UBC Social Ecological Economic Development Studies (SEEDS) Student Report

Sustainability Research Proposal for the UBC Food System

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Abstract

This report proposes a model to assess the state of UBC's food system sustainability on a continuum ranging from "unsustainable" to "sustainable." Sustainability is defined as a value-based, adaptable approach concerned with the interconnections between food, health and agriculture involving social, economical and ecological issues (1, 8). Our proposal is based on a weak anthropocentric and community-based value perspective. After analyzing the current goals of the UBC Sustainability Office, and examining the components of the food system based on our values, we have developed measurable social, ecological and economical indicators to evaluate the sustainability of the UBC Food System (UBCFS). The indicators of sustainability will assist in locating the UBCFS in our proposed sustainability model. The social, ecological and economical indicators are 'community support of local agriculture production,' 'waste management and recycling' and 'profit and losses,' respectively. We have designed a research proposal that outlines the ways that the sustainability of the UBCFS can be evaluated based upon these indicators. We have also included recommendations and alternative research ideas for future projects regarding sustainability of the UBCFS.

Introduction

In light of current interests concerning sustainability and the global food system, it becomes essential and obvious to assess and evaluate a community's state of sustainability and its interactions with and impacts on the global system.

Currently, the University of British Columbia (UBC) is a large community containing approximately 35,000 students, 1,740 full-time faculty employees and 7,339 full-time non-faculty employees (1). An enormous food system is needed to support such a large university. The impact of this food system on sustainability and the global food system must be measured, evaluated, and understood.

As consultants measuring sustainability, we hope to create and design a model that will evaluate sustainability, applying specific criteria and indicators – ecological, social, and economical - to show the impacts of globalization on the UBC campus and specifically, on the UBC Food System (UBCFS). Our main objective in writing this report is to propose a model and methodology to assess the sustainability of the UBCFS.

In the context of this paper, we will first provide detailed background information on UBC's sustainability policy from the UBC Sustainability Office and also supply a map of the UBCFS that outlines the boundaries of the system. Secondly, we will explain the underlying value assumptions of our group. Thirdly, we will describe in detail the definition of sustainability and our proposed model with its indicators

and specified criteria. Fourthly, we will present our research design proposal and possible ways of measuring and applying our model in evaluating the sustainability of the UBCFS. Lastly, we will provide our recommendations for further research proposals to assess the sustainability of the UBCFS.

A Look at UBC's Sustainability Office

To begin our project, we became familiar with some of the initiatives that UBC's Sustainability Office has undertaken to promote sustainability practices. UBC's Sustainability Office was established in 1997 when the University of British Columbia signed the Halifax Declaration and the Talloires Declaration (14). This newly adapted sustainability policy drives UBC to work towards achieving an environmentally responsible community campus that is economically viable and reflects the values of campus community members. In addition, it ensures the integration of ecological, economical and social considerations at all levels of strategic planning and operations within the university. The overall strategy of the UBC's Sustainability Office is to develop an action plan with clear indicators for targets including evaluation guidelines, effective measures of progress, reporting mechanisms and providing appropriate educational support systems. The target and action plans are reviewed every two years.

The UBC Sustainability Office promotes, coordinates, and implements the most effective sustainability practices. There are several ongoing programs in place to ensure that UBC is striving towards sustainability, such as the Sustainable Energy Management Program, Canada's largest campus energy and water retrofit; Green Buildings, campus structures that champion sustainability and win awards; UBC SEEDS, student, staff and faculty working towards sustainability in tandem; Sustainability Coordinator Program, a grassroots campaign to bring sustainability practices to 300 UBC departments; Sustainability Circles, dialogue and debate on issues that matter; Paper Reduction, working towards at least a less paper-strewn world, if not a paperless one; and TrekSTEP1, on-the-job sustainability training for students (14). The UBC's Sustainability Office uses its website in an attempt to explain its efforts in achieving sustainability on campus to the public. In assessing the ecological sustainability of its campus, the office uses paper and energy consumption as indicators. Additionally, a program called Wastefree UBC, promotes

waste reduction amongst UBC community members (14). The success of this program is evaluated by using a census to monitor the waste production within the UBC campus. Another ecological indicator, utilized by UBC's Sustainability Office, is the amount of composting and recycling. This particular indicator is used by UBC Waste Management as part of the waste reduction programs (14). Social indicators include the willingness of students and faculty members' to become involved with the campus sustainability efforts. Commitment on a personal level can help achieve sustainability. UBC offers courses about sustainability, available from the Student Electronic Network for Sustainability Education, which provides a listing of sustainability related courses (14). Other personal commitment initiatives would include getting involved with reducing single-occupancy vehicle trips to campus, creating a healthier environment and abiding by the Student Sustainability Pledge (a personal commitment to building a better world).

Our Value Assumptions

Our next step in the project was to conduct an internal evaluation of our group members to determine the major paradigms through which we view the UBCFS as a whole. Our group members come from various backgrounds and therefore, there were unique viewpoints that arose in our discussions. However, through much debate our group agreed to take on a weak anthropocentric and community-based approach in order to design a model for assessing the sustainability of the UBCFS.

In the article, *Anthropocentrism: A Modern View*, W. H. Murdy states that, "[t]o be anthropocentric is to affirm that mankind is to be valued more highly than any other things in nature by man" (9). Some proponents of this approach, including B. Norton, distinguish a "strong" from a "weak" anthropocentrism, the former being based on the moral validity of satisfaction of all human "felt preferences" (wants and desires) and the latter based on the recognition of the moral validity of only "considered preferences" (basic human needs) (1). Even though our views are weakly anthropocentric, we still understand that our continued survival and well being as the human species is completely dependent on maintaining a healthy ecosystem.

Through our discussions, our group also found that we shared a community-based value system as opposed to an individual freedom based system. We unanimously agreed in valuing the local community in which we reside as well as the larger global community that we are an integral part of. We strongly believe that any food system needs to bring about connectedness amongst community members because the sharing of food can establish strong connections between people.

We used our anthropocentric and community-based approaches in order to effectively complete this project. Our values were very important in establishing our end result of this project which was a general model to assess the sustainability of the UBCFS. In the context of this paper, we will provide further details about our group's position in relation to food system sustainability and reveal the strong relationship evident between our group's values and the construction of our model.

Map of the UBCFS

Before designing our model, it was vital to construct a map of the UBCFS. In constructing this map, we defined the UBC community boundary as extending to the University Gates incorporating all food, retail outlets and disposal units within those parameters. This map, (Appendix A) outlines the components and physical boundaries of the UBCFS as well as its linkages with the global, national, regional and local food systems. Our goal is to create a more self-efficient and self-sustainable food system by increasing the food production from the UBC farm so that it can become a larger food provider of the UBCFS. Furthermore, our desire is for all of the waste produced within the UBCFS to be recycled instead of sent to various landfills.

Components within the UBCFS

The UBC farm is one of the food suppliers to the retailers within the boundaries of the UBCFS. It is also a place for students to learn about sustainability (15). Some of the inputs such as farming equipment and seeds are purchased within Canada or imported from other countries. The food produced in the farm is stored, transported and sold to retailers. Some of the wastes produced from the farm are transported to the composting sites where they get recycled (18).

All of the restaurants, food outlets and cafeterias within the UBCFS purchase their food from the following places: the UBC farm, local, regional and national markets across Canada or from other countries. They are responsible for processing and preparing food for consumers in UBC. The waste that is produced is transported to waste management sites or to small-scale composting sites (18).

Another major component within the UBCFS is the consumers who purchase food from retailers and consume this food either within or outside the UBC campus. The waste such as food containers is transported to waste management sites for recycling or composting as part of the service offered by the UBC Waste Management program (18).

The UBC Waste Management program is responsible for providing campus-wide paper, cardboard and container recycling operations; supplying educational information on safe handling of solid waste for disposal; and consulting on waste reduction and recycling (18). As part of GVRD, the waste that is produced within the UBCFS is diverted to recycling, composting (worm composting, backyard composting and windrow composting) or sent to landfills (18).

Both the UBC Sustainability Office and the UBC Health, Society & Environment Office help to promote, coordinate and implement sustainable practices by providing education as well as a variety of programs with attempts to make UBC a more economically, socially and environmentally balanced community (14). The UBC Food Services and the Alma Mater Society review all aspects of food services to ensure that good value, quality service and a pleasant environment is available to consumers (12, 16).

Components outside the UBCFS

The local, regional, national and global food markets are among the food suppliers to the UBCFS. Food products are produced, stored and exported to local processors or directly to retailers within the UBCFS. These systems also export raw materials to the UBC farm. Commodities may be traded within Canada or within other countries before entering the UBCFS.

Our Proposed Sustainability Model

After constructing a map of the UBCFS, we then designed a model (Appendix B) to assess the sustainability of the UBCFS. To do this, we had to decide what issues were of most importance in determining a truly sustainable food system. In defining sustainability within a food system, there are numerous factors to consider as food has to be produced, processed, distributed, consumed, and recycled or wasted (2). The linkages between land, food and community must exist in a sustainable food system, and these in turn, create a strong relationship with the natural environment and the human community (2). Through extensive research, we have been able to develop a sustainability continuum that recognizes a truly sustainable food system to be defined as follows.

Sustainability

Sustainability is a value-based, adaptable approach concerned with the interconnections between food, health and agriculture (1, 9). It involves social, economical and ecological issues to develop a system that benefits past, present and future community members (consisting of UBC students, faculty and staff members) whose interests are focused upon (1, 5, 6, 8, 10). This helps to ensure that the needs of the community members are met. Sustainable development should be based more on organic farming methods and locally available resources, local skills and knowledge (10). In this respect, community awareness, education and support are key factors in a food system (10). A sustainable system relies on more local self-sufficiency, rather than on global dependence, which aids to connect people with each other and with nature (6, 10). This definition of sustainability demonstrates our group's position in relation to food system sustainability.

Unsustainability

The opposite side of the continuum exhibits unsustainability, which has little connection between the natural environment and the human community. Social, economical and ecological issues are also ignored or not fully developed. An unsustainable system is dependent on global resources rather than on local

community resources and does not value community as a priority. Its primary concern is for the present situation and for increasing profit. Thus, the environmental future is overlooked.

Proposed Indicators & Criteria

From our research, we propose three sustainability indicators to assess the sustainability of the UBCFS. Even though there were many indicators, we limited our indicators to the three that best reflect our group's values. We perceive all three to have equal importance in relation to sustainability as a whole. The chosen indicators are also large issues that are continuously occurring with sustainability; therefore, we feel that these have the most impact on an entire food system. The first is an ecological indicator, which is waste management and recycling. It is given three criteria to measure its status. The criteria include: the amount of solid waste directed towards recycling or composting, the ratio between the amount of recycled items versus the amount of total waste and the number of participants in the WasteFree UBC program. In choosing this particular indicator, we found that an ecological food system emphasizes renewable resources and tries to strengthen intimate bonds between people and nature (6). While there are many possible indicators, we found that 'waste management and recycling' are the factors that underlie a food system as a whole where all of its parts work together to produce the product in a cyclical manner (6). As more waste is produced, the food system becomes less efficient and less effective. Therefore, it is in everyone's best interest to reduce the amount of waste produced. Sustainable methods entail working with nature to replenish soil and other resources through recycling, composting and using animal nutrients (2). There are many approaches and theories surrounding the valuation of the services and innate worth of environmental resources (6). The negative impacts of packaging and processing wastes on the environment and society also need to be considered and minimized (6). A sustainable food system is one in which the health of the environment is sustained and enhanced for use by all beings and by future generations (2). The UBCFS, specifically, shows evidence to support the fact that it has an ecological problem, as UBC alone generates 12 tonnes of garbage every day with 35% of the total waste being food waste (7, 8, 9). Up to 40% of the

garbage produced at UBC's Food Service outlets is composed of disposable containers, such as cups (7, 8, 9). In addition, 70% of UBC's waste stream is made up of compostable materials (7, 8, 9).

The second indicator covers the economic aspect; it is classified as 'profit and losses.' This indicator also has three criteria to measure its status, which are the following: the number of jobs (full and part-time) created by food service outlets, the profit or losses experienced by UBC food service outlets, and the cost of food production at the UBC farm. A sustainable food system has a value-based approach, one that focuses on an economic system favouring environmental sustainability, relationships between farmers and consumers, fairness and equity, and strong communities over the profit motives (2, 5). Profit is imperative for a food system to be sustainable; however, human society has been and should remain more than just a marketplace (4). At this point in time, food production is based on profit rather than on the purpose of feeding people, and these two objectives should be balanced to encourage sustainability (4). The economic system needs to reflect values other than the ability to compete in the marketplace with the greatest efficiency to generate the greatest profit (5). These values may include: sustainability, justice, equity, beauty, culture and self-determination, to name a few (5). This is in direct correlation with our weak anthropocentric values. In the food economy, the marketing potential for local sustainable foods is an important aspect (3). It is necessary to develop local agricultural markets for growers in their regions and to examine consumer demand for locally grown foods (3).

Lastly, the social indicator assessing sustainability is the 'community support of local agriculture production.' Three criteria that measure its status include: the ratio of locally produced food from UBC farm and used by UBC food service outlets versus total food used, the amount of produce grown on UBC farm annually, and the varieties of produce grown on the UBC farm. The importance we found specifically with this indicator alone was obtaining a balance between local self-sufficiency and globally dependent needs (leaning more towards the local if possible) (7). To address this indicator, a sustainable food system must create a relationship between farmers, consumers, processors and other participants (5). This would result in increased communication between consumers and farmers, thus meeting more of the consumers

needs, educating and increasing the knowledge of consumers and increasing community support of local agriculture. People have lost all contact with food (4). This distance is compared to the separation of knowledge about how food is produced, processed and transported (4). Furthermore, Lieblein concludes that the distance between people and food sources, increases the distance we have from each other (6). As a result of this distance, people place low priority on agricultural and food systems, lack insight and concern about resources and the natural environment, and exhibit short-term focus on immediate comforts at the expense of long-term sustainability (6). Through increasing local production, an emphasis will be placed on the importance of close proximity to food and knowledge about food. By strengthening the local production of the food system, economic and community development in the area can also be enhanced (7).

Intermediate Stages along the Continuum

On the sustainability continuum, the right side being sustainable and the left side being unsustainable as defined above, a truly sustainable food system (from our point of view) would have all of the criteria for each of the three indicators filled to their maximum potentials. For example, a truly sustainable system would have the following characteristics: a very high proportion of composting and recycling compared to solid waste, a high ratio of recycled items over total waste, a high number of participants in the WasteFree UBC program, a high number of full and part-time jobs created by the UBC food service outlets, a low cost of food production, high profits experienced by local farmers, a high ratio of locally produced food used by UBC food service outlets compared to total foods used and a high yield and a wide variety of produce grown on the UBC farm annually. Presently, we cannot define what is meant by "high ratio" or "high proportion," etc because we do not know when this research will be conducted. However, these standards can be determined by researchers who will be using present data as well as their own research to set these standards. If a truly sustainable food system is gravitating slowly towards unsustainability, stage 2 is one measurable step down from sustainability, where a food system has only the criteria to complete two of the three indicators. For example, the system may be socially and ecologically sustainable, however it is lacking in the economical indicator where it has not maximized the potentials of the economic criteria.

Furthermore, a food system at stage 1 on our sustainability continuum would indicate even less sustainability than above, where it only meets the criteria for one of the indicators (whether it is, social, ecological or economical). If a food system is unable to meet all three criteria for at least one of the indicators, the system would be labelled as unsustainable, which is defined above. There is a lot of room for discrepancies and variations between stages on the sustainability continuum because every food system is different. Therefore, upon labelling where a food system lies, there must also be a description of what is lacking and how improvements can be made (which directly relate to the criteria we have set). The methods we propose to measure and evaluate the indicators will be addressed. The stages are in place for a general idea of how sustainable the overall food system is.

Research Design Proposal

In constructing a research design using ecological, social and economical perspectives, random sampling will be used so that the research participants better represent the larger group of the entire UBC population, from which they are drawn (11). The theoretical population is the entire UBC population (i.e. UBC students, faculty and staff members). However, the accessible population is characterized by a mix of UBC students, faculty and staff members in six selected areas across campus, which will represent the theoretical population. The six areas are representative of the entire UBC campus and are chosen to be: Macmillan Building, Henry Angus Building, Civil Engineering and Mechanical Engineering Buildings, Buchanan Complex, Mathematics Building and Biological Science Building. Random sampling will be applied to surveys distributed in the above mentioned areas.

Survey research, defined as "any measurement procedures that involve asking questions of respondents," is one of the most effective and important areas of measurement when doing research (11). In the chosen method of surveying, the interviewer makes personal contact with the respondent, as opposed to just sending out an impersonal survey form. As a result, a short verbal description can be given to each candidate prior to filling out the survey, which would provide clarification and reduce the length of the form, thereby maintaining the respondent's interest and minimizing inconvenience. In addition, the

respondent can ask further questions to the interviewer regarding the research study (11). Overall, this would yield an expected increase in the percentage of people who are willing to participate in the survey. All three surveys described below can be found in the appendices. The surveys are designed to facilitate a clear recording of answers, in addition to collecting data in a form that is efficient for later processing (13).

The survey entitled "The Reusable Containers Survey" (Appendix C) will aid in measuring the number of participants in the Wastefree UBC "One Less Cup" Campaign, part of the 'waste management and recycling' indicator. This survey was formulated by using previous data from another research project (4). This survey will be distributed prior to any research being conducted to determine members of the UBC community's willingness to bring their own reusable food and beverage containers. The survey will discover whether or not members of the UBC community are aware of the $0.15 discount offered if they bring their own reusable coffee mugs and food containers. Furthermore, the survey will measure people's willingness to participate in the Wastefree UBC "One Less Cup" Campaign by discovering whether or not the discount is enough of an incentive to use their own mugs and containers over disposables and the reasons for doing so. The UBC Food Services can measure the number of participants in this program by keeping records of the amounts of hot beverages and food items sold to customers who bring their own mugs and/or containers. The number of participants in the Wastefree UBC "One Less Cup" Campaign as an ecological indicator determines that a high willingness to bring reusable mugs and containers by individuals means that the campus is moving towards sustainability.

Another measure of our chosen ecological indicator is the ratio of the amount of recycled material versus the amount of total waste. This is to be carried out by the individual food outlets on a daily basis in logbooks. The logbooks will ensure accurate record keeping as well as continuous monitoring. This procedure should become a mandatory policy for all food service outlets to abide by. The logbooks will be located at each outlet and will record: 1) the amount of total waste (recorded in total garbage bags and recyclable bins of equivalent size) and 2) the amount of recycled material (recorded in total recyclable bins). Likewise, the ratio of the amount of composted material versus the amount of total waste will be measured

to indicate efforts to biodegrade material that can be composted. Similarly, the logbooks will be located at each UBC Food Service outlet and will record the amount of composted material (recorded in total compost storage bins to hold materials before being put into compost, that are of equivalent size to the garbage bags) and will use the same total waste used for the former ratio. Ratios for compostable material and recyclable material can be compared before and after modifications in the UBCFS to determine movements towards campus sustainability. In addition, the survey entitled "Survey of Composting and Recycling on UBC Campus" (Appendix D) serves as a preliminary gauge of the willingness of students, staff and faculty to participate in composting and recycling efforts on campus.

Economic indicators must also be used in the measure of sustainability. The purpose of the survey entitled "Survey of Local Sustainable Food Products on UBC Campus" (Appendix E) is to discover people's willingness to pay for locally sustainable products. In this survey, we would ask random students, faculty and staff members if they would buy and consume locally sustainable products. As a result, this survey will show the probability of acceptance if locally sustainable products were introduced to the UBC food chain. In addition, this survey will display people's willingness to pay for an increase in the variety of food at UBC, especially locally sustainable food products, ethnic and cultural foods. Furthermore, this survey will evaluate the importance of societal benefits that people put on job creation within the UBCFS. We feel that if people have a high social-economic value on job creation, they will have a positive reaction to locally sustainable foods.

This survey provides primary data about people's willingness to pay for locally sustainable products. However, the actual data can be obtained after the research has been conducted by looking at the net income statement, monthly performance indicators and revenue summary of UBC food services. A positive net income indicates that locally sustainable food operations cover its cost and generate a small portion of profit, therefore, making this method economically sustainable. In addition, this positive income demonstrates that people are interested in locally sustainable foods. After the research is completed, we can also compare the consumption of locally sustainable products against regular products. This can be done by

looking at the receiving invoices of raw material for food preparation. Ordering more sustainable products from local markets over regular products indicates that UBC is selling more food that contains sustainable products. This data also indicates the demand for locally sustainable foods within the UBC community. In addition, the number of jobs that are created within UBC food services, due to the increased use of locally sustainable products, can be measured by evaluating the number of people that were employed by food services before and after implementation of this program. An increase in demand for locally sustainable products results in hiring more employees, thus indicating that this program creates more jobs in UBC food services. Finally, the rate of participation in discount promotion can be calculated by looking at the invoices for raw material such as cups. Furthermore, the cost of food production at UBC farm can be determined by assessing the food production data provided by UBC farmers.

Social criteria are based on the 'community support for local production' indicator. Similar to the economic indicator, a review of the receiving invoices of raw material for food preparation can be done. An increased use of local products rather than imported products indicates that UBC is selling more food that contains sustainable products. From this data, a ratio of locally produced food from the UBC farm used by UBC Food Services versus total food used can be produced to indicate the demand for locally sustainable products. In order to measure the output of the UBC farm to determine whether or not the UBC farm can prove to be a major contribution in moving towards sustainability of the UBCFS, records should be kept to see how much produce is being grown. These records will be accumulated annually and the data will be compared to demonstrate the production capabilities of the UBC farm. In order to determine whether the variety of the food produced by the UBC farm is acceptable, questionnaires are designed asking respondents whether or not they are satisfied with the variety and quality of foods available on campus that come from the farm. These surveys are to be distributed after further incorporation of the UBC farm into the UBCFS to determine if variety and quality are acceptable to the community.

Conclusion

Investigating the current state of sustainability is necessary for making initiatives to improve the UBCFS. Our proposed model can serve as a guideline to assess the current state of the sustainability of the UBCFS. The three main indicators along with the criteria for each of the indicators describe different stages of sustainability which can be used in determining the state of sustainability of the UBCFS. Our group decided to do a preliminary assessment of where the UBCFS currently lies in accordance to our model. We concluded that the UBCFS is unsustainable at the present time. Even though it fulfills some of the criteria for all of the indicators it does not completely satisfy any one of the indicators. We hope that in the future the UBCFS will strive towards a more sustainable food system.

Recommendations

We recognize that our model was not able to include a number of important indicators and ways to study the UBCFS. Therefore, we have provided a few recommendations and alternative ways in assessing the UBCFS.

- The UBC Sustainability Office should hire more student workers to carry out various research projects focused on assessing the sustainability of the UBCFS. The Sustainability Office should provide a detailed training session that allows workers to understand issues related to sustainability, which will further assist them in effectively carrying out research projects.
- Develop a research study that analyses the amount of mileage that food travels before it reaches UBC food service outlets. This is important because the analysis of food mileage will allow us to estimate the sustainability of the UBCFS in regards to providing local food products. This will also provide a measure of the quality of food products at UBC.
- Develop a research proposal that investigates the acceptance of establishing a local grocery outlet (particularly a produce market) within the UBC campus. This would help to understand the challenges and opportunities that are associated with opening this type of food outlet and how accepting UBC

consumers are in purchasing this type of food. This would most likely increase the community support of local agriculture.

- Another social indicator that would be very beneficial to use in another similar proposal, would be the relationship between providers and consumers. A proposed research methodology to follow this indicator would be to examine and understand UBC community members' knowledge about its food system. Surveys would be beneficial to measure how much people actually know or are aware about the food system. Thus, the problem can later be addressed through more promotion, education, and integration of local farmers closer to the campus area in order to create a relationship between them and their consumers. This will help to understand the needs of the community and teach the community members about the food system. This would result in more community support towards the farmers through increasing the surrounding community's knowledge, awareness and involvement in the food system. Furthermore, sustainability would increase in the future.
- Design a research project that focuses on the impact of franchises and "branding" on the sustainability of the UBCFS. The impacts of franchises should be examined by comparing franchise and non-franchise food outlets as a measurement for customer satisfaction, ecological sustainability, and economic profits. Surveys would be done to determine the values that members of the UBC community set on food products from franchised and non-franchised food outlets.
- Construct a research design that encompasses equal access to food as a social indicator for sustainability. Surveys can be done to determine students, staff, and faculty members' willingness to sacrifice equal access to a variety of foods all year round for a limited selection of seasonally available and locally grown sustainable food products.

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Appendices

Appendix A: UBC Map

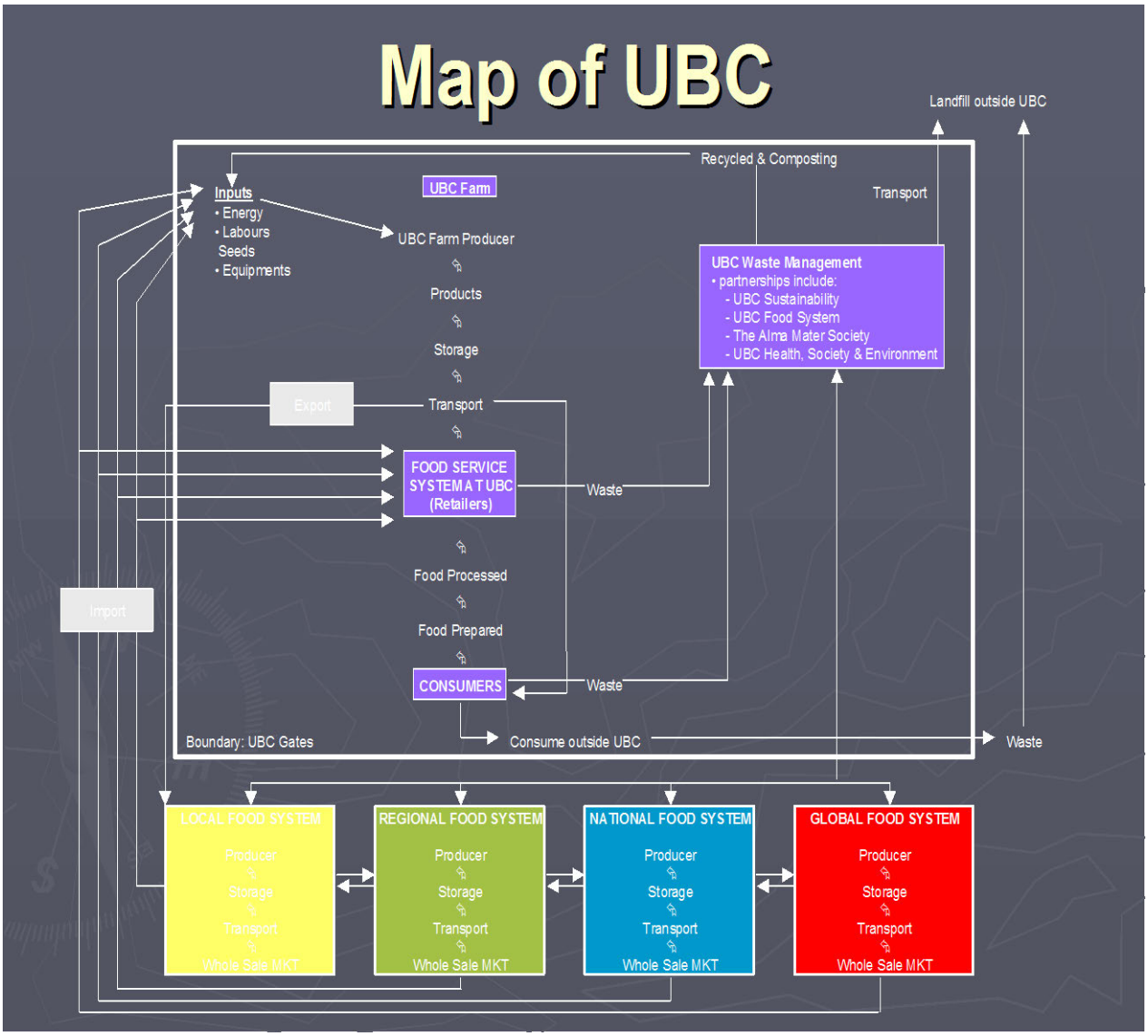
Appendix B: Proposed sustainability model

Appendix C: The Reusable Containers Survey

Appendix D: Survey of Composting and Recycling on UBC Campus

Appendix E: Survey of Local Sustainable Food Products on UBC Campus

Appendix A


Map of UBC
Landfill outside UBC
Recycled & Composting
Transport
Inputs
• Energy
• Labours
Seeds
• Equipments
UBC Farm
UBC Farm Producer
Products
Storage
Transport
Export
UBC Waste Management
• partnerships include:
- UBC Sustainability
- UBC Food System
- The Alma Mater Society
- UBC Health, Society & Environment
FOOD SERVICE SYSTEM AT UBC (Retailers)
Waste
Food Processed
Food Prepared
Import
CONSUMERS
Waste
Boundary: UBC Gates
Consume outside UBC
Waste
LOCAL FOOD SYSTEM
Producer
Storage
Transport
Whole Sale MKT
REGIONAL FOOD SYSTEM
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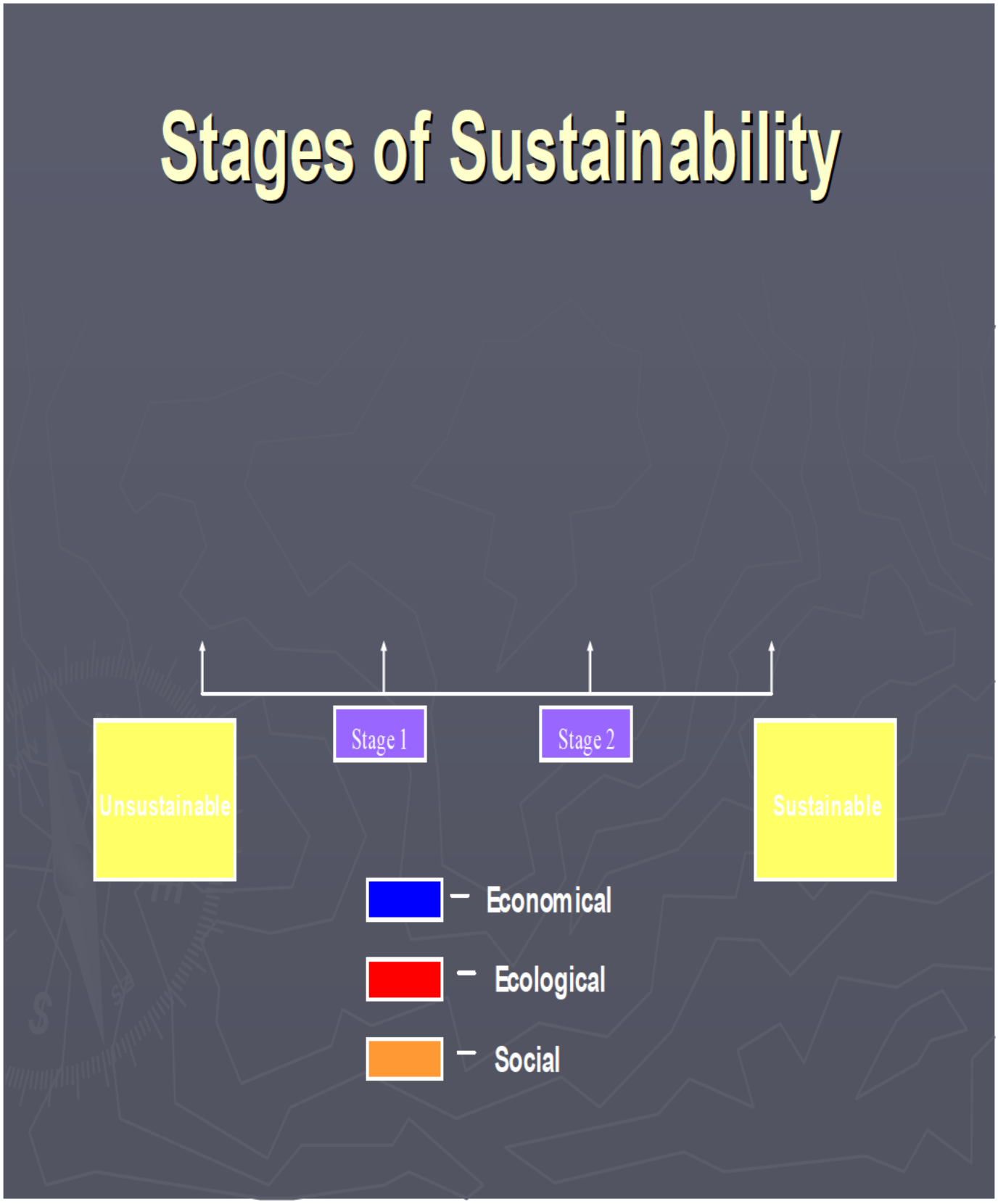
Whole Sale MKT

Appendix B


Stages of Sustainability
Unsustainable
Stage 1
Stage 2
Sustainable
– Economical
– Ecological
– Social

Appendix C

The Reusable Containers Survey

1. **How many cups of hot beverages, such as coffee, tea or hot chocolate, do you purchase on campus per week?**

☐ **None**
☐ **1 cup**
☐ **2 cups**
☐ **3 cups**
☐ **4 cups**
☐ **5 cups**
☐ **6 cups or more**

2. **How many food items served in disposable containers, such as sandwiches or burgers, do you purchase on campus per week?**

☐ **None**
☐ **1 food item**
☐ **2 food items**
☐ **3 food items**
☐ **4 food items**
☐ **5 food items**
☐ **6 food items or more**

3. **If buying hot beverages or food items on campus, do you bring your own mug/container?**

☐ **Yes**
☐ **No**
☐ **Sometimes**

4. **Did you know that you can get a discount when purchasing hot beverages and food items by bringing your own reusable mug/container? If yes, how much do you think the discount is?**

☐ **No**
☐ **Yes**
☐ **$0.05**
☐ **$0.15**
☐ **$0.20**
☐ **$0.30**
☐ **$0.50**

Appendix D

Survey of Composting and Recycling on UBC Campus

1. Do you make an effort to separate your garbage and recyclables?

☐ **Yes**
☐ **No**
☐ **Sometimes**

2. Have you ever used a compost bin? (Check all that apply)

☐ **School**
☐ **Home**
☐ **Other _____**

3. Are you familiar with what food wastes are compostable material?

☐ **Yes**
☐ **No**
☐ **Somewhat**

4. Are you aware of whether or not there is a composting project on the UBC campus?

☐ **Yes**
☐ **No**

5. If a composting bin was made available beside regular garbage bins would you utilize it?

☐ **Yes**
☐ **No**

Appendix E

Survey of Local Sustainable Food Products on UBC Campus

Please circle your response after carefully reading the questions.

1. How much extra would you pay for local sustainable products on campus?
$0.00 $0.50 $1.00 $1.50 $2.00

2. How much extra would you pay for all food outlets to serve local products, resulting with more support for your farm at UBC?
$0.00 $0.50 $1.00 $1.50 $2.00

3. How much extra would you pay for cultural and ethnic foods available in all food outlets?
$0.00 $0.50 $1.00 $1.50 $2.00

4. How much extra would you pay for local sustainable vegetables and fruits?
$0.00 $0.50 $1.00 $1.50 $2.00

5. How much extra would you pay to have shorter line-ups during peak hours in food outlets?
$0.00 $0.50 $1.00 $1.50 $2.00

6. How much extra would you pay for more jobs to be available for students?
$0.00 $0.50 $1.00 $1.50 $2.00

7. How much extra would you pay for recyclable, washable and re-usable materials to be used in the food outlets?
$0.00 $0.50 $1.00 $1.50 $2.00

8. How much would you pay to reduce food outlets' garbage, which would in turn help out your environment?
$0.00 $0.50 $1.00 $1.50 $2.00

9. How much of a discount off the regular price do you think should be awarded when you bring your own reusable containers?
$0.05 $0.15 $0.20 $0.30 $0.50