

UBC Social Ecological Economic Development Studies (SEEDS) Student Report

**Methodology and Research Design for Assessing the UBC Food System: Indicators of  
Sustainability**

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# **Methodology and Research Design for Assessing the UBC Food System: Indicators of Sustainability**

-AGSC 450



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## **Methodology and Research Design for Assessing the UBC Food System: Indicators of Sustainability**

### **Abstract:**

The purpose of the paper should be stated first. The UBC Food System (UBCFS) is currently composed of several components. These include the Sustainability Office, Sustainability Policy, Social, Ecological, Economic Development Studies (SEEDS), the Alma Mater Society, UBC Food Services, Waste Management, the Official Community Plan, and the UBC Farm. The objective of this paper is to design a research project to assess the current

sustainability status of each of these sectors in the UBCFS. Specific indicators of sustainability are aimed to measure how sustainable the UBC community is, and will help to identify problems that make the system unsustainable. The overall purpose of the project is to provide indicators and a method of carrying out the research proposal we have designed, which will be conducted by future Agricultural 450 students. In our paper we have created a map of the UBCFS as well as continuum model ranging from sustainable to unsustainable in order to measure the indicators that we have developed. This report concludes with recommendations on some of the next steps that need to be taken in order to continue to develop a more sustainable UBCFS. Good abstract.

## **Introduction**

The UBC Food System (UBCFS) is going to be faced with a number of challenges in the years to come, **including the problem of how to feed the rapidly growing UBC population.** (it sounds as a problem of hunger...) Obviously (mainly due to “population explosion?”) this food system is going to have to function to its highest level of sustainability and as such, the question is no longer why UBC needs to become sustainable but what characterizes sustainable systems, and how can such systems be implemented. The focus of this paper is to address the problem definition: How do we assess the sustainability of the UBCFS? Good introduction

## **Sustainable vs. Unsustainable**

**The sustainability of the UBCFS can be defined as a system that meets** (not a good sentence construction) the needs of the present while leaving equal or better opportunities for the future. A sustainable food system depends on its endowment of natural resources, the contributions of the community, and the capacity of the system to continue to support itself economically. This means that ecologically, the system should be either maintaining or improving the health of the natural resources available. On a social level, the support and active participation of the community is? a key factor in determining whether a system will endure over time. And finally on an economic level, the extent to which a system can rely solely on itself for financial

support, thus decreasing the reliance on suppliers outside the system, can also ensure that the system will be sustainable .

The failure of the system to seek out and achieve the features described above would suggest the unsustainability of the system (is this a matter of degree or an absolute?). Ecologically an unsustainable system would deplete or pollute the land's natural resources. Without willing participation amongst the community, the food system could not function to its maximum potential. And finally the more a system must resort to financial aid from external sources, the more it loses control over its future. (this may require some more elaboration: remember that UBC is an educational institutions, not a business enterprise ....At least not mainly a business enterprise)

Our group has developed our own conceptual definition of sustainability, based on readings? The UBCFS, in order to be sustainable, needs to become a self-reliant system that can continue to function without external inputs, in other words, a closed system. (so it would be completely self-sufficient?) A sustainable system should establish biodiversity and locally-based food production and employment. Finally our group believes strongly that a holistic approach must be used in order to incorporate all the contributing factors of a system into our definition of sustainability.

### **The intermediate stages of the sustainability continuum**

It is unlikely that any food system is strictly either sustainable or unsustainable (really? No examples of unsustainable systems?). More likely, the system is going to lie somewhere on a continuum spanning these two extremes. Where exactly a system lies on that continuum will depend heavily on whether any attempts have been made to achieve sustainability.

Acknowledging a need for improvement would be the first stage in moving up the continuum; realizing that there is a problem is more advanced than not knowing one exists (very good point).

The next stage would be to determine how to assess the sustainability of the system. The current work on the UBCFS would fall under this intermediate stage. In our attempts to determine how to assess sustainability through use of indicators, we move another step closer to achieving a more sustainable system. The next intermediate stage along the continuum would be to take these indicators and carry out the necessary research and data collection. With this information, we can then move on to an even more advanced stage, which would involve taking the knowledge we have gained and applying it to the system (this is very good. However, the self-learning process of the system does not mean that the new ideas can readily be applied: there are important systemic barriers, right?). At this stage, with the improvements now made, the cycle of discovering limitations and implementing new ideas needs to continue in order to move further along the continuum toward sustainability.

Although the achievement of a completely sustainable system is the ultimate goal, it is unlikely that it will ever be obtained. This is because in a constantly changing system, reevaluation is always necessary.

*“Because perpetuity can never be demonstrated in the present, the proof of sustainability always remains in the future, out of reach. Thus it is impossible to know for sure if a particular practice is in fact sustainable or if a particular set of practices constitutes sustainability” (Gliessman, 2000).*

As a result, only continued evaluation and assessment of the UBCFS will allow us to gauge whether we are heading towards sustainability (very good, but does Gliessman propose indicators to assess sustainability? We need a bit more here to understand better this quote)).

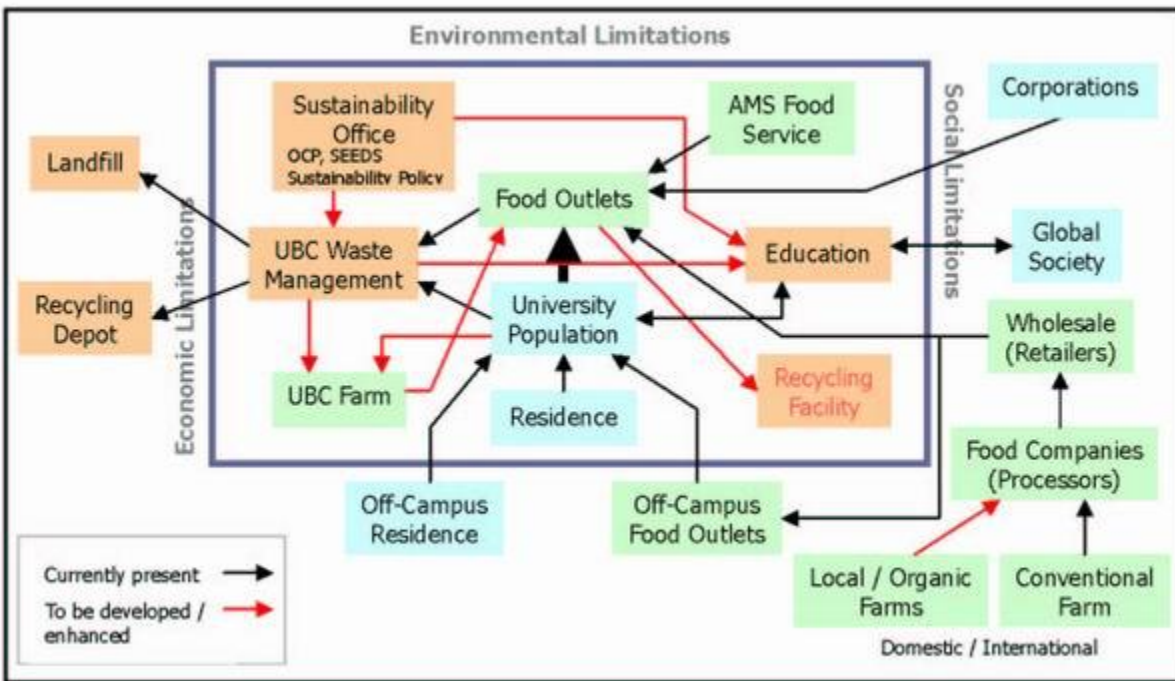
## **Value Assumptions**

Paradigms are the lenses that we use to see and understand the UBCFS as a whole (Bomke *et al.*, 2001). Group members consist of Animal Science and Food, Nutrition and Health students. In assessing the UBCFS’s sustainability, as a group, we are community-based, believing that our

decisions, as individuals, should be based on the impacts they will bring to the community, not to the individual alone.

Although we are community-based, we differ in our anthropocentric or eco-centric views. Those of us who are FNH majors believe that humans should be valued more than other things in nature and are thus anthropocentric (Murdy, 1993). The environment should be used to support the survival and well-being of humans that depend on it. Weak anthropocentrism is the acknowledgement of human's affinity to nature and their need to value all components of nature (Norton, 1993). Others of us feel the environment requires protection, as it supports all forms of life. As stated by Kloppenburg *et al.* (1996), "nature may be understood not just as a set of limits but as an exemplar of the possible, as an almanac of potential models for human conduct and action." If the natural limits are ignored or overridden by technology and advancement, we are contributing to the demise of the global food system.

## UBCFS Map



Very good map.

No UBC system of governance? The Sustainability Office is only a tiny part of it and mainly an advisory body

The purpose of the map is to show the interconnections between the key components and their influence on the UBCFS. The map shows the campus, with the components that are found on campus within the drawn boundaries, most notably the university population and the food outlets that serve this population. Outside the campus are the components that have an influence or are influenced by the internal components of the UBCFS. Around the set area of the campus are the limitations that prevent it from expanding beyond these borders. The map also includes, red arrows indicating connections that need to be developed or enhanced in the food system.

Within the campus boundaries, the university's population and the on-campus food outlets that feed this population are the two key components that make up the basis of the UBCFS. The university population is considered to be the faculty, administration, employees, visitors, residents, and students of the university. The food outlets include restaurants, convenience stores, grocery



stores, take-out outlets, vendors, vending machines, residences' communal kitchens, and cafeterias. The map also shows the specific components of the UBCFS including the Sustainability Office, UBC Waste Management, AMS Food and Beverage, UBC Food Services, UBC Farm, SEEDS (Social, Ecological, Economic Development Studies), and the Official Community Plan. These components will be discussed in further detail later in the paper.

The components outside the campus must also be considered, as the UBCFS is far from being a closed system. Off-campus residences contribute large numbers to the university population, with the off-campus food outlets providing the majority of food to feed this population. Wholesale retailers provide a continuous supply of products for the food outlets located both on and off-campus. Included in the map are organic and/or local farms, which need to be utilized more to increase the food system's sustainability. Also to be considered is the influence of the global society, with the contribution of values and knowledge to the UBCFS. Finally, there is the contribution of the UBCFS to the landfills and recycling depots of the city. Ideally, it would be more sustainable if some, or all, the recycling were done on-campus to reduce dependence and transportation needs.

The UBCFS operates within a limited area, not only environmentally but also economically and socially as well. Environmental limitations include land area and quality constraints, this in turn limits the potential to cultivate large quantities of food. The lack of space means that the vast majority of food needed to supply the university population comes from off-campus sources, which requires transportation. What possible spaces could be dedicated to food production?

**Economic limitations to our UBCFS map** (economic limitations to the map? Sound weird) include the profitability of the food outlets and the university population's willingness to

pay more for locally grown food. Willingness to pay is an economic idea that attempts to place a monetary value on people's environmental and social values.

There are also social limitations, which include community participation and governing policies. For example, there is often a shortage of volunteers for the various organizations at UBC, particularly the UBC Farm (OK, but source?). A lack of participation limits the influence the Farm has on the UBCFS. There are also the legal limitations of society, particularly with unions and contracts. Though unions are meant to protect job stability and the interests of workers, which are important for maintaining social sustainability, negotiations would have to be done to amend some of these contracts to benefit the UBCFS protecting the workers' interests too?. For example, there may be a contract with a private corporation limiting the number of student employees, which would mean that an increase in student employees might be seen as a job threat to other employees. Steps would have to be taken where the interests of all parties would be considered. Another limitation is the possible implementation of a UBC Community Plan that would involve the removal of a large area of the UBC Farm and surrounding forest for the subsequent development of these areas into private housing. In our map, a sustainable food system includes a viable food-producing farm, student housing and increased community knowledge.

The map also includes our recommendations as to the connections within the food system that need to be developed and enhanced. The map gives a visual representation on how the food system needs to be made more cyclical within itself, such as cycling nutrients through the farm, food outlets, and composting. The goal is to reduce the traditional linear connections found in the food system.

### **The Present UBC Food System**

The UBCFS is currently composed of several components. These include the Sustainability Office, Sustainability Policy, SEEDS (Social, Ecological, and Economic

Development Studies), the Alma Matter Society (AMS), UBC Food Services, Waste Management, the Official Community Plan (OCP), and the UBC Farm (also the dining societies). Following is a **brief summary of the current status of the sustainability** of these sectors of the UBCFS (for such a summary to have meaning we need a statement of the criteria and indicators to be used in such an assessment.) Until the criteria and the indicators are made explicit and applied, we cannot have an assessment of the sustainability of the UBC Food System. Just approximations based on given criteria

The UBC Sustainability Office was created to implement sustainable practices on campus while educating members of the UBC community of such practices. The Sustainability Office works to reduce energy use by implementing programs such as EcoTrek and ElecTrek (UBC Sustainability Office, 2003). The Office created sustainability targets for all the new buildings on campus by creating “green buildings”, such as the C.K. Choi building, which is composed of reused and recycled materials, natural ventilation, highly efficient lighting, gray-water recycling and composting toilets (UBC Sustainability Office, 2003). Trekstep 1 is a student training and employment program that allows the students of UBC to get experience in the field with paid work. The UBC Trek program is an effort to reduce emissions by improving transportation options, which will decrease the number of single occupancy vehicles entering UBC (UBC Sustainability Office, 2003). The UBC Sustainability Office works in conjunction with all of the other components of the UBCFS, which makes the Sustainability Office a perfect place to introduce the sustainability issues of the UBCFS (except that it does not have much decision making muscle).

SEEDS is a program that engages students, faculty and staff in research projects concerning sustainability practices (UBC Sustainability Office, 2003). SEEDS gives these

individuals opportunities to learn and work together to enhance sustainability on campus (UBC Sustainability Office, 2003).

The UBC Sustainability Policy can be found at the UBC Sustainability Office website. The policy states, “UBC is committed to improve its performance in sustainability in all areas of operations. Appropriate standards will be developed to manage UBC sustainability” (UBC Sustainability Office, 2003). According to the UBC Sustainability Office (2003), the purpose of the policy is to develop a campus community, which integrates environmental responsibility, economic viability, and social considerations. The policy also works towards a sustainable future in cooperation with the Greater Vancouver Regional District (GVRD). The Policy instills sustainable development values in its graduates and employees through research, teaching and operations (UBC Sustainability Office, 2003). Any thoughts about these policies?

The AMS is a student owned and operated organization that takes part in many sustainable practices such as the recycling of organic and inorganic products. The AMS strives to achieve social sustainability by redirecting its profits back to the students and community through programs such as Safewalk and Speakeasy. However, the AMS has room for improvement, as it imports most of its food products from foreign countries This does not describe what the AMS Food and Beverages is doing for sustainability. (Toogood, 2003). UBC Food Services is responsible for food supply across campus. It makes an effort in conjunction with other components of the UBCFS to recycle waste products (UBC Waste Management, 2003). UBC Waste Management works with other components of the UBCFS to increase the sustainability through education, recycling, composting and litter reduction on campus (UBC Waste Management, 2003). **The OCP, Office of Campus Planning (did you explain what s it?)** at UBC embodies both the goals of UBC and the GVRD to create a sustainable community in various areas under development on the UBC campus (UBC OCP, 2003). The OCP plans to build

a sustainable community through the protection of “green zones”, the increase in transportation options, and the construction of “complete communities” which includes diverse housing types and tenures, and metropolitan regions (UBC OCP, 2000). A brief reference to the current debate and widespread criticism of the plan should be in order here)

Although the UBC Farm’s production level is below capacity to sufficiently supply the UBC community it is a very crucial part of the UBCFS in that it embodies the major components of a sustainable food system. To ensure its place in the UBC community, the Farm must engage students and other community members in sustainable practices (UBC Farm, 2003).

### **Sustainability Indicators**

An indicator of sustainability aims to measure how sustainable a community is, and helps identify problems that make a community unsustainable. Sustainability indicators differ from traditional indicators by taking into account the interconnectedness of the social, economic and ecological aspects of the system. For example, a traditional economic indicator is GDP, which measures the size of the economy. An indicator of economic sustainability, on the other hand, could measure the wages paid in the local economy that are spent in the local economy. Thus, this indicator of sustainability will emphasize local resilience of the community (did you review any sources for this?).

Future Agricultural Science 450 students are likely going to be using the indicators identified in this paper. Keeping this in mind, the following four characteristics are essential for a good indicator of sustainability: the indicator should be reliable, easy to understand, relevant, and based on accessible data. Finally, the indicator should provide long-term assessment of the community. (good)

### **Selected Indicators**

The indicators used in this project are categorized into environmental, economic, and social indicators. Hart (1999) notes that the advantages in organizing indicators in this fashion reinforce the idea that environment, economy, and society are all equally important to a community's sustainability. There are also disadvantages of categorizing indicators in this way. Not all of the indicators may fit easily into any one category, particularly indicators that are two-dimensional. The separation of environment, economy, and society may reinforce a misconception that these parts are independent, rather than being interconnected.

One of the **environmental indicators** chosen includes **measuring the proportions of food that originate from UBC, BC, Canada, and globally**. For the system to be more sustainable, the food supplying the UBC food outlets need to come from local sources as much as possible. While not all foods can be produced at UBC, in BC or even in Canada, reducing the distance traveled is important. **The reduction in transport is both environmentally and economically beneficial as it reduces the need for fossil fuels, which is a non-renewable resource.** (OK, but what would a mainstream economist say about this?) Another environmental indicator chosen is **to measure the total amount of waste produced on campus and the proportion of this waste that is redirected from landfills and reused, recycled or composted**. Of particular interest in this project, is the **subsequent use of this compost to produce more food for the UBCFS**. Currently, the majority of composting is done off-campus and, presumably used off-campus as well. UBC Waste Management has proposed the establishment of a composting facility on campus. Our group feels that this should be extended to include recycling facilities as well (we need a word here about recycling programs in operation now).

**Economic indicators** selected for this project **include assessing the profitability of the food outlets on-campus**. If the on-campus outlets are economically viable, they can be a potentially stable source of employment for many people, including students. It should also be

noted **what proportion of these profits stay on the UBC campus**. This would mean the investment of money in sustainability programs and expansion of on-campus businesses. The other economic indicator is **to measure the level of student employment in the UBCFS compared to the number of unemployed students looking for work**. This indicator demonstrates to what degree the food system reduces unemployment among the student population. Presumably, this will maintain the flow of monetary resources on campus.

**Social indicators** for this project include the **proportion of the population that has some level of awareness about sustainability issues and programs (i.e. healthy eating, recycling, etc.)**. This looks at the overall knowledge and education of the population, as well as showing the **effectiveness of programs and organizations attempting to increase this community awareness**. Another social indicator is **to measure the percentage of the UBC population that volunteers in UBCFS programs**. An increase in the number of volunteer's shows that the awareness of food sustainability issues is increasing and being valued. There is also the implication that the influence of these organizations would increase with the increased community participation.

### Sustainability Model



Very good

A sustainability model is a tool that can be used to assess the degree of sustainability of a system. The level of social, economic, and ecological sustainability of the UBCFS can be determined with the application of our six indicators. The indicators concentrate on certain components of the UBCFS including UBC Waste Management, UBC Farm, food outlets, the global food system, and community awareness. Although these components' sustainability are measured and applied separately to the model, their strong interrelations will also affect the overall sustainability of the UBCFS.

The developed indicators can be measured fairly simply, and accurately as a percentage where 100% is sustainable, 0% is unsustainable and 50% is the arbitrary midpoint. Moreover, according to the democratic definitions, majority will be considered as 50+1% and minority as 50-1%. These two points along the continuum will encompass mostly and minimally sustainable practices, respectively. Based on our definitions of sustainable, unsustainable and intermediate states along the continuum, the data collected can be placed easily and appropriately on the sustainability scale, and the overall level of sustainability of the UBCFS can be determined. Very good

At this point, it is important to mention that although this scale is easy to apply in theory, realistically, it has several limitations. Firstly, one must question whether 100% is ever possible or achievable. Due to consumer demands and lifestyles, changes made to the food system could easily surpass the community's willingness to achieve 100% sustainability. For example, although it is possible to consume solely local food products, it would be doubtful that the community would accept forgoing exotic foods.



Secondly, one must question whether 100% is in itself, actually sustainable. Certain modifications, when reaching 100%, could place unjustified demands on other components of the food system rendering it less sustainable. For example, if the UBCFS were capable of recycling 100% of its wastes, the energy demands of the process would exceed the benefits of 100% recycling. Good point

Thirdly, the assigned midpoints of sustainability may have more or less value than their numerical designation. In certain cases, such as voting or volunteering, 50% participation can be considered very sustainable although on the scale it is only the midpoint. For those reasons, numerical values need to be considered in a realistic and relative sense, as their value may place them in a different position on the scale.

Lastly, in making changes to the current level of sustainability, one must note the interconnectedness of the indicators. Improvements in one component of the food system can have a direct or indirect affect on other components. Many of these indicators are interrelated in parallel or inverse relationships. For example, as community awareness of sustainability increases so will hopefully their choices of local food products. This in turn reduces the distance traveled by the food products, increasing the ecological sustainability indicator. In contrast, the food outlets may suffer profit losses and economic sustainability by having to buy more expensive, local products.

With improvements made to some indicators, possibly at the expense of others, the increase or decrease in overall sustainability can determine whether these ‘improvements’ are to the benefit or detriment of the UBCFS and whether their application, realistically, helps move the food system in the direction of sustainability.

## **Research Design**

Within UBC, UBCFS is a complex map of interconnected people, services, outlets, etc. The overall purpose of the project is to provide recommendations for the current food system with

particular attention to the UBC Food Services, AMS, UBC Waste Management, and the potential role of the UBC Farm.

In order to evaluate and measure the current state of the UBCFS six indicators based on criteria, principles, and a model continuum ranging from unsustainable to sustainable will be employed. We also developed four key research questions with our model. These four questions can be applied to each of our indicators. The questions include 1) To what degree is it economically/ socially/ ecologically sustainable based on our definitions of sustainability and scale? 2) How would you improve its sustainability? 3) Identify the limitations and boundaries that are preventing it from becoming more sustainable, and 4) How might these limitations and boundaries be overcome? Through these questions, the UBCFS's current state of sustainability, its goals to improve sustainability, and the limitations and boundaries, which are currently preventing the achievement of its goals, can be identified, as well, new ideas to improve UBC's sustainability can be generated.

There are several different ways that each indicator can be measured; the model and questions will assist. Surveys, questionnaires, and interviews will be the primary methods to investigate the level of sustainability of our two social indicators (how would you sample the population?). The interviews of business members, faculty, staff, students, and residents of the UBC community will need to be conducted in **person, over the telephone, or at random** (These do not exclude each other). Also useful would be to set up questionnaires on our website.

Methods for measuring the indicator determining percent of locally produced foods include:

- Specifically setting up an interview with Nancy Toogood, who manages the SUB building
- Conducting surveys and interviews with UBC food service, farm, and garden operators to find out how much locally produced food is consumed on campus
- Setting up programs to keep track of the source and the distance traveled of food products

For our second environmental indicator, methods for measuring the total amount of waste produced on campus and the proportion of this waste that is redirected from landfills through reuse, recycling or composting include:

- Checking data from the UBC Waste Management Annual Report
- Interviewing the operators of the UBC Waste Management
- Conducting studies on recycling, reusing and composting practices in the UBCFS
- Interviewing the manager of UBC Farm regarding current composting facilities and composting opportunities

Data collection methods for our economic indicator assessing the profitability of the food outlets on campus include:

***THIS PAPER SHOULD END HERE: MAXIMUM 15 PAGES + BIBLIOGRAPHY (OUR COMMENTS BRING IT TO PAGE 18 BUT ORIGINALLY PAGE 16 BEGUN HERE)***

- Determining the number of fast food chains that contribute investment back into UBC programs compared to UBC-specific food outlets through interviewing the food business owners
- Checking the annual financial reports of businesses in UBCFS.
- Determining the amount of sponsorships of social and sustainability initiatives from UBCFS businesses.

Some ways to measure the level of student employment in the UBCFS includes:

- Conducting surveys at major lecture halls, the village, student residences and the SUB to determine the number of employed versus unemployed students who need jobs
- Collecting data on available job opportunities for students in UBCFS.
- Conducting interviews with business owners regarding percent of employees that are students and whether or not they offer positions that cater to student schedules

Methods of data collection for measuring the proportion of the population that has some level of awareness of sustainability issues and programs include:

- Determining all the programs offered by each of the components of the UBCFS
- Conducting surveys and interviews with UBC faculty, staff, and students to find out their level of knowledge on sustainability issues as well as their level of interest in sustainability programs; do they even know what sustainability is in terms of economics, environment, and social.

Methods for measuring the participation of the UBC population in UBCFS programs include:

- Conducting quantitative surveys on UBC students' volunteering experiences and intentions
- Interviewing the volunteer organizations in UBCFS (this can already be partially acquired from the previous social indicator)

Due to the limited time and the vast amount of information required, there will be many people involved to carry out the project. The required participants include: the future AgSc 450 teaching team, future students, UBC Food Services, the AMS and other food outlets, the Sustainability Office, SEEDS, and the UBC Farm. There is also opportunity for new personnel to become involved in the assessment of UBC's sustainability. Possibilities could include graduate students and a new office to keep track of the information gathered on the UBCFS.

The assessment on the sustainability of the UBCFS will inevitably never be complete; however, our project will span five years. Year One: The 2002 AgSc 450 class, in collaboration with the UBC Food Services, the AMS, the UBC Sustainability Office and SEEDS began an exploratory sustainability assessment project to develop social, economic, and ecological sustainability projects at UBC. Through their research, they established principles and formed the first impression of the sustainability of the UBCFS. Year Two: We are currently designing a research proposal for gathering the data needed to measure our six indicators through the use of our sustainability model. Year Three: The 2004 AgSc 450 class will assess the sustainability of a particular component of the UBCFS through data collection using these six indicators. They will then evaluate the information collected and make recommendations. Year Four: Through the data collected from the previous years and the recommendations provided, the groups will evaluate the limitations of each division of the UBCFS and determine ways of overcoming them. In this process, they will also revise the sustainability indicators if needed. Year Five: Those involved will collect and evaluate the data based on the new indicators from Year Four. They will report all results and findings of the past five years, measure the success of all indicators and provide recommendations for future evaluation of the sustainability of the UBCFS.

Previous section: Very good section but could be shorter

## **Conclusion**

Our group believes that the UBCFS needs to become more sustainable. Our value assumptions influenced the way that we pictured a sustainable system versus an unsustainable one. Since some of our members are **eco-centric while others are anthropocentric**, (better to explain your values than using these labels) our group was split in its opinion on the importance that should be placed on the various sectors of the system. However, we all agreed that the components of the system needed to be considered as a whole in order for us to achieve our common goal of a sustainable UBC.

The map of the UBCFS shows the food system and its components that are to be assessed. From this map, our group determined what characterises a sustainable system and the ways in which assessing the UBCFS can be accomplished. After looking at these components, we developed a set of indicators that embodied ecological, social and economical aspects of the system. They were developed to be simple in order for future Agricultural Sciences 450 students to be able to understand, interpret and measure. The data collected by these students will then show if the UBCFS is heading towards or away from sustainability.

Finally, our research design, which is based on surveys, questionnaires and interviews, will span five years. The purpose of our research design is to act as a starting point that future Agricultural Sciences 450 students can use in their quest to determine if the UBCFS is becoming sustainable. A good timeline provides time for research design, review of the literature, data collection, systematization, interpretation and dissemination

## **Recommendations**

As one can see, the UBCFS is extremely complex. There are numerous components that must function together in order for the system to work. At the present time, there is much room for improvement within the UBCFS before the goal of sustainability can be achieved. Our group feels that certain areas of the system have the potential to reach this goal while other areas will likely never become truly sustainable. Throughout the process of working on this paper, our group came up with certain recommendations for future AgSc 450 students who will be working to solve the problem of an unsustainable UBCFS. As future steps we recommend the following bulleted points:

- ❖ Students should follow the research methodology that we have proposed.
- ❖ A committee should oversee the timely completion of our proposal plan; goals and indicators should be implemented.
- ❖ Connections within the UBCFS should be developed and/or enhanced i.e. Better recycling facilities, more contribution from the UBC Farm, more support from the Sustainability Office, more volunteers at the UBC Farm and more composting on campus.

- ❖ More education programs concerning sustainability should be implemented.
- ❖ Steps should be taken to encourage less packaging by the food outlets on the UBC campus.
- ❖ There should be a higher level of local and organic food purchased by the various outlets on campus.

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