

**Biting into Sustainability:
The 2002 UBC Food System Collaborative
Project Report**

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The UBC Food Systems Study is a collaborative project between the Teaching Team of Land, Food & Community 3 at the Faculty of Agricultural Sciences, Social Ecological Economic Development Studies program of the UBC Campus Sustainability Office, UBC Food Services, and the UBC Alma Mater Society.

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The first students of the Land, Food and Community 3 course without whom the work toward a sustainable food system on the UBC campus would be all that more difficult. Seventeen working teams brought a diversity of knowledge, imagination, and enthusiasm to bear on the increasingly important topic of food security. We hope their work influences other institutions of education.

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Biting into Sustainability: A Summary Report of the UBC Food System Study

“Could a system of sustainable agriculture exist as an island in an unsustainable society that squanders not only land, but energy, resources and biological diversity? If not, what larger sociopolitical issues must be addressed? The concept of sustainability implies the recognition of limits inherent in ecological systems. Must the same recognition become an integral part of social values, laws and institutions that affect everyone?”

David W. Orr. 1992. “What is Education For?” in Ecological Literacy: Education and the Transition to a Postmodern World. New York: State University of New York Press. p.178.

EXECUTIVE SUMMARY

Food plays a rich multitude of dynamic roles in our everyday lives, from a means of sustaining life to its endowment of cultural traditions and spiritual nuances. However, these meaningfully personal, community, and biological connections have become progressively attenuated. Losing connection with the origins of our food disconnects us from the very foundations of our existence: our relationship with the land, its soil, its people, and what it takes for us to have that relationship be not just sustainable but valued. This progressive loss of connection is largely the result of contemporary market forces and belief systems that inform patterns of development. It influences consumer expectations and perceptions of the food system to provide healthful food for physical, intellectual, and spiritual sustenance.

The UBC Food System Study is collaborative effort between SEEDS, Agricultural Sciences students in the Land, Food, and Community 3 curriculum, UBC Food Services, AMS, and UBC Farm. The Campus Sustainability Office (CSO) has identified sustainable food systems as one of its priorities within its Sustainable Resource Strategy Framework. The CSO holds that, “by cultivating healthy food systems and composting our food wastes, we complete the cycle of nourishment”. The University has plans and policies in place that support the structure and function of its physical, financial and resource infrastructure. However, UBC does not have a “food plan” (nor does anyone or anywhere else for that matter). The fact that a food plan does not exist is indicative of the de-emphasis our society places on food security. The importance of this study to UBC is groundbreaking; the first university in Canada, and possibly North America, to research its own food system and develop food policies that address the full spectrum of sustainability issues within the local context. Such policies could lead to a UBC Food Plan.

Study purpose

The purpose of the UBC Food System Study is to explore ways the food system at UBC could contribute to sustainable agricultural production, food security and safety, and the health of human communities within UBC’s campus and the Lower Mainland, and

1. Assess a wide range of food policy alternatives that address issues of sustainable agricultural production, food security and safety, and the health of human communities
2. Identify barriers and opportunities to sustainable agricultural production, food security and safety, and the health of human communities, with the intent of at least partially addressing them on the UBC campus

The study is to sketch-out the linkages between land, food, and community by examining the following components and their relationship to the natural environment and human community:

- Food production
- Food processing
- Food distribution
- Food consumption
- Recycling and waste disposal

The intention is for an enhanced picture of existing interconnections – or potential interconnections – to develop within the social, economic, and ecological sustainability context on the UBC campus, Vancouver, the Lower Mainland and beyond. Below is a condensed synopsis of the student’s findings, conclusions and recommendations from the 2002 study.

Findings

One or more of the following themes stood out as central to the sustainability of the UBC food system:

- Student health and well-being
- Student affordability of food
- Local food sourcing
- Faculty-student-staff collaboration
- Nutrient and waste recycling
- Perceptions of sustainability

These themes directly informed the use or derivation of sustainability indicators. Individually and collectively, the sustainability indicators had a direct influence on the methods and procedures and future research designs. Economic, social, and environmental sustainability indicators included:

- Reduction of compostable material in waste stream
- Distance food travels
- Nutritional value of food available
- Ecological footprint of food on campus
- Variety and perceived quality of foods
- Average food prices
- Consumer willingness to incur higher food prices
- Customer satisfaction
- Productive capacity of UBC Farm
- Perceived access to food on campus
- Amount of social space accompanying food consumption

Conclusions

- We have the intellectual capital to create the best experiential learning opportunities about the interconnections of food, health and agriculture with the UBC Farm
- Students make food choices based predominantly on convenience and price
- AMS has made significant contributions to providing food services that benefit students by addressing specific social, economic and environmental concerns
- The UBC Farm and housing can and should co-exist on the south campus
- Composting is in its nascent stages of development on campus
- There is a desire for locally produced food because of a growing awareness of social, economic and environmental benefits
- Post-consumer packaging in the waste stream is high, and the promotion of reusable containers is not as effective as it could be
- Students perceive that food is not affordable for a majority of them
- Quality social spaces for making and eating food are lacking
- UBC Food Services mission statement is out of date
- There are models of waste reduction, local sourcing, communal eating and nutrient cycling at education institutions in North America

Recommendations and Research Questions

Students suggested relatively detailed courses of action for the Campus Sustainability Office/SEEDS and the LFC3 research agenda. The majority of the operational themes/questions revolved around the following:

- How can access and promotion of healthy eating and food to students in residence be a high priority for UBC Food Services? In addition, what role should UBCFS and AMS have in promoting and educating students about healthy eating and lifestyle choices?
- To take advantage of its intellectual, experiential, cultural, and learning potentials, the UBC Farm needs to devise further efforts to build community awareness
- What do UBC Food Services and AMS need in order to develop sustainability principles and policies for waste reduction, nutrient cycling, nutrition, food purchasing, and their promotion on campus? How will this affect the current trend toward branding and contractual relationships?
- How does branding/franchising affect consumer food choices over time?
- A collaborative relationship between UBCFS, AMS, Waste Management, the Campus Sustainability Office, and UBC Farm needs to be established. What would the operative framework for that relationship look like?
- How should models of waste reduction, local sourcing, communal eating, and nutrient cycling at education institutions in North America be assessed for adoption at UBC?
- UBC Food Services should reassess its mission statement to include sustainability and food security principles and sincerely exercise them
- What efforts and policy alternatives are necessary and available to reduce packaging waste and promote reusable containers in all food service establishments?
- How can UBC Farm and the plethora of local producers and commodities in the Lower Mainland play a significant role in local sourcing for UBC? What does UBC need to do to facilitate those relationships? In addition, are there other direct marketing opportunities?
- Composting on campus can improve with better technology and coordination of participation, processing and end use of post- and pre-consumer waste
- The Faculty of Agricultural Sciences should conduct a contingent valuation survey that would assess an ecological value for the UBC Farm
- To establish a communal eating-place in McMillan Bldg, what conditions need to be established? How can this contribute to the education process, healthy eating, and connection to UBC Farm?
- Expand the discount program to promote sustainability and reduced food prices
- How can Styrofoam be eliminated and the CSO Paper Reduction Toolbox be employed in food service establishments while still providing beverages and take-away services? Should services for take-away services?
- Food service employees should be trained in the how's and why's of sustainability
- What opportunities are there for students and Faculty to be involved in experiential learning with food services?
- What role, if any, does food service on campus have in educating consumers about the origins of their food?
- What opportunities are there for value-added products from UBC Farm for direct sale to food service establishments on campus?
- The Sustainability Office needs to continue recognizing that food and its consumption cannot be separated from education
- The cost of food should not compromise student access to nutritious and adequate meals

SEEDS and LFC3 Projects

The recommendations and questions beg several questions that may be used to develop specific projects:

1. Why do students choose to eat what they do?
2. What is the balance between what students "want" to eat and what is "healthy" to eat?
3. How do you get convincing information on healthy food choices?
4. What is the responsibility of university to promote and educate health and well-being to students?

5. What is the role of university to integrate Faculties, staff, and students into action research of sustainability initiatives around food, health, and nutrition for those who eat on campus?
6. What is behind the perception that food on campus is expensive or “unaffordable”?

Specific projects could be the following:

- a. A well-structured survey of university residents on what people want to eat and how it differs from what they do eat
- b. A long-term survey of students entering and leaving university about their food choices
- c. Determine what are socially and environmental responsible conditions (i.e. franchise behaviour and participation in sustainability initiative) for setting up franchises at UBC
- d. Develop a healthy menu of food sourced locally and in season that can be monitored and tested for customer satisfaction
- e. Conduct a comparative study of menus (modified for healthy eating vs. standard fare) between two residences for a specified period of time
- f. Examine and calculate the costs of a select sample of meals, and prepare an education piece that highlights the differences and informs consumers of the true costs of food
- g. Determine how communication between UBC Farm and food service establishments can be facilitated such that food availability matches demand, and what models elsewhere demonstrate and inform this kind of information exchange
- h. Conduct a well thought-out contingency valuation of the land on south campus
- i. Develop a holistic framework for a sustainable food systems plan for UBC
- j. Develop a conceptual map of curriculum, natural and economic resources, and information exchange linkages among Faculties, staff, SEEDS and UBC Farm

This year’s study was purposefully broad. It differed substantially from the four that may follow by the fact that this was an exploratory study. Future studies of the campus food system plan to examine specific and narrowly defined food issues. A coordinated and purposeful stakeholder consultation process will define specific UBC food system issues. It is this consultation process agenda, the Land, Food and Community 3 research agenda, and subsequently the UBC food system planning process that this summary report is intended to inform.

Stakeholder meetings began in July 2002. From these meetings, viable research projects and collaborative research efforts that can exploit leveraging points for change in the UBC food system were established. Please see Appendix A for the minutes and details of the first stakeholder meeting held on July 28. Further consultation between the Faculty of Agricultural Sciences, the Campus Sustainability Office/UBC SEEDS, UBC Farm, UBCFS and AMS will refine the UBC Food System Project to respond to the projects with the most potential for change (transition to sustainability), and educational and experience value.

Respectfully submitted,

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Introduction¹

Agricultural Sciences 450 (AGSC 450), Land Food and Community 3 (LFC3), is a capstone course. The study of land, food, and community systems provides the basis for our understanding of, and interaction with the ecological, economic, and social systems that determine the fate of the human species. In an era of increasing population growth, urbanization and globalization, sustainable agricultural production, food security and safety, and the health of human communities are issues of central importance to human societies. Agricultural Sciences 450 uses a case study approach and team-based learning to set the context for the application of skills and concepts derived from the earlier phases of the land, food and community series to address contemporary problems in an integrative, interdisciplinary setting. Case design requires student to develop an integrated disciplinary and inter-disciplinary analysis.

AGSC 450 student teams conducted a collaborative research project with the UBC SEEDS program (Social Economic Ecological Development Studies) of the Campus Sustainability Office (CSO) UBC Food Services (UBCFs), AMS Food Services (AMSFS), and UBC Farm (UBCF) representatives with the objective of evaluating the sustainability of the food system at the University of British Columbia. Students envisioned transitions to sustainability as if they were going to incorporate them into the UBC Campus Community Plan (CCP).

The goal of this team-based assignment was to allow the team members to demonstrate that they achieved the Learning Outcomes of the course. It was an opportunity to use, in an integrative manner, the main concepts, theoretical perspectives and empirical data presented in the course, in conjunction with the findings of each working team during the final unit of the course. Future years in LFC III will build on this year's work, developing a "collective memory" over the next 5 years as the issues and problems surrounding the UBC food system become well documented and understood. The students received the following scenario with which to consider for their case studies:

Scenario for study

"You and your team have been hired as consultants to conduct a preliminary assessment of the sustainability (ecological, economic and social) of the food system at UBC. You are also expected to provide the Sustainability Campus office with recommendations on how to improve the sustainability of the food system, with particular attention to UBC Food Services, the Alma Mater Student Society's (AMS) food and beverage services, productive recycling and composting of food system end products, and the potential role of UBC Farm at South Campus. To conduct these activities you will have to become acquainted with:

- a) The UBC community context of the food system as conceptualized in the Comprehensive Community Plan*
- b) Current efforts to map and plan the food system at UBC by the UBC Campus Sustainability Office*
- c) Current projects, discussions about and proposed visions for UBC Farm and its role in UBC's food system*
- d) UBC Food Services in general and Agora in particular*
- e) AMS Food & Beverages*
- f) Recycling and composting projects*
- g) UBC Sustainability Policy"*

Group paper and web presentation

¹ The Introduction is derived from, Rojas, A. and J. Condra. 2002. Land, Food and Community 3 Course Outline. Agricultural Sciences 450. Faculty of Agricultural Sciences.

The objectives of the team paper and web page presentation were the following:

- To provide every team and all team-members with an opportunity to report the working team's findings, reflect on and apply the theoretical perspectives, concepts and tools developed through our studies on Land, Food and Community. The assignment should provide you with an opportunity to formulate a position --as a group, or to report on various positions that may have emerged within the group, on the problem of sustainability within the UBC food system.
- To map the systems, paradigms, ethical principles and value assumptions involved in the formulation of your working-team's position(s) on the UBC food system, reflect on how they influenced your group's decisions about sustainability indicators, and what information was relevant to accomplish the working team's task (assessing data gathered in your assigned area and making recommendations to the Sustainability Office).

After defining their problem, students identified the underlying value assumption(s) in their working-team's report. This task was to provide a brief argumentation in favour of the ethical principles that informed the group's analysis. Based on this perspective(s) they identified what aspects of the food system their group considered more desirable and significant. Students presented and argued the group's position(s) in relation to food system sustainability. Students were to include identification and description of their assigned subsystem or aspect of the UBC food system, and their method of data collection and their findings, using ecological, economic, and social perspectives. In addition, students kept the relationships of their specific theme to the greater UBC food system context, and use at least one ecological, one economic, and one social sustainability indicator when appropriate. Lastly, the students provided their conclusions or final reflections that included the following:

- A clear statement of the working team's central findings and position(s);
- Recommendations to the UBC Sustainability Office on ways to make the Food System more sustainable at UBC with reference to the specific task; and,
- Provide research questions/recommendations for future research.

The web page component of the project was to be an attractive presentation and include the main aspects of food system sustainability in their study. These web pages are now available to future AGSC 450 students through the FAS WebCT site.

This report may inform CSO/SEEDS in developing food system stakeholder meetings. The follow up to this report may form the foundation for the final UBC food system report with final recommendations for future research and food systems planning on the UBC campus. Secondly, this report may have a direct bearing on how SEEDS fulfills its mandate concerning applied sustainable development research opportunities for students with UBC staff and faculty. Thirdly, LFC3 is evolving, and faculty, staff, and teaching team members will be realizing the strengths and weaknesses of the UBC food system project revealed in this report to further refine the course curriculum and develop a responsive research strategy. Fourthly, and equally significant, this report makes a significant contribution towards the Agricultural Sciences' and SEEDS' commitment to validating and valuing the students' knowledge, passion and efforts to contributing to a more sustainable food system at UBC.

What follows is a breakdown of the 17-team reports written in the 2001/2 academic year. The purpose for this is two-fold: to condense the voluminous data on the different themes into a manageable synopsis or overview; and, to synthesize the information in such a way that

shortcomings, data-gaps, and research and planning implications for both the CSO/SEEDS and the AGSC 450 curriculum become clear.

The report's structure is as follows:

1. Overview of Research Questions, p. 9 [Table 1]
2. Overview of Methodology, Procedures and Indicators, p. 10 [Table 2]
3. Overview of Central Findings, p. 13 [Table 3]
4. Overview of Conclusions and Outcomes, p. 19 [Table 4]
5. Overview of Recommendations and Questions for Future Research, p. 21 [Table 5]
6. Where Do We Go From Here, p. 29

1. Overview of Research Questions

Each of the 17 groups was asked to select one theme from which to develop a problem definition and a research question from their assigned subsystem or aspect of the UBC food system. Though few group papers explicitly stated their research question, the author was able to derive a question based on a combination of the study's focus and methodology (See Table 1).

Table 1. Overview of Project Titles and Research Questions

Grp	Project Title	Research Question
1	<i>The Sustainability Of The UBC Food System: An Assessment Of Place Vanier</i>	What is the state of the food system at Place Vanier in terms of nutrition and what can be done to improve it?
2	<i>Sustainability: UBC Food System Educational Role Of UBC Farm</i>	How can lack of awareness of what a sustainable food system and the disconnection of the UBC community from the natural environment to support sustainable food system be overcome?
3	<i>Sustainability "DeBetability": Is The Beta House Ecologically Sustainable?</i>	Is the Beta Beta House food system sustainable?
4	<i>The University Of British Columbia's Fast Food System: A Look At Sustainability Issues</i>	What is the perception of students and managers in their awareness of sustainability issues related to fast food chains on the UBC campus?
5	<i>UBC Food System Project: AMS Food And Beverage Service</i>	What is the AMS doing now and what could it be doing to improve food system sustainability?
6	<i>Composting At UBC: An agriculture Practice That Benefits The Whole Community</i>	How can the current composting schemes at UBC be expanded at a reasonable cost and pace?
7	<i>Commodity Chain Analysis Of The UBC Cinnamon Bun</i>	What recommendations can be made to the CSO to improve the UBC Cinnamon Bun sustainability?
8	<i>UBC Food System Project: Food Waste Management – The Hot Beverage Cup</i>	What are the trends associated with purchase of hot beverages, how can Waste Management's efforts toward sustainability be measured?
9	<i>South Campus Farm: Land-Use Conflict</i>	What is a viable resolution to the land use conflict?
10	<i>A Sustainable Agora – An Idealistic Student Perspective</i>	What are students' perspectives of the sustainability of Agora and what can be done to improve it?
11	<i>Assessing 'Affordability' Of Food At The University Of British Columbia: Planning For The Future Of Food Security</i>	What is the perceived affordability of food on UBC campus?
12	<i>Exploring The Sustainability Of The Barn</i>	Is The Barn sustainable and can social and ecological sustainability facilitate its economic viability?
13	<i>UBC Food Services Revisited: From The Six Corners Of The World.</i>	What are the sustainability concerns regarding UBCFS that need to be addressed with regards to their current practices in the campus community?
14	<i>Branding At UBC: A Look At Franchises And</i>	What is the potential impact of franchising at UBC?

	<i>Their Impact On Sustainability</i>	
15	<i>Transitions Towards Sustainability: A Look At Initiatives From Other Universities</i>	What does the UBCFS need to do to make a successful transition to sustainability?
16	<i>UBC Farm: Contributions to a Sustainable Food System</i>	What is the potential of the UBC Farm to supply healthy, diverse food products to various UBC outlets?
17	<i>The Historical Evolution of The UBC Food System</i>	What is the historical evolution of sustainability of the UBC food system and how does it inform more in-depth investigations of sustainability challenges?

2. Methodology, Procedures and Indicators

Students used an exploratory case study approach, **an acceptable qualitative method** to gather their respective data and information. None of the groups chose to use quantitative methods beyond simple statistical percentages with no accompanying confidence measures. In assessing their case study scope and procedures, students had to predetermine what to ask and why. Developing sustainability indicators was one recommended way of evaluating the subsystem of their chosen theme. Some devised one or more sustainability indicators around which to build their methods, some did not.

Given time, resource and project scope limitations, students relied exclusively on explanatory case study methods. The case study methodology is ideal when a holistic, in-depth investigation is needed. Case studies bring out the details from the viewpoint of the participants by using multiple sources of data (i.e. triangulating their data), three being ideal. Students employed exploratory case study methods that work well for causal investigations.

Procedures employed included surveys, questionnaires, and review of the available literature. However, only about half actually used more than two types of sources. Each of the 17 groups received packets of background literature on the UBC food services such as AMS and UBC Food Services survey results and UBC Food Services promotional literature. Other literature included UBC's Trek 2000, *Reinventing the UBC Farm*, the Comprehensive Community Plan (CCP), and LFC3 course readings. Students had access to LFC3 Teaching Team members to help with methodological and procedural questions before and throughout the research process (See Table 2.)

The methods chosen for collecting data were **acceptable and appropriate**. However, some groups did not develop or execute the procedures to an acceptable standard. For the most part procedures such as the development of survey instruments and questionnaires appeared to have lacked sufficient focus and academic rigour to collect reliable information. To address their respective problem definition and research question there appeared to be an inadequate understanding of the necessary information. Consequently, this may have an impact the some of the conclusions and recommendations made by certain groups.

On several occasions AGSC 450 students received thorough instructions on the development, purpose and applicability of sustainability indicators. As noted above, not all the groups developed sustainability indicators. Most groups, however, developed appropriate and well-reasoned sustainability indicators. However, about one-third of the compliant groups did not state them explicitly enough and had to be extracted them from the text.

Table 2. Overview of Research Methods, Procedures, and Indicators

Grp #	Project	Procedures	Indicator(s)
1	<i>The Sustainability Of The UBC Food System: An Assessment Of Place Vanier</i>	<ul style="list-style-type: none"> • Analysis of top three dinner items sold each day of week and see if they fit the requirements of good nutrition as set out by the Canada food guide • Monitored Vanier students' food consumption patterns 	<ul style="list-style-type: none"> • Social: Ability of the system to sustain and nourish the students
2	<i>Sustainability: UBC Food System Educational Role Of UBC Farm</i>	<ul style="list-style-type: none"> • Used a survey conducted by Jessica Robertson in December of 2000 for her English 301 class, "Increasing Awareness of the South Campus Farm at the University of British Columbia." • Consulted three professors from the UBC Faculty of Ag. Sci. 	NA
3	<i>Sustainability "DeBetability": Is The Beta House Ecologically Sustainable?</i>	<ul style="list-style-type: none"> • Interview with the Beta House chef and the house manager • Interviews with residents 	NA
4	<i>The University Of British Columbia's Fast Food System: A Look At Sustainability Issues</i>	<ul style="list-style-type: none"> • Chose four restaurants to represent fast food chains, each offering a unique style of food preparations and food quality in terms of nutrition and taste • A student survey and a fast-food chain manager survey 	<ul style="list-style-type: none"> • Social: Healthy food choices and number of student workers; • Ecological: Amount of waste • Economic: Affordability of food to students
5	<i>UBC Food System Project: AMS Food And Beverage Service</i>	<ul style="list-style-type: none"> • Personal interviews and review of the literature 	<ul style="list-style-type: none"> • Social: Food security and profit distribution issues. • Environmental: Composting, waste management and purchasing practices contribute to sustainability
6	<i>Composting At UBC: An agriculture Practice That Benefits The Whole Community</i>	<ul style="list-style-type: none"> • Literature review and group-assessment 	NA
7	<i>Commodity Chain Analysis Of The UBC Cinnamon Bun</i>	<ul style="list-style-type: none"> • Conducted an interview and tour of the UBC baking facilities • Employed <i>commodity chain analysis</i> 	<ul style="list-style-type: none"> • Ecological: Distance of ingredients' origin, and Production/processing • Social: Social acceptability, labour standards and Nutrition and health • Economic: Fair wage and contribution to local economy
8	<i>UBC Food System Project: Food Waste Management – The Hot Beverage Cup</i>	<ul style="list-style-type: none"> • Survey to determine trends associated with the purchase of hot beverages. • Consultation with faculty and 	<ul style="list-style-type: none"> • Ecological: Percent reduction of disposable garbage at UBC over time • Social: Education and

		<ul style="list-style-type: none"> food service personnel Literature review 	<ul style="list-style-type: none"> awareness of consumers Economic: Cost-benefit analysis of reusable beverage mugs
9	<i>South Campus Farm: Land-Use Conflict</i>	<ul style="list-style-type: none"> Informal interviews Literature review 	NA
10	<i>A Sustainable Agora – An Idealistic Student Perspective</i>	<ul style="list-style-type: none"> Student survey Interviewed UBC Food Services personnel regarding profitability of Agora and about incorporating the UBC Farm into Agora food system as food source and waste management system 	<ul style="list-style-type: none"> Social: Increase in student participation in Agora with on-site or nearby kitchen. Participation in communal meals and the cooperation of the UBC farm in Agora Ecological: ecological footprint measure the environmental impact of food production Economic: Increase in revenue
11	<i>Assessing ‘Affordability’ Of Food At The University Of British Columbia: Planning For The Future Of Food Security</i>	<ul style="list-style-type: none"> Developed and distributed a nine-question survey regarding campus food establishments and participants’ purchasing habits distributed randomly 	<ul style="list-style-type: none"> Economic ‘food budget range’ and the ‘perceived’ overall price of food on campus Social ‘primary reason’ for purchasing food Ecological ‘willingness’ of individuals to incur increased food prices for ‘environmentally friendly’ food products.
12	<i>Exploring The Sustainability Of The Barn</i>	<ul style="list-style-type: none"> Interviews with Andrew Parr, director of UBC Food Services Laura Lowry, supervisor of the Barn Coffee Shop Surveys and past studies Designed and conducted our own survey of Agricultural Science students and staff to evaluate customer satisfaction Accessed the UBC’s official web sites on these topics. 	<ul style="list-style-type: none"> Economic: profit (or losses) Ecological: type of garbage and the number of garbage bags disposed of per day Social: customer satisfaction
13	<i>UBC Food Services Revisited: From The Six Corners Of The World.</i>	<ul style="list-style-type: none"> UBCFS’ current mission statement and five-year plan Communication with Director of UBCFS and Food Service Supervisor at Totem Park Previous market research conducted by the Farrell Research Group on the UBCFS Results from our own survey 	NA
14	<i>Branding At UBC: A Look At Franchises And Their Impact On Sustainability</i>	<ul style="list-style-type: none"> Literature review of UBCFS material Comparison was made between 	<ul style="list-style-type: none"> Social: variety of food choices, perceived quality and accessibility

		<p>food outlets operated by UBCFS only. In particular, Bread Garden was compared to Trekkers for specific analyses because both cafeteria-style outlets serve similar foods in a comparable atmosphere.</p>	<ul style="list-style-type: none"> • Economic: average prices of similar food items, differences in financial liability and consumer popularity • Ecological: ability to participate in waste reduction, ability to control the input of the food system, and Ecological impacts can be traced
15	<p><i>Transitions Towards Sustainability: A Look At Initiatives From Other Universities</i></p>	<ul style="list-style-type: none"> • Literature review and analysis of sustainability efforts at other university campuses: waste reduction; communal eating and cooking; local food purchasing; and, composting and nutrient cycling 	<p>NA</p>
16	<p><i>UBC Farm: Contributions to a Sustainable Food System</i></p>	<ul style="list-style-type: none"> • Conducted interviews with UBC Farm staff and FAS faculty • Accessed archival literature on UBC Farm and official UBC documents 	<ul style="list-style-type: none"> • Economic: Productive capacity of the farm • Social: Variety of food at UBC. Equal access to food on campus
17	<p><i>The Historical Evolution of The UBC Food System</i></p>	<ul style="list-style-type: none"> • Accessed archival and special collections department of the UBC Main Library • Alumni contacted to obtain first hand information regarding eating establishments and food options • Findings categorized into decades 	<ul style="list-style-type: none"> • Social: Build food outlets that provide adequate seating facilities places where students can eat, study and hold group meetings; variety of healthy alternative food options. Evenly distribution of food space across campus • Ecological: Discounts for using reusable containers; amount of food waste transported off campus; food waste composted on campus • Economic: Nutritious and affordable food

3. Central Findings

Each working group was to present a clear statement of the working team’s central findings and/or position(s). Table 4 illustrates for the most part the results of a detailed analysis of each of the respective team projects. In some cases, the findings on Food Services at UBC were the same of the same as in publications from the Farell Research Group Ltd.² (studies sponsored by UBC Food Services) and UBC Food Services³, publications supplied to the students as relevant and required readings. The Campus Sustainability Office, UBC Waste Management, UBC Trek 2000, and UBC Food Services’ websites were the principal websites accessed for a

² Farell Research Group Ltd. (2000). “UBC Food Services”. Vancouver: Farell Research Group. November 2000; Farell Research Group Ltd. (1996). “UBC Food Services: A survey of Food on Campus”. Vancouver: Farell Research Group. And, Farell Research Group Ltd. (1996). “UBC Food Services Mini-groups Exploring Customer Needs: A summary report”. Vancouver: Farell Research Group.

³ University of British Columbia. (2001). “UBC Food Services: Five Year Plan 2002-2006”. February 2001.

majority the case studies. This was not unexpected, and in fact encouraged, by the LFC3 Teaching Team members.

The expectation and the benefit, of course, was that working groups could approach the different themes of the subsystems in an interdisciplinary fashion. During the LFC3 curriculum planning stages the prospect of gathering information on the UBC food system from a broad perspective of disciplines and knowledges became established. Collectively and effectively, this allowed for a coalescing of information that begins to suggest the state of the UBC food system, developing a sharper focus on specific issues on the one hand, and a broader perspective on the other hand. Evident is an enhanced picture of existing interconnections – or potential (inter)-connections – within the context of social, economic, and ecological sustainability on the UBC campus, Vancouver, the Lower Mainland and beyond (See Table 3).

Lastly, “Overview of Conclusions and Outcomes” (Table 4) and, “Overview of Recommendations and Questions for Future Research” (Table 5) will address the findings. These sections have been organized such that issues raised in “Overview of Findings” will not be orphaned and without adequate challenge and transparency later.

Table 3. Overview of Central Findings

Grp #	Study	Central Findings
1	<i>The Sustainability Of The UBC Food System: An Assessment Of Place Vanier</i>	<ul style="list-style-type: none"> • Main menu items do not meet the requirements for good nutrition as most entrées are deep fried • Food needs to be lower in fat, higher in complex carbohydrates and fiber • Food options should include more vegetarian entrées because they are generally a healthier food choice • Healthy foods cost more
2	<i>Sustainability: UBC Food System Educational Role Of UBC Farm</i>	<ul style="list-style-type: none"> • 86% of Ag. Sci. students, and 82% of other students, indicated that they are interested in learning about UBC Farm through active participation at the Farm Market Days, Social Events, and direct experience • Professors within the Faculty of Agricultural Sciences believe that the UBC Farm is an excellent model and indicator for sustainability of food systems • The Farm offers an opportunity for understanding the forces that affect farmers in urbanized regions and training and education to enhance the sustainability of small farms near urban centres • The Farm as a hands-on laboratory and demonstration project that can help teach students and the general public about sustainable food production and the integration of food production into an urban community • Farm is a good fit with the Land, Food, and Community courses and could potentially be integrated into FNH 473 (Nutrition Education in the Community), FNH 342 (Consumer Aspects of Foods) • Faculties of Education, Applied Science, Forestry, Science, Arts, the School of Community and Regional Planning and Landscape Architecture are currently using the Farm
3	<i>Sustainability “DeBetability”: Is The Beta House Ecologically Sustainable?</i>	<ul style="list-style-type: none"> • Beta House does not meet “our” definition of ecological sustainability • Beta House does not buy organic food – the perception is it is too expensive and not readily available • Beta House members would buy from UBC Farm if it were convenient (accessible and less expensive) • Beta House does not have a composting system because there is no one to build and/or

		maintain it
4	<i>The University Of British Columbia's Fast Food System: A Look At Sustainability Issues</i>	<p>Student Perspectives:</p> <ul style="list-style-type: none"> • The main reason for choosing fast food in order of importance: nutrition, price and convenience • 87% believed that healthy food options were available at Subway, 62% at Pita Pit and 9.8% at McDonalds. • 51% believed that too much packaging is used at McDonalds, while the majority (58%) felt that Subway and the Pita Pit offered just the right amount of packaging. • 0% of students were highly concerned with the presence of student employment at these chains <p>Managers' Perspectives</p> <ul style="list-style-type: none"> • <u>Pita Pit</u>: Feels he has a solid recycling program and environmental awareness towards reducing waste. Feels that the environmental sustainable practices can be improved • <u>Bread Garden and Pita Pit</u>: Focused on their current status of a socially sustainable system. Strive towards creating new healthy food options in their menus, with reasonable discount offers • <u>Subway</u>: Appears that Subway is highly focused on profit. Nonetheless, they have implemented recycling programs and healthy food options
5	<i>UBC Food System Project: AMS Food And Beverage Service</i>	<ul style="list-style-type: none"> • AMS has shown increased profits over the past four years and has made efforts to support the local economy • Contributing to the observed profitability is the composition of the work force; approximately 90% (about 300 positions) of all employees are students • Prices, considered to be fair and stable, were stated as being within the budgets of the majority of individuals wishing to patronize the food outlets • Student wages are also considered satisfactory as they are above minimum wage • AMS is increasing the use of local products. However, this may result in increased costs so this practice is currently being performed on a relatively small scale • AMS outlets contribute to food security by providing a variety of nutritious food that is affordable and culturally acceptable • The accessibility of the food presents a problem since all of the providers are located in the SUB • All profits received from AMS outlets are cycled back into student initiatives. As this practice on campus is unique to the AMS Food Services, efforts to distinguish themselves from the UBC Food Services may result in increased community support and may play an influential role in attracting customers • A composting set-up has been established in close proximity to the SUB • Waste reduction programs are in place: Discounts for those who bring their coffee mugs; an opportunity to purchase Tupperware containers at cost • Consumers are generally oblivious to discounts and promotions offered by the outlets • Some staff members are either unaware of the discounts altogether or are providing patrons with misinformation regarding discount amounts • Contributing to waste reduction is that nearly all food is prepared from scratch, reducing the amount of packaging that is brought on to campus, and decreasing the amount of garbage and trash removal costs
6	<i>Composting At UBC: An agriculture Practice That Benefits The Whole Community</i>	<ul style="list-style-type: none"> • 70% of UBC's waste stream is made up of compostable materials • Currently, three AMS food outlets (Pendulum, PieR² and Bernoulli's Bagels) have been using backyard compost bins that compost 18.9 L of kitchen waste per day • St. John's and Green College both use vermi-composting to compost all of their kitchen wastes. Green College uses its compost on its community gardens • At Acadia Residences, there are 10 compost units located next to a community garden • Residential areas of UBC that have been identified as potential composting sites are Gage Towers, Thunderbird, Ritsumeikan and Fairview Crescent. We chose these areas because they are densely populated with students who cook many of their own meals

		<ul style="list-style-type: none"> • Food outlets that have been identified as potential composting sites are Totem Park, Place Vanier and Pacific Spirit Cafeterias, 99 Chairs, the Barn • By the year 2004, Land and Building Services at UBC plans to develop a large-scale in-vessel compost unit capable of composting cooked foods, meats and other items that are not suitable for bin composting at a cost of \$750,000.00 necessitating assurances from UBC Food Services and university community to realize the benefits of composting and make full use of the facility
7	<i>Commodity Chain Analysis Of The UBC Cinnamon Bun</i>	<ul style="list-style-type: none"> • The UBC cinnamon buns are a “Made in BC” product, because greater than 50% of the ingredients originate in or are processed in BC. In the case of the cinnamon bun, 51% of the ingredients originate in BC • All products used in the bun are harvested and/or transported using fossil fuel burning machinery. Transporting a commodity a long way is not ecologically sustainable, relying as they do on fossil fuels • The wheat, sugar beets and cinnamon used in the UBC cinnamon bun are grown in a conventional monoculture where synthetic fertilizers and pesticides are used requiring high inputs to produce high yields • The cinnamon bun is a profitable product and its use of BC butter and eggs contributes to a decent standard of living for BC farmers. As the wheat and sugar beets are grown and processed in Alberta, the local BC labour force is not used and money is not added to the local economy • The physical nourishment provided by the cinnamon bun does not contribute to optimum human health. The buns are high in refined sugar and fat and have little fibre or micronutrients. The bun may also replace other healthier food choices such as fruit, cereal or yogurt for breakfast displacing these nutrient rich foods • The cinnamon is produced in countries that exploit labourers by not offering a fair wage and may use child labour. This contradicts social sustainability through the polarization of wealth • The cinnamon bun is a socially acceptable and desired food. It is culturally nourishing for the North American culture as it is a traditional food but maybe not for people from other cultures
8	<i>UBC Food System Project: Food Waste Management – The Hot Beverage Cup</i>	<ul style="list-style-type: none"> • Disposable hot beverage cup is one major component of the 12 tonnes of waste produced at UBC per day • Eighteen percent of the garbage produced at UBC is composed of disposable containers, and hot beverage cups represent a large portion of this waste (WasteFree UBC, 2002) • In a survey done by UBC Food Services on the amount of coffee cups purchased in the month of October, 2001, over 40,765 cups of coffee were purchased from stores associated with UBC Food Services. Of this number, only 4, 476 cups were purchased from individuals that brought their own mug. Only 514 students purchased coffee in china cups, even though coffee was sold at a \$0.15 discount • Most respondents purchase at least one hot beverage from UBC campus per week. Over three quarters of the respondents realized that there is a discount involved if they bring reusable mugs to school, but 72 percent of the respondents still chose to purchase disposable cups
9	<i>South Campus Farm: Land-Use Conflict</i>	<ul style="list-style-type: none"> • South Campus community would produce less packaging and transport waste because food produced on the farm could be consumed within the community and on the UBC campus • Organic farming techniques require lower net energy inputs and minimize the use of non-renewable energy resources that could enable the Farm to capture and recycle nutrient input from campus • Including the farm within the proposed community, connections between land, food and community could be re-established • Economic benefits are also provided by the amalgamation of the working landscapes and the community • By growing local produce, local markets and restaurants could be supplied

		<ul style="list-style-type: none"> Both Agricultural Science students and UBC Food Service management and employees would be interested in connecting Agora to social and academic activities, and to the UBC South Campus Farm
10	<i>A Sustainable Agora – An Idealistic Student Perspective</i>	<ul style="list-style-type: none"> Agora is perceived to be not developing community values, not providing good quality food, and is not profitable Students are dissatisfied with Agora
11	<i>Assessing ‘Affordability’ Of Food At The University Of British Columbia: Planning For The Future Of Food Security</i>	<ul style="list-style-type: none"> Most (89%) of the 114 people surveyed were UBC students, while the remainder was faculty, staff, or alumni. Seventy-eight percent of respondents rated the overall price of food at UBC as “moderately expensive” or “expensive” and 80% purchased food five times per week or less A majority (45%) chose ‘convenience’ as their primary reason for selecting a food establishment on campus, whereas price was a primary factor in 14% of the respondents. Our data also shows that personal preference explains 31% of respondents’ reason for food selection. Collectively, this indicates reservation about the cost of food on campus Affordability of food is an important issue influencing food security in the UBC community
12	<i>Exploring The Sustainability Of The Barn</i>	<ul style="list-style-type: none"> Barn has experienced a net loss of \$10,414 to date for the year 2002. Costs of labor and food too high Approximately 550 customers per day visiting the Barn From our survey, all 38 respondents have heard of the Barn, but that 52% do not go to the Barn, mainly due to unappealing interior, long lineups, bad meals and/or cost Around 7 bags of garbage are collected per day Recycling bins for bottles and cans are present, however, unused raw food, unsold prepared food and table scraps are thrown into the garbage. Used Styrofoam plates and cups, as well as paper coffee cups, are discarded. Although the Barn does support “One Less Cup,” is not well advertised, and not widely used The decisions of which foodservice operations students attend is important because more than ¾ of students eat on campus at least 2-3 times a week. However, students comprise only 20% of the Barn’s customers, with faculty members and plant operation personnel being the primary customers. Students spend less on lunch (\$5-10/week), and do not consider the Barn as a place for lunch Incidents of theft further drive up the food costs. Renovations scheduled to take place in May are targeted towards resolving the economic problems Students perceive food in Styrofoam as stale or mass produced and environmentally unfriendly, and would prefer paper plates The Barn provides breakfast, but it has not been as successful as expected in attracting customers The Barn does a poor job of advertising. Many people are misled by its name: The Barn Coffee Shop
13	<i>UBC Food Services Revisited: From The Six Corners Of The World.</i>	<ul style="list-style-type: none"> UBCFCS defines itself as a system, but incorporates mainly economic viability into its framework Mission Statement: terms such as “good food” and “value” are quite vague. “Good food” could refer to taste, appearance, or healthiness of a food, but it is difficult to ascertain which characteristic(s) is (are) actually being addressed. With regard to “value,” one can assume that this refers to cost, which many students consider too high for the food offered on campus. Mission statement stands separate from the ideas of employees, creating segregation between values and actions. Several employees mentioned their interest in creating a more sustainable food system, but suggested the focus on profit is a barrier UBCFCS currently operates as a business, whereby all choices are made primarily on an economic basis. This constrains UBCFCS to make decisions that are less sustainable,

		<p>such as buying organic or local produce, implementing waste management practices, and providing fair prices for students</p> <ul style="list-style-type: none"> • Term “strategically located so you can access good food, quality service in a pleasant environment whenever you want!” is subjective; many students complain that most UBCFS establishments are always crowded, and hours of operation do not cater to those students who remain on campus later in the day • UBCFS is contractually obligated to large food suppliers, which prevents UBCFS from buying local food. Most large suppliers do not purchase from local markets • Lack of opportunity for students to prepare their own food on campus. UBCFS offers mainly prepackaged, ready-to-eat products, and a limited choice of fruits and vegetables. Specifically, at residence mini-marts, mainly processed food is available for purchase. While convenient, these choices are not nutritious (high in sugar and/or salt as well as additives), nor ecologically sound, as excessive packaging of these products generates substantial waste • UBCFS is the largest food provider on campus, providing up to 7,000 full meals a day and produces considerable waste. Many food items that were previously prepared on site are now purchased prepackaged, which further contributes to waste • Disposable container options are widely available hindering waste reduction • Waste disposal and composting do not generate income but may even become an added cost when transportation methods are considered • Neither the mission statement nor the five-year plan of UBCFS mention the four A’s of food security: affordability, accessibility, availability and appropriateness; contributors to a sustainable food system
14	<p><i>Branding At UBC: A Look At Franchises And Their Impact On Sustainability</i></p>	<ul style="list-style-type: none"> • In the survey, students perceive the UBC Food Service as not providing enough variety of “healthier alternatives such as vegetarian dishes, and that branding will increase variety of food offered on the campus • Most students or faculty members are dissatisfied with the quality of food at UBCFS because “it lacks variety” or “it lacks healthier or other ethical food choices” • Availability of a debit machine will increase the convenience for students to buy food. Thus, the availability of debit machine may influence the students’ access to food and it is used to measure accessibility • We saw a less diverse and higher priced menu at Bread Garden with prices ranging from \$3.99 to \$6.99 per meal; whereas at Trekkers the price was lower ranging from \$2.75 to \$5.25. The prices at Trekkers seem to reflect the demand of the consumer. A UBCFS report states that students were willing to pay a maximum of \$5.00 to 9.99 per meal • In franchises, many of the products carried are signature items that must be identical from franchise to franchise regardless of location. In Subway all sandwiches are wrapped in the trademark Subway waxed paper. This makes it difficult for UBCFS to source inputs. Most products used for franchise operations are proprietary, meaning that they must be purchased as per franchise specifications • Many pieces of critical information could not be obtained due to the confidentiality associated with contracts and financial agreements • All outlets discounts are given for bringing non-disposable coffee mugs, but not all outlets provided discounts for bringing containers
15	<p><i>Transitions Towards Sustainability: A Look At Initiatives From Other Universities</i></p>	<p>Waste Reduction:</p> <ul style="list-style-type: none"> • Rice University eliminated the use of paper cups from campus food service outlets. Reusable plastic cups are now used and are not allowed outside of the commons area. To reduce the waste from milk cartons, milk machines were installed in kitchens around campus, from which students could dispense milk into a re-usable container. Paper napkins were switched to cloth wherever possible • Collecting pre-consumer food discards has also proved useful in reducing waste and saved the University of Massachusetts \$13,750 in waste disposal costs when collecting food waste in separate bins for a one-year trial period. The discards were combined with animal bedding from the campus horse farm and used in its landscaping projects

		<ul style="list-style-type: none"> • At Brown University, improved recycling performance was largely due to improvements in the containers and materials handling systems so that recyclable materials could be separated more efficiently. Their Plant Operations Recycling Team monitors the composition of solid waste being picked up at the curbside by analyzing it on a weekly and monthly basis. This gives immediate feedback on the effectiveness of their recycling program and tests improvements or indicates problems that need to be addressed • Oberlin College successfully applied the principles of source reduction. This included buying condiments in bulk and working with suppliers to reduce packaging of shipments. To reduce human waste, a creative scheme called the “Living Machine Poop Campaign” was created. This project paid students \$0.25 for every solid donation they made to the toilets of the Environmental Studies Building <p>Communal Eating and Cooking:</p> <ul style="list-style-type: none"> • Communal kitchen facilities have been successfully used at other universities such as Newcastle University. The presence of proper cooking facilities encourages students to bring their own food and re-usable dishes. Newcastle University went even further to encourage communal cooking and eating on campus by installing large communal gardens, outdoor living areas, and lounges <p>Local Food Purchasing:</p> <ul style="list-style-type: none"> • University of Wisconsin-Madison, buys food directly from local farmers. The University of Wisconsin-Madison spends nearly \$10 million each year on food for its dining services. Both universities with self-run food systems and those with contracted food services have the freedom to buy from local farmers. Northland College, for instance, buys about 20 percent of their produce from local farmers and a local food Co-Op • Local purchasing provides leverage to the buying power of colleges and universities by supporting smaller scale farmers in the region • Rice University found it fiscally impossible and opted to remain with a larger supplier for the central food service kitchen. They worked with their produce supplier to buy more in-season produce, hoping to increase the quality of produce that was available for the students. It was also deemed that organic products are currently too costly but that it is a goal of food service to supply them when they become more affordable <p>Composting and Nutrient Cycling:</p> <ul style="list-style-type: none"> • Rice University is proposing a new, effective composting system - a self-contained and self-engineered compost facility, which would reduce the anticipated protests to objectionable odors and noise. This Decentralized Engineered Composting would meet the composting needs of Rice while allowing the expansion of Rice's needs in the future. The benefits of this system are that it requires little maintenance, can be located near food waste disposal sites, and may be installed over time to allow time for an ongoing performance study Such a self-contained compost system can provide landscaping materials for the university while reducing the high cost of hauling waste off-campus
16	<p><i>UBC Farm: Contributions to a Sustainable Food System</i></p>	<ul style="list-style-type: none"> • Students and staff (more than 50%) have indicated that they consider the variety of food at UBC to be “fair to poor”, stating that there is not a huge selection, and that the food is mostly fast or greasy • There is a growing demand for locally produced organic food that elicits a feeling that the food was “made just for me” rather than mass produced • Barriers which hinder expansion were identified: Degraded or missing infrastructure, government regulations concerning meat production, and limited market opportunities for non-processed food • Two acres will be cultivated and production increased by over 100%. After an initial period of slow production due to start-up costs, and learning anew, the farm has secured a market and expects to break-even after three years • When selecting a market, the UBC Farm sells to the highest bidder, and therefore outlets such as Agora and the Barn are not options. Instead, UBC Farm wants to target

		<p>higher quality food retailers such as Sage Bistro, and the Pendulum</p> <ul style="list-style-type: none"> • By reducing the number of intermediaries between production and consumption of food, the UBC food system can achieve a higher level of sustainability • Although there is a demand for local products from Green College and dining outlets, there is reluctance among institutions such as Food Services to buy non-processed food from UBC Farm due to costs and labour issues. Currently, UBC Farm does not have the facilities to prepare food and this is preventing them from selling to such outlets as Food Services • The primary mandate of the farm is focused on education instead of production, there is an emphasis on the quality of learning experience rather than the quantity of output
17	<p><i>The Historical Evolution of The UBC Food System</i></p>	<ul style="list-style-type: none"> • 1920's: students were able to purchase breakfast, lunch, and dinner on campus. The cafeteria and the lunch counter both employed a dietitian • 1930's: A lunch counter was opened offering much needed food services of full meals and snacks to students from 7am to 8pm • 1950's: there were 15 food-dispensing units on campus but no provisions were made in the university's budget for food services. It was deemed necessary to eliminate food services, as the costs of operation were not covered by meal prices. Deals on meal tickets encouraged students to purchase tickets and therefore aided budget-conscious students. Dr. MacKenzie, then President of UBC, made it clear that food in the cafeteria and other university-controlled institutions would be prepared under scientific and sanitary conditions. The cafeteria was seen as an overcrowded and poorly ventilated area. This situation was due to the large number of fraternity, sorority and other organizations who used the cafeteria as a meeting place. In 1957, the consolidation of Food Services with UBC housing was accompanied by the serving of 7500-100,000 meals a month • 1960's: campus expansion led to the construction of the Totem and Gage residences and the Student Union Building (SUB). 20% of the 32000-ft² SUB building was designated for Food Services. The SUB included two cafeterias accommodating 900 people, two small meeting dining rooms, and two snack bars seating 800 people. In addition, a drinking lounge and a vending alcove with six units were included to relieve some of the pressure from the primary food service facilities. Eventually the AMS would take over these food services. Despite selling in excess of 8000 cups per week coffee on campus gained the recognition of being infamously bad • 1970s: Prices of meals in the SUB were hiked to the dismay of students, staff and faculty. Inflation was used as the scapegoat, as students felt the SUB had raised prices in order to offset mortgage payments. Student grievances continued as the price of a cup of coffee was increased to \$0.15 yet cups were 15% smaller than previous years. In 1971, International House started selling hot lunches consisting of different ethnic foods. Sandwiches started at \$0.35 with full lunches costing up to \$0.85 • 1980's: Incentive programs were implemented to decrease amount of food packaging, such as foam cups (Blue Chip handed out an average of 500 a day. Students in Place Vanier residence were also up in arms about costs of the meal plan. Residents were concerned with the quality of food served, in regards to subsequent meals comprised of leftovers. A petition was held but no change came about. In the early 80's, it was noted that UBC had the highest student pub beer prices in Canada (\$1.15/bottle) and the Pit made an annual profit of \$60,000 • 1990's: According to the 99/00 UBC calendar, there were 18 food service operations on campus. In the mid 90's, Food Services operated without profit but since have increased efficiency and have thereby eliminated operating losses • 2000 and Beyond: Currently there are 27 food units open at UBC through Food Services. These include cash operations (including franchises such as Bread Garden), residences, mini-marts, restaurants and catering services. The residences serve 1000 students, 3 times a day year round. There are future plans to develop south campus, including the addition of a campus grocery store

4. Conclusions and Outcomes

The working teams presented in detail their conclusions while taking into account their underlying value assumptions about food system sustainability, indicators, and findings within economic, ecological, and social perspectives. They also explained the relationship of their specific theme to the greater UBC food system.

The “Conclusion and Outcomes” is a representation the working groups’ integration and synthesis of their agroecological knowledge and understanding with their respective subsystem findings (See Table 4). Evident is an expression and feedback to the Learning Outcomes for the Land, Food and Community 3 curriculum, with some groups much more effective than others.

Of course, the conclusions and outcomes may have direct implications on each group’s recommendations to the Campus Sustainability Office, opportunities for future research, and the development of relevant research questions.

Table 4. Overview of Conclusions and Outcomes:

Grp #	Study	Conclusions and Outcomes
1	<i>The Sustainability Of The UBC Food System: An Assessment Of Place Vanier</i>	<ul style="list-style-type: none"> Through the collection and analysis of data, and dialogue within our group, we came to a consensus that the most critical problem, in terms of long-term sustainability of this subsystem, is that the selection of the food at Place Vanier doesn’t promote the health of the students
2	<i>Sustainability: UBC Food System Educational Role Of UBC Farm</i>	<ul style="list-style-type: none"> By promoting education and awareness of the UBC Farm, the UBC population will become more conscious of their food choices and the implications of these choices on the environment, economy, and society. Raising awareness of these issues will increase the likelihood of the UBC population making more sustainable food choices
3	<i>Sustainability “DeBetability”: Is The Beta House Ecologically Sustainable?</i>	<ul style="list-style-type: none"> In order to engage in ecologically acceptable behavior, participants of the UBC food system must recognize the links between the farmer and the consumer, the pollution and social inequities associated with conventional food production, the existence of local produce (e.g. the UBC Farm), the availability of sustainability educational resources (e.g. UBC Campus Sustainability Office) and updated research. It is also important to recognize and appreciate that the Beta House members have made
4	<i>The University Of British Columbia’s Fast Food System: A Look At Sustainability Issues</i>	<ul style="list-style-type: none"> Students for the most part, are satisfied healthy options exist at some fast food chains, and that the managers are proud to have this option. Alternately, students have noted that they are concerned with some of the ecological sustainability practices at some outlets, more so than others, indicating awareness of unsustainable practices. Since students perceive the pricing at some of the outlets to be high, regardless of coupons at certain times of the year
5	<i>UBC Food System Project: AMS Food</i>	<ul style="list-style-type: none"> AMS is already taking many steps to ensure the ecological, economic, and social sustainability of the UBC food system. Since the AMS is student run and driven by demand, it is essential that both the students and the rest of the UBC community are knowledgeable about the issues and the attempts that are made to make the food system

	<i>And Beverage Service</i>	knowledgeable about the issues and the attempts that are made to make the food system more sustainable. With added support and commitment, there is a great opportunity for change in AMS Food Services, which would put pressure in the rest of the system to make a greater move towards sustainability. While this transformation is in progress, the AMS should continue to make sustainability a priority and attempt to expand and promote the current initiatives
6	<i>Composting At UBC: An agriculture Practice That Benefits The Whole Community</i>	<ul style="list-style-type: none"> One way to increase the sustainability of UBC's food system is to incorporate a functional and convenient composting program at a reasonable cost. Composting programs can be developed and introduced campus-wide by persuading students and food services employees to participate through advertising and incentives
7	<i>Commodity Chain Analysis Of The UBC Cinnamon Bun</i>	<ul style="list-style-type: none"> The cinnamon bun is not sustainable and UBC Food Services does not put high value on sustainability
8	<i>UBC Food System Project: Food Waste Management – The Hot Beverage Cup</i>	<ul style="list-style-type: none"> The current programs designed to reduce the purchase of disposable hot beverage cups on campus do not provide a large enough consumer incentive
9	<i>South Campus Farm: Land-Use Conflict</i>	<ul style="list-style-type: none"> By incorporating the existing farm and forestland into the South Campus Community residential housing can be created while economic, ecological and social sustainability is modeled. The university's need to build a residential community would be addressed and the Faculty of Agricultural Science's desire to retain the landscape would be respected In addition, we feel that the students at UBC must be made aware of the land use conflict. This could be done through guest lectures and seminars. We believe that by increasing awareness on campus, the existing farm and forestlands can be retained
10	<i>A Sustainable Agora – An Idealistic Student Perspective</i>	<ul style="list-style-type: none"> It is critical that Agora be more involved with our Faculty's underlying values in order to become more sustainable. Student participation and education, incorporation of the UBC Farm, and the addition of a student kitchen will all help to initiate Agora's transition to sustainability
11	<i>Assessing 'Affordability' Of Food At The University Of British Columbia: Planning For The Future Of Food Security</i>	<ul style="list-style-type: none"> Our questionnaire identifies that 'affordability' is a major concern and that this issue needs to be further addressed and alternative solutions sought. We recognize that moving toward a more 'food secure' food system on campus will also require us to examine social and environmental impacts over the long-term. Perhaps what is most important is that we realize that both 'food security' and 'sustainability' are not static issues and that they require frequent re-assessment. These definitions will invariably change over time in relation to the changing needs of the community and the environment
12	<i>Exploring The Sustainability Of The Barn</i>	<ul style="list-style-type: none"> We believe that enhancing the ecological and social sustainability of the Barn will facilitate improvements in economic sustainability
13	<i>UBC Food Services Revisited: From The Six Corners Of The World.</i>	<ul style="list-style-type: none"> UBCFCS should alter their mission statement to include students as their priority, address environmental concerns, and increase awareness of food accessibility, availability, appropriateness, and acceptability. We see the integration of education into the UBCFCS as a pillar to making such changes. In turn, such changes serve as a stepping-stone toward a more sustainable campus. We believe that while achieving sustainability can often seem overwhelming and unachievable, it is the small steps made on a continual basis that will

		make a great impact, not just in UBCFS, but also within the UBC community as a whole
14	<i>Branding At UBC: A Look At Franchises And Their Impact On Sustainability</i>	<ul style="list-style-type: none"> • Franchise and non-franchise food service outlets have contributed differently to the sustainability of the food system on campus. The elimination of either type of food service outlets would be detrimental to the state of sustainability in the UBC food system. Indeed, the balance of both franchise and non-franchise food service outlets was identified to be critical to improve the current state of sustainability • Regarding the appropriateness of establishing franchises from the perspective of sustainability, it was found that franchises could be appropriate and could improve the sustainability of UBC food system. As UBC makes a commitment to improve campus sustainability, UBCFS, which has determined to support UBC and the greater community, should also make a commitment to bringing sustainable franchises to campus • UBC has identified the desire to upgrade and maintain infrastructure “so that UBC is seen as a model of a sustainable campus: safe, clean, livable and environmentally friendly.” If this is in fact a goal of the university, we feel that it is important that any franchises associated with UBC share this core value. It is paramount that students see the university’s commitment to this goal in action
15	<i>Transitions Towards Sustainability: A Look At Initiatives From Other Universities</i>	<ul style="list-style-type: none"> • As a university, we have both the opportunity and responsibility to test out some of these initiatives. Simple steps such as eliminating paper cups on campus could significantly decrease the amount of waste produced on campus. More complex initiatives such as composting both food and human wastes have demonstrated their effectiveness in both decreasing garbage and increasing nutrient cycling. Because UBC must pay to have all its waste removed from campus, these projects would have economic benefits • In the transition towards sustainability, it is important to consider the social dimension. We believe steps need to be taken to bring awareness to the majority of students to both where their food comes from and the impact that their food choices have on our planet. By creating communal eating spaces, students would not only be encouraged to bring their own food, but would feel more rooted in a particular foodshed, for which they could take ownership. In UBC’s food system, solely supporting local producers may not be economically feasible. However, we believe efforts should be made to buy in-season fruits and vegetables from local producers to move towards greater sustainability and sense of community
16	<i>UBC Farm: Contributions to a Sustainable Food System</i>	<ul style="list-style-type: none"> • The productive capacity of the farm can be increased to meet growing demand for local foods, either through small-scale animal systems, greenhouse production, or expanding the UBC Market Garden • The productive capacity of the farm will need to be increased • Livestock operation are a major weakness in the current UBC Farm food system • With the past investment of money and labour on clearing, rock picking, subsurface drainage and irrigation equipment future expansion of the market garden looks promising • UBC Farm wants to target higher quality food retailers such as Sage Bistro, and the Pendulum, which are focused on food quality and are willing to pay a premium price for the produce. However, these outlets sell their food at higher prices and may not be affordable by all students. As an indicator of sustainability, all people should have equal access to healthy food, and selling solely to high-end retailers meets this criteria • In order to supply the seasonal demand of the fluctuation student population, the Farm must be productive during the fall and winter months and find alternative markets during the summer months
17	<i>The Historical Evolution of The UBC Food System</i>	<ul style="list-style-type: none"> • Despite individual differences between decades, several problems have persisted throughout the history of the UBC food system. These problems have included overcrowding and the unfair pricing practices. Primarily, any change towards the betterment of the food system on campus has been the result of student voice. Student grievances on these issues brought students to work together in an effort to improve the sustainability of the system. Whereas the problems of the past centered on primarily social and economic sustainability factors, today there exists the need to focus on all three aspects of sustainability: economic, social and ecological. By working with UBC

		Food Services, community members on campus (whether they are students, residents, staff or faculty) can work towards a more sustainable food system that is more environmentally friendly, economically viable and social responsible than at present
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5. Recommendations and Questions for Future Research

Taken together, the recommendations for CSO and future research individually and collectively represent the culmination of the groups’ understanding of their respectively defined case study problems. As Table 5 illustrates, there is continuum of complexity and substance of the recommendations. The value and substance of the recommendations for future research can be distinguished by what may be considered obvious and not unexpected, to those that show characteristics of thoughtful reflection and insight, possibly signifying application of academic rigour and personal commitment to the topic. Further, the recommendations and research questions they elicit are apparent by their applicability and “fitness” within the UBC food system context.

The recommendations section should help significantly in suggesting foci for research projects within the collaborative hand-on academic framework of CSO/SEEDS and Land, Food and Community 3. The usefulness of the recommendations and questions for future research may become evident in the section, “Where Do We Go from Here?”

Table 5. Overview of Recommendations and Questions for Future Research

Grp #	Study	Recommendations for Future Research for the Campus Sustainability Office	Research Questions
1	<i>The Sustainability Of The UBC Food System: An Assessment Of Place Vanier</i>	<ul style="list-style-type: none"> • Incorporate a combo system that will provide the recommended amounts of protein, starch, and fats • Less focus on items that are high in only one macronutrient • Provide items with a mixture of all food • Provide a larger and more appealing selection of vegetarian • Increase menu items with grains, milk products, and vegetables • Increase the carbohydrate content of the items • Decrease the fat content of the items • Increase the protein content of vegetarian items • Increase the fiber content of menu items • To continue the improvement of the Place Vanier Food system, areas of further research could include taking a closer look at where the food items are coming from that are purchased through large wholesalers. Another area of research could be on ways for Place Vanier to eliminate disposable dishes and cutlery 	NA
2	<i>Sustainability: UBC Food System Educational Role Of UBC Farm</i>	<ul style="list-style-type: none"> • Incorporate the Farm into the curriculum of all faculties on campus. A connection on campus among all faculties will unite everyone towards a common goal. All members of UBC can then act as role models and advocates of the Farm and sustainability. Since the UBC Farm is the only farm in the City of Vancouver, support for survival must come from the UBC sustainability office, the professors, the students, and the community 	NA

		<ul style="list-style-type: none"> • Raise awareness about the existence and location of the UBC Farm, starting from the elementary school level. Elementary students should be given the privilege of visiting the Farm and being exposed to the concept of sustainability. These young learners can educate their parents who have not received such knowledge • Community outreach programs. The Farm is already able to provide produce to the UBC community and the markets held during the summer and promote awareness. Other programs that could raise awareness about the Farm and sustainability are cooking classes and gardening workshops • Survey the community at large to see if they would use the services of the Farm • Gather comprehensive data from the Farm 	
3	<i>Sustainability “DeBetability”: Is The Beta House Ecologically Sustainable?</i>	NA	NA
4	<i>The University Of British Columbia’s Fast Food System: A Look At Sustainability Issues</i>	<ul style="list-style-type: none"> • Establish relationship with corporate management of the various fast food chains to work on decreasing packaging used and waste produced, as well as incorporating fast food chains in the WasteFree UBC campaign • Implement programs to make food more affordable by honour coupons consistently throughout the year • Initiate a campaign to educate the UBC community on importance of student employment and cash flow retention within UBC • Continue to offer healthy food options at fast food outlets • A sustainability study of individual fast food restaurants at UBC to provide a more in depth look aimed at establishing a better understanding of the current situations at each specific restaurant • To brainstorm ways to relay the concerns the students have about unsustainable practices to UBC food services 	<ul style="list-style-type: none"> • What are the obstacles to sustainability in fast food chains at UBC? • What could be used as an incentive to change (i.e. free advertising on campus when certain sustainability practices are implemented)? • Are there possibilities for reducing wastes and implementing sustainability programs in fast food chains? • Would each fast food chain participate, in fostering change towards more sustainable practices, once these issues become apparent? • Could there be a partnership between the farm and other UBC programs for sustainability? • Is there a potential to extend the composting program that already exists to include fast

			food chains?
5	<i>UBC Food System Project: AMS Food And Beverage Service</i>	<ul style="list-style-type: none"> • Make efforts to promote/advertise current AMS sustainability initiatives • Attempt to make more obvious distinctions between AMS and UBC food services • Develop AMS outlets in other areas of campus to increase accessibility • Develop more areas where one could enjoy his/her meal • Expand the current composting system • Implement policy that makes sustainability efforts universally incorporated into budgeting allowances • Support buying relationships with local growers, including UBC farm 	<ul style="list-style-type: none"> • Since information provision to employees and customers by the AMS is obviously failing, it is necessary to determine what methods would be successful in promoting sustainability issues and how more support can be obtained. It will also be helpful to obtain data regarding what impact tuition increases will have on the demands and spending habits of the students. A thorough analysis of existing opportunities to utilize the resources of the UBC Farm for provision and waste management is needed.
6	<i>Composting At UBC: An agriculture Practice That Benefits The Whole Community</i>	<ul style="list-style-type: none"> • Advertising composting and free worm bin workshops to residents of Hampton Place, the endowment lands, fraternity houses and the apartments near the UBC Village • Encouraging Waste Management to designate areas to deposit finished compost close to the current recycling bins for convenience • Creating a joint project with farm management to transport full bins to South Campus farm where they can finish composting and ensure the picked up composting material is used appropriately • Educating the UBC population to ensure that everyone is aware that composting programs exist and that there are positive implications with using these programs, such as increased sustainability of the UBC food system through nutrient recycling. This education can be done by expanding on the current laminated posters about recyclable materials to include composting • Re-initiating the previous post-consumer composting system that involves contracting a composting to company • Making compost waste collection as convenient as possible by increasing the number of collecting bins around campus, and providing food outlet with coloured bins to separate their waste from compostable material. 	NA
7	<i>Commodity Chain Analysis</i>	<ul style="list-style-type: none"> • Create a clear food policy for UBC which explicitly values sustainability 	<ul style="list-style-type: none"> • Is UBC Food Services receptive and willing

	<p><i>Of The UBC Cinnamon Bun</i></p>	<ul style="list-style-type: none"> • Partner with many faculties across campus to educate all students on the impacts of their food choices • Partner with UBC Food Services to promote and put into action the characteristics of a sustainable food system: • Purchase more local products • Research food purchases more fully to discover how foods are produced and to avoid exploitative or socially/ ecologically/ economically damaging commodities • Products which cannot be produced locally such as cinnamon should be imported from the closest producing country to reduce transport distance • Modify the “Made in BC” criteria to require more BC product content • Encourage production and promote “Made in BC” products through advertisements and pricing specials in retail food outlets • Adopt a sustainability advocacy role not limited to the UBC campus community • Work with dairy farmers and government to minimize the intensive water and land use in milk production • Work with community partners to promote local/ ecologically sensitive eating • Provide nutritional information for consumers to make nutritious food choices and thus sustain personal health 	<p>to adopt sustainability recommendations?</p> <ul style="list-style-type: none"> • Does UBC Food Services have access to more sustainable products? • What is the sustainability of the packaging used in the cinnamon bun ingredients? • How much of an influence does the UBC community have on commercial producers? Could the UBC community change farmers’ agricultural practices? • What kind of knowledge do members of the UBC community have about current food production techniques? • How could genetic engineering of the products in the UBC cinnamon bun affect the bun’s sustainability? • Is egg production in the Fraser Valley humane? • Are livestock raised in an ecologically sensitive way in the Fraser Valley? • Is child labour used in the production of the cinnamon in the UBC cinnamon bun? If so are there other non-exploitative sources of cinnamon?
<p>8</p>	<p><i>UBC Food System Project: Food Waste Management – The Hot Beverage Cup</i></p>	<ul style="list-style-type: none"> • Waste Management Division of UBC may need to be readdressed in order to confirm that they are minimizing all wastes at UBC • In terms of food waste management, it should be mandatory for all food outlets, such as Pizza Pizza, Subway and The Bread Garden to participate in reduction incentives. These stores are not otherwise forced to participate because they are franchises and do not fall under UBC Food Service regulations. A large 	<p>NA</p>

		<p>number of customers flow through these establishments and it would be highly beneficial to have them participate in contributing to the education of waste reduction at UBC.</p> <ul style="list-style-type: none"> • There are some companies such as Starbucks that are working towards developing a recyclable cup and once these products are made available, UBC food services should implement them in their stores • If UBC is going to continue to serve beverages in non-recyclable cups, an added “environmental tax” could be implemented on hot beverage cups. This tax, and the rationale behind it, should be clearly advertised so customers are aware that they are paying extra • UBC Food Services could consider implementing a “Mug Card” that would work like existing bonus cards by offering a free cup of coffee after a certain number of purchases. Since a card of this nature already exists on campus, the Mug Card could offer a free coffee with fewer purchases than the other. This may encourage those who “sometimes” bring their own mug to bring it more often. • Focus on other components of waste produced on UBC campus such as disposable plates, utensils, soup containers • Conduct surveys with larger samples sizes and include open-ended questions in order to receive input from the consumers as to what they believe can be done to reduce the amount of waste produced on campus • Conduct research on alternatives to waste management such as recyclable cups that are also economically feasible • Develop initiatives to make consumers more environmentally aware of where their waste is going and the impact it may have on their food system 	
9	<i>South Campus Farm: Land-Use Conflict</i>	<ul style="list-style-type: none"> • Our group recommends that the Faculty conduct a contingent value survey that would assess an ecological value for the UBC Farm • Our group proposes that this land use conflict be dealt with by investigating other rural communities that are able to peacefully co-exist 	<ul style="list-style-type: none"> • What conditions should be created so that the farm and residential community in the South Campus area can live in harmony?
10	<i>A Sustainable Agora – An Idealistic Student Perspective</i>	<ul style="list-style-type: none"> • We recommend that our indicators be continuously redefined. Future students should consider that each indicator is connected with another and the UBC Food System. In coming years, more thorough investigation of Agora’s food system is needed, such as the introduction of UBC Farm products, the utilization of a student kitchen and the management of Agora to incorporate student education through various agriculture science courses • Continued analysis is required annually in order to build a solid knowledge foundation on Agora and its needs during this transition towards sustainability 	<ul style="list-style-type: none"> • Will our suggested recommendations help secure Agora’s financial future? • How will changes in Agora impact other food service outlets? • How will Agora influence UBC Food Services and the UBC community? • Will the creation of a student kitchen nurse social interactions?

			<ul style="list-style-type: none"> • How will involving students in managing Agora impact their education? • Will using UBC Farm products for Agora food items be feasible? • Will Agora decrease its ecological footprint if a waste management system incorporated composting?
11	<p><i>Assessing 'Affordability' Of Food At The University Of British Columbia: Planning For The Future Of Food Security</i></p>	<ul style="list-style-type: none"> • We propose that immediate and ongoing changes to increase the affordability of the food available at UBC could be met by expanding existing food price discounts currently offered by only a few food services, such as Pendulum or the Express. This could be achieved by introducing a policy that requires all food services at UBC to offer three main price discounts. These include discounts for patrons that provide their own food packaging, frequent-buyer discounts, and volume discounts • We recommend that independent food services be increasingly diversified such that they become part of <i>all</i> faculties across campus. Lunches would be managed, produced, and sold by the students with the intention of providing nutritious and affordable meals. The profits of the lunches would be reinvested into the faculty for the benefit of the volunteering students • Building on the small-scale, student and faculty-run food services, over several years the UBC community could develop a community-run grocery store as an alternative to privately operated food services. The geographic isolation and the limited selection and small size of campus grocery stores warrant an alternative source of food. The store could also focus on offering a variety of locally grown produce from the UBC Farm and supplemented by farmers in the Lower Mainland, linking the UBC community with the surrounding community. The store could also reflect the diverse multicultural needs of the UBC community • Assess how the accessibility, appropriateness and availability of food on campus impacts food security • Determine how moving toward 'food security' will impact the environment, as well as the social and economic aspects of the UBC community and whether creating a 'food secure' system is sustainable in the long-term • Determine how to meet the changing needs of the UBC community over time, especially considering that the definitions of 'food security' and 'sustainability' of the food system will also change 	NA
12	<p><i>Exploring The</i></p>	<ul style="list-style-type: none"> • We recommend that the use of Styrofoam be eliminated 	<ul style="list-style-type: none"> • Have the renovations

	<p><i>Sustainability Of The Barn</i></p>	<ul style="list-style-type: none"> • We feel that using paper plates, wrappers and boxes are more ecologically friendly • The Barn should employ the Paper Reduction Tool Box, developed by the Sustainability Office at UBC • We recommend that the Barn composts raw food wastes • Offer unique specialty items to make the Barn distinct from other outlets • We recommend that the Barn cater to the different ethnic groups and thus dishes could serve as additional specialty items to provide the Barn with a competitive edge. • Form a partnership with the UBC Farm. A partnership with the UBC Farm could be effective in attracting Ag. Sci. students, further adding to the clientele of the Barn. A partnership with the Farm would establish a strong connection with the university and may instill a sense of loyalty within customers • Using local produce would also allow the Barn to serve seasonal items and would enrich the selection • The partnership would allow money to cycle within UBC • Use more advertising. We recommend that the outlet use signs and posters across the campus to let the public know of the items it offers. A simple yet effective idea would be to place a sandwich board outside the facility that lists daily specials • If brand name coffee like Tim Horton's® or UBC Farm Produce are offered, these features should be thoroughly advertised • Educate employees about sustainability. Many people are not even sure what sustainability means. By educating employees, staff will become aware of the concept • Sustainability in any sense will be more easily achieved if each member of the staff and workforce at the Barn made daily contributions geared towards improving quality and sustainability of the Barn in the long run 	<p>made a positive impact economically, socially and/or environmentally?</p> <ul style="list-style-type: none"> • Has the incidence of theft decreased? • Have the renovations cut down on the costs? • Have the numbers of customers changed after the renovations were made? • Are customers satisfied with the changes that take place after renovations? • Have new strategies been implemented? • Is there a reduction in amount of waste disposed? • Has the partnership attracted new customers? • Is there an increase in revenue? • How has the clientele changed since the renovations?
<p>13</p>	<p><i>UBC Food Services Revisited: From The Six Corners Of The World.</i></p>	<ul style="list-style-type: none"> • UBCFS should take an active role in integrating education possibilities into their establishments, in which students from different disciplines can participate directly in the food system, helping to solve its problems while receiving practical experience • Since students input a substantial amount of money, time, and energy into the university, the university, in turn, can give something back to the students by providing an environment conducive to experiential learning. Thus, students will become more competent and confident when they enter the real world • Commerce students could develop marketing strategies to promote UBCFS products, do the accounting, and implement organizational behaviour principles to enhance the productivity and quality of UBCFS operations • Agroecology students could develop environmental and social awareness campaigns, and find ways to increase connections between UBCFS and local food production 	<p>NA</p>

		<ul style="list-style-type: none"> • UBCFS willingness should be explicitly expressed in the UBCFS agenda and reflected in the mission statement • Students are the major clientele of UBCFS, their feedback is central to providing food that is desirable and will therefore be purchased. If students are happy with the products offered, they will be more willing to maintain their loyalty to UBCFS • The integration of education will also increase profit for UBCFS, since services that will be offered by students will not require financial compensation. Thus, a win-win situation will be created, whereby students can learn and UBCFS can save on labour costs • Surplus food that is still food safe could be donated to local food banks, soup kitchens and community kitchens, with dietetics and nutritional sciences students serving as liaisons, to further reduce food waste. Shelley Wells, Executive Director of Quest Outreach Society, an organization that feeds hungry people in the lower mainland, stated that they would pick up food from UBC • We feel that UBCFS needs to state a clear position supporting local produce. It is possible for them to do so on a case-by-case basis. For example, offering a homemade soup at Agora that contains local ingredients or perhaps establishing a local produce section at the mini marts will help support the local economy • UBCFS needs to enshrine their goal of environmental sustainability in the mission statement. Otherwise, it will be difficult to prepare a comprehensive plan concerning waste management, composting, and resource recovery 	
14	<i>Branding At UBC: A Look At Franchises And Their Impact On Sustainability</i>	<ul style="list-style-type: none"> • Further research and greater accessibility to information about UCBFS operations is needed to present a more comprehensive and objective analysis on the current status of sustainability • Competition among franchises with AMS food service outlets. Franchises located in the village that are not operated by UBCFS such Benny's Bagel and McDonald's. • Factors should be considered in contracting franchises • Projects related to branding: Branding of cold beverages; agreement with Coca Cola; availability of Starbucks coffee; products sold by vending machines 	NA
15	<i>Transitions Towards Sustainability: A Look At Initiatives From Other Universities</i>	<ul style="list-style-type: none"> • We believe efforts should be made to buy in-season fruits and vegetables from local producers and to move towards greater sustainability and sense of community • We believe steps need to be taken to bring awareness to the majority of students to both where their food comes from and the impact that their food choices have on our planet • By creating communal eating spaces, students would not only be encouraged to bring their own food, but would feel more rooted in a particular foodshed, for which they could take ownership 	NA
16	<i>UBC Farm: Contributions to</i>	<ul style="list-style-type: none"> • A cost-benefit analysis could be performed by agro-economic students to determine the feasibility of a food 	<ul style="list-style-type: none"> • The farm is also composed of wetland

	<p><i>a Sustainable Food System</i></p>	<p>processing program at UBC Farm, and whether there is a large market demand for processed foods</p> <ul style="list-style-type: none"> • Labelling program: A label should inform buyers of where and how the food was produced and identify the distance traveled from farm to market. The label should also include information on how to prepare the food, and recipes for eating with the seasons • UBC Farm would be better served to sell their products to smaller outlets that prepare their own food and can afford to pay higher prices for the produce • Food should continue to be made available through direct channels such as farmers' markets, but future expansion could include a local marketplace at the SUB, food co-ops, subscription farming, food stamps, or letting people grow their own food in garden plots at UBC Farm • The livestock component of UBC farm is underutilized. Small-scale animal production would diversify the farm and supply products for the UBC food system. Animals such as horses, pigs, sheep, cattle and poultry should be integrated into the food system with the focus of providing secondary animal products such as milk, wool, and eggs • Processing of locally grown food: It can create value-added products for sale to UBC Food Services or directly to customers. UBC Farm facilities should be upgraded to provide such products as wine, pickled vegetables, flower bouquets, meat products, or apple cider 	<p>and forested areas. How can these resources be incorporated into a sustainable food system? What types of products could they produce, and what is their ecological significance to the Farm?</p> <ul style="list-style-type: none"> • What kind of livestock would be best suited to the farm? What would be an optimal stocking density? What type of forages need to be grown, how to process and market animal products, and what are costs of upgrading the animal facilities?
<p>17</p>	<p><i>The Historical Evolution of The UBC Food System</i></p>	<ul style="list-style-type: none"> • The sustainability office needs to continue recognizing that food and its consumption are large parts of campus life; they cannot be separated from education or the extracurricular activities that occur on campus. Therefore, the sustainability office in conjunction with UBC food services must continue to build food outlets that provide adequate seating facilities as well as places where students can eat, study and hold group meetings simultaneously. The University should be encouraged to continue to develop and integrate such places • Promoting social sustainability the UBC food system needs to offer a wide variety of healthy alternative food options • Given large geographic space of UBC, it is important to evenly distribute food space across campus • The sustainability office must devise a plan for combating the large amount of waste that is generated on campus due to its food and beverage services. The university needs to expand their campaign regarding discounts for students who bring reusable containers, coffee mugs, utensils. These campaigns need to be better advertised so students are aware of the associated incentives and initiatives. The sustainability office also needs to get on the "composting" bandwagon. Much of the food waste is transported off campus when it could be composted on campus and then used by Plant Operations to maintain soil quality of the gardens and university grounds 	<ul style="list-style-type: none"> • What is the role of the SUB within the UBC food system? • What challenges does the SUB face in regards to sustainability on campus? • Evaluate the evolution of franchises on campus. • Why is there currently more apathy amongst students today when compared to the passionate outcries of the earlier decades? • How has franchising affected consumer choice over the years? • What are the changes that have resulted from the political and social agendas of the university? • Link the evolution of waste management with that of the UBC

		<ul style="list-style-type: none"> • In order to promote the economic sustainability of the UBC food system, prices should be reasonable to meet the budget-conscious students' expectations. In order to keep prices low, it should be an expectation of the university to support its food facilities in some regard. However, low cost of food should not compromise student access to nutritious and adequate meals. An alternative approach may be to consider increasing the number of student employees at food service venues and cut back on the cost of union staff to operate the food service facilities 	<p>food system.</p> <ul style="list-style-type: none"> • How has the use and distribution of vending machines affected consumer choice (i.e. healthy alternatives)?
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6. Where Do We Go from Here?

On June 11, 2002, CSO/SEEDS and the author discussed the information in Tables 1-5 to determine what are the next steps for catalyzing collaborative research opportunities on the UBC food system. Our analysis suggests the following questions for use in developing specific projects:

1. Why do students choose to eat what they do?
2. What is the balance between what students "want" to eat and what is "healthy" to eat?
3. How do you get convincing information on healthy food choices?
4. What is the responsibility of university to promote and educate health and well-being to students?
5. What is the role of university to integrate Faculties, staff, and students into action research of sustainability initiatives around food, health, and nutrition for those that eat on campus?
6. What is behind the perception that food on campus is expensive or "unaffordable"?

With the above questions in mind and after deliberations that included revisiting the intent and scope of the UBC Food System Study objectives, and a re-appraisal of outcomes, recommendations and research questions, I propose the following short list of specific projects with which to begin discussions with the UBC food system stakeholders:

- A well-structured survey of university residents on what people want to eat and how it differs from what they do eat
- A detailed, longitudinal study of students, faculty and staff entering and leaving university about their food choices
- Determine what are socially and environmental responsible conditions (i.e. franchise behaviour and participation in sustainability initiative) for setting up franchises at UBC
- Develop a healthy menu of food sourced locally and in season that can be monitored and tested for customer satisfaction
- Conduct a comparative study of menus (modified for healthy eating v. standard fare) between two residences for a specified period of time
- Examine and calculate the costs of a select sample of meals, and prepare an education piece that highlights the differences and informs consumers of the true costs of food
- Determine how communication between UBC Farm and food service establishments can be facilitated such that food availability matches demand, and what models elsewhere demonstrate and inform this kind of information exchange
- Conduct a well thought-out contingency valuation of the land on south campus
- Develop a holistic framework for a sustainable food systems plan for UBC
- Develop a conceptual map of curriculum, natural and economic resources, and information exchange linkages among Faculties, staff, SEEDS and UBC Farm

Stakeholder meetings will begin in late July 2002. From these meetings, viable research projects and collaborative research efforts that can exploit leveraging points for change in the UBC food system will be established. Consultation between the Faculty of Agricultural Sciences, the Campus Sustainability Office/UBC SEEDS, UBC Farm, UBCFS and AMS will then refine the UBC Food System Project to respond to the projects with the most potential for change (transition to sustainability), and educational and experience value.

Appendix A: The UBC Food System Visioning Meeting

UBC Food System Visioning

The Campus Sustainability Office hosted a meeting to consider the outcomes of the 2001-2002 Collaborative Food Systems Study on July 24, 2002 in the Gardenia Room of Land and Building Services. The Visioning meeting was a response to the June 28, 2002 draft *Biting into Sustainability* report. A majority of UBC's food service providers sat around the table together, as did a student representative, academia, SEEDS, and a UBC Farm representative. Freda Pagani led an exercise where participants provided reflections based on their experience of the UBC food system and developed a three-part catalogue accordingly: 1) those things we presently do well or are addressing; 2) those that we are doing but could do better; and, 3) those that we are not doing at all but should address.

1) What we do well:

- Address issues of affordability of food for students
- Conduct food services in an economically efficient manner
- Provide tasty, healthy food that includes vegan/vegetarian options

2) What we could do better:

- Customer education
- Create and utilise clear priorities in purchasing that promotes sustainability
- Provide more convenient, easier, cheaper re-usable containers

3) What we do not do (but should address):

- Develop a comprehensive, campus-wide, whole-cycle compost system
- Market our sustainability efforts to our customers
- Be concerned about "food miles" and energy efficiency when purchasing from suppliers

A set of broad goals and their inherent interlinkages for the UBC food providers provide a basis for collaboration, and the development of a UBC Food System Plan that responds to principles of social, economic and environmental sustainability.

Goals:

1. Develop a comprehensive waste reduction and composting program.
2. Purchase local products
3. Communicate with customers and suppliers on sustainability initiatives

These goals are interlinked with the following:

1. Establishing creating and utilizing clear purchasing and sustainability priorities
2. Marketing our sustainability efforts to our customers and suppliers
3. Considering "food miles" and energy efficiency when purchasing from suppliers

Whether these goals are met through, internal UBC food provider initiatives; fortuitous collaboration; or as a result of formal education and sustainability initiatives organized with various UBC Faculties, staff, researchers, CSO/SEEDS, students and off-campus stakeholders; they have the potential to place UBC at the forefront of campus sustainability in North America. Appendix A contains the full report of the Visioning meeting.

Food Service Provider Feedback

The UBC Food Services (UBCFS) Director, Andrew Parr and some food services managers had an opportunity to respond to the first the draft of *Biting into Sustainability* report regarding some of the students' research methods, data analysis, conclusions and recommendations of the

AGSC 450's first UBC Food System study in the Winter 2001 session. A meeting with the author on August 6, 2002 at the UBC Food Services office raised several critical points. What follows is a short recap of the issues raised.

Group 1: *The Sustainability of the UBC Food System: An Assessment of Place Vanier*

- See Appendix B for, "LFC 450 Student Report Discussion Meeting", submitted by Ayrin Ferguson, Assistant Manager at Place Vanier.
- Healthy meal options at Place Vanier are available.
- Food pricing for healthy menu options at Place Vanier is reasonable.
- Dietary nutrients in available menu options are proportionally balanced.
- In addition, Ayrin Ferguson offers a critical analysis of several of the group's recommendations. He concludes that, "when students were assembling their nutritional breakdown of the most popular dinner items, it appears...that their scope was far too narrow – only taking into consideration the entrée itself, and not including the side dishes that are generally selected to accompany these entrées."

Group 4 and 7: *The University Of British Columbia's Fast Food System: A Look At Sustainability Issues*; and, *Commodity Chain Analysis Of the UBC Cinnamon Bun*.

- The perception of high prices cannot be controlled.
- Scope of the student research project was too small.
- A proposal for action does not exist within the very generalised conclusions offered.
- A focus needs to be made on viable alternatives to the issues presented.
- Social change needs to accompany any UBC Food Service action on disposables.

Group 8: *UBC Food System Project: Food Waste Management – The Hot Beverage Cup*.

- UBC Food Services subsidises the use of reusables by \$0.03 to \$0.07 each.
- The implied conclusion that UBCFS is bad and AMS is good is inaccurate.
- The study does not attempt to answer why people do not use reusable containers.

Group 10: *A Sustainable Agora – An Idealistic Student Perspective*.

- From an institutional perspective, Agora is an expensive space to operate and maintain.
- From a locational perspective and the fact that Forestry has a separate building, Agora has poor traffic flow and therefore too few customers.
- The poor financial performance at Agora does not warrant making Interac™ available.
- There is interest on the part of UBCFS to make Agora a student-run operation and part of the Faculty of Agricultural Sciences curriculum. How can a student-run Agora become a reality?

Group 12: *Exploring the Sustainability of the Barn*.

- A comparative study of the Barn after this year's renovations would be enlightening.
- UBCFS wants a commerce, marketing and education study that draws out practical and workable ideas regarding food services sustainability. This includes developing a reliable survey instrument and a thorough assessment of the UBC situation and an introduction to studies from other universities developing a more sustainable food system.
 - Andrew Parr, UBCFS Director, has talked with Brenda Sawada of SEEDS, and Dan Gardner of Commerce, regarding this matter.

Presenting the concerns raised in the August 6 meeting in this part of the summary report is to maintain objectivity and accuracy in the UBC Food System Study process. Expression of the

UBC food service providers' viewpoints may play an important role in developing subsequent student-led research methods, data analysis and the formulation of conclusions in 2003.

The Minutes:

UBC Food System Stakeholder Visioning Meeting

Gardenia Conference Room

July 24th, 2002

14.00 to 16.00 hrs.

Submitted By: Anthony J. Brunetti

Present: Art Bomke (FAS), Kristina Bouris (UBC Farm), Tony Brunetti (CSO), Ayrin Ferguson (Place Vanier), John Flipse (SAGE), Derek Masselink (UBC Farm), Josie Midha (Totem Park), Freda Pagani (CSO), Andrew Parr (UBC Food Services), Don Sannachan (UBC Food Services), Brenda Sawada (CSO/SEEDS), Clarence Tay (St. Johns College), Nancy Toogood (AMS), and Dorothy Yip (UBC Food Services).

Regrets: Cheryl Geragharty (Green College) and Julia Jamieson (FAS Graduate Student).

Overlooked: People from Waste Management and Campus Planning and Development. Future meetings should include people from these critical components of the UBC food system.

Purpose:

Taking, *Biting into Sustainability: A Summary Report of the UBC Food System Study* as a starting point, develop a clearer picture of what can the UBC campus food providers, Campus Sustainability Office, and Faculty of Agricultural Sciences, do to contribute to UBC food system sustainability. This will provide a basis for collaboration as envisioned in UBC TREK 2000, the eventual development of a UBC food system plan that responds to principles of social, economic and environmental sustainability.

Actions:

Brenda Sawada facilitated an initial introduction and discussion session as a check-in and aligning the context of the meeting by asking everyone to answer, "What makes this meeting relevant to me?" and, "What do I want to get out of this meeting?" This provided clarity to the purpose of the meeting and a lead into the visioning component. Concerns regarding error, omission and possible misrepresentation in the, *Biting into Sustainability* document, will be addressed at a meeting on August 6th, 2002, at UBC Food Services' main office.

Freda Pagani gave a presentation (*Our UBC Food System: Biting into the Possibilities of Sustainability* - slides attached) and conducted a visioning session for the remainder of the meeting. Through a brain storming exercise, participants provided reflections based on their experience of the UBC food system and contributed to a catalogue divided into three sections: 1) those things we presently do well or are addressing; 2) those that we are doing but could do better; and, 3) those that we are not doing at all but should address. Below is a listing.

What we do well:

- Participate in an organized shelter program that reduces pre-consumer food waste
- Address issues of affordability of food for students
- Conduct food services in an economically efficient manner
- Provide a diversity of foods
- Utilize or have readable access to substitute suppliers (system redundancy)

- Make linkages to the University's mission in terms of the campus being a learning/living environment and providing service learning (the UBC Food Services' mission statement, lacks sustainability as a priority, however this can be easily incorporated – Andrew Parr)
- Provide tasty, healthy food that includes vegan/vegetarian options
- Provide opportunities and discounts to reduce non-recyclable waste

What we could better:

- Customer education
- Provide internal education of staff about sustainability measures and efforts that is stimulating and exciting
- Create and utilise clear priorities in purchasing that promotes sustainability
- Provide more convenient, easier, cheaper re-usable containers
- Provide a diversity of outlets around campus
- Transparency and accountability to staff and customers about sustainability efforts or lack thereof
- Demonstrate continued leadership regarding sustainability initiatives

What we do not do (but should address):

- Develop a comprehensive, campus-wide, whole-cycle compost system
- Purchase locally produced food as a priority (although preference is given to BC products - Dorothy Yip)
- Market our sustainability efforts to our customers
- Provide seasonal/ethnic menus that feature locally produced foods
- Purchase Fair Trade imports
- Be concerned with the ethical treatment of animals or provide an animal welfare linkage to our food
- Be concerned about “food miles” and energy efficiency when purchasing from suppliers

Outcomes:

As a result of the brainstorming session and the itemized categories above, the participants established a set of broad goals and their inherent interlinkages for the UBC food providers. These goals provide a basis for collaboration, the eventual development of a UBC food system plan that responds to principles of social, economic and environmental sustainability. However, the goals need further refinement and development in terms of operationalizing them.

Goals:

4. Develop a comprehensive waste reduction and composting program.
5. Purchase local products
6. Communicate with customers and suppliers on sustainability initiatives
7. Promote social sustainability of food
8. Benchmark and track progress

These goal are interlinked with the following:

4. Establishing creating and utilizing clear purchasing and sustainability priorities
5. Marketing our sustainability efforts to our customers and suppliers
6. Linking the ethical treatment of animals
7. Demonstrating continued leadership regarding sustainability initiatives
8. Considering “food miles” and energy efficiency when purchasing from suppliers
9. Purchasing Fair Trade (fairly traded) imports
10. Strengthening and formalizing our linkages to the University's mission in terms of the campus being a learning/living environment and providing service learning

Example:

One possible scenario is to develop a set of Problem Based Learning case studies and projects for meaningful student-staff-faculty-led research. These case studies would be based on the forthcoming UBC Food System Study Final Report for 2002/3 academic year, a review of this meeting's proceedings, case studies from other institutional food system models, and ongoing collaboration with UBC food system stakeholders.

Conclusion

Whether these goals are met through independent, internal UBC food provider initiatives; fortuitous collaboration; or as a result of formal education and sustainability initiatives organized by various UBC Faculties, staff, researchers, CSO/SEEDS, students and off-campus stakeholders; they have the potential to place UBC at the forefront of campus sustainability in North America.

Appendix B: LFC 450 Student Report Discussion Meeting

LFC 450 Student Report Discussion Meeting

August 6, 2002

[Submitted by: Ayrin Ferguson, Assistant Manager, Food Services, Place Vanier]

“The most critical problem, in terms of long term sustainability of this subsystem, was found to be that the selection of food at Place Vanier doesn’t promote the health of the students.”

(from introduction of Group 1’s report)

The following points are addressed in the order they appear in the report:

Page 4 – “Many students who eat at the Place Vanier cafeteria complain about the greasy meals that are served there. Most students who are on the meal plan claim to gain weight in a very short period of time.” What research are these statements based on? If they are the experiences of the group members who have been Vanier residents in the past, that should be specified. Was there a survey or focus group process?

Page 4 – “However, the price system makes it difficult for students to choose the healthier entrees. Healthy foods, such as salads and fruits, cost the most.” Students are charged \$0.45 per 100 grams from the salad and fruit bars, and fresh whole fruits (apples, oranges, pears, bananas, cantaloupe, honeydew, grapefruit, grapes, and kiwi) are sold at current market prices. A price list from April is attached. A “point” equals a penny, so as an example, a kiwi costs 31 cents. To put this in perspective, a 3 ounce portion of carved beef, turkey, or pork costs a resident 130 points (\$1.30). A 3 ounce serving from the salad or fruit bar would cost that resident 38 points (\$0.38).

Page 6 – “The majority of the items (>50%) contain insufficient amounts of carbohydrates and an excessive amount of fat. In addition, the vegetarian choices such as the Caesar salad and potato bar contain less protein than the recommended 15-20%.” *Again, what were the parameters of this research? Is this based on an analysis of the ENTIRE menu (entrees AND sides), or is this based on a small sampling of some entrees? A Caesar salad or a baked potato is not intended to comprise the student’s entire meal, but is expected to be consumed as part of a larger selection of food items. Not many residents at Place Vanier would consider a potato to be their meal.*

Comments about student recommendations:

“Incorporate a combo system where students can purchase a meal that will provide the recommended amounts of protein, starch, and fats” All the items in the cafeteria are served “a la carte”, where the students choose and pay for ONLY what they want. Based on our current pricing practices, combining items into a “combo” deal will create no opportunity for cost savings to the students – rather, it would create the impression that we were “forcing” students to purchase meal items that they have no interest in purchasing. The only item that is served as a “combo” is the made-to-order stirfry, which consists of vegetables, chicken (or tofu), and rice.

“Less focus on items that are high in only one macronutrient (i.e. meat)”

and

“Provide items with a mixture of all food groups (meats, grains, vegetables, and fats)

No item that is high in one macronutrient is intended to be served on its own. For example, if a student chooses carved beef, turkey, or pork, they generally also choose rice, potatoes, vegetables, bread rolls or garlic bread, and possibly a salad. Often, casseroles or stews are served, which combine several food groups in one dish. Students who choose these items often also choose side dishes to “round out” their meals.

“Provide a larger and more appealing selection of vegetarian or non-meat items”

There is always a minimum of one vegetarian and one vegan option in the cafeteria for lunch and dinner. We have asked the vegetarian contingent for feedback and new ideas for recipes, and have made several changes over the course of the year based on this information. There is a wide variety of non-meat items in the cafeteria - the vegetarian residents always have the resources to meet their dietary needs.

“Increase the carbohydrate content of the items” **and** “Decrease the fat content of the items” **and**

“Increase the fiber content of menu items” **and** “Increase the protein content of vegetarian items”

Again, these comments appear to be based solely on a small sampling of entrees, while not taking into consideration the nutritional value and balance of the “entire tray” of food that the student selects before sitting down to eat. As examples:

- ❑ *-Week 1’s dinner menu includes potatoes 7 days a week– mashed (once), Greek seasoned roasted (once), new roasted (twice), roasted wedges (once), baked (once), and grilled hash browns with onion (once).*
- ❑ *Pasta is served a minimum of five times a week for lunch, and occasionally for dinner.*
- ❑ *Rice (white AND brown) is available for lunch and dinner seven days a week.*
- ❑ *Stir-fry’s are available every second day as a made-to order station, where the students choose what vegetables and protein they would like.*
- ❑ *The salad bar is stocked with regular and low-fat dressings. Many sauces are not cream-based, and often, cream-based pasta sauces are mixed with tomato-based sauces, which lowers the fat content of the sauce. Olive oil is used in almost all dishes that require oil.*
- ❑ *Concerning fat content of chicken, 100 grams of drumstick meat (skin-on, bone-out) contains 13.5 grams of fat, while 100 grams of breast meat (skin-on, bone-out) contains 8.7 grams of fat (according to the University of Moncton Food Research Centre, 1996). Chicken breasts are served with a much greater frequency than thighs or drumsticks. Dark-meat chicken can not be discontinued, based on student demand. The point the students made was somewhat unclear, though – are they suggesting an increase or a decrease in the frequency of drumsticks and/or thighs as opposed to breasts?*
- ❑ *Bran muffins and multigrain bagels are available in the bakery showcase every day. Whole wheat and multigrain breads are available as an option in the sandwich bar, and multigrain rolls are available at dinner.*
- ❑ *Fresh broccoli (not frozen) is the most frequently served vegetable choice at Place Vanier.*
- ❑ *As an example of the availability of protein and fiber in vegetarian items, week 2’s vegetarian dinner menu includes legumes (garbanzo/kidney/navy beans/lentils) 5 out of 7 days in a casserole/stew type dish.*
- ❑ *The salad bar also provides an excellent source of protein for the vegetarians, with beans and tofu available for lunch and dinner seven days a week.*
- ❑ *Soy cheese is available as a vegetarian option.*
- ❑ *Soy milk is available – currently in a 1 L container due to unavailability of smaller sizes.*

In summary, when the students were assembling their nutritional breakdown of the most popular dinner items, it appears to me that their scope was far too narrow – only taking into consideration the entrée itself, and not including the side dishes that are generally selected to accompany these entrées.