SUB. **(Food Marketing, Education & Promotion)**

FOOD SYSTEM PROJECT

- The AgUS implemented the 2008 proposal to create a bulletin board, posters and labels to increase awareness of the origin and nutrition of AgUS BBQ menus. **(Food Marketing, Education & Promotion)**
- As recommended by UBCFSP students, reusable collapsible containers became available at AMSFBD outlets to encourage the use of re-usable containers. **(Waste Management)**
- The AMSFBD increased the number of composting bins in the SUB, from one to eleven composting bins as a result of UBCFSP student work. **(Waste Management)**
- In 2007 students proposed that the UBCFS put a 'green-tax' on to-go containers at the Totem and Vanier Residences to encourage students to eat in and not waste to-go containers. UBCFS accepted and implemented the proposal. **(Waste Management)**
- As recommended in 2007, the AMS has implemented a three-bin waste sorting cart with compost, recycling and landfill compartment. **(Waste Management)**

2006-2007 Accomplishments

- UBCFSP groups helped inform the development of a campus community garden at Hawthorn Place. **(Food Production)**
- A baseline measure of the local produce purchased by UBCFS was taken for all outlets excluding residences. This baseline serves as a comparison for annual improvements in procurement of more sustainable food items. **(Food Procurement)**
- A list of local food distributors and producers selling a selection of BC food products that met the requirements of the UBC food providers was developed. **(Food Procurement)**
- Students developed recipes to incorporate UBC Farm items into Bernoulli Bagels menu offering. **(Food Preparation and Menu)**
- The AMSFBD incorporated marketing tools which students developed to showcase UBC Farm products at three AMS outlets in the SUB: Pie R Squared, Bernoulli's Bagels, and The Pendulum. **(Food Preparation and Menu)**
- Working with Agora Café, students developed and implemented the idea to pre-prepare foods after hours. This idea was an answer to logistical and volunteer challenges experienced by the cafe. **(Food Preparation and Menu)**
- Students recommended the introduction of local and sustainable items in Sage Bistro's menu. Today this is a central aspect of the restaurant. **(Food Preparation and Menu)**
- Proposals were implemented to incorporate UBC Farm produce into Agora Café's menu including recipes, sourcing, and marketing materials. Since September 2007, Agora Café now places weekly orders with the UBC Farm. **(Food Preparation and Menu)**
- Agora Café incorporated UBC Farm eggs and berries into existing menu items as recommended by UBCFSP groups in 2007. Agora now uses as many products from the LFS Orchard Garden and UBC Farm as it can purchase, process and store. **(Food Preparation and Menu)**
- Students created, organized and implemented the educational event "Bin Basketball" for UBC's Responsible Consumption Week. **(Food Marketing, Education & Promotion)**
- UBCFSP students worked with UBCFS, BC Restaurants and Foodservices Association and the BC Agricultural Council to implement an Eat BC! program showcasing local BC food and beverages. The Program took place September 14th-30th and three UBCFS outlets

FOOD SYSTEM PROJECT

(Sage Bistro, Café Perugia and Place Vanier's Dining Room) featured BC seasonal dishes. Place Vanier featured 70 seasonal BC dishes throughout the promotion. The program has continued at UBCFS establishments. **(Food Marketing, Education & Promotion)**

2005-2006 Accomplishments

- In 2006, students created and sampled the recipe for the UBC Farm "Roasted Butternut Squash Pizza," which was implemented in fall 2007 at Pie R Squared, an AMS food outlet. **(Food Preparation and Menu)**
- In 2006, students ran educational booths and related activities in the first "UBC Sustainability Fair" to increase awareness of campus food system sustainability initiatives. The 2007 fair hosted over 30 groups who presented interactive resource booths, a UBC Waste Management "tales of our trash" exhibit, a sustainability film festival, a "parade of lost vegetables" (in support of the UBC Farm) and more. During the fair, the "Keep the UBC Farm Gates Open" fundraiser was held which included two local bands, seasonal food and local drink specials and prize giveaways. Approximately \$1000 was raised and donated to the Farm. **(Food Marketing, Education & Promotion)**

2001-2006 Accomplishments

The UBCFSP annual summary reports have a complete list of accomplishments from 2001-2006. The UBCFSP annual summary reports can be found in the SEEDS library:
<http://sustain.ubc.ca/seeds-library>.

Appendix B Sustainable Food Policy of University of Alberta's Augustana Campus

UofA Augustana : Food

2015-12-01, 10:09 PM



Find a person (<http://webapps.srv.ualberta.ca/search/>) Beartracks (<https://www.beartracks.ualberta.ca/>) Email & Apps (<http://apps.ualberta.ca>)

(<http://www.ualberta.ca/>)

eClass (<https://eclass.srv.ualberta.ca/portal/>) Library (<http://www.library.ualberta.ca/augustana>)

Type search words Search

AUGUSTANA CAMPUS ([HTTP://WWW.AUGUSTANA.UALBERTA.CA](http://www.augustana.ualberta.ca))

SUSTAINABILITY

[FUTURE STUDENTS \(/STUDENTS/FUTURE/\)](#) [CURRENT STUDENTS \(/STUDENTS/CURRENT/\)](#) [PROGRAMS \(/PROGRAMS/\)](#) [ATHLETICS \(/ATHLETICS/\)](#) [SERVICES & OFFICES \(/SERVICES/OFFICES/\)](#)

[Augustana Home \(/\)](#) / [Offices \(/offices/\)](#) / [Sustainability \(/offices/sustainability/\)](#) / [Campus Initiatives \(/offices/sustainability/programs/\)](#) / [Food](#)

[Waste \(waste.html\)](#)

[Energy \(energy.html\)](#)

[Building and Cleaning \(sustainable_building.html\)](#)

[Transportation \(Transportation.html\)](#)

[Food \(food.html\)](#)

[EcoAction \(EcoAction.html\)](#)

[Water \(Water.html\)](#)

Solar Panels

Current temperatures

Solar panel: 33.6°C

Water tank: 31.4°C

Savings since Jan. 19, 2011

Energy: 209.83 GJ

Carbon: 1,028.15 KG

Food

Local food

The Augustana Cafeteria offers at least one Local Lunch per month, where all the food served at the meal is sourced locally. These delicious meals are offered at the same price as regular Augustana Cafeteria lunches. You won't want to miss out on the next Local Lunch (<https://webapp.augustana.ca/menu/>).

The Cafeteria also regularly sources a portion of our food from local sources - reducing the carbon footprint necessary to transport food to campus. These items are:

- Eggs
- Potatoes
- Carrots
- Onions
- Meats (chicken, beef, pork)
- Mushrooms
- Cucumbers
- Flour
- Rolled oat cereal
- Saskatoons
- Bean sprouts
- Barley
- Cabbage



Tray-less Cafeteria

In 2009 the cafeteria went tray-less. This:

- Saves ½ a gallon of water for every tray that does not have to be cleaned. That's a lot of water!
- Reduces the amount of chemical cleaning agents needed, thus there are less chemicals going down the drain. And,
- Reduces the amount of waste produced by approximately 30%. In the past, trays were often loaded with far more delicious food than the average person would eat, ultimately producing a lot of waste. Without trays, people tend to take what they CAN eat. An effort that is undoubtedly effecting staff and student waistlines as well!

Sustainable Food Policy

In serving food in its cafeteria, the Augustana Campus of the University of Alberta is guided by the following commitments:

- To provide safe, fresh and nutritious food;
- To contribute to the economic, social and environmental sustainability of our home region and the planet, through balanced and responsible procurement decisions; and,
- To cultivate within our academic community both a critical awareness of food issues and a sense of celebration around food that is inclusive of the many cultural traditions represented among our students.

On Augustana's residence-based Campus, the cafeteria plays a central and much-valued role in student life. It serves 300-400 meals three times a day. Its skillful, conscientious food-services staff put quality ahead of convenience; meals are prepared on site, mostly from basic ingredients, rather than pre-cooked and pre-packaged.

In aspiring to be an institutional leader in developing sustainable food practices through its procurement decisions, Augustana balances a range of considerations. We are aware of the need to keep costs affordable for students. We are also aware, on one hand, of the advan-

<https://www.augustana.ualberta.ca/offices/sustainability/programs/food.html>

Page 1 of 2

tages of our location in an agricultural region and, on the other, of the challenges presented by a northern climate and the existing food system. It is not possible to satisfy all basic nutritional needs – fruit, for example – from local and regional sources in all seasons. Our first priority is to provide safe, fresh and nutritious food. Our second priority is to support forms of food production and processing that sustain the environment, our regional rural economy and farm livelihoods. We understand that those priorities are not necessarily in conflict; often the second complements the first.

To the extent that it is practical, Augustana's preference is (1) to purchase food that is produced within our home region (approximately a 200-km radius), before looking to provincial, national and global sources; and (2) to purchase from farmers and processors who are taking steps towards sustainability in the methods they employ. In general, farmers and processors will

- utilize best practices in the application of fertilizers, natural or synthetic, and pesticides;
- engage in water and soil conservation;
- protect and enhance wildlife habitat and biodiversity;
- provide safe and fair working conditions for on-farm labour;
- provide healthy and humane care for livestock; and,
- reduce energy consumption through recycling and minimum packaging.

Augustana is prepared to work with farmers and processors to develop their capacity, help overcome obstacles and provide stable, long-term markets.

University of Alberta (<http://www.ualberta.ca/>) | Faculty & Staff (</employees/>) | Careers (/offices/human_resources/employmenttoppor- Proud member of COPLAC (<http://www.coplac.com/>) | Contact Us (</contacts/>)

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Appendix C

<http://www.meatlessmonday.com/meatless-monday-campus/>

Meatless Monday Meatless Monday on Campus - Meatless Monday

2016-07-05, 8:20 PM



Seven More Colleges Serving Meatless Monday

Recently, no less than seven campuses have committed to the movement, opting for a flexible and plant-based menu for a variety of reasons from cost savings to health. ([read more](#))

- American University | Washington, DC
- Appalachian State University | Boone, NC
- Arcadia University | Glenside, PA
- Arizona State University | Tempe, AZ
- Arkansas State University | AR, Jonesboro
- Atlantic Armstrong State University | Savannah, GA
- Baker University | Baldwin City, KS
- Barnard College | New York, NY
- Bergen Community College | Paramus, NJ
- Binghamton University | Binghamton, NY
- Blackburn College | Carlinville, IL
- Bloomfield College | Bloomfield, NJ
- Bradley University | Peoria, IL
- Brandeis University |
- Brooklyn Law School |
- Brown University |
- Bucknell University | Lewisburg, PA
- Cabrini College |
- Cal Poly Pomona |
- Caldwell College | NJ
- California State U, Fresno |
- California State U, Long Beach |
- California State U, Monterey Bay |
- California State University, East Bay | CA
- Campbellsville University |
- Carnegie Mellon University |
- Casper College | WY
- Colby College |
- Colby-Sawyer College |
- College of San Mateo |
- Columbia University |
- Copenhagen University | Denmark
- Creighton University |
- Dalhousie University |
- Dartmouth College | Hanover, NH
- Davenport University |
- Davidson College |
- Delft U of Technology *Netherlands* |
- DePauw University |
- Eastern Carolina University |
- Eastern Kentucky University |
- Emory University |
- Emory University | GA
- Fairleigh Dickinson University | NJ
- Fordham University | NY
- Framingham State University |
- George Washington University | Washington, DC
- Grand Canyon University | AZ
- Grand Valley State University |
- Greenville College |
- Humboldt State University |
- Northern Kentucky University |
- Northwest Missouri State University |
- Northwestern University |
- Oklahoma City University |
- Oxford University *UK* |
- Pace Law School | NY
- Pomona College |
- Portland State University |
- Pratt School of Engineering |
- Queens University *Canada* |
- Rhodes University *South Africa* |
- Rochester Institute of Technology |
- Roskilde University | Denmark
- Sacramento State University |
- Saint Xavier University |
- Salve Regina University |
- San Diego State University |
- Scripps College |
- Seton Hall |
- Seton Hall University | NJ
- Shepherd University |
- Simpson University |
- Skagit Valley College |
- Southern University at Shreveport |
- Stephen F. Austin State | TX
- SUNY Brockport |
- SUNY Geneseo |
- Syracuse University |
- Tarlac State University *Philippines* |
- Tel Aviv University *Israel* |
- Temple University |
- The College of New Rochelle |
- The College of Wooster |
- Tompkins Cortland Community College |
- Tulane University |
- University at Alabama |
- University at Buffalo |
- University College Cork *Ireland* |
- University of California, Berkeley |
- University of California, Davis |
- University of California, Irvine |
- University of California, San Diego |
- University of California, Santa Barbara |
- University of California, Santa Cruz |
- University of Central Florida |
- University of Delaware | Newark, DE
- University of Denver |
- University of Florida |
- University of Houston |
- University of Manchester *UK* |
- University of Mary Hardin-Baylor |

<http://www.meatlessmonday.com/meatless-monday-campus/>

Page 2 of 3

- Imperial College London |
- Indiana State University |
- International Culinary Center | New York, NY
- Ithaca College |
- James Madison University |
- Johns Hopkins University |
- Kalamazoo College |
- Kean University | NJ
- LaGuardia Community College |
- LeHigh University |
- Life University |
- Lynchburg College |
- Manhattan College | NY
- Massasoit Community College | Brockton, MA
- McDaniel College |
- McGill University *Canada* |
- Medical University of South Carolina |
- Messiah College |
- Mills College |
- Milwaukee Institute of Art & Design | Milwaukee, WI
- Minneapolis Community & Technical College | MN
- Monterrey Institute of Technology and Higher Education | Monterrey, Mexico
- Moraine Valley Community College |
- New College of Florida |
- New Jersey City University | NJ
- New Jersey Institute of Technology | NJ
- Northampton Community College |
- Northern Arizona University |
- University of Maryland |
- University of Minnesota |
- University of Mississippi |
- University of Montevallo |
- University of North Carolina, Asheville | Asheville, NC
- University of North Carolina, Chapel Hill |
- University of North Carolina, Charlotte |
- University of Northern Colorado |
- University of Northern Florida |
- University of Notre Dame |
- University of Rochester |
- University of San Diego |
- University of St. Thomas |
- University of the Pacific |
- University of Toledo |
- Upstate Medical University |
- Utah Valley University |
- Vassar College |
- Villanova University |
- Wageningen University *Netherlands* |
- Warren Wilson College | Swannanoa, NC
- Western Carolina University |
- Western Michigan University |
- Western Oregon University | OR
- Western Washington University |

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Appendix D

[OOD](#)

Food Systems

[Local Food Access and Active Transportation](#)
(February 2014) PDF File - 441 KB, 31 pages

[Food Friendly Municipalities in Waterloo Region](#)
(August 2013) PDF File - 1.19 MB, 45 pages

[Rethinking Healthy Eating in the Workplace](#)

[School Nutrition Policy Process Evaluation](#)
(April 2013) PDF File - 494 KB, 48 pages

[Community Gardening Storytelling Project](#)
(May 2013) PDF File - 4.3 MB, 51 pages

[Waterloo Region's Food System: A Snapshot](#)
(May 2013) PDF File - 1.94 MB, 4 pages

[The Health of Waterloo Region's Food System: An Update](#)
(May 2013) PDF File - 1.26 MB, 61 pages

[The Economic Development Potential of the Local Food Sector in Waterloo Region](#)
(May 2013) PDF File - 730 KB, 19 pages

[Neighbourhood Markets - Outcome Evaluation](#)
(March 2009) PDF File - 3.62 MB, 26 pages

[Annotated Bibliography of Public Health Reports and Studies Related to Waterloo Region's Food System](#)
(December 2008) PDF File - 40 KB, 4 pages

[Neighbourhood Markets Initiative](#)
(February 2008) PDF File - 1.6 MB, 28 pages

[A Healthy Community Food System Plan](#)
(April 2007) PDF File - 654 KB, 22 pages

[Redundant Trade Study](#)
(February 2006) PDF File - 104 KB, 23 pages

[Food Miles: Environmental Implications of Food Imports to Waterloo Region](#)
(November 2005) PDF File - 144 KB, 24 pages

[Region of Waterloo Food Flow Analysis Study](#)
(November 2005), PDF File - 1.88 MB, 125 pages

[Urban Agriculture Report](#)
(November 2005), PDF File - 540 KB, 28 pages

[Toward a Healthy Community Food System for Waterloo Region](#)
(November 2005) PDF File - 2.2 MB, 36 pages

[Optimal Nutrition Environment for Waterloo Region, 2006 - 2046](#)
(June 2005), PDF File - 101KB, 18 pages

[A Glance at Access to Food](#)
(September 2004), PDF File - 163KB, 4 pages

[Fresh Approach to Food: Local Food Buying in Waterloo Region](#)
(February 2004) PDF File - 159KB, 2 pages

[Growing Food and Economy Study](#)
(October 2003), 1.31 MB PDF file - KB, 178 pages

[Growing Food and Economy Executive Study](#)
(October 2003), PDF file - 215 KB, 10 pages

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Appendix E Waterloo Region Food Charter



Waterloo Region Food Charter

Vision: A healthy, just, and sustainable food system is one in which all residents have access to, and can afford to buy, safe, nutritious, and culturally acceptable food that has been produced in an environmentally sustainable way, and that supports our rural communities. Such a food system promotes social justice, population health, and profitable farms, reflects and sustains local culture, and supports ecological viability.

To achieve this vision for a healthy food system, there is a need to carry out food system planning, and to establish principles that govern food-related decisions. The Waterloo Region Food Charter defines a common vision, and provides a foundation for a food system strategy.

Because we believe in fair, environmentally sustainable, livable, and economically profitable rural and urban communities:

1

...we support **connecting people to our local food system**

- by enhancing knowledge about, and engagement in, the food in our communities. This includes:
 - empowering people to participate in the local food system
 - improving our skills for growing, preserving, and preparing food
 - educating ourselves and others about the food system
 - encouraging respect for food and the ecosystems to which it is bound
 - supporting the expansion of food grown or raised in urban and rural areas

2

... we support **community economic development**

- by building the processing and distribution infrastructure required to make local foods available for local residents and global trade. This includes:
 - prioritizing local processing, distribution, and retailing opportunities for small- and medium-sized businesses
 - encouraging public institutions to buy local and environmentally sustainable food
- by encouraging policies and other initiatives which enable profitable livelihoods for local farmers for generations to come.

www.wrfoodsystem.ca

3

... we support **access to healthy food**

- by protecting farmland from urban development
- by supporting policies and other initiatives that ensure that everyone has access to enough nutritious food. This includes:
 - championing adequate incomes for everyone, so that all residents can afford to buy healthy food
 - encouraging the local production and processing of foods that contribute to the nutritional health of citizens
 - ensuring walkable access to venues that sell healthy foods
 - ensuring the widespread availability of, and access to, locally produced and culturally appropriate food
 - ensuring the availability of healthy, affordable food choices in workplaces and public institutions

4

... we support **ecological health**

- by promoting and supporting food production and processing methods that reduce greenhouse gas emissions; use less fossil-fuel energy; sustain or enhance wildlife habitats, watersheds, biological and seed diversity, and soil health; and that optimize or reduce the use of local natural resources to ensure long-term ecological sustainability
- by ensuring access to a safe and sustainable water supply for all residents of Waterloo Region
- by encouraging the reduction of food waste and excessive food packaging, and supporting initiatives that strive to reduce or reuse food waste, such as composting

5

... we support **integrated food policies at all levels of government**

- by encouraging joined-up policies across local, provincial, and federal levels of government that aim to ensure that healthy, environmentally sustainable food is available to everyone
- by recognizing the importance of comprehensive food strategies and policies that promote a profitable, viable and ecologically sustainable food system

www.wrfoodsystem.ca

Appendix F National Student Food Charter



This charter has been created by post-secondary students from across Canada to guide their work in collaboration with students' unions, administrations, food service providers, health services, and staff and faculty; as well as food businesses, local producers, governments, and non-government agencies in their communities. The values expressed in this charter provide a compass for the student food movement.

Given that citizens, governments of all levels, and industry leaders have recognized the need for coordinated food systems* planning, and the need to establish principles to govern decisions regarding food production, distribution, access, consumption and waste management;

We, post-secondary students, believe that our institutions have an opportunity to exercise leadership in communities and throughout society by developing food systems that support social justice, healthy individuals and communities, the environment, local economies, democratic governance, and celebration.

We have developed this charter to guide our work with our institutions. We endorse the following values as the foundation of a comprehensive food systems framework for campus planning, contracts, policy, research, and program development:



Because we value the role of post-secondary education in society, we shall

- Recognize universities and colleges as places for innovation, critical thought and learning about our place in local and global food systems;
- Support research and curriculum development relating to food systems that is interdisciplinary, applied and community engaged;
- Facilitate relationship building between the university and college communities and the regional food system.

Because we value healthy individuals and communities, we shall

- Foster healthy diet options on campus that contribute to the physical, mental, spiritual and emotional well-being and academic success of all students;
- Contribute to the development of food literacy* and skills to encourage healthy food* choices;
- Affirm that access* to affordable, healthy, culturally appropriate food is essential to the well-being of individuals and communities.

Because we value social justice*, we shall

- Uphold healthy food as a basic human right;
- Prioritize institutional policies and programs that reduce social and economic barriers to healthy and culturally appropriate food and eliminate hunger;
- Support and develop campus programs that reduce stigma and build capacity for universal access to healthy and culturally appropriate food;
- Advocate for fair* wages and safe, respectful, and meaningful working environments for all people at all levels of the food system.

Because we value the Earth and environmental sustainability, we shall

- Support ecologically-sound food production* by optimizing inputs and outputs of the food system to sustain or enhance the environment;
- Use campus space as a resource to produce and share food, model local food practices and provide educational opportunities for students around food;
- Appreciate and honour the seasonal cycle of the Canadian landscape;
- Recognize diverse ways of acquiring food, such as foraging, hunting, fishing, gardening;
- Respect animal welfare*.

Because we value vibrant local economies, we shall

- Direct purchasing power, practices and policies to locally and sustainably produced and fairly traded food;
- Seek partnerships that enable our campuses to host local businesses and purchase from local and sustainable suppliers.
- Play a role in building regional food infrastructure, economies, and coordinating food chain linkages;

Because we value democratic governance* and transparency, we shall

- Enable decision-making processes that include the meaningful participation of students and multiple stakeholders as valuable contributors to decisions made about food on campus;
- Provide accessible, comprehensive information about food offered on campus;
- Promote open and transparent* food and beverage contracts, as well as a diversity of providers, producers, and distributors to enable the values of this charter.

Because we value the celebration of food as a universal human experience, we shall

- Foster opportunities for joyful preparing, eating and sharing of food through intentional allocation of campus space, time, and resources;
- Nurture diversity; cultivate relationships and strong communities through shared food experiences;
- Recognize our interconnectedness to the food we eat, taking a systems perspective that respects the health of our ecosystem, of our communities, and the rich history of food cultures that precede us.



Glossary of Terms:

Food Sovereignty: The heart of food sovereignty is reclaiming decision-making power in the food system. This means that people have a say in how their food is produced and where it comes from. Food sovereignty seeks to rebuild the relationship between people and the land, and between those who grow and harvest food and those who eat it. ¹

Food Charter: A collaboratively created set of values and principles created to guide food policy development.



Access: Physical and economic availability of healthy and culturally acceptable food, for all people at all times. ²

Animal welfare: Freedom from hunger and thirst; pain, injury and disease; distress and discomfort; freedom to express behaviours that promote well-being. ³

Democratic Governance: Democratic governance within food systems involves diverse participation of various stakeholders (consumers, producers, distributors, cooks, servers, etc.) in decision-making processes about how these systems are organized, what food policies will look like, and what food contracts are signed.

Ecologically sound food production: Food production that reduces on-farm energy consumption and greenhouse gas emissions; conserves soil and water, and reduces or eliminates synthetic pesticides and fertilizers; avoids the use of hormones, antibiotics, and genetic engineering. ⁴

Fair: Fairness within food systems relates to the quality of life of all people within the food system. This means that producers, processors, distributors, salespeople, and servers all deserve safe working conditions and living wages.

Food Literacy: Understanding the impact of food choices on health, the environment, and community. ⁵

Food System: The food system comprises all processes that are involved with supplying and disposing of food. This includes: growing, harvesting, hunting, gathering, packaging, transporting, processing, marketing, selling, purchasing, consuming and disposing of food. ⁶

Healthy food: Healthy food includes personal, environmental, economic, and community factors. Food need be nutritious, in order to support human growth, development, and activity. Healthy food systems can improve community health by contributing to personal, environmental, social, and economic well-being. Healthy food systems are also closely related to the environment and economy, including sustainable practices, fair wages for workers, affordable food prices, and increasing support for local businesses and producers. ⁷

Social Justice: Social justice generally refers to the idea of creating an egalitarian society or institution that is based on the principles of equality that understands and values human rights, and that recognizes the dignity of every human being. ⁸

Transparency: Open and transparent decision-making processes are those that are accessible and clear.

1 People's Food Policy Project

2 Center for Studies in Food Security at Ryerson

3 BC SPCA

4 Local Food Plus

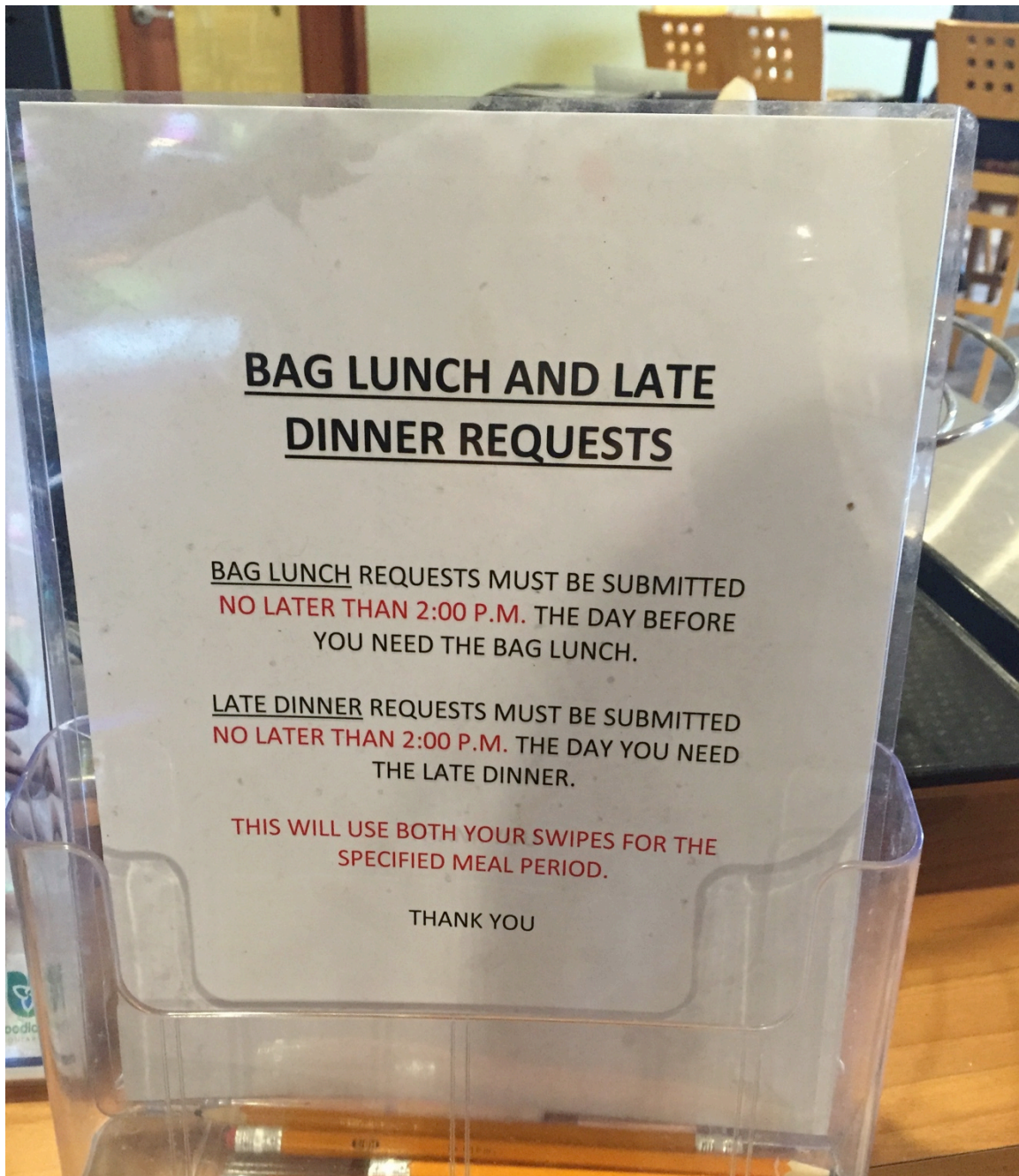
5 California Food Literacy Center

6 Food System Concepts – John Ingram

7 Food Security Network of Newfoundland and Labrador

8 The Stop Community Food Center

Appendix G



Appendix H

FOOD & RECYCLING		
<p>Locally Grown and Produced Food</p> <p><i>Ge ographic location and seasonal availability are taken into consideration.</i> <i>"Local" is defined as within 150 miles of campus.</i></p> <ul style="list-style-type: none"> ▪ Prioritizing the purchase of food from local farmers and producers. ▪ Sourcing food from on-campus farms and gardens. 	20%	10%
<p>Organic and Sustainably Produced Food</p> <ul style="list-style-type: none"> ▪ Incorporating organic, cage-free, hormone-free, and other sustainably produced foods in the menu. ▪ Frequently offering specifically labeled vegan meals. 	20%	10%
<p>Fair Trade Products</p> <ul style="list-style-type: none"> ▪ Purchasing fair trade-certified coffee and/or other food products . 	5%	2.5%
<p>Dishware and Eco-Friendly Incentives</p> <ul style="list-style-type: none"> ▪ Providing incentives for the use of reusable dishware or for bringing a bag. ▪ Offering takeout containers made from recycled, biodegradable, or eco-friendly materials. 	10%	
<p>Food Composting and Waste Diversion</p> <ul style="list-style-type: none"> ▪ Operating a composting program for pre- and postconsumer food waste. ▪ Reducing dining hall waste by donating excess food, implementing trayless dining, recycling used cooking oil for biodiesel, or removing bottled water, among other initiatives. 	15%	
<p>Waste Reduction</p> <ul style="list-style-type: none"> ▪ Reducing the campus's waste generated per weighted campus user. 	5%	
<p>Recycling of Traditional Materials</p> <ul style="list-style-type: none"> ▪ Administering a recycling program for all campus and dining hall traditional recyclables, such as bottles, cans, and cardboard. 	10%	5%
<p>Recycling of Electronic Waste</p> <ul style="list-style-type: none"> ▪ Providing recycling for items like batteries, cell phones, computers, and printer cartridges, for waste generated by students and by the school. 	5%	2.5%
<p>Composting (Aside from Dining Facilities)</p> <ul style="list-style-type: none"> ▪ Composting landscaping waste or recycling landscaping waste into mulch for use on campus. ▪ Providing composting receptacles around campus in locations other than dining halls . 	5%	2.5%
<p>Source Reduction</p> <ul style="list-style-type: none"> ▪ Operating programs that facilitate the continued use of items in good condition (instead of disposal), such as end-of-semester furniture or clothing swaps and collections. 	5%	2.5%