

University of British Columbia
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Student Research Report

Climate-Friendly Food at UBC: Best Practices and Policy Recommendations

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Executive Summary

Problem Statement: UBC has developed a climate action plan to address their role in the progression of climate change. However, a key component of their role, in food production, has been largely unexplored. This project aims to develop a framework of evaluation and definition of climate friendly food (CFF) to establish a vision and actionable steps towards more environmentally friendly food systems, as well as raise awareness of climate friendly food via an end of term event.

Methods: The methods for this project were broken down into a theory and best practice literature review, and stakeholder interviews. Our secondary research method included a theory and best practice literature review that was conducted to see the current state of CFF field and possible principles and practices that could be adopted at UBC. Additionally, our primary research method included interviewing stakeholders (n=7) to assess their perceptions of CFFs at UBC, the food system as a whole, as well as the feasibility of certain actionable steps towards a CFF system. We also surveyed student perception (n=80) using a dotmocracy at our CFF event.

Outcome: Based on extensive research, as well as key stakeholder interviews and community feedback, a polished, working definition and framework for CFF was drafted, and a vision and set of actionable steps to fulfill this framework was developed, as well as increased awareness and dialogue regarding UBC's food system's role in Climate Change and CAP 2020.

Based on our stakeholder interviews, we observed that the main strengths from UBC's current food system are outlets choosing Ocean Wise and Fair Trade products. We also observed that the largest concern in implementing CFF food are the financial costs and student concern surrounding higher food prices. Additionally, based on student surveys and perception as to what a CFF definition and framework entails, we observed that the top 3 items of importance for students are: shifting towards a vegetarian/vegan diet (25.8%), reducing waste generated during food production and consumption (21.6%) and choosing items that are local/seasonal (18.6%).

We were able to raise awareness and dialogue of a climate friendly UBC food system as a result of our CFF event that showcased our project outputs. On March 26th 2019, we were able to host an engaging, thought provoking event that was student centered, which sparked discourse and provoked action amongst UBC students and faculty.

Lastly, in terms of short term goals, we recommend adopting practices to target waste management, such as the addition of a universal campus reusable to go container program. As for long term goals, we recommend the implementation of carbon cost pricing in order for prices to reflect the emissions food products give off to improve customer choices. Future areas of research include interviewing other areas on UBC campus, such as catering companies and independent outlets in order to obtain a more comprehensive overview of our current food system.

Introduction

1.1 Research Topic

Climate change is a pressing issue causing shifting weather patterns, rising sea levels and flooding, which all threaten food production. With the population estimated to grow to over 9 billion by 2050, developing new innovative ways to produce more food will be critical while also having a lower impact on GHG emissions. GHG emission levels in the atmosphere are directly linked to average global temperatures. Furthermore, agriculture contributes to approximately 5 billion metric tonnes of CO₂ eq per year. This accounts for a quarter of GHG emissions emitted worldwide. As a large contributor to GHG emissions, focusing on the agricultural sector's role is a critical area for emission reductions (FAO, 2018).

This project aims to address climate change through our food system's role as well as climate action policy. Although UBC already has robust climate action policies, its portion on climate change and food is lacking. A crucial step to establishing a sustainable food system is the development of a working definition of climate friendly food (CFF). In order to develop this definition, a literature review on best practices around sustainable sourcing of food, as well as agri-food industry's role in climate change has been conducted. This will guide the development of a CFF definition and framework as well as insight into actionable steps UBC can take towards a more sustainable food system. Additionally, stakeholder feedback on what CFF entails, current practices at UBC, and willingness to adopt sustainable practices will be assessed to further develop the definition and framework along with guide recommendations on ways to implement CFF into practice. By integrating current research on sustainable agri-food production, best practices for sustainable sourcing, and stakeholder feedback, this project

aimed to develop a definition for CFF, a framework for the sourcing of CFFs, as well as a vision and goals for UBC's food system.

1.2 Relevance to Sustainability on Campus and Beyond

The University of British Columbia is a leading participant in sustainability with numerous sustainable infrastructure projects and policies, but could strengthen their commitment through sustainable food system development. In their Gold STARS (sustainability tracking, assessment and rating system) report they make commitments to monitoring ethical and sustainable proteins as well as offering vegan and vegetarian meal options. In addition to this rating, the University also has multiple sustainable initiatives, including a purchasing guide, a commitment to sustainability via the Climate Action Plan 2020 (CAP 2020), as well as the Zero Waste Action Plan. CAP 2020 aims to reduce campus emissions by 67% by 2020 with various strategies to reach this goal; however, low carbon food is not main strategy or emphasized in the plan as a means to reduce emissions. Likewise, UBC's Zero Waste Action Plan aims to have zero waste on campus; however, it does not appreciate the role CFF plays in the reduction of waste. As the agri-food industry is a significant contributor to global ghg emissions, UBC should address the need and opportunity to reduce its food system's emissions by incorporating it in new and existing sustainable development. In light of this, UBC has an opportunity to utilize this project's CFF definition, framework, vision and goals to meet its sustainability goals.

Canadian sustainable policy also does not directly address CFF, which is seen in the lack of CFF in the 2019-2022 Federal Sustainable Development Strategy for Canada or the Pan-Canadian Framework on Clean Growth and Climate Change. Additionally, both of these policies address food only in terms of new technologies that need to be developed to reduce emissions.

Presently, Canada new food policy is in development, providing an opportunity for CFF to be present in the policy. Based on stakeholder feedback, the food policy may somewhat address CFF with its aim for increased information sharing, education as well as increasing consumption of local product.

With lack of CFF throughout national and UBC policy, our project aimed to raise awareness and educate UBC policy makers, staff, faculty and students on how current food choices and the food system as a whole impacts the environment, as well as strategies to make more sustainable choices and individually and collectively. Our current food system negatively impacts our climate via the generation of GHG emissions through food production, processing, transportation and waste (Vermeulen, 2012). These are the lifecycle stages of food products, which are essential in evaluating the impacts of food, such that more informed CFF choices can be made. The development of the framework will take into account air, water, soil, energy and waste as ways to minimize environmental costs, as well as the needs of the local and global populations. Based on these considerations, the framework will provide a set of recommendations surrounding these aspects and how different levels of suppliers and consumers can use these recommendations to sustainably source food.

1.3 Project Context

In developing a CFF definition and framework we looked at policies and best practices that can help guide our work and build on successful practices. The University of British Columbia has a sustainable purchasing guide to maximize value while minimizing environmental and social costs, which provides a solid foundation to build from. The purchasing guide touches on the CAP 2020 and the Zero Waste Action Plan as a way for UBC to meet their goals. Not only does the sustainable purchasing guide help achieve sustainability goals, it also supports international labour standards such as the purchasing of fair trade products. In like manner, they also outline its importance for the environment in regards to waste reduction, water conservation and reducing GHG emissions. The sustainable purchasing guide also outlines eco labels that consumers should look for when making produce choices, focusing around food labels such as fair trade, Canada organic and ocean wise. The fairtrade label ensures producers are meeting standards with higher pay for farmers and workers. Canada Organic ensures products are over 95% organic, whereas Ocean wise provides assurance that the seafood is the most ocean friendly choice. The sustainable purchasing guide has recommendations for food and dining catering, where to purchase food from like Scholars of Sage as well as waste management strategies. The sustainable purchasing guide is an important model for the sustainable procurement of food, outlining key focus areas and useful strategies.

In addition to the sustainable purchasing guide, student run initiatives also demonstrate sustainable sourcing strategies and practices. Sprouts -a student run outlet on campus- also has a purchasing policy that looks at production, processing, and packaging of food, as well as workers equity, affordability and vegan and gluten friendly options. Sprouts also purchases only certified organics and fair trade, as well as prioritizing locally sourced food from UBC farm,

orchard garden and roots on the roof. Agora is another student run outlet which does not have a purchasing policy, but also sources local organic products from the UBC farm and various gardens at UBC. These outlets illustrate how businesses could prioritize sustainable sourcing in their procurement processes.

From a more global context, studies have looked at ways to influence consumers towards more sustainable food choices. Dogbe and Gil (2018) examined the implementation of a carbon tax on foods. The carbon tax was related to how much GHG food items produced during supply chain steps, like transportation and waste (Dodge & Gil, 2018). Their focus was to influence consumer behaviour to purchase fewer foods with high carbon taxes which had a higher environmental impact (Dodge & Gil, 2018). They observed a decrease in high carbon tax food, such as pork, beef, poultry, processed meats and dairy products (not including cheese) (Dodge & Gil, 2018). They also found an increase in the consumption of lower taxed foods like fruits and vegetables (Dodge & Gil, 2018). The use of a carbon tax on foods could be an extremely useful tool in developing a CFF system at UBC that consumers are willing to buy into.

Another driver for CFF choices, is the influence of climate change and morality on consumer judgement. A study by Mäkinieimi & Vainio (2013) related morality on CFF choices. The study was conducted on Finnish university students where they were asked 18 questions regarding the seriousness of climate change rating it on a scale of 1 to 7 followed by questions relating to climate friendly food choices (Mäkinieimi & Vainio, 2013). The results showed that the perceived moral intensity on climate change was related to increase in climate friendly food choices (Mäkinieimi & Vainio, 2013). More directly tying morality to food choices could strongly influence the choices that consumers normally take for granted.

Another method on trying to increase consumers consumption of CFF is the use of eco labels. Eco labeling encompasses the emissions throughout the life cycle of the product including manufacturing, processing, product use and disposal (Liu, 2016). Various studies have been conducted to see if the use of eco labels actually persuades consumers into choosing more climate friendly food options. Similar studies conducted in the UK (Gadema & Oglethorpe, 2011), Finland (Hartikainen et.al, 2014) and Singapore (Tan et.al, 2013) asked individuals if their consumption patterns would change in the presence of eco labeling and 70% or higher indicated they would make choices based on labels in all cases. A complication presented in each of these cases was the inability of the participants to read the current labels, indicating the need for easier to understand labels or some form of education on what the symbols means and how to make choices based off the labels. The use of visible and intuitive eco labelling to persuade consumers at UBC could increase sustainable choice made.

1.4 Project Goals and Objectives

As the agri-food industry is a major contributor GHG emissions, the need for new sustainable practices is paramount. The purpose of this project is to assess the current status of UBC's food system, and ways to develop a CFF system.

Objectives:

1. To develop a definition of CFF, a literature review was conducted to identify current definitions and frameworks surrounding existing definitions. Building on existing knowledge, acted as a starting point and contributed to our understanding of CFF.

2. Identifying key areas of the food system for CFF improvement and best practices of other institutions contributed to the development of a CFF framework and actionable recommendations that fit into the context of UBC.
3. Conduct interviews with key stakeholders to understand the current state of CFF in UBCs food system. This was be done through interviews with the stakeholders and community members on current practices, what have the done in the pass and their willingness to adopt our framework.
4. Increase awareness around CFF through an end of term event to showcase our findings in the literature and our recommendations to start the conversation around CFF and get feedback on our recommendations.
5. Gain feedback on our findings through dotmocracy feedback at the event that can be integrated into the current project, as well as inform future projects and initiatives.

2. Methodology and Methods

In order to conduct our research, we are taking an action-based approach towards finding out key information both within literature as well as the UBC community. We will use Stringer's action-based research methodology that follows the look, think, act model in gathering our information, interpreting the data and acting on our findings to produce recommendations for the introduction of more climate friendly foods on campus (Nasrollahi, 2015). The information we are gathering will focus on how things are happening, rather than what kinds of things are happening, in order to understand the limitations and challenges we will face in trying to implement our framework (Nasrollahi, 2015). In like manner, this will allow

us to gain insight on how to overcome these challenges (Nasrollahi, 2015). By using this model, we can engage the community on their perceptions around CFF and what changes they can make to encompass more CFF options into their business and daily lives.

2.1 Secondary Data Collection

A comprehensive literature review was conducted to explore current definitions of CFF and to identify best practices and trends in the food systems of large institutions. This information was used to develop a useful framework and definition that can assess and quantify the UBC food system's climate sustainability. Conducting the literature review before our primary data collection also allowed us to gain insight on what current stakeholders are doing in terms of CFF and helped formulate our survey and interview questions.

- Gathered statistics on the influence food has on the environment using FAO and STATS Canada
- Examined similar SEEDs projects to glean key insights and ideas for our project.
- Literature food of current peer reviewed research on “climate friendly food” and “sustainable food”.
- Examined third party sustainable assessment organizations, such as Association for the Advancement of Sustainability in Higher Education (AASHE) Stars program, which is an institutional sustainability tracking, assessment and rating system. Looked at platinum and gold rating universities and what they are doing in their food and dining sectors.
- For additional thoroughness, a general google search was conducted to identify any institutional practices missed.

2.2 Primary Data Collection

To get an accurate and expansive understanding of the UBC Food System, a cross-sectional, representative sample of key stakeholders (ie those involved in the production/service, curation and organization of campus food outlets) was contacted for feedback regarding perceptions of CFF, willingness to adopt CFF measures and the current status of the UBC Food System. Key stakeholders and UBC Student perception was also included using surveys and a dotmocracy at the end of the project to evaluate our recommendations and their willingness to implement them.

Interviews

- In person interviews as outlined in **appendix 1** was conducted with 7 key stakeholders to establish an improved understanding of the current status of UBC's food system.
- The number of Interviews was determined by the willingness of food outlet managers to meet with us and participate

Feedback

- Feedback was presented at the event as outlined in **appendix 2**
- Feedback was received in a non traditional sense to promote discussion among participants, where they were able to anonymously place sticky notes next to survey questions. In this manner, they were able to see what other participants have contributed.
- This helped us towards our goal to spark discussion around CFF
- The event consisted of 80 attendees who gave feedback at various stations.

The use of interviews was the best method because it allowed us to receive complex feedback as well as the ability to make additional comments, such as inquiring stakeholders to elaborate on their answers. By conducting in person interviews, it also gave us an opportunity to build rapport with the stakeholders to invite them to our end of term event. This also allowed us to receive feedback on our framework, which was formed with the information gathered from stakeholder interviews. The use of feedback at the event was meant to help us spark discussion between participants at the event, in order to reach our objective of starting the conversation around CFF. Furthermore, it allowed us to gain feedback on our framework and recommendations.

3. Results

3.1 Secondary Data Results

From our literature review, we were able to build off of previous definitions of CFF and sustainability, as well as evaluate the key components of what it means to eat climate friendly in order to develop the following definition:

Climate Friendly Food is sustainably sourced with minimal environmental costs —minimizing food system greenhouse gases, pollution, energy use, waste, and impacts on biodiversity— to meet or exceed global sustainable development goals while encompassing the needs of the local and global population.

Expanding on this, we also developed climate friendly food principles (Table 1) that contextualized the definition to specific components of food systems.

Table 1: Climate Friendly Food Principles

Climate Friendly Food Principles	
Production	Food should be made with sustainable practices in mind with minimal negative impacts on the local environments and populations
Processing	Food should be minimally processed to reduce energy expended and waste created, as well as packaging for storage, transport, and consumption
Transport	Minimal and efficient transport of food should be prioritized to reduce fuel expended
Consumption	The consumption of sustainably sourced food should minimize
Sustainable Practices	The sourcing of food should also encourage sustainable supply chain management that sustains the land, supports livelihoods, and cultures abroad and at home
Local Population Needs	Sustainably sourced food must meet nutritional, cultural, and economic needs of the local population without compromising the economic, cultural, and environmental context of producers

The above principles framed our conceptualization and actualization of the framework we developed for evaluating the sustainable sourcing of food for consumers and producers.

The framework we developed helps both consumers and producers evaluate their food choices. We were able to evaluate transportation as distance and mode of transport, waste through the supply chain and emissions used to make the raw product. We also took into consideration water and land use in production and process and the social impact of production on the local community.

Table 2: Provider Climate Friendly Food Assessment Framework

Provider CFF Assessment Framework:

Provider	More CFF	Less CFF		
Purchasing 1. Bought in Bulk? 2. Locally bought/sold 3. Consolidated sourcing 4. Eco Labelling 5. Amount of waste from production and service 6. Emissions produced	1. Yes 2. Yes (<400 km) 3. Yes 4. Yes 5. Reusable Packaging 6. Carbon syncing production system + raw/whole food + renewables	1. Mostly in bulk 2. <400km w/in Canada/NW 3. few bulk sellers 4. Mostly eco labelled 5. Minimal 6. Conservation agriculture practices + minimal packaging + preservation + some renewables	1. Large orders 2. <400km w/ vehicle 3. Multiple large sellers 4. A few eco labels 5. Recyclable 6. Intensive agricultural system + packaging + cold storage + no renewables	1. Small frequent orders 2. >400km w/ boat or plane transport 3. Many sellers 4. No ecolabel 5. disposable 6. Intensive agriculture/hotbox + fully processed + packaged Intensive Ag processes No water conservation infrastructure
Water How much water is used to produce this food?	Water meters + low flow	Sustainable ag processes	Intensive Ag processes	
Product development 1. What is the overall carbon impact of the food? 2. Is it accessible to the community?	1. Local & seasonal product that minimizes inputs 2. Affordable, nutritionally adequate, culturally appropriate, palatable			1. Imported, out of season, intensive products 2. unaffordable, unhealthy, unpalatable, culturally insensitive

Provider Climate Friendly Food Framework:

This framework (Table 2) integrates climate friendly food definition and principles with sustainable sourcing best practices and research to inform food providers in their procurement of climate friendly food. It considers the environmental costs of production and procurement, in house processing and consumption, as well as its accessibility to the UBC community. Relating their procurement procedures to this framework, providers can consider the impact of their product procurement from the beginning of the supply chain all the way to the products they serve and how they serve them. Providers can use this framework in their decision making analysis when determining where, how, and what to procure.

Table 3: Consumer Climate Friendly Food Assessment Framework

Consumer CFF Assessment Framework:

Consumer	More CFF _____ Less CFF			
	<400 km (local)	>400km w/in Canada/NW	>400km w/ vehicle transport	>400km w/ boat/plane transport
Transportation How much distance did this food travel? Emissions produced by mode of transit	Inland/Oversease Barge?	Train Freight	Short distance truck	Plane
Waste How much waste will I produce eating this product?	Zero Waste	Compostable	All waste is recyclable	Some landfill waste
Emissions How much emissions does this product produce?	Local plant based food Suitable for Region Seasonal	Insects and Wild fish (ocean wise) Wild game	Small ruminants Chickens, Turkeys Pigs	Large ruminants Farmed Fish
Water How much water is used to produce this food?	Plant Based and whole sourced from suitable regions	Nuts & legumes	Insects Pasture raised meat and animal products	Processed meats
Land Use How is land being used to produce this food?	Regenerative practices Efficient nutrient cycling Sustaining local biodiversity/habitats Suitable production		Intensive practices Conventional nutrient application and land preparation Extensive land conversion Unsuitable production	
Social Impact How does it impact the local community?	Inclusive industries that supports farmer livelihoods, promotes social mobility, supports cultural context		Intensive and disruptive operations that disenfranchises farmers, diminishes local culture	

Consumer Climate Friendly Food Framework:

Similar to the provider framework, this consumer framework (Table 3) integrates sustainable sourcing best practices and research to help consumers make more sustainable choices in their consumption. It provides helpful guiding questions for consumers to consider when choosing the products and services they buy into, making them consider the environmental, economic and social impact of their food choices. Additionally, underneath the more to less CFF range are basic “rules of thumb” that they can rely on when making choices.

This helps them contextualize broader, more abstract questions to actual products. Whether it is in supermarkets or food outlets on campus, this framework can be used to make more sustainable choices.

3.2 Primary Data Results

Interviews

From the survey and interview results, we coded keywords to help organize our research. The interviews were coded using the terms financial, social or environmental and then also labeled as a strength, limitation or opportunity. To ensure consistency and accuracy, 3 different members of the team reviewed the coding to avoid any discrepancies or bias associated with coding. The codes were then grouped for similarities between different interviews to help us refrain from stating the information more than once.

Key strengths found from our interviews (Table 4) were the use of oceanwise products at the outlets we interviewed as well as purchasing fair trade products when able. Outlets also looked at seasonality and tried to purchase local products when possible. The main limitation we found was associated with cost. These outlets addressed that some of their constraints to making more CFF choices were financial as well as addressing students need for affordable food. Some opportunities that were presented were the interviewees' willingness to change and adopt more CFF options. Another opportunity was the ability for students to impact decisions made by food outlets, where the outlets want to serve what consumers want.

Table 4

	Strengths	Limitations	Opportunities
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Environmental	<ul style="list-style-type: none"> - Many outlets sell oceanwise products - Most packing is compostable/recyclable - Purchase fair trade coffee, tea and chocolate. - Common understanding of the influence food has on the environment. - Try to source from UBC farm or Vancouver's farmers market 	<ul style="list-style-type: none"> - Local suppliers but the produce is not always local. - Branding for some products limits their ability to use compostable containers 	<ul style="list-style-type: none"> - Marketing food items as sustainable - Increasing the amount of plant based food items on menus - Open to change
Financial	<ul style="list-style-type: none"> - Consider what's in season when planning meals. 	<ul style="list-style-type: none"> - Businesses work to make a profit. Won't make sustainable changes if the cost is too high. - If making sustainability a priority over revenue is costly they may lose renters. 	<ul style="list-style-type: none"> - Making price point differences to persuade consumers choice to plant options - Reducing the portion of meat proteins to make meals more affordable.
Social	<ul style="list-style-type: none"> - Consumers are wanting more vegetarian and vegan options. - Student run initiatives have a large influence on decisions. 	<ul style="list-style-type: none"> - Organics often cost more than students can afford. - Consumers demand for low prices 	<ul style="list-style-type: none"> - Decisions made by consumers influences food outlets decisions. - UBC leads the way for other outlets to follow suit.

Feedback

During our event, attendees had the opportunity to provide feedback on our definition, framework, and proposal, as well as what they saw as priorities for sustainable food systems. We asked attendees to provide us with feedback on our definition and framework. We also asked them to provide feedback on our proposal (appendix 2), which includes recommendations for short and long term goals for UBC to act on, as a means to introducing climate friendly food. Based on our sign in sheet, we estimated that we had between 80 -100 attendees; however, given the open format of the event, we suspect that more attendees were

involved. The feedback gathered by these attendees was aggregated into data to assess the UBC community’s perception of CFF and campus sustainability.

We gathered the data obtained from the attendees and group them in terms of specific recommendations that we had for our documents, as well as priorities voiced by the student community. Key feedback (Table 5) from our definition and framework was to include the concept of culture, emphasizing the diverse set of traditions at UBC. Attendees also advocated for more examples in the framework to provide a clearer idea of how to make climate friendly food choices. Increased information on eco labels -in terms of their reliability and meaning- was also highlighted, as well as an emphasis on practices that preserve biodiversity in the framework and definition. In terms of our proposal (Table 6), there was increased emphasis on vegetarian and vegan meal options available with menu transparency on low carbon options. Culturally appropriate and affordable were also comments made on our proposal for climate friendly food at UBC. Broadly, students voiced interest in a more descriptive set of documents that elaborated on CFF framework components and strategies.

Table 5: Feedback from our definitions and framework at the Climate Friendly Food Forum. We asked attendees what was missing or considerations they think we could make to improve the framework.

Specificity	Personal Connections
Organics - biodiversity	Culturally appropriate food
Veganism	Indigenous populations
Eco labels - How to use them	Affordability

- How reliable are they	
Sustainable development goals	Extent to individual participation - First year students purchasing a meal plan
Water use - Measurable numbers - insects	How to make consumers aware
Emphasizing local - Better to purchase 400 km in BC or transport across borders	

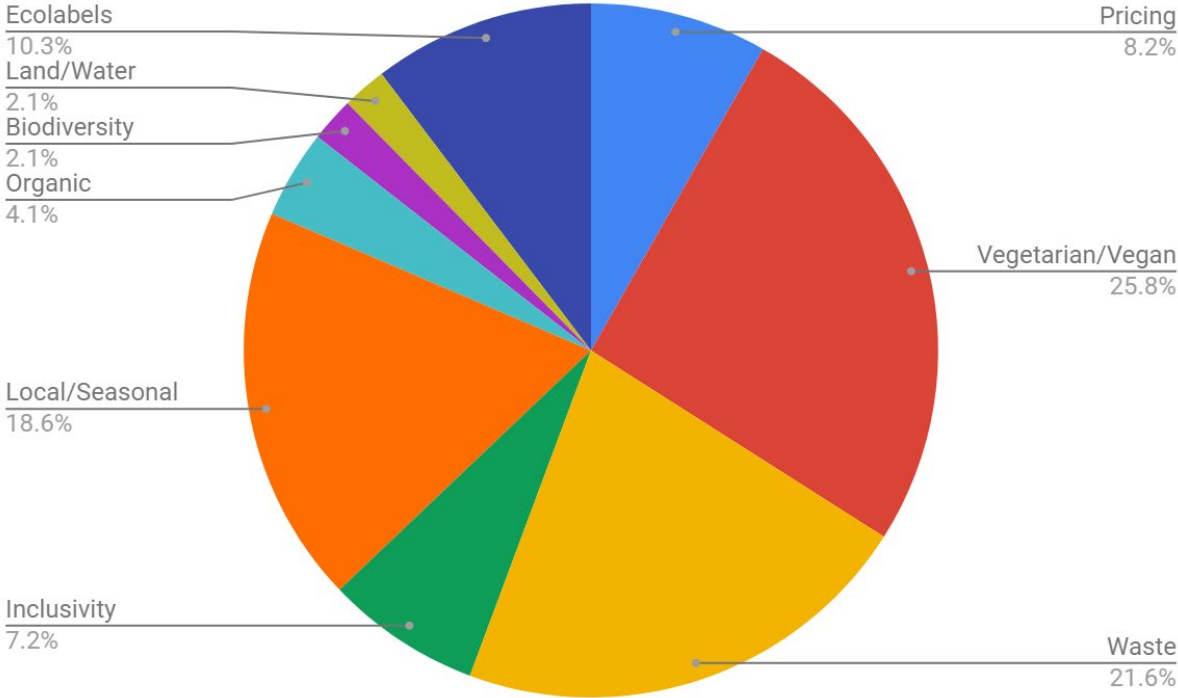
Table 6: Feedback on our proposal to push UBC’s governing bodies to accelerate sustainable food system change including our short term and long term recommendations as shown in appendix 2

Specificity	Personal Connections
Elimination of single use products (cups, cutlery)	Affordability - Incentives to buy sustainable products - Point system - Monetary
More vegan and vegetarian meal options	Inclusivity - Culture - Tradition
Taking a top down approach - Making plant based options default and making meat options a special request	
Low carbon menus - Ingredient transparency	
UBC needs a food policy	
Accessibility to knowledge - Campus wide education programs	

We also compiled trends from all the feedback into a chart to visualize what students find most important in climate friendly food and implementing a framework for UBC. We used the key terms that we used in our data as well as common trends we saw in the

recommendation. These key terms included pricing, where students were concerned about affordability or looking for monetary compensation for making sustainable choice, land or water usage, biodiversity, organics and eco labels. We also looked at: local and seasonal products, inclusivity taking into account cultures and traditions in the definition, vegetarian and vegan diets as well as waste reductions. The results from this analysis (Chart 1) showed students found vegetarian/vegan diets, waste management and local/seasonal products to be the most important aspect of a climate friendly food.

Chart 1: Student perceptions on what the most important aspects on what a climate friendly food definition and framework includes.



4. Discussion

One of the key findings of our project was how influential consumers can be on decision making at UBC. Food outlets on campus have a goal of making profit. They are willing to make changes based on whether their revenue will be affected and if there is enough demand for it. If students are advocating for more climate friendly food options, outlets will be more willing to implement them into their weekly offerings. From the results of our Climate Friendly Food Forum, students do want more CFF options in the form of vegetarian and vegan meal items at food outlets. If students made the push for this, outlets would have to conform. This also addresses the importance of educating the public on CFF and the influence food choices have on the environment. This aligns with Mäkineniemi & Vainio (2013) on the influence of moral intensity and how it influences purchasing and consumption decisions. If more people on campus were aware of the impact their food choices have, they may purchase CFF options, pushing outlets to provide more of these options.

Consumers have a significant influence on outlets' purchasing choices, but it's important to note the willingness of the outlets. We interviewed managers of food outlets and influencers in UBC's food system on their choices to make changes towards more sustainable options. This included those with decision making power in UBC Food Services, AMS Food Services, Conferences and Catering, and Student groups Agora and Sprouts. When we asked the interviewees if they thought they were doing enough in terms of sustainability, almost all of them said that they knew and acknowledged that they could be doing more. It is also important

to note the financial constraints some of these outlets face. The jobs of managers is to make a profit for their business, and a concern for interviewees was that often sustainable products are more expensive. Organic produce can cost 20-40% more than conventional products, and consumers make up for this cost in their pricing of food. It is important to note that students also address the need for their food to be affordable and for producers to implement organics. Students would have to pay more for this option. Therefore, we found that price was the main barrier when it came to implementation of CFF at UBC.

Something that was addressed in the data from the forum was transparency of menu items on campus. Not only do consumers want to know if something is vegan or vegetarian, but also what goes into food items such as sustainable labeling. The use of eco labels for foods on campus could allow for consumers to make more informed choices on the foods they are purchasing. This also goes back to influencing consumer behaviour where if consumers know the impact certain food have on the environment they may be more inclined to purchase more climate friendly options.

Some of the main feedback given to us in our definition and framework was the importance of incorporating different cultures and traditions. Some cultures and traditions are rooted in the consumption of meat products, or products that are not made in Canada. Vancouver is a multicultural city, especially at the UBC campus where 16,188 of its students are international students, here from 156 countries. It is important to make a definition that can encompass UBC as a whole, including the diverse culture it holds.

Waste reduction was also something students were trying to aim for and wanted at UBC. The zero waste action plan at UBC hopes to have a 80% diversion rate by 2020 and

students are wanting to make this happen. Something that was addressed was difficulty knowing which products at UBC are recyclable and compostable and wanting more guidance on how to dispose of these products. This is a major factor in our CFF framework in that a product that has zero waste is more climate friendly. One way for CFF to be incorporated on campus and for UBC to obtain its zero waste goals is by providing consumers with food with zero or less waste.

Considering that agriculture is such a large contributor to emissions, the CAP 2020 should use food as major way for them to meet their goals. It is also a way for students and faculty to make an active contribution to reduction by evaluating their food choices.

5. Conclusion

The influence of students/consumers on food outlets may have proved to be the most important of our findings. From our climate friendly food forum, we found that a majority of students are passionate about the environment and want to make a change. Additionally, the food outlets that we interviewed recognized their need to change and showed a willingness to change. This shows opportunity for UBC to implement CFF into their food outlets and could also influence a push for policy change. If everyone on the food system is on board, change can be made.

6. Recommendations

6.1 Action and Implementation:

From our proposal we developed (appendix 2) we outlined some short term and long term goals for UBC policy makers and outlet managers to adopt. These short term goals include waste management by including a universal campus reusable to go container program. We also recommend more transparency in the menu on what goes into the food as well as more vegetarian and vegan options so consumers can make better and more informed choices.

The long term recommendations are to introduce carbon cost pricing where prices reflect the emissions food products give off to persuade consumer choices. We also include using technology application for students to navigate the UBC food system through sustainability again to help them make more informed choices. An auditing for UBC to rate their food system and to inform decisions making.

6.2 Future Research:

In terms of future research, to capture a more complex evaluation of UBC's food system we recommend conducting interviews on catering companies on campus, as well independent outlets. From our interviews with key stakeholders (UBC food services, student groups, and AMS officials), we only captured a piece of the UBC food system. For a comprehensive assessment, further interviews would need to examine outlets sustainable practices and barriers they face to be more sustainable and their willingness to adopt CFF into their menus. Additionally, the feedback on our CFF framework was mainly student feedback. Future research on stakeholder perceptions on our definition would help us better shape it to their needs and make it more comprehensible for them. Finally, the CFF framework we produced applies broadly to food providers as a whole, but does not offer specific framework strategies for

different types of food services, like catering companies and food outlets. Therefore we also suggest further research into the literature on how to adopt these frameworks to meet these different types of producers.

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8. Appendices

8.1 Appendix 1

The goal of this project is to develop a framework to evaluate the food system at UBC, and establish a working definition of what Climate Friendly Food (CFF) means, as well as host an event to start the conversation around CFF. We are grateful for your participation in this project, and the unique insights on our food system you can share with us. These interviews are with key food system stakeholders, such as operations managers of UBC Food Services, AMS operated outlets, and independent food outlets at UBC to assess the current status and perception of CFF. We believe that UBC has much to contribute in fulfilling a future that's more climate friendly, as well as serving as a leader for sustainable change at large. With your input, we can help guide UBC toward a future sustainable food system.

Stakeholder interview questions:

Interviewee name:

Olivia Bird

Position at UBC within Food Services:

Sprouts Box Coordinator

Outlets/programs they work with: Sprouts

(trying to differentiate which food outlets on campus fall in the same portfolio i.e. is the mercante cafe managed by the same people as the loop cafe?)

1. At the food outlets you're involved in, where do you source your food from (locally?)

- We order locally from farms around BC. We order through a wholesale distributor Discovery and occasionally Pro Organics.
- In the past we've ordered from UBC Farm. Sprouts Cafe has ordered from all three distributors plus Horizons.

Who in your department makes the decisions and what factors do they/you look for when deciding who to purchase from?

- We have a purchasing policy that we follow to help us our criteria. We look for food that is local, organic, fair-trade, and in season. We also take into account transportation miles, water usage in production, etc.

Do you know why your department/you chose the supplier (organic, fair trade, local, something in the way they produce their food?)?

- We've typically stuck with the distributors we work with because of how convenient it is to order from one source versus several farms.

Do the different outlet/cafes source from the same place even with their different menus?

- Yes, all initiatives (cafes and sprouts boxes) order from similar distributors, however, they are not ordered together and I'm not sure if they come in on one shipment/one trip.

2. What is the proportion of meat/dairy/vegetable products currently procured?

- We're a vegan cafe.

Is there a high demand for either?

- We used to be vegetarian but because of some concerns that were brought up about the growing patterns and water usage of some of our products, including milk, we went vegan.

Have you seen a change in student purchases over the years (if that's kept track of)?

3. How do you understand the connection between food and the environment?

How would you describe the connection between how food relates back to sustainability/climate friendliness? (Explain)

- The connection between food and environment:

4. What UBC Sustainability Portfolio goals does your department directly address? (Can you name the specific policies/documents/initiatives)

What are your thoughts on how well your department follows UBC sustainability goals?

Do you think your department is doing enough?

- We don't follow any direct UBC Sustainability goals.

How open are you/your department to change the way you operate if it contributes more to sustainability? What sustainability initiatives do the outlets participate in (and which outlets?)

- Sprouts Box
- Community Eats- it's a weekly by-donation lunch where people can bring their own containers and cutlery and have a healthy and low cost meal. We take food that would be tossed out by retailers for being ugly or having too much stock and use them to make meals.

5. Are there any sustainability initiatives you've tried before that was pulled/didn't get the results you wanted?

- Bulk buying at wholesale prices. It just wasn't utilized enough.

(That are or are not listed on the Food Services Website) Is there anything you want but see barriers preventing you from implementing it?

6. Were any of the things you implemented or stopped doing because of student feedback or revenue due to decreased purchases or increased demand?

- Vegetarian to vegan- board decision
- Testing and playing around with menus
- For sprouts boxes we took out ordering some produce because we had complaints on too much packaging

7. Can you share some of the future sustainability related initiatives and targets/goals that you have planned in relation to climate friendly food?

- We've currently began displaying cricket bars and reusable container and lid items. We're also involved with eco-to-go program and were involved with Mugshare's pilot program.

8. Anything else you want to share on our project/subject?

Are you willing to give us contact info to reach out to individual outlet managers for an interview/survey/invitation to our event?

At this point, we would like to know if you would be interested in joining us at our end of project event, the Climate Friendly Food Forum! As an integral part of UBC's food system and having contributed to our project, we hope you can join us for an evening to raise awareness, discourse and action regarding our project outcomes and issues to address in the near future. We are looking forward to sharing our project deliverables with you and to hear your thoughts and opinions surrounding the topic.

Held within the lower agora AMS Nest, the event will be open format, allowing guests to circulate between tables and exchange knowledge with people of various backgrounds and interests, as well as showcasing project findings in an interactive and engaging way. Food and multimedia productions will showcase key outputs, such as a definition for climate friendly food, a food assessment framework, as well as a proposed CFF vision for UBC and actionable steps to achieve these goals.

