

Food Mesh: Economic Analysis of Food Loss along the Value Chain in BC

Project Proposal

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Introduction

The purpose of this project is to produce a comprehensive research study examining the economics of the local "Food Waste Value Chain" in BC's Lower Mainland. The Lower Mainland, which includes Vancouver, Burnaby, Richmond, Surrey and Coquitlam, is characterized by people of many ethnic and cultural backgrounds. Around 10% people living in the city of Vancouver were reported as being food insecure (City of Vancouver, 2018). Food insecurity is a problem of food distribution, not food shortage; around 13,000 tonnes of edible food is thrown out at Metro Vancouver transfer station every year (City of Vancouver, 2018). By analyzing the food waste problem along the supply chain, businesses can recover their waste at a lower cost than disposing it at a landfill. This recovery can also serve as a sufficient low-cost food source to low-income communities. The National Zero Waste Council of Canada has suggested a national target of a 50 percent food waste reduction by 2030 through introducing new government policies, innovating in technology and community infrastructure, and shifting consumer behavior (Saltman, J. 2016). Food Mesh is an organization that connects businesses with surplus foods to charities or recovery business. It has provided technological tools, i.e. an online app showing price and availability of surplus, to make potential food waste into valuable products. They aim to collect quality edible foods from producers before it ends up in landfills and connect organizations who struggle to find enough food for people in need. Serving as a bridge between different businesses, Food Mesh is helping the BC Lower Mainland achieve a "Zero Waste" goal.

Significance

Food waste is an issue that has multiple social, economical and environmental implications (Abeliotis et. al, 2015). According to Conway (2012), if we were to divide the world's food production by individual, each person would receive a daily average of over 2800 calories, which is sufficient in maintaining a healthy lifestyle. However, many communities in Canada and around the world are still experiencing food insecurity. "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (World Food Summit, 1996). A household or community may experience lack of food security for many reasons such as such as economic disparity, inefficient food distribution, race and gender (Holben, 2012). This is a social problem, especially when there is more than enough food being produced for people to be food secure. Food waste is a waste of valuable resources that is lost throughout the food supply chain - from the farm to the supermarket (Abeliotis et. al, 2015). Recent statistics have shown that 30-40% of all food produced in Canada goes to waste, costing Canadians \$31 billion annually. (Gooch et al., 2014). This is a sign that resources are not being used efficiently; human, economic and natural resources are being wasted on large scales. This project has great significance as it will analyze the problem on a local scale, aiming to provide a food rescue map and a tool kit to help business reduce their food waste in the Lower Mainland.

Research Questions

- What are some of the causes of food waste in BC's Lower Mainland?
- How can we use research and create tools to help food industry businesses prevent and minimize their waste?

Objectives

Our goal is to produce a toolkit that provides a comprehensive landscape of the current status, and that recommends how best to increase our collective food waste prevention and recovery initiatives in the Lower Mainland.

- **Objective 1:** To conduct comprehensive research on statistics and economics behind food waste in the Lower Mainland and produce an infographic.
- **Objective 2:** To create a Food Recovery Ecosystem Map, showing the players and assets in the Lower Mainland.
- **Objective 3:** To develop a toolkit resource guide supporting new businesses in reducing and properly managing their food waste.

Methods

Objective 1 - Environmental Scan of the Lower Mainland

- Find statistics from the city of Vancouver regarding food waste. Use sources provided by our community partner and through academic/statistical reports.
- Ensure that sources used in research statistics and economics are credible, by making sure and that findings are peer-reviewed and acknowledge biases.
- Background research and statistic should be completed by the end of February.
- Summarize findings and create an infographic (highlighting, volume, scale, frequency, causes) on food waste that displays important facts clearly.

Objective 2 - Food Recovery Ecosystem Mapping

- Identify main players in the supply chain focusing on businesses who recover waste through composting, industrial methods and animal feed in the Lower Mainland.
- Information will be gathered through online business profile research, briefly summarizing approaches being taken by businesses to reduce the issue of food waste.
- Our community partner will provide us with a list of companies to begin our research and we will expand our collection of profiles and business efforts from there.
- We aim to find include 50-100 players in our research.
- Clear list of players should be presented by the end of February.
- Businesses will be categorized by waste recovery method and mapped visually in a diagram.

Objective 3 - Decision making Resource Toolkit

- Combine important information and findings from part one and part two of the project.
- Create a visual interactive map that businesses can easily follow to determine the best actions to take regarding their waste.
- The map will be supplemented by a 1-2 page document informing businesses about the logistics of their choices and steps on how to proceed.

Outcomes

Objective 1: Produce comprehensive research on the scale of food waste in the lower mainland, the functionings of the food value chain and the economics in terms of money lost and external costs. We will create an infographic that outlines the main implications of food waste and that is easy understand.

Delivered by: **March 5th, 2018**

Objective 2: Highlight the main players in food recovery in the lower mainland. We will create a visual map outlining some actions being done by businesses to minimize and recover food waste.

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Objective 3: Create a resource toolkit for businesses thinking about reducing their waste. This resource guide will be a 1-2 page document and an interactive map that incorporates information we've gathered in the first two parts outlined in our objectives. Businesses in the food industry will be able to use this guide to determine the best way to handle their waste and calculate the best alternatives.

Delivered by: **March 19th, 2018**

References

- Abeliotis, K., Lasaridi, K., Costarelli, V., & Chroni, C. (2015). The implications of food waste generation on climate change: The case of Greece. *Sustainable Production and Consumption*, 3, 8-14. doi:10.1016/j.spc.2015.06.006
- City of Vancouver (2018). *Prevent food waste at your business*. Vancouver.ca. Retrieved 30 January 2018, from <http://vancouver.ca/doing-business/prevent-food-waste.aspx>
- Conway, G., & Wilson, K. (2012). What is Hunger?. In G. Conway & K. Wilson, *One Billion Hungry* (pp. 21-40). Ithaca, N.Y: Cornell University Press.
- Gooch, M., Felfel, A., & Glasbey, C. Food Waste in Canada – \$27 Billion Revisited. (2014) Value Chain Management Center. Retrieved 29 January 2018, from <http://vcm-international.com/new-report-annual-food-waste-in-canada-is-31-billion/>
- Holben, D. (2012). Food Bank Users in and Around the Lower Mainland of British Columbia, Canada, Are Characterized by Food Insecurity and Poor Produce Intake. *Journal Of Hunger & Environmental Nutrition*, 7(4), 449-458. <http://dx.doi.org/10.1080/19320248.2012.732925>
- Saltman, J. (2016). National strategy aims to reduce the tonnes of food going to waste each year in Canada. Vancouver Sun. Retrieved 5 February 2018, from <http://vancouversun.com/news/local-news/national-strategy-aims-to-reduce-the-tonnes-of-food-going-to-waste-each-year-in-canada>
- Statistics Canada. (2017). *Statistics Canada - Census Program*. Retrieved 29 January 2018, from http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/download-telecharger/comp/page_dl-tc.cfm?Lang=E
- World Food Summit (1996). *Declaration on World Food Security*. Rome