Assessing the potential for a student-run cooperative organic grocery outlet in UBC's Student Union Building - Group 5

Group 5

University of British Columbia

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Introduction

Ensuring that "all people at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (1) is a fundamental that must be given great priority in promoting a healthy community. When using the systems approach to view food systems, the interconnectedness between economic, ecological and social fundamentals becomes apparent, as the food provided by a sustainable and secure food system should be personally acceptable, culturally appropriate (5), and produced in ways that are environmentally sound and socially just (2). When reviewing the sustainability indicators developed by last year's Agricultural Sciences 450 class it becomes apparent that there are gaps in the existing UBC food system, which are preventing the UBC community from attaining sustainability. We feel that the endorsement and expansion of the UBC Food Co-op would be a valuable addition to the UBC food system, and would not only be an important tool in aiding our university's quest for sustainability, but would also enhance the sense of community on campus.

Why a Food Co-op is Needed

The need for a food co-op stems from poor access to affordable and nutritious unprepared food on campus. UBC Food Services and AMS Food and Beverages are the two primary food service providers on campus, whose objective is to provide prepared food to UBC students, faculty and staff during peak weekday hours and to those living in residences with compulsory meal plans. While both organizations fulfill this role well, their mandate does not address the need of students, who are not provided with prepared meals and who wish to cook their own meals, to have access to nutritious, unprepared food. Currently, there is nowhere on campus where students can buy the staples of a healthy diet (i.e. raw produce, dairy products, meat and poultry, and grain products). This reality reflects an unsustainable and food insecure food

system. Though the UBC Farm operates a small market, this program only takes place on Saturday mornings in the summer, a time when few students are around to take advantage of this service.

The History of the UBC Food Co-op

The idea of a UBC student-run food co-op has lingered for the last seven years. In 1997, the UBC Natural Food Co-op started as a group of ten UBC students who congregated on a weekly basis to co-operatively buy bulk food and prepare dinner. In 1998, Dean Quayle of the Faculty of Agricultural Sciences donated a portable south of the Macmillan building, to accommodate the needs of the rapidly expanding co-op. This allowed the students to start an on-line ordering system. Members would complete the order form over the internet every week, the co-op executive would then order organic groceries from Pro-Organics for the entire co-op, the groceries would be delivered to the co-op headquarters, the co-op executive would sort and refrigerate the order, then members would pick-up and pay for their order.

By the 2000-2001 academic year, the co-op had over one hundred members, with approximately 50 members participating in the online ordering system every week. The co-op executive soon began to realize that the needs of the food co-op had changed. Though the collective ordering system worked well for a small group of friends, the format was not intended for such a large-scale operation. The administration, security and cleanliness of the co-op began to escape the control of the hard-working executive members. In May of 2003, the co-op received notice that they were going to have to vacate the portable. While many co-op members objected to this announcement, Alice Miro, president of the UBC Food Co-op, saw it as a good opportunity to make some much needed changes to the way the food co-op was operated.

While the co-op had definitely expanded since its conception in 1997, it remained quite disconnected from the rest of the UBC Food System, and a relatively small proportion of the UBC community actually benefited from the services the co-op provided. When analyzing the history of the food co-op, factors that possibly prevented from the food co-op from reaching its potential include:

- Limited awareness of the co-op
- Poor location
- Marginal site conditions
- Limited hours of operation
- Need for members to be organized enough to place their order online
- Fairly limited selection of food items
- Dependence on volunteer staff

When planning the future of the food co-op, Miro recognized that these were areas in which there was room for improvement. While she valued the tight-knit sense of community that the food co-op was originally based on, she also hoped to expand membership, and allow more students to reap the benefits of being part of a co-operative. With this in mind, the decision was made to become an official AMS club and switch from the on-line ordering system to an actual store-front. Then, the first obstacle to overcome was the location. Miro realized that it would be difficult to generate awareness and entice people to join the co-op if it remained distant from the centre of campus. Miro approached the AMS and worked out an arrangement where the food co-op would be able to operate a kiosk on the lower level of the Student Union Building. With the opening of the new location slated for January, the co-op ran a series of markets throughout the month of October to increase awareness about the benefits of being a member of the co-op,

expose the UBC community to the products the co-op would be selling, and educate the public about fair-trade and organic goods. This endeavor proved to be successful, as the food co-op was able to recruit over 250 new members during this time.

Current Status of the Food Co-op

With a mission to "provide affordable, organic and fair-trade products to the UBC community; encourage and contribute to campus sustainability by supporting local producers and obtaining produce from the UBC farm; inspire students to take an active role in their community's food system" (14), the new version of the food co-op opened in January 2004. While the ideals of the club are admirable, and membership and awareness has undoubtedly increased since the food co-op has moved from its previous existence in the portable, the food co-op is still faced with a number of barriers. Firstly, though its current location is much improved from the previous site, the small kiosk is somewhat inconspicuous in a corner on the lower level of the SUB. Furthermore, the co-op remains dependent on the volunteerism of its members, which means that it is only able to operate from 12pm-2pm on weekdays. These very limited hours of operation do not promote sustainable access to the food co-op goods and services, as the busy lunch hour period is not prime grocery shopping time for most students.

Secondly, the constraining facilities of the kiosk prevent the co-op offers a wide selection of food. As indicated by the attached food list (Appendix O), without refrigeration, running water or cooking facilities, the co-op is restricted to selling mostly non-perishable food, such as tea, coffee, chocolate, and some dried legumes. These are hardly the staples of a nutritious diet that are crucial to food security. With the exception of a few varieties of fruit, fresh produce is not offered, nor is milk or dairy products, meat or poultry items or fresh bread and cereal products. The inadequate selection of food means that consumers will still need to find an

alternate location to buy the majority of their groceries. In addition, the prices of the currently offered items do not reflect the constraints of a student's budget. For example, $1.00/lb for non-fair trade bananas is almost twice the price of equivalent bananas found in regular supermarkets. Unfortunately, with high prices and a limited selection, there is very little incentive for a typical student to buy food from the co-op.

The Future of the Food Co-op

While the current status of the food co-op may seem dismal, our group remains confident that, with some improvements, the food co-op will make a positive contribution to the sustainability of the UBC food system and would promote food security and well-being at UBC. A successful food co-op will ultimately be dependent on its ability to meet the needs of the consumers, who are UBC students, faculty, staff, residents and visitors. To accurately determine these needs, we have developed a market survey (Appendix N) that will investigate whether the UBC community member feels that a co-op is needed and what the top priorities of the food co-op should be. Ideally, we would conduct this survey in tandem with our Food Sustainability Questionnaire (Appendix K), which would allow us to access the consumer's awareness of sustainability practices and principles in addition to the fundamental values of food co-operatives. Based on the results of this survey, we will be able to offer accurate recommendations to the food co-op executives for how they can tailor the co-op to ultimately be more successful.

In creating a vision for the long-term sustainability of the food co-op, we cannot only learn from the past experiences of the UBC food co-op, but also reflect on the successes and struggles of food co-ops at other universities. *The Rise and Fall of the Berkeley Food Co-op* highlights the history of one of the first-ever food co-ops. Starting out as the "Berkeley Buyer's

Club" in 1936, the co-op reached its height of over 50,000 members in 1970, with thirteen centers in operation by 1975. Causes of the initial success of the co-op were primarily due to unselfish service and the work of committed volunteers (7). The Berkeley Food Co-op was also one of the first co-ops to start recycling and offered a ½ cent rebate per egg carton that was reused. After approximately fifty years of service, the co-op was forced to close its doors in 1987 as problems stemmed from "an erosion of member control and employee rights, vis-à-vis increased management control and the emergence of the corporate image" (7). These are important lessons that the co-op will have to consider, especially when planning for expansion.

Though the Berkeley Co-op has ceased to exist, the University of California Davis Food Co-op is experiencing tremendous success, and can act as a great role model for the UBC Food Co-op in many ways. Founded in 1972, the Davis Food Co-op's mission is multi-faceted and is reflective of the true definition of a co-operative: an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise (9). The Davis co-op is owned and operated by over 7000 households (8). They offer 40 different varieties of organic produce, over 750 items in bulk, as well as naturally-raised, chemical-free beef and chicken. They are highly accessible, as they are open from 8am-10pm seven days a week (8). Furthermore, the co-op is active in building a sense of community amongst its members and promoting social sustainability as they frequently offer social events such as cooking classes, bike maintenance workshops, blood drives, and wine-tastings (8).

Our Vision

After conversing with Alice Miro and researching the experiences of other food co-ops, our group has developed a long-term vision for the food co-op that realistically represents the

fundamentals of food security and the ecological, economic, and social cornerstones that are crucial to a sustainable food system. According to Miro, the food co-op has recently submitted a $60,000 proposal for funding, which would hopefully enable the co-op to adopt some of our ideas. Our vision for the food co-op incorporates:

- Enhanced awareness amongst the UBC community about the food co-op. Affiliations with the UBC Sustainability Office, the Student Environment Centre, UBC Housing and the Agricultural Sciences Undergraduate Society would provide the co-op with outlets for education and promotion about the food co-operatives, food systems, organic and fair-trade food, since "to act effectively and responsibly, people must be well informed" (12).
- Improved accessibility to the food co-op. Partnerships with the AMS and the Faculty of Agricultural Sciences Co-op program would allow for the opportunity to create paid employment positions, which would lessen the food co-op's dependence on volunteerism and enable the food co-op to increase their hours of operation.
- Improved acceptability of food. In order for the co-op to become more food secure and sustainable, it needs to expand its selection of products to reflect the dietary preferences of its clientele. Funding to improve the food co-op's facilities to include refrigeration, running water, and cooking facilities is the first necessary step to meeting this goal.
- Improved affordability of food. The foods offered by the co-op should be reflective of the demands of the student budget.
- Better availability of locally grown food. An important element of ecological and social sustainability is an "emphasis on locally grown food, regional trading associations, locally owned processing, and local control over the politics and regulation"(12).

Partnerships with the UBC Farm and local farmers would tighten the sustainability loop and support the community.

- Adoption of environmentally sound practices. The food co-op would be the perfect place to promote the principles of reduce, reuse and recycle.

Underlying Value Assumptions

After several discussions and debates, our group opted to incorporate both the biocentric and weak anthropocentric values. A diagram depicts how the two value systems can be incorporated (Appendix A).

In the center of the diagram is the UBC Food System. At the heart of UBC's system is the concept of sustainability. This concept reflects the UBC Food System's idealistic goal of creating a closed 'land, food and community' loop system within the UBC boundaries and explains why our group opted to adopt a biocentric value system. However, as the flow diagram illustrates, the UBC Food System is not independent. Rather we see the influence of the Global Food System, as well as other factors, on the UBC's system. What this implies is that UBC's system cannot act independently as our actions may be limited by restrictions imposed by the larger food system to which we belong. In addition to the influence that policies and regulations have on production, processing, marketing, sales, and consumption of food as well as waste management within the UBC Food System, the system relies on food provided by other areas. For example, being part of the Global Food System, which views world trade and profitability as a means to eradicate poverty, has an impact on the functioning of the UBC Food System. This occurs by having a variety of desired foods available on the global market, which are purchased by food distributors, processors, etc., and then in turn by the UBC Food System. The need to follow the rules and regulations imposed on the UBC food system, as well as the desire to meet

individuals' food preferences, has led our group to adopt a weak anthropocentric value system in this context.

Understanding the UBC Food System in the context of the Global Food System requires an understanding of two diverging value systems, namely the biocentric and weak anthropocentric value systems.

Methodology

The boundaries of the UBC Food System are defined as the area within the University Gates including the UBC Farm, all UBC Housing residences as well as other UBC community residences (Appendix H). These boundaries are intended to be flexible and as the UBC community grows through the development of private housing complexes, the boundaries of the system should change accordingly.

We have developed a quadrant system to aid in the organization and collection of data in the next phase of the project and ensure that a representative sample of the UBC community is included in the assessment. Quadrant borders were selected to create an equal distribution of food operations in each quadrant. The Student Union Building (SUB), although located within Quadrant (IIa), is considered as an individual Quadrant (IIb) based on the relative density of food operations in that area.

We have established a research timeline for 2005 to help guide the next phase of the project (Appendix G). For each assessment tool, a minimum of 25 assessments should be carried out in each quadrant. With a minimum of 100 assessments for each indicator, we feel that this will provide enough information to adequately assess the UBC Food System and also allow for the development of sustainability characteristics for each quadrant.

Ecological Indicator

Ecological sustainability exists when "the health of the environment is sustained and enhanced for use by all beings and by future generations"(12). The ecological sustainability indicator will be used to measure the magnitude of output generated by the UBC food system and the quantity of waste that is diverted from landfills as a result waste reduction practices (Appendix B). In recent years, the UBC waste management program has diverted 46% of waste from landfills and has projected an expansion for the recycling and composting program in 2003/2004 (13). In terms of waste management, ecological sustainability can be attained when wastes are "produced within the ability to process or assimilate them" (10). Although the waste management system involves the entire UBC community, the UBC food co-op can play a key role in the promotion and application of ecological sustainability. The food co-op has incorporated waste reduction practices such as a reusable container incentive which gives consumers a discount for using mugs and reusable containers. In addition, the food co-op membership fee includes reusable cloth shopping bag which promotes an ecologically sound lifestyle and encourages waste diversion.

The utilization of an ecological sustainability checklist will provide a quantitative assessment of the current level of sustainability of the UBC food system (Appendix C). The maintenance of the waste system is the major limitation for this indicator because the expansion of the UBC recycling program is limited by the current practices of the Vancouver waste management system. Therefore, the UBC community must demonstrate the need for a more comprehensive system and work together with the city of Vancouver to create an all-encompassing waste system and expand the loop of sustainability.

Our vision for the expansion of the waste management system at UBC is to implement color-coded waste system for garbage, recycling and composting and utilize the food co-op to educate the UBC community on usage and benefits. It is our recommendation that a color-coded waste system be placed outside of each year-round residence and food service facility at UBC with a chart to interrupt the color-coding scheme. A color-coded waste system will simplify the process of recycling for consumers and allow greater quantities of waste to be diverted from landfills.

Ecological – Social Indicator

The ecological-social indicator measures the community's understanding of the ecological implications of the UBC food system, as well as whether or not environmentally friendly behaviors are practiced (Appendix D**).** Conducting a survey to investigate the community's perspective on sustainability is critical as acting in a sustainable manner depends on the community's understanding of this concept. As Kloppenburg et. al. (2000) note "To act effectively and responsibly, people must be well informed."

This indicator addresses **t**he role of the food coop. Introducing a food co-op that provides a variety of unprepared foods will improve the community's understanding of sustainability by decreasing the psychological distance between food and consumers. This will enhance the overall sustainability of the UBC Food System and thus aid movement towards a more sustainable food system.

All questions on the questionnaire are ranked on a scale from one to five, with one being strongly-agree and corresponding to social-ecological sustainability at UBC. In this manner, the average score derived from all questionnaires can be directly plotted on the social-ecological sustainability indicator 'prong' on the amoebae scale.

Social Indicator

The social indicator of sustainability measures the UBC community's perception of accessibility and availability of both prepared and unprepared food on UBC campus. As accessibility and availability are essential components of food security, measuring the community's perceptions will provide further insight into the level of food security of the UBC Food System.

Our group feels that a dichotomy exists on UBC campus with respect to social sustainability (Appendix E). AMS Food and Beverage and UBC Food Services are doing an excellent job of making prepared food accessible and available to community members, particularly those who either do not live on campus or those on-campus residents who have meals provided. However, a significant food security gap exists for the on-campus residents who are responsible for preparing their own meals. For the year-round and single occupant-family (SO-F) residents on campus, accessibility and availability of unprepared foods within boundaries of UBC is inadequate and significantly impacts this groups' food security. To assess this indicator, we have developed two distinct questionnaires to be administered to these two distinct populations (Appendix J).

Although this gap in food security currently exists, the proposed expansion and development of the UBC Food Co-op will fill this niche in the UBC Food System by providing unprepared food to the UBC community and promote food security for all community members. Accessibility within the UBC Food System could be improved upon by introducing a Community Currency Card, similar in concept to the UBC Bonus card, but usable at any AMS Food and Beverage and UBC Food Services operation. Such a refillable card would eliminate the issues stemming from a lack of payment methods at many UBC food outlets and

"demonstrate how local production for local needs benefits the community" by recognizing the power of cooperation (4).

Social-Economic Indicator

The social-economic indicators of sustainability are the affordability and acceptability of foods available on the UBC campus. Measuring these indicators will determine how food prices on campus compare to those off campus and whether the UBC community perceives foods to be affordable and acceptable (i.e. cost, variety, quality). These measures can be applied to the assessment of both the UBC Food System as a whole, as well as the Food Coop directly (Appendix G).

We believe social-economic sustainability can best be measured using both qualitative and quantitative research methods. Consequently, we have developed a qualitative questionnaire that investigates the community's perceptions around affordability and acceptability of food items (Appendix N). We also propose the use of a quantitative study that objectively measures and compares affordability based on the Healthy Food Basket (HFB) tool, a standardized food costing tool developed by Health Canada. The HFB is commonly used to measure food security conditions and was utilized in 2003 to determine the real cost of eating in British Columbia (10). Moreover, the HFB is suggested to be an effective tool to monitor food affordability, one of the key determinants of individual food security as mentioned above (13) Accordingly, the cost of a HFB could be determined for the Food Coop, the UBC campus and the City of Vancouver. These results could be compared against one another, in addition to the results previously determined by Dietitians of Canada and published in The Cost of Eating in B.C. report.

Economic Indicator

Aligning with Group 9 of UBC Food Systems Project II, we have elected to use profitability as the economic indicator of sustainability. Measuring profitability can be used to determine whether a food service outlet, such as the Food Coop, is financially viable and self-sustaining. Sustainability is practiced when all UBC food service outlets are able to maintain existing operations while generating additional revenue to put towards further development (e.g. facilities, services, education, community involvement).

Ideally, following a biocentric approach, this indicator would not be considered; however, realistically profitability of the Food Coop, for example, is necessary for long-term sustainability within the UBC community. This does not imply that maximizing profits be the focus of business operations.

Our group believes profitability would best be measured by students with a strong background in business and finance. Thus, we suggest to involve such students in efforts to assess economic sustainability. This provides a great opportunity to partner with students from another faculty, which would enhance involvement campus wide and improve interdisciplinary sustainability efforts. We suggest that commerce students evaluate monthly and yearly business reports of the Food Coop and other outlets. Profitability could be evaluated on gross profit margins, yet a broader assessment could also provide specific areas on which to improve operational practices. See Appendix F for the sustainability criteria of the economic indicator.

Ecological-Economic Indicator

The ecological-economic indicator measures food mileage, the distance that food items available to the UBC community travel from producer to consumption. Food mileage is a

relevant tool to assess sustainability as transportation of food items results in significant ecological costs namely the production of harmful carbon emissions, which is proportionate to distance traveled and mode of transportation used (3). There are also notable economic costs associated with food mileage, particularly importing of food items from great distances.

For this indicator, we have selected to use the Weighted Average Source Distance (WASD) methodology devised by Annika Carlsson-Kanyama (6) and first proposed by the 2003 colleagues in Group 18 (Appendix M). This method, while labour and research intensive, provides a quantitative method for assessing food mileage. Should there be insufficient information to determine WASD, calculation of Tonnes-Kilometres provides an adequate alternative and/or supplementary method to assess food mileage (3).

This indicator is directly related to the vision of the UBC Food Co-op, food mileage practices and support of local agriculture (Appendix M). In comparing food mileage of equivalent food items available at the UBC Food Co-op and at a large-scale grocery store, the ability of the UBC Food Co-op to put these principles effectively into practice can be assessed. In striving for food mileage reduction wherever possible, the UBC Food Co-op will contribute to sustainability of the entire food system by reducing associated ecological and economic, providing an opportunity for consumer education and helping to foster a connection between producer and consumer through support of locally produced food items. In an ideal closed-loop food system, all food would be produced within the system boundaries. This biocentric approach is not feasible based on land availability and community size and is, in fact, antagonistic towards food security. The UBC community is ethnically diverse and proposing a seasonal diet to reduce food miles would deprive a large percentage of the UBC community of their culturally appropriate food needs. Our group feels that food mileage can be effectively reduced without

sacrificing food security by emphasizing and choosing locally produced foods wherever possible through collaboration with and support of local producers.

Conclusion:

It is important to reiterate our recommendations for the future of the UBC Food Co-op. Collaboration with the UBC Sustainability Office, the Student Environment Centre, UBC Housing and the Agricultural Sciences Undergraduate Society will be necessary in order to educate consumers about sustainability. Paid positions will ensure that the Co-op will run smoothly and improve accessibility due to extended open hours. Increased resources are needed to improve selection and variety of the foods offered and locally grown foods should be a preference to achieve maximal ecological sustainability. Magnitude of waste will be measured as our ecological indicator. The ecological-social indicator consists of the UBC community's understanding of the ecological implications of the UBC food system and perception of accessibility and availability of foods will be used as a social indicator. Affordability of foods will be assessed as an economic-social indicator, whereas profitability of food service outlets on campus will indicate economic sustainability. Finally, food miles will be determined to better understand ecological-economic viability. We hope that next years graduating class of Agsci will adopt our vision to better the sustainability of the UBC Food System.

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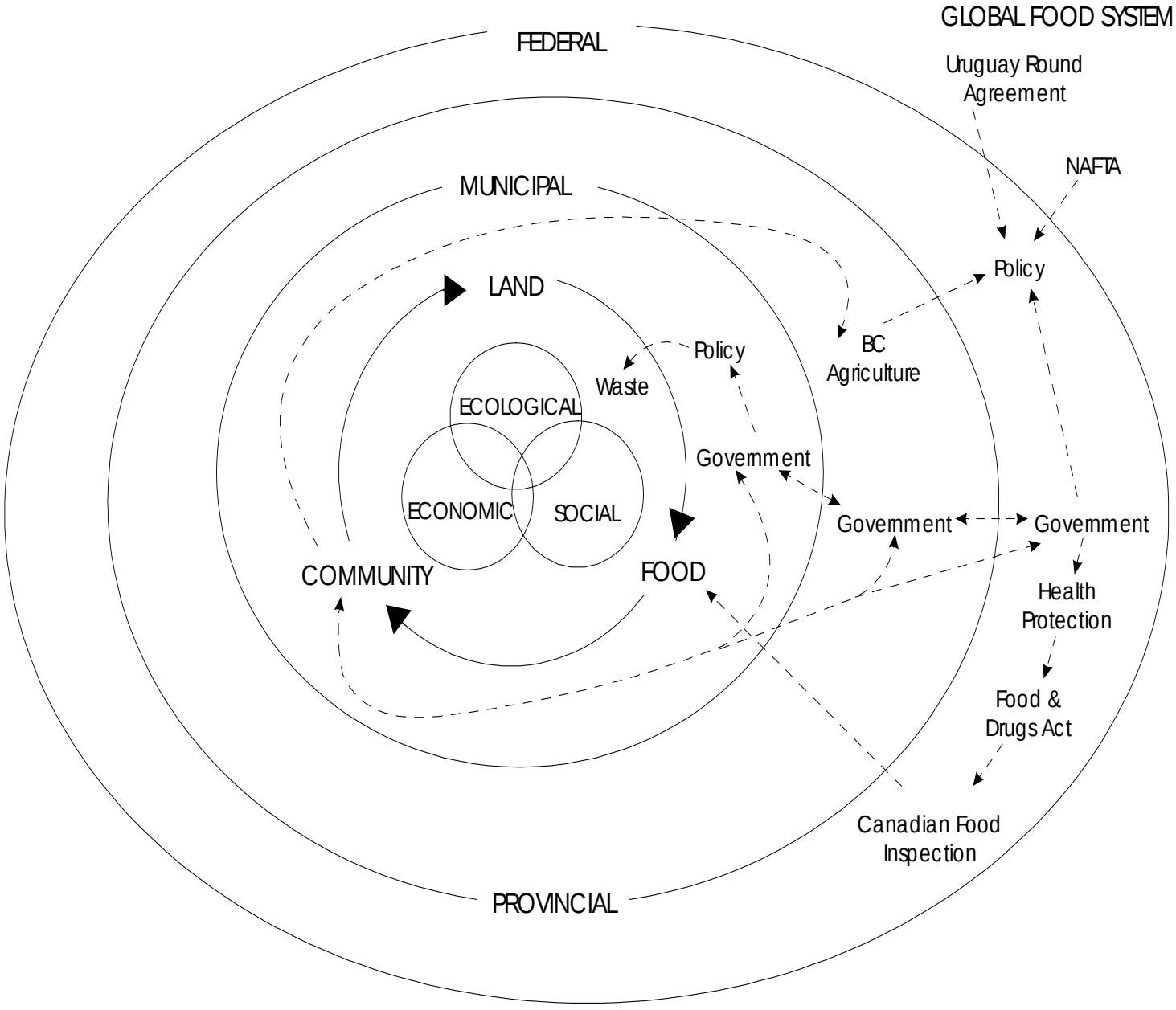
Appendix A: Diagram of Value System

A diagram is provided to illustrate how the two value systems can be employed in our understanding of the UBC food system. In the diagram, concentric circles illustrate the different systems and a flow diagram illustrates the interactions among the components. A smaller circle inscribed in a larger circle denotes a component of the larger system, and since the smaller circles inscribed in the larger circles have different boundaries and goals they are also considered sub-systems o f the larger circles.



Appendix B: Ecological – Sustainability Criteria

Levels of sustainability	Definition	Action
1. Sustainable	The UBC community has completely implemented and maintained a comprehensive waste reduction program. Consumer utilization regarding recycling, composting, and reusable food containers is widespread on campus.	Continue to maintain the waste reduction program that diverts compostable and recyclable waste from landfills. Continue to monitor the utilization of color-coded waste systems and the distribution of reusable containers for all food service providers on campus.
2. Mildly unsustainable	The UBC community has made significant progress in the implementation and maintenance of a waste reduction program. Consumer utilization is evident on campus in significant proportions but not sufficient to meet ecological sustainability criteria.	Evaluate the waste reduction system to determine additional ways to fully utilize the system and expand the distribution of reusable containers. Expand the consumer utilization of the color-coded waste system to divert the maximum quantity of waste from landfills.
3. Neutral	The UBC community has policies and initiatives in place to reduce waste however an increase in waste reduction is necessary to attain ecological sustainability. Increased consumer utilization is required to meet ecological sustainability criteria.	Examine the waste reduction program to determine areas for improvement. Continue to apply the waste reduction policies and initiatives to increase ecological sustainability. Explore effective methods of improving consumer utilization. Analyze the constraints of implementing a color-coded waste system.

4. Mildly Unsustainable	The UBC community has attempted to implement and maintain a waste reduction program. Small pockets of consumer utilization exist on campus but are not sufficient to meet ecological sustainability criteria.	Implement a waste reduction program to increase the quantity of compostable and recyclable waste that is diverted from landfills. Implement a color-coded waste system and reusable container program for UBC food service providers.
5. Unsustainable	The UBC community does not employ a waste reduction program of any kind.	Assess the status of the current waste system to develop a sustainable waste reduction strategy. Launch a color-coded waste system and establish a reusable container program for all food service facilities.

Appendix C: Ecological Sustainability Assessment Tool

An ecologically sustainable food service facility is one in which a variety of waste resources are available and fully utilized. This assessment tool will be used to assess the ecological sustainability rating of each food service facility on the UBC campus.

Evaluate each food service facility on the UBC campus based on the criteria in the following checklist. If a waste category is available and utilized, place a (√) in the corresponding box. If a waste category is not available or utilized, place a **(x)** in the corresponding box. To determine the total points, add up each affirmative response (√) for the ecologically sustainable measures. A qualitative sustainability rating will given to each food service facility based on the sustainability interpretation below.

Ecologically Sustainable Measures	*Kitchen*		*Food Sales Area*		*Garbage Pickup Area*	
	Available	*Utilized*	*Available*	*Utilized*	*Available*	*Utilized*
Reusable containers						
Newspaper recycling (BLUE)						
Plastic recycling (ORANGE)						
Glass recycling (GREEN)						
Metal/Tin recycling (GREY)						
Compost (BROWN)						
Garbage (RED)						
Color-coded waste system						
Waste disposal system maintenance						

Total (√'s) = _____

Sustainability Interpretation

Sustainability level	**Points**
Sustainable	49 – 60 points
Mildly sustainable	37 – 48 points
Neutral	25 –36 points
Mildly Unsustainable	13 – 24 points
Unsustainable	0 – 12 points

Appendix D: Social-Ecological – Sustainability Criteria

The following is a table noting the different levels of sustainability and suggested intervention strategies to employ:

Level of sustainability	**Definition**	**Interpretation**
1. Sustainable	The UBC community understands the sustainability concept. This knowledge is demonstrated by environmentally friendly behavior.	Continued education on sustainability and UBC food system for new students and community members to maintain current understanding and behaviors. Continue to provide resources to employ sustainable behaviors.
2. Mildly sustainable	Community members have some understanding of sustainability. This knowledge may not translate into environmentally friendly behavior practices.	Educate the community on sustainability and UBC food system. Education should also target implementation of environmentally friendly behaviors. Ensure resources are available to support such behaviors.
3. Neutral	Community members do not have a complete understanding of the sustainability concept. Also, the lack of understanding interferes with employing environmentally friendly behaviors.	Educate community on sustainability and UBC food system to improve understanding of these concepts. Educate on environmentally friendly behaviors. Ensure resources are available to support such behaviors.
4. Mildly unsustainable	The UBC community has little understanding of the sustainability concept. It appears there is a lack of environmentally friendly behaviors practiced on campus.	Educate community on sustainability and UBC food system to facilitate sustainable behaviors. Ensure resources are available to support such behaviors.
5. Unsustainable	The UBC community lack in-depth understanding of sustainability and UBC food concepts. There is a lack of environmentally friendly behaviors practiced on campus.	Must employ community education on sustainability and the UBC food system if the community is to become informed and thus act responsibly with regards to these concepts. Ensure resources are available to support such behaviors.

Appendix E: Social Indicator – Sustainability Criteria

Level of sustainability	Definition	Action
1. Sustainable	The entire UBC community (commuters and all on-campus residents) perceives the complete accessibility and availability of nutritious prepared and unprepared food on campus.	▪ Continue to monitor and evaluate community member satisfaction and food needs ▪ Evolve with community member food needs and strive to continual improvement of services
2. Mildly sustainable	The UBC community commuters and on-campus multiple-occupant (MO) residents perceive the complete accessibility and availability of nutritious prepared food on campus. UBC community on-campus single occupant/family (SO-F) residents have a relatively high perceived accessibility and availability of nutritious prepared and unprepared food on campus.	• Continue to provide and evaluate commuter and MO resident satisfaction and food needs • Assess SO-F resident satisfaction and food needs • Seek to improve the availability and accessibility of unprepared foods based on assessment of food needs • Evaluate services provided by the Food Co-op
3. Neutral	The UBC community commuters and on-campus MO residents perceive a moderate level of accessibility and availability of nutritious prepared food on campus. UBC community on-campus SO-F residents have a relatively low perceived accessibility and availability of nutritious prepared and unprepared food on campus.	• Assess commuter and MO resident satisfaction and food needs • Seek to improve the availability and accessibility of prepared foods based on assessment of food needs • Review and revise services provided by Food Co-op and alignment with community food needs
4. Mildly unsustainable	The UBC community commuters and on-campus MO residents perceive a low level of accessibility and availability of nutritious prepared food on campus. UBC community on-campus SO-F residents have a very low perceived accessibility and availability of nutritious prepared and unprepared food on campus.	• Review the services provided by all prepared and unprepared food outlets within the UBC Food System • Assess food needs of the UBC community and devise strategies to reestablish satisfaction wit h food system • Investigate current practices

5. Unsustainable	The entire UBC community (commuters and all on-campus residents) perceives a lack of accessibility and availability of nutritious prepared and unprepared food on campus.	• Review the standards of practice and mandates of each food outlet within the system • Conduct basic assessment of community food needs and investigate discrepancies between needs and practices • Revise standards of practice and mandates based on research findings

Appendix F: Economic Indicator – Sustainability Criteria

The following is a table that defines the five levels of sustainability and the recommended action plans at each corresponding level.

Level of sustainability	Definition	Action
1. Sustainable	All of the UBC Food Service outlets generate profit to maintain the existing operations as well as, additional revenue to put towards further development.	Continue current business practices. Seek consumer input to help direct funding for further development. Continue to look for ways to practice and promote sustainable actions.
2. Mildly sustainable	The majority of the UBC Food Service outlets generate enough profit to maintain the existing operations and some profit for further development.	Assess all UBC outlets for differences and ways to mend gaps between successful and less successful outlets. Collect and evaluate options to enhance services and expand consumer base. Continue to look for ways to practice and promote sustainable actions.
3. Neutral	The majority of the UBC Food Service outlets generate enough profit to simply maintain existing operations ("break-even")	Assess all UBC outlets for differences and ways to mend gaps between successful and less successful outlets. Collect and evaluate options to enhance services and expand consumer base. Continue to look for ways to practice and promote sustainable actions.
4. Mildly unsustainable	The majority of the UBC Food Service outlets generate minimal profits and thus rely on some outside funding in order to maintain existing operations.	Assess all UBC outlets for differences and ways to mend gaps between successful and less successful outlets. Collect and evaluate options to enhance services and expand consumer base. Adopt and implement new practices. Gradually minimize outside funding.
5. Unsustainable	The majority of the UBC Food Service outlets rely on heavily on outside funding and yet are unable to meet existing operations.	Assess business practices at all levels in food system. Analyze financial records to identify areas of concern. Collect and evaluate options to enhance services and expand consumer base. Adopt and implement new practices. Gradually minimize outside funding.

Appendix G: Social - Economic Indicator – Sustainability Criteria

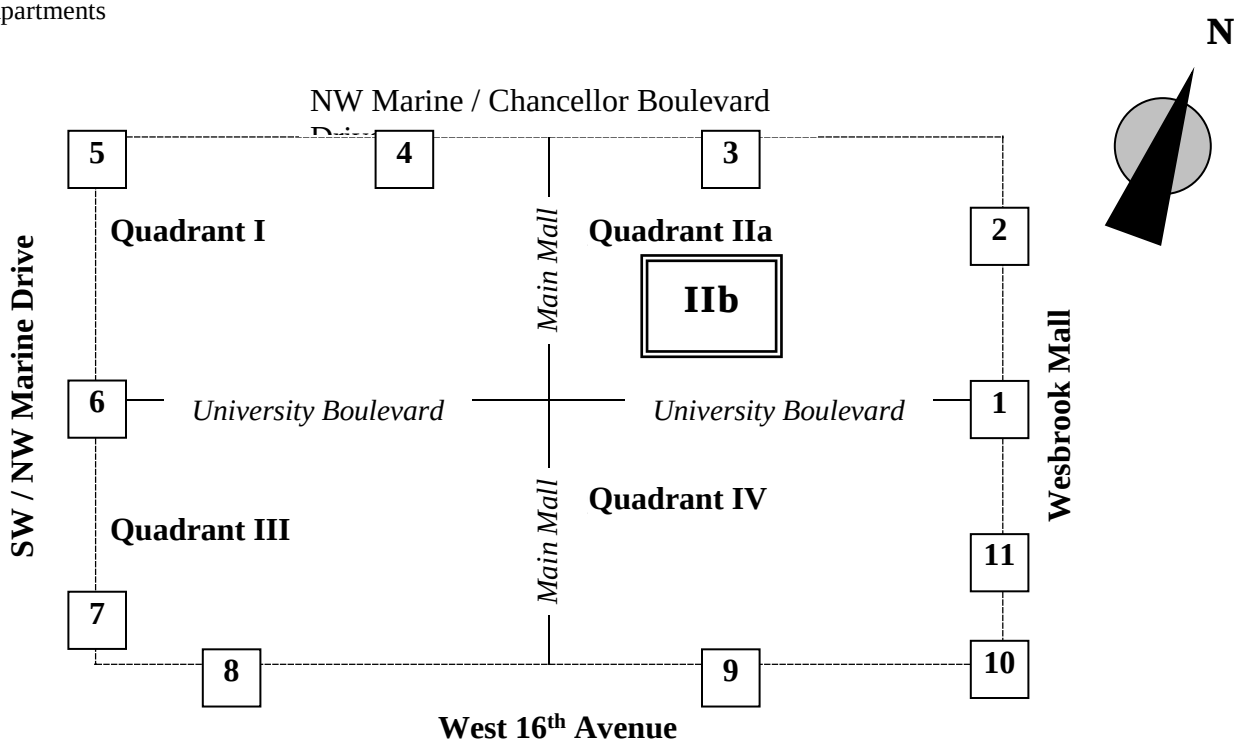
The following is a table that defines the five levels of sustainability and the recommended action plans at each corresponding level.

Level of sustainability	Definition	Action
1. Sustainable	The entire UBC community perceives unprepared and prepared food products as being both personally acceptable and affordable. Similar products correlate strongly in cost with those in surrounding areas.	Constant monitoring of food products and community perceptions are necessary to maintain high levels of food security in acceptability and affordability dimensions. Ability to forecast changing needs and/or adapt quickly and accordingly is an asset to maintain sustainability.
2. Mildly sustainable	The majority of community members perceive unprepared and prepared food products as being both acceptable and affordable. Similar food products are comparable in cost to those in surrounding areas.	Collect and evaluate input from community. Focus on specific areas identified as being unacceptable and/or unaffordable. Work with all stakeholders to increase awareness and implement new practices that promote sustainability across all stages in a food system.
3. Neutral	Community members perceive unprepared and/or prepared food products as being acceptable and/or affordable. Thus, acceptability and affordability are questionable. Similar food products are comparable in cost to those in surrounding areas.	Collect and evaluate input from community. Focus on specific areas identified as being unacceptable and/or unaffordable. Work with all stakeholders to increase awareness and implement new practices that promote sustainability across all stages in a food system.
4. Mildly unsustainable	Only a minority of community members perceive unprepared and prepared food products as being both acceptable and affordable. Similar food products are generally more expensive within the UBC community as compared to those in surrounding areas.	Collect and evaluate input from community. Focus on specific areas identified as being unacceptable and/or unaffordable. Work with all stakeholders to increase awareness and implement new practices that promote sustainability across all stages in a food system.
5. Unsustainable	The UBC community perceives both unprepared and prepared food products as not being acceptable and affordable. Similar food products are considerably higher in price to those in surrounding areas.	Collect and evaluate input from community. Focus on specific areas identified as being unacceptable and/or unaffordable and implement new practices accordingly. Further studies and surveys are required to identify ways to reduce costs to consumers and address acceptability concerns.

Appendix H: Methodology

The boundaries of the UBC Food System are defined as the area within the University Gates including the UBC Farm, all UBC Housing residences [A] as well as other UBC community residences [B].

A: Gage Residence and Conference Centre, Place Vanier, Totem Park, Fairview Crescent, Acadia Park, Rits-UBC House, Thunderbird Residence
B: Fraternity Village, Green College, St. Andrew's College, Acadia and Sopron House, Point Grey and Spirit Park Apartments



- Quadrant I is the area bounded by NW Marine Drive, University Boulevard and Main Mall. Food service outlets include 99 Chairs [1], Yum Yum's [1], Trek Express [1], Pizza Pizza [1], MOA [1] and the Pond Café [1].
- Quadrant IIa is the area bounded by NW Marine Drive, Main Mall, University Boulevard and Wesbrook Mall, excluding the Student Union Building (SUB). Food service outlets include Gage Mini-Mart [1], Arts 200 [1] and Steamies [1].
- Quadrant IIb is the area occupied by the SUB, which is defined as the SUB as well as the area outlying, up to 10 metres from the main structure. Food service outlets include: Pacific Spirit Place [1], Subway [1], Pizza Pizza [1], Expresso on the Go [1], Bernouli's Bagels [2], Blue Chip Cookies [2], Burger Bar [2], Gallery Lounge [2], The Moon [2], The Pendulum [2], Pie r Squared [2], The Pit [2], Snack Attack [2] and The Honour Roll [2].
- Quadrant III is the area bounded by University Boulevard, NW Marine Drive, West 16th Avenue and Main Mall. Main food service outlets include Edibles Café [1], The Barn [1], Place Vanier [1] and Hubbards [1].
- Quadrant IV is the area bounded by University Boulevard, Main Mall, West 16th Avenue and Wesbrook Mall. Main food service outlets include IRC/Subway [1], Bread Garden [1], Totem Park [1] and Magda's [1].

"1" denotes a UBC Food Services operation, "2" denotes an AMS Food & Beverage operation.

Appendix I: Timeline

Week 6 – UBC Food System Collaborative Project IV begins

- Formulate a problem definition
- Develop group vision for the sustainability of the UBC Food System
- Review existing models and assessment tools
- Select a model which best reflects group principles and values
- Revise selected model, indicators and assessment tools as necessary
- Devise strategy for carrying out assessment and analysis

Week 8 – Data collection

- Conduct assessment of UBC Food system based on selected indicators, sustainability criteria and specific tools
- For each Quadrant of UBC campus, collect a minimum of 20 surveys

Week 10 – Analysis of data

- Analyze collected data
- Identify current status of UBC Food System based on data and sustainability criteria

Week 12 – Final report and website completed

Appendix J: Social Indicator – Assessment Tool

Food Accessibility and Availability Questionnaire
Commuters and Multiple Occupant Residents version

The following is a series of questions to determine your perception regarding food accessibility and availability on the UBC campus. Please answer the questions honestly, as your answers will help determine UBC community food needs and practices. *Please circle the most appropriate response*.

I am a: ☐ Commuter ☐ On-campus resident (with meals provided) ☐ On-campus resident (no meals provided)

1. I can easily find and purchase prepared food items on UBC campus.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

2. I am satisfied with the selection of prepared food items on campus.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

3. I am satisfied with the hours of operation of UBC food outlets.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

4. I feel that the payment options available at UBC food outlets negatively affect my food purchases.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

5. Having accessible and available prepared food items on campus is important to me.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

6. I am satisfied with the availability and accessibility of prepared foods on UBC campus.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

Total = _____
Level of Sustainability = Total ÷ 6
= _____

Food Accessibility and Availability Questionnaire
Single Occupant and Family Residents version

The following is a series of questions to determine your perception regarding food accessibility and availability on the UBC campus. Please answer the questions honestly, as your answers will help determine UBC community food needs and practices. *Please circle the most appropriate response*.

Are you a: ☐ Single occupant resident ☐ Family resident

7. I can easily find and purchase unprepared food items on UBC campus.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

8. I have adequate transportation to purchase unprepared foods.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

9. Having unprepared food available is important to me.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

10. I purchase unprepared food items:

1	2	3	4	5
Once per month	Twice per month	Once per week	Twice per week	> Twice per week

11. Having accessible and available prepared food items on campus is important to me.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

12. I am satisfied with the availability and accessibility of unprepared foods on UBC campus.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

Total = _____
Level of Sustainability = Total ÷ 6
= _____

Appendix K: Food Sustainability Questionnaire

The following is a series of questions to determine your knowledge on sustainability. Please answer the questions honestly, as your answers will help determine marketing and community education on this topic. *Please circle the most appropriate response*.

Please note the appropriate response:

❑ Student ❑ Faculty ❑ Staff

13. I understand and can define the term sustainability.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	disagree

14. I understand the reasons for recycling, composting and other forms of waste management, especially on the UBC campus.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	disagree

15. I employ environmentally friendly behaviors in my home. E.g. I recycle, use a compost system, etc.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	disagree

16. I understand the role that food choices play in preserving the environment.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	disagree

17. I like to know where my food comes from so I can make environmentally safe choices.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	disagree

18. I consider the negative environmental consequences of my food choices prior to purchase.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	disagree

19. I am aware of all food choice options within the UBC community (e.g. UBC Farmer's Market, village food stores, restaurants, UBC food services etc.)

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	disagree

Appendix L: Food Acceptability and Affordability Questionnaire

Food Acceptability and Affordability Questionnaire

The following is a series of questions to determine your perception regarding food acceptability and affordability on the UBC campus. Please answer the questions honestly, as your answers will help determine marketing and community education on this topic. *Please circle the most appropriate response*.

20. I consider the food available on the UBC campus to be personally acceptable.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

21. I can easily find foods on UBC campus that meet my cultural practices and beliefs.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

22. I can easily find foods on UBC campus that meet my nutritional preferences.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

23. I am happy with the quality of the foods available on UBC campus.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

24. I consider that the foods available on UBC campus are comparable in price to similar food items bought off campus.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

25. I consider that the foods available on UBC campus are affordable to most students.

1	2	3	4	5
Strongly agree	Mildly agree	Neutral	Mildly disagree	Disagree

Appendix M: Ecological-Economic Indicator – Assessment Tool

Food mileage calculation assessment sheet

Date: _____ *Source*: _____

Produce/product	**Point of origin**	**Distance traveled (km)**	**x**	**Weight (tonnes)**	**=**	**Tonne-Kilometres (T-Km)**	**WASD**
*Apple (6)							
*Pear (6)							
*Yams (6)							
*Carrots							
*Squash							
*Broccoli							
*Green onions							
*Potatoes, russet (6)							
**1% milk (2 L)							
**Yogurt (750 g)							
**Cheese, cheddar							
**Short grain brown rice							
**Kidney beans, dried							
**Couscous							
**Dark roast coffee							
**Apple juice							

*** Produce items selected for assessment are subject to season and food co-op availability and are meant to serve as a guide for food mileage assessment. The produce items presented are listed as in season for February-March from Pro-Organics. With date of assessment, produce items may vary.**

**** Items are subject to food co-op availability and are meant to serve as a guide for food mileage assessment.**

WASD = $\frac{\Sigma\,[m(k) \times d(k)]}{\Sigma\, m(k)}$

Where:
m = amount (weight) consumed from each point of production
k = different points of production
d = distance from each point of production to each point of use or sale

Level of Sustainability

1 = Safeway: Food Co-op T-Km > 20
2 = Safeway: Food Co-op T-Km ≤ 20
3 = Food Co-op: Safeway T-Km ~ 1
4 = Food Co-op: Safeway T-Km ≤ 20
5 = Food Co-op: Safeway T-Km > 20

Appendix N: UBC Food Co-op Questionnaire

The following is a series of questions to determine your knowledge about UBC's Food Co-op. Please answer the questions honestly, as your answers will help determine the stability and marketing of this project. *Please circle the most appropriate response*.

1. I am aware that the Food Co-op is located on the lower level of the Student Union Building.

   1. Yes 2. No

2. If answered "No" to the above question, what would you do to make more students aware of the UBC Food Co-op.

3. I would buy foods from the UBC Food Co-op.

   1. Yes 2. No

4. What kind of food items would you want the UBC Food Co-op to sell?

5. Do you feel that volunteers should run the UBC Food Co-op or be part of the AMS services, where they are paid employees?

   1. Yes 2. No

6. If you were to become a member of the UBC Food Co-op, how much are you willing to pay?

   1. $2.00 2. $5.00 3. $7.00 4. $10.00

7. Are there any other suggestions that can be made to improve UBC's Food Co-op?

Appendix O: Food Co-op Food List

Item	Price ($/lb.)
Membership Fee	2.00
Non-Fair Trade	
Kidney Beans	2.75
Garbanzo Beans/Chickpeas	2.25
Black Beans	1.75
Red/Brown Lentils	1.95
Short Grain Brown Rice	1.65
Sushi Rice	2.00
Pasta (454g)	2.00
Amaranth	1.75
Couscous	2.45
Millet	1.75
Popcorn	1.05
Pancake Mix	1.75
Apple Cinnamon Granola	3.15
Cane Sugar (Bulk)	2.00
Regular Oats	1.05
Quick Oats	1.05
Apples (each)	0.65
Raisins	3.50
Bananas (per lb.)	1.00
Pears (each)	0.40
Apple Juice (950mL)	3.25
Olive Oil (500mL)	7.50
Fair Trade & Organic	
Nicaraguan-Dark Roast(400g)	10.00
Cuban-Dark Roast(400g)	10.00
Full City Roast-Medium Bodied (400g)	10.00
Chiapas-Swiss Water Decaf (400g)	11.00
Enerbeans (4oz.)	4.25
Earl Grey Tea	2.50
Lemon Honey Tea	2.35
Green Tea	2.35
Chai Tea	2.90
Rooibos Tea	3.00
Earl Grey Tea (Bulk)	15.00
Green Tea (Bulk)	14.00
Ceylon Tea (Bulk)	13.00
Hot Chocolate Mix (336g)	6.00
Hot Chocolate Mix (Bulk)	5.00
Cocoa Powder (Bulk)	8.00
Cocoa Powder (8oz.)	6.00
Evaporated Sugarcane Juice Crystals	3.20
Sugar (454g)	2.60
Milk Chocolate Bar (100g)	2.60
Milk Chocolate w/ Nuts Bar (100g)	3.00
Dark Chocolate (100g)	2.60
Praline Chocolate Bar (100g)	3.00
White Chocolate Bar (100g)	2.80

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