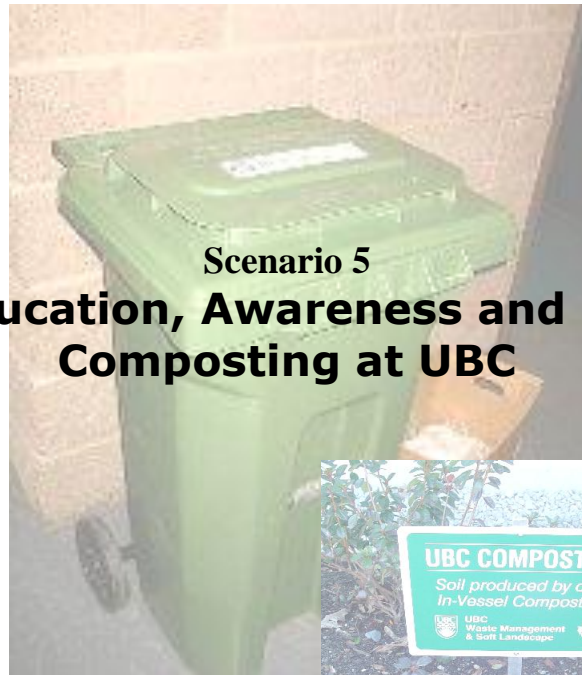


The University of British Columbia Food System Project

Scenario 5 Promoting Education, Awareness and Participation: Composting at UBC



AGSC 450

TA: Yona Sipos-Randor

Group 17 Members:

Cornelia Chan

Linda Fu

Sarah Jackson

Venus Lee

Desiree Mensink

Ashley Sacks

Anja Vogt

Abstract

Since UBC implemented the Organics Collection Program, UBC Waste Management has been challenged by the lack of awareness about composting on campus, the contamination of compost bins and the maintenance of the bin sites. An evaluation of the current compost program at UBC has shown that In-Vessel composting has many benefits at the University; however, the system is not being used to its full potential. The vision statement developed by the UBC Food System Project partners was applied to help examine the current compost program at UBC and has been used to help set goals towards a more sustainable food system on campus.

Primary research, including a survey of bin sites, a review of existing educational tools, and communication with UBC Waste Management representatives, revealed that some of the barriers to composting on campus include lack of consumer awareness and poor placement and marking of bins. A review of secondary resources on community composting introduced the idea of Community-based Social Marketing (CSM) to encourage individuals to adopt environmental friendly behaviour. From the research, the group members identified a need to create and use educational tools more effectively. Therefore, the group created a new composting document informed by their primary and secondary research. The new document contains information on the benefits of composting, outlines how people can get involved in the compost program at UBC and is based on CSM theories. Recommendations have been compiled for key stakeholders and for next year's AGSC 450 students and budget requirements have been estimated.

Table of Contents

<u>Title</u>	<u>Page</u>
Introduction	1
Background Information	
In-Vessel Composting at UBC	2
Success of Composting at UBC	3
Problem Definition	4
Vision Statement and Reflections	6
Research Methodology	7
Central Findings	
Primary Data Collection	8
Review of Secondary Resources	11
Discussion	12
Identifying Barriers and Benefits	13
Development of Document	14
Piloting the Document	16
Evaluating the Document	17
Recommendations	
Future AGSC 450 Colleagues	17
Key Stakeholders	18
Budget Considerations	18
Linkage Between the UBCFSP and the Globalized Food System	19
Conclusion	20
Works Cited	21
Appendix A	22

Introduction

The current global food system is in crisis. This may be a bold statement; however, evidence of its truth can be seen in areas such as the deterioration of human and environmental health (Heasman and Lang 1). To help preserve both human and environmental health, a paradigm shift must occur and people must embrace the importance of sustainability (Heasman and Lang 2). Modern technology has been used to try to improve sustainability by conserving natural resources and by reducing waste and pollution; however actions also need to be taken at the individual level (Ebreo and Vining 425). Our evaluation of In-Vessel composting for the UBC Food Systems Project (UBCFSP) exemplifies how the benefits of technology are conditional on the support of individual behaviour.

The management of solid waste has become an issue of concern for many communities over the past several years, as there are competing demands for available land that could be used for landfills, and because of objections from individuals who refuse to live near landfill sites (Ebreo and Vining 425). Landfills are not an efficient method of dealing with solid waste, as landfill conditions allow very little exposure to oxygen and water, which results in a slow rate of decomposition (Environment Canada). In addition, methane gas is produced (Environment Canada). Composting is a much more effective and sustainable method of waste reduction. For one, organic matter decomposes much quicker when composted than under landfill conditions (UBC Waste Management (UBCWM)). The resulting decomposed organic matter can be used to improve the quality of soil; a key point in creating a sustainable nutrient system, as valuable nutrients are not lost to the landfill, and thus, do not need to be replaced by artificial fertilizers. In addition, composting helps to reduce greenhouse gases, and in the long run, helps to save money. As a result of these benefits, it is clear that composting can be used as an effective method for helping to improve the sustainability of the global food system.

Composting at UBC is an important step toward achieving sustainability at the university. With the implementation of the In-Vessel composter at UBC, it is important to ensure it is being used to its maximum potential. As a result, the following paper takes a detailed look at the current state of composting on campus, with the goal of helping to suggest ways to promote greater education, awareness, and participation in composting at UBC. The paper begins by giving a definition of the problem, followed by the group's reflections on the UBCFSP Vision Statement. Next, the paper outlines the methodology for the group's research and presents the central findings. This section is followed by a discussion of the central findings and an explanation of the document that was created. The paper then outlines recommendations to the UBC Sustainability Office, UBC Food Services, UBC Waste Management, and next year's AGSC 450 students, and gives an overview of estimated budget requirements. The last section of the paper links the UBCFSP to the globalized food system.

Background Information

In-Vessel Composting at UBC

With the establishment of the In-Vessel compost machine at UBC in September 2004, UBC became the first Canadian university to initiate a large-scale composting system for organic waste created on campus (UBCW). This development was led by UBC Plant Operations in collaboration with the manufacturers of the machine, Wright Environmental Management Ltd (UBCW). The responsibility for creating and maintaining an organics collection program was placed within the division of UBC Waste Management (UBCW). When operating at full capacity, four to five tonnes of organic waste can be input everyday; the same amount as is created on campus each day, representing 70 percent of the total waste (UBCW). Since the machine is fully enclosed and can be controlled for ideal levels of moisture and air, it takes just two-weeks for the waste to be processed into high-quality compost (UBCW). Items that can be composted

include pre- and post-consumer food scraps, plant wastes, yard scraps, paper plates, paper cups, paper towels, and napkins (UBCWM).

Success of Composting at UBC

The In-Vessel composting program has provided UBC with economic, environmental, and educational benefits. In less than two years the organics collection program has seen enormous success, as it has grown to comprise over 30 sites on campus, some of which include: Green College, Sage/Koerner, SUB/Pacific Spirit Park, Totem and Vanier cafeterias, Forestry Science Center, Scarf, 99 Chairs/Trek Express, Brock Hall, Café Perugia, MacMillan, and Ponderosa Café (UBCWM). According to Sarah Jackson and Rachel So from UBC Waste Management, the program has succeeded in expanding to include over seventy-five bins on campus by recruiting volunteer compost coordinators who oversee the proper use of the collection bins in kitchens, offices, academic buildings, residences, or other affiliated spaces. In addition to the UBC campus, the In-Vessel compost system receives about thirty bins per week from a local non-profit organization called Quest Outreach. Quest collects food from supermarkets and restaurants and distributes it to shelters and food banks. Food that expires before being distributed is brought to UBC to be composted. The In-Vessel system also processes the grass clippings, leaves, and other organic waste from landscaping on campus. From these sources, over 375 tonnes of waste have been diverted from the landfill in one year (between January 2005 and January 2006) (UBCWM).

In the UBC Waste Management presentation, Sarah Jackson also mentioned that while the In-Vessel system was a large investment for the University, it will ultimately result in a cost savings to the institution in two main ways. Firstly, the University saves on the \$60/ton landfill disposal fee and the labour and fuel cost of trips to the landfill, as composting on campus has reduced the total amount of waste. Secondly, composted material is distributed to the UBC Soft Landscaping department for use in gardens and planted areas on campus. With the compost that is

currently provided on campus, the Soft Landscape department has reduced their purchase of topsoil and bark mulch by fifty-seven percent (UBCWM). Both these savings help support the investment of the In-Vessel compost system from an economic perspective.

The In-Vessel compost system is also an important investment with respect to education as the compost program is an important learning tool and is a step towards better environmental stewardship (UBCWM). The compost system at UBC provides a “model of sustainable solid waste management and integrated agricultural systems” (UBCWM) that can be studied by students, such as in the UBCFSP.

Although the compost program at UBC can be considered a great success and accomplishment, the facility is still only processing less than ten tonnes per week; far below its maximum of over thirty tonnes per week. Clearly, there is room to expand and build on the current progress. In part, successful expansion will simply require more time; however several other challenges must also be addressed.

Problem Definition

One of the greatest problems with composting at UBC is the lack of consumer awareness about the existence of a composting facility on campus, as well as about the significance and importance of composting of campus. Awareness and interest in composting is important so that the number of bins on campus can be increased and so that they can be used properly.

Sarah Jackson explained that despite attempts at education, the Organics Collection Program still experiences some contamination problems and it is unclear whether the source of the behaviour is misunderstanding, intentional vandalism or accidental. Contamination of the green bins causes difficulties for two reasons: firstly, materials such as plastic bags, plastic/metal cutlery, and glass jam the machine, which can be costly and dangerous to fix. Secondly, items such as Styrofoam, juice boxes and milk cartons contaminate the final compost product (UBCWM). It is

difficult to determine at which sites contamination occurs, because each bin is not inspected upon pick-up and because, for logistical reasons, the same bins are not returned to the same locations. In an attempt to reduce the contamination of the final product, the UBC Soft Landscape department invested in a Tromel screener, which filters the final product before it is used on campus (UBCWCM). At this stage, the screener has been successful in eliminating the contamination of the final product; however, metals, glass and plastics that break the machine in the first stage of mixing still remain a serious problem (UBCWCM).

Another challenge that Sarah and Rachel mentioned is the continuity and accountability for the maintenance of the bins and the educational material for the compost program. UBC Waste Management cannot afford the staff hours to monitor the use of the bins at each location (UBCWCM). As a result, this duty becomes the responsibility of a volunteer compost coordinator, whose role includes providing initial information to colleagues or peers about the introduction of a green bin, working with Waste Management to determine the location and pick-up day for the bin, ensuring appropriate signage near the bin, and ongoing monitoring of the use of the bin. While there are many dedicated and motivated compost coordinators, there are limitations as to what they can accomplish as volunteers. With student volunteers, continuity poses an additional problem, as graduates leave the university. Compost coordinators are integral to the operation of the program. Therefore, it is necessary to recruit and educate volunteers for new sites in order to expand the program. This is an important addition to the problem statement for Scenario Five, since it is closely tied to the issue of education and is related to the success of the compost program.

In order to address challenges outlined above, it is evident that effort needs to be made to increase consumer awareness and participation in composting at UBC.

Vision Statement and Reflections

Although our group members have diverse personal and educational backgrounds, and have various levels of commitment to improving sustainability, we share a similar vision of sustainability of the UBC Food System. Our knowledge and value assumptions of sustainability have been largely influenced by the courses in the Land and Food System series, the generally high acceptance of sustainability in Vancouver, and the exceptional opportunities for experiencing and appreciating nature that this city provides. In addition, with a unique blend of GRS, dietetics, and agroecology students in the group, we have a strong investment and dedication to food quality and to the environment. One of the group members added a particularly unique perspective to the group, as she is employed as the Student Coordinator for Waste Management. This group member has strong background knowledge of, as well as a personal connection to, the composting program being discussed in this paper. These qualities have greatly influenced her vision for the project and her concept of sustainability. While the UBCFSP works closely with the university partners, it does serve as a valuable 'fresh' analysis from students who are somewhat removed from the management process. This group member found that working from both points of view in the group was interesting as well as challenging.

Our group supports the principles of the vision statements developed by the UBCFSP partners; however, believes that small changes can be made to better reflect the vision of sustainability. Firstly, the group feels that the first principle, which addresses the issue of protecting diversity and preserving resources, should be changed to include the idea that the diversity and quality of the ecosystem must not only be protected, but also enhanced. The UBC campus should be continually challenged to improve the landscape and systems that surround us. To expand on the third principle, which addresses the issue of waste reduction through recycling and composting, the group feels that it is important to not just divert waste from the landfill, but to

reduce its production initially. This could be achieved by increasing the use of reusable containers, cups, and cutlery and by reducing the packaging of food products. It is important that Waste Management, the Sustainability Office, and all the partners in the Waste Free UBC committee continue to provide education and incentives for re-useable containers.

Our group also recommends expanding the vision statement to include a principle which emphasizes the need for UBC to show leadership in sustainability, and create initiatives that benefit the entire community, not just those with direct access to the university. This suggestion is based on the belief that a system cannot truly be sustainable unless it is integrated with the systems around it. The partnership Waste Management has with Quest Outreach society is a good example of how the In-Vessel system has been used to integrate the outside community and UBC. It is also important that we maintain the integrity of our ideals in standards of practice for the residential and corporate parts of the foods system on campus, not just for the academic and administrative sectors of the university. Applying this idea to our scenario, we think it is important that the Organics Collection Program be expanded to encompass more private residences, as well as private food outlets on campus.

Research Methodology

To understand composting initiatives and barriers to composting on campus, primary research was conducted and secondary resources were reviewed. The primary data collection included three activities, the first of which was surveying current compost sites. Each group member visited two sites, some of which included Agora, the Forest Sciences Center, Café Perugia, and Ponderosa Café, and observed the site for factors such as: location and visibility of the bin, proximity of the bin to garbage cans, signage indicating appropriate compostable materials, clear markings on the bin indicating it is for composting, and the presence of educational materials. The second activity included a review of current tools used on campus in

order to determine which ones are effective and which ones required augmentation. The third activity involved communication with Rachel So and with Sarah Jackson from UBC Waste Management. This communication, in the form of a class presentation, covered topics such as educational tools, problems encountered with the compost program, suggestions to improve composting, and the reported experiences of compost coordinators. Further information was gathered during a question-and-answer period at the end of the presentation, as well as through meetings and email communication.

Each group member also thoroughly reviewed secondary resources to gain background information about composting. This review included literature on Community-based Social Marketing (CSM) and effective tools to encourage environmental behaviour.

Central Findings

Primary Data Collection

1) Site Surveys

The data collected from the site visits has led us to propose that low usage of compost bins and the contamination of compost bins results from a number of factors. To begin with, the results indicate that the compost bins are not always positioned in locations that would promote maximum usage. For instance, in the Forest Sciences Center, the only visible compost bin is in the main atrium; however, the majority of students consume their lunches in the student lounge. Furthermore, while most of the compost bins were located next to a garbage can, this was not the finding at all bin locations. These are both important points as research indicates that individuals are more likely to perform the desired behaviour (composting) when there are fewest obstacles in the way, and thus, when it is convenient (Olander and Thogerson 366). Another finding from the site survey that helps explain the low usage and contamination of the compost bins is that bins are not always clearly marked and signage above the bins, to indicate appropriate compost materials,

is not always consistent. While some bins use handwritten signs on construction paper, such as in Agora, others use different variations of the posters created by UBC Waste Management. If the bins are not clearly marked, people who are not familiar with composting may not recognize the green bin as a compost container; therefore, they likely won't use them or won't use them properly. In addition, research findings from a recycling study found that when individuals were not familiar with the task of recycling, it led to alien materials being placed in the recycling bins or recyclable materials being placed in the garbage bins (Olander and Thogerson 365). This point supports the suggestion that the lack of markings on the bins and the inconsistent signage may contribute to poor participation in composting and to the contamination of the compost bins.

2) Review of Existing Tools

There are a variety of tools on campus that help to promote composting. These tools include posters, educational booths, composting workshops, and compost facility tours (UBCWCM). With the large assortment of tools available, the group members decided to focus their efforts on the evaluation of the current composting brochure "A Guide to Organics Collection" (UBCWCM). This brochure was chosen as the focus of the assessment as it is ultimately the starting point for joining the composting program. As a result, we feel that it is critical for this guide to target a wide population, be informative, and be comprehensive.

After a thorough review of the current brochure, it was determined that although it is thorough and comprehensive, it is primarily targeted to individuals who have already made the decision to begin composting. Based on Prochaska's Stages of Change model, different resources and support are required at each stage of an individual's "readiness to change" (Campbell and Sherman 181). The stages are: pre-contemplation (someone not interested in change), contemplation (willing to change eventually), preparation (wanting to change soon), action, maintenance and termination (new behaviour becomes engrained). For example, for someone who

is ready to change (preparation stage) provision of more reasons to change is not required. Instead, these individuals require skill building resources that help them to make the desired change changes (Campbell and Sherman 181).

While the current brochure is sufficient for individuals in the preparation stage; it does not target people moving from the pre-motivation stage to the motivation stage or from the motivation stage to the preparation stage (Campbell and Sherman 181). The group came to this conclusion because the brochure has a very minor focus on informing the readers of the benefits of composting and quickly jumps in to how to join the program. Based on this observation, the group felt that an entire target population (individuals who are not informed about composting) is being left out. In addition, the current brochure provides no incentives for composting. This is a major shortfall of the brochure as it is important to state reasons why people should compost, what they can do, and how they can do it. Motivation to compost can be increased by illustrating facts and statistics, such as the amount of waste that has the potential to be composted on the UBC campus. In order for the public to thoroughly understand and be willing to participate in the composting program, they must be provided with background information, motivation, and incentives.

Another issue with the current brochure is that it leaves out many of the elements of CSM. This point will be addressed later in the 'Discussion' section.

3) Communication with UBC Waste Management

Through communication with Rachel So, Communications Coordinator, and Sarah Jackson, Student Coordinator, from UBC Waste Management the group gained clearer understanding of challenges faced by the composting program, as discussed earlier. This communication highlighted the problem of finding reliable compost coordinators, as well as the lack of general awareness about composting. Regarding educational materials, the group learned that posters are provided by UBC Waste Management to compost coordinators for free. Therefore,

the lack of signage near the bins is not because signs are not accessible, but because of other factors, such as theft of posters, a desire of compost coordinators to use another design, or a misunderstanding of compost coordinators about where posters should be effectively placed.

The group had originally planned to survey the compost coordinators to better understand the challenges of the program from their perspective. Unfortunately, this was not successful as Waste Management was already planning a survey in April - not in time for our paper. Informal surveys, however, have been carried out in the past. An important result of these surveys, from the group's perspective, is that compost coordinators are generally much more concerned with the operation of the program rather than with the educational aspects. The current "Guide to Organics Collection" brochure speaks to this concern as it focuses on operations and logistics. From this finding, the group felt that there was a need to integrate a greater focus on improving the program from the users' perspective – with better placement of bins and with better education.

Review of Secondary Resources

A review of several papers on CSM helped the group understand the main barriers to composting: lack of awareness and interest and the belief that composting is too time-consuming, inconvenient, or smelly (Mackenzie-Mohr 547). Another important finding from the literature is the list of tools to facilitate environmental behaviour (Task Force on the Canadian Information System on the Environment (TFCISE 6-7; Mackenzie-Mohr [B] 3-6). These tools include: encouraging commitment, prompts to remind people to compost, norms guiding people how to behave, effective communication, incentives to compost, and convenience (TFCISE 6-7; Mackenzie-Mohr [B] 3-6). These findings are central to the group's research as they played a crucial role in the development of the recommendations. As a result of their central role, the findings from these documents will be discussed in more detail throughout the 'Discussion' section below.

Discussion

To address some of the gaps in the current compost brochure, “A Guide to Organics Collection”, it has been revamped into a new document called "Composting at UBC: How You Can Get Involved" (Appendix A). The new brochure was designed with the goal of providing basic education about composting, motivating the use of the compost bins, as well as recruiting compost coordinators. An additional goal of the brochure was to develop a resource that could be given to a wide range of people, from students to those working at UBC food services. Presently, the new brochure only outlines the information that the group felt should be included. In addition, it has been formatted as text-only so that UBC Waste Management can add their signature colours and graphics in order to ensure continuity with other composting materials. In the future, the new brochure will need to be formatted and be made visually appealing. Eventually, we propose that the new brochure will be a 5x7 full colour pamphlet.

The revamped brochure includes the following sections:

Why Compost? (Benefits of composting)

The In-Vessel Composter (Building awareness of the resource)

How can I get involved? (Ways to act)

Tips for success (Including tips for bin placement discovered during our "stakeouts")

Compost Pledge (To build commitment)

What goes in the bin? (To build skills)

The document was largely informed by the group’s primary research involving "stakeouts" of the bins and discussions with stakeholders from UBC Waste Management. In addition, the new brochure is strongly based on elements of CSM, an important topic addressed during our review of secondary resources. Based on knowledge from both psychology and social marketing, CSM is comprised of four steps (Mackenzie-Mohr 546):

1. Identify barriers and benefits to a behaviour (in this case, composting)
2. Develop a program that overcomes the barriers to this behaviour (our document);

3. Pilot the program (distribute the document);
4. Evaluate the program (receive feedback from stakeholders and compost coordinators regarding the effectiveness of the brochure and measure changes in volumes of composted materials) (Mackenzie-Mohr 546).

The principles of CSM have been applied in order to help address the issues of contamination and of lack of awareness surrounding composting on the UBC campus.

1. Identifying Barriers and Benefits

To address some of the barriers to composting listed earlier, the group has incorporated some recommendations from their literature review on how to improve environmental behaviour. As people are more responsive to messages that are relevant to their own experiences and concerns, the information included in this document is meant to be socially meaningful, trigger interest, and highlight the impact of composting on the quality of life within the UBC community (Lukasik). Providing people with more comprehensive information on the benefits of composting may be more effective at moving people than simply sending a message that addresses the environmental benefits (Lukasik). Based on this information, the group members included information designed to make an impact, such as the explanation of the ecological footprint and encouragement on how to make an impact in the community and feel good about oneself.

The document also allows people to see that, once a program is implemented, composting can be simple, easy and not time-consuming. Additionally, although people may be environmentally aware, they may feel that they lack the necessary skills and experience that will enable them to contribute meaningfully to an effort that promotes change (Lukasik). The document gives people the tools and skills that are required to implement a composting program by providing tips for success and by providing the contact information for Waste Management.

As cited by Monroe, various researchers have found that individuals are more likely to participate in environmentally-friendly behaviours when they are aware of the negative consequences and when they feel some responsibility towards changing the problem (Monroe

116). As a result, this document has been tailored to contain messages that raise awareness, instill a sense of responsibility, and provide methods for creating commitment (Monroe 113-120). The document provides information and reminders about the benefits of composting, indicates that composting is socially acceptable, provides tools on how to compost, and explains how composting helps to reduce waste and helps to make UBC a more sustainable place to live and learn (Monroe 113-120).

The new document provides one way to overcome some of the barriers to composting that have been preciously described. CSM also suggests using other methods to facilitate behaviour change.

2. Development of Document— Using Specific Tools to Facilitate Environmental Behaviour

A. Commitment

As written commitments are more effective than verbal commitments, the last page of the document provides a space for an individual to sign his or her name below a pledge of commitment; a tool that does not exist in the current brochure (Mackenzie-Mohr 549). This tool is used to help reinforce and encourage composting behaviour, to acknowledge that someone is environmentally concerned, and to instill a sense of pride.

The group recognizes that the composting program cannot be improved with this brochure alone. As a result, another suggestion to help encourage commitment to composting includes handing out buttons or stickers that proclaim “I compost!” when promoting composting at a booth during club week or when promoting composting in residences (Mackenzie-Mohr 549-550). Wearing buttons can foster commitment because they can alter the way individuals perceive themselves and because society emphasizes and encourages consistency amongst people (Mackenzie-Mohr 549-550).

B. Prompts

After instilling a sense of commitment, CSM recommends the presence of prompts as an effective way to remind people to compost (TFCISE 6). Prompts should be noticeable (bright colours, eye-catching), self-explanatory and close to the compost bins (Mackenzie-Mohr [B] 4). The new brochure addresses this point by recommending that all bins be well marked and by recommending that individuals obtain an “Our Office Composts” sign from the Sustainability Office. Both these tools can be used as reminders to compost, and thus serve as prompts. In addition, individuals are encouraged to post their pledge of commitment in a highly visible location. Having the pledge in a visible area will act as a prompt by reminding individuals of their commitment to composting.

C. Norms

The signs available from the Sustainability Office and the pledges address another important area of CSM – norms. Norms guide people how to behave; by publicizing a building or a person’s involvement in composting, the public is more likely to identify composting as a normal behaviour that people perform, and as a result, may mimic this behaviour (TFCISE 6). By using the signs and by posting the pledges in highly visible locations, a community norm is developed. This norm indicates that composting at UBC is acceptable by demonstrating that people on campus *are* participating in composting and by indicating that composting is the right thing to do.

D. Communication

This document has worked with some of the positive features of the current brochure, but has also expanded on it to further incorporate CSM. For example, like the last brochure, this document has been created in a manner that is easy to remember and provides contact information for feedback and questions (Mackenzie-Mohr [B] 5). In addition, we recommend emphasizing personal contact through face-to-face distribution of the document, as this method of marketing has been shown to be effective (Read 243). To further expand on CSM, this document also uses

captivating information (“It is estimated that 70% of what is thrown away at UBC could be composted”) and makes the information personal (“You can help reduce waste!”) (Mackenzie-Mohr [B] 5). These are also important components of tools to help promote behaviour changes (Mackenzie-Mohr [B] 5).

E. Incentives

Incentives are especially useful when there is low motivation to begin composting (Mackenzie-Mohr [B] 5-6). The new brochure addresses this aspect of CSM by suggesting ways in which compost coordinators can create incentives. One recommendation listed in the brochure is to have a draw that requires the winner to answer a “skill-testing” question related to composting before he/she is able to claim his/her prize. This suggestion acts as motivation for individuals to learn about composting, and thus provides them with the information required to perform the desired action.

D. Convenience

If composting is made convenient, people are more likely to participate (TFCISE 7). Composting can be made more convenient by ensuring compost bins are strategically located. The new brochure encompasses this point and guides compost coordinators as to how to place their bin in a convenient location by stating “Ensure your bin is conveniently located beside the garbage and recycling containers”. This simple, yet important point is not present in the existing Waste Management brochure.

3. Piloting the Document

Some of the barriers to awareness and interest in composting on campus have been addressed through the new brochure outlined above. This resource is a stepping stone to reaching the general UBC public by formulating strong bonds with committed leaders. This document should be initially distributed to current compost coordinators, stakeholders, and randomly

selected students and administration to test for effectiveness before it is implemented broadly (TFCISE 7). Future target groups for compost coordinators include, but are not limited to, members of UBC clubs that already have an ecological perspective (Outdoors Club, Environment Club), administration staff in academic buildings, and the managers of on campus restaurants and food stores.

4. Evaluating the Document

After the pilot document has been distributed, feedback should be obtained from coordinators and the public regarding the usefulness of the document. Once the document has been adjusted, broader distribution of the document across campus should occur. It is then recommended for this action to be followed by another evaluation. Behaviour changes rather than measures of awareness/attitude changes should be measured (Mackenzie-Mohr [B] 6). For example, did the document encourage new compost coordinators to emerge? Has there been an increase in volume in the composting bins? Consistently obtaining feedback and suggestions from all those involved in composting (and surveying those who may be unaware of composting on campus) ensures that composting at UBC will be successful and will continue to grow.

Recommendations

Recommendations to Future AGSC 450 Colleagues

- Format the brochure to make it more visually appealing
- Hold a focus group to test the effectiveness of the newly developed compost brochure
- Communicate with UBC Waste Management to incorporate their input into the new brochure
- Use the results of this year's survey of the compost coordinators on ways to improve the compost program – incorporate suggestions into the brochure if applicable

Recommendations to Key Stakeholders (for the future)

- Consider using our brochure as a tool to help motivate greater participation in composting and recruit compost coordinators
- Distribute the brochure to student groups, administration and staff, and food venues
- Continue to work with compost coordinators to emphasize the importance of education at the bin sites
- Develop questions to be incorporated into Waste Managements survey of the compost coordinators next year, especially questions addressing education

Budget Considerations

The budget to implement the recommendations is estimated to include minimal additional expenses, with the costs of the focus group providing the greatest expense.

Activity	Cost	Comments
Focus Group	\$200	- Includes cost to cover incentives for participation such as a gift certificate, small honorarium, or lunch during the session
Printing of Brochure	\$110	- Includes \$10 for 500 pieces of recycled paper and \$100 for colour toner - It is projected that this will not be an additional cost as educational materials fall within the budget of UBC Waste Management and the Sustainability Office. It is anticipated that this brochure will be a substitute for the current one. Therefore, it will not be an additional expense.
Cost of Labour	-	- Costs time and money for the staff of Waste Management and the Sustainability Office to Participate; however, education and the creation of educational materials is already part of the job description for many staff members. Therefore, the brochure will not create additional work, but be a valuable place to focus energy in place of other possible education initiatives.
Green Bins	-	- Large green bins are provided to all members of the Organics Collection Program at no cost to the participants. - Bins are part of Plant Operations/Waste Management's operations budget.
Pick-Up of Organic Waste	Varies	- Service is included within the budget of Plant Operations/Waste Management for the 278 'core' funded buildings at UBC - Cost of pick-up is \$3/pick-up for private residences or stores on campus. Depending on the frequency of pick-up, the cost of participation will range from \$70-\$200/year.

Linkage Between the UBCFSP and the Globalized Food System

Worldwide there are several trends that have developed relating to the global food system. For one, urbanization and economic changes have led to a disconnection of people from the land (Student Electronic Network for Sustainability Education (SENSE)). In addition, reliance on other countries for components of the food supply has the potential to challenge an individual country's food security (SENSE). Both of these factors can contribute to an unsustainable food system. Since the UBC food system shares many characteristics of the global food system, but operates on a smaller scale, it can be referred to as a microcosm of the global food system. As a result, it can be reasoned that the UBC food system has been touched by several of the problems that exist at the global level. The UBCFSP helps to investigate ways to make the UBC food system more sustainable by examining topics such as purchasing local foods, incorporating local foods into menu items on campus, and promoting education and awareness of local food systems (UBCFSP). This specific project helps add another important component of sustainability by promoting education and awareness of composting on campus. Success in improving the sustainability of the UBC food system can be used as a model to help guide other communities in working toward sustainability as well. The UBCFSP has the potential to influence the food system on campus, as has been observed through the implementation of suggestions from previous UBCFSP papers. With a campus community of 50,000 people, the purchasing decisions on campus have a notable influence on local and global producers and suppliers of food. Over time, the UBCFSP has the potential to further influence the global food system, by providing an example for other communities.

In addition, UBC's In-Vessel composting program has attracted attention outside campus, helping to motivate and shape the development of similar programs and helping to establish a greater awareness of composting among the general public. According to Sarah Jackson and

Rachel So, UBC Waste Management has met with organizations such as the Granville Island Markets, Red River College and Simon Fraser University to discuss the feasibility of implementing a similar composting program. Large-scale, community based composting is gaining more attention and UBC Waste Management welcomes the opportunity to continue to work with off-campus groups to support waste reduction in the wider community.

Conclusion

The In-Vessel Composting program has only been in place for just over a year and a half. It has had a significant impact on campus sustainability by creating a closed-loop nutrient cycle, producing valuable compost out of food and yard waste, and reducing garbage sent to the landfill. There are still gaps in the education and awareness of composting on campus, among other challenges, that need to be addressed to improve and expand the program. Our group's research identified the primary challenge of the program as a lack of awareness about the need to compost in general, as well as about how to properly sort organic waste on campus. In order to promote the program and to help solve the current problems, the group's recommendations include targeting student groups and compost sites on campus. The brochure that was created serves as a first step towards increasing campus composting awareness and participation. All the proposals and tasks must be reviewed and critiqued for accomplishing a long term sustainable waste management system at UBC.

Works Cited

- Campbell MK and Sherman SG. "Nutrition Behavior: Implementing Change in Communities." In Owen AL., Splett PL, Owen GM eds. *Nutrition in the Community. The art and Science of delivering services.* Boston MA: MC Graw Hill 1999:172-195
- Ebreo, Angela, and Vining, Joanne. "How Similar are Recycling and Waste Reduction? Future Orientation and Reasons for Reducing Waste as Predictors of Self-Reported Behaviour." Journal of Environment and Behaviour 33. 3 (2001). 29 March 2006
<<http://eab.sagepub.com/cgi/content/abstract/33/3/424>>
- Environment Canada. 2004 "Garbage Gone But Not Forgotten". Government of Canada. 6 April 2006
<<http://www.ns.ec.gc.ca/udo/reuse.html>>
- Heasman, Michael, and Tim Lang. Food Wars: The Global Battle for Mouths, Minds and Markets. Virginia: Earthscan, 2005.
- Jackson, Sarah, and So Rachel. [presentation] UBC Waste Management. University of British Columbia. Vancouver. 15 March 2006
- Lukasik, Lynda M, PhD. 2003 "Theoretical Understandings of Citizen Engagement." Prepared for Hamilton Community Foundation. 28 March 2006
<<http://www.hcf.on.ca/pages/special/environment/TheoreticalUnderstandings.pdf>>
- Mackenzie-Mohr, Doug. "Promoting Sustainable Behaviour: An Introduction to Community-Based Social Marketing." Journal of Social Issues 56.3. (2000) March 27 2006 <<http://www.blackwell-synergy.com/links/doi/10.1111/0022-4537.00183>>
- Mackenzie-Mohr, Doug [B]. "Quick Reference: Community-Based Social Marketing." March 22 2006
<<http://www.cbsm.com/members/newuser/CBSM.pdf>>
- Monroe, Martha C. "Two Avenues for Encouraging Conservation Behaviors." Human Ecology Review 10.2 (2003). March 28 2006
<<http://www.humanecologyreview.org/pastissues/her102/102monroe.pdf>>
- Olander, F. and Thogerson, John. "Understanding of Consumer Behaviour as a Prerequisite for Environmental Protection." Journal of Consumer Policy, 18. 4 (1995). 9 March 2006
<<http://proquest.umi.com/pqdweb?index=1&did=9412115&SrchMod=1&sid=3&Fmt=1&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1141977793 &clientId=6993>>
- Read, Adam A. "A weekly doorstep recycling collection, I had no idea we could! Overcoming local barriers to participation." Resources Conservation and Recycling 26 (1999)
- Student Electronic Network for Sustainability Education (SENSE) 2005. "Agricultural Science". University of British Columbia. 2 April 2006. <<http://www.sustain.ubc.ca/sense2/agsci.htm>>
- Task Force on the Canadian Information System on the Environment (TFCISE). 2001 "Influencing Behaviour by Providing Environmental Information." Mackenzie-Mohr Associates. 28 March 2006.
<http://www.cise-scie.ca/english/library/bg_papers/Influencing_Behaviour/inf_e.pdf>
- UBC Waste Management (UBCWM). March 2006. 10 March 2006. <<http://www.recycle.ubc.ca/index.htm> >

Appendix A

COMPOSTING AT UBC

HOW YOU CAN GET INVOLVED

Why Compost? (pg 1)

Reduce your ecological footprint

Each of us has an ecological footprint based on the amount of energy and resources we consume and the amount of waste we produce. Each time we drive alone, buy imported goods, or throw out a recyclable/compostable product, we impact our environment. Composting reduces waste sent to landfills, conserves energy, provides nutrient rich soil for landscaping at UBC which reduces the need for outside inputs, and saves money. All of these actions help to reduce your ecological footprint.

Help preserve our environment

Compost actually IMPROVES the soil - it is living organic matter rich in micronutrients. The more we compost our waste, the more compost product we have to use at UBC. Compost holds water and nutrients better than fertilized soil, preserving the health of the soil for future generations. Also, whereas organic waste in the landfill creates methane, a greenhouse gas - composting does not. Composting locally also helps close the carbon cycle by returning carbon to the soil so that it can be used again.

Give back to your community and feel great!

Composting is becoming more and more mainstream and is a socially acceptable way to reduce waste. Participating in composting gives back to the UBC community, demonstrates your

commitment to a healthy future AND will make you feel great that you are contributing to a happier and more sustainable planet.

Do you recycle?

If you already recycle, it's time to take the next step - compost! Much of what we send to landfill doesn't need to be there. Recycling has helped to reduce waste, and composting can help to reduce waste even further. It is estimated that 70% of what is thrown away at UBC could be composted. Just think, simply by throwing your banana peel into a green bin instead of a black one, you can help to reduce waste!

Composting works

So far -

UBC has reduced the purchase of bark mulch for landscaping by 57%

UBC has diverted over 400 tonnes of organic material from going to the landfill

It's Easy!

The bins are there, all you have to do is use them! When eating in the SUB basement, Café Perugia, AGORA or the forestry building, you have the opportunity to compost. If your building doesn't have a compost, call UBC waste management: they will bring you a bin, schedule pickups, and even bring you back a freshly washed bin to replace it!

The In-Vessel Composter (pg 2)

The In-Vessel Composter at UBC is the first of its kind at a Canadian University. The composter is completely enclosed, which allows for temperature and atmospheric control and eliminates odours and vermin. This means that the

Appendix A

composter can turn 5 tons of organic waste daily into nutrient rich compost in only two weeks! In a landfill organic waste has little access to air and water, and can take years to decompose!

Another great advantage of the in-vessel composting program is that all organic waste can be composted, including: meat, dairy, bones, coffee filters, other cooked food waste, garden clippings and even paper plates, cups, and napkins. The composter is NOT being used to its full capacity - we can do more!

How Can I get Involved? (pg 3)

Compost your organic waste

Know where the green compost bins are and use them! Each time you choose to compost you are helping to reduce waste and save energy. Every little bit counts!

Talk to others about composting

Tell friends and coworkers about the composting program at UBC and encourage them to use the green bins. Give them a copy of this guide, or go to www.recycle.ubc.ca for more materials to share.

Ask for composting where you buy your coffee or lunch

Businesses respond to customer demand - demand compost bins! Also, ask that food be served on paper plates (compostable) or corn based plastic takeaway containers (also compostable). Think of how many coffee cups get thrown away every day on campus - this could make a difference! Blue Chip Cookies is one vendor that has already moved to compostable cups.

Become a compost coordinator

Bring composting to your office, academic building, or workplace by becoming a compost coordinator. Contact waste management at 604 822 3827 or www.recycle.ubc.ca to arrange for a bin. Waste management can provide you with support in starting a composting program at your site, and can even arrange an educational session on the importance of composting. All you need is a bin and a dream!

Compost at your next barbeque or event

Waste management can provide you with a bin to use at your next barbeque, dinner, or conference to help make UBC waste free! It will also help raise awareness of composting. Visit www.recycle.ubc.ca for more information.

Tips for Success (pg 4)

For Everyone

- ❖ **Sign the compost pledge** and hang it in a location that will remind you of your commitment.
- ❖ **Tell others** about the composting program and how to use the compost bin. Waste Management can provide you with a sample email that you can send to coworkers or friends who use the building.
- ❖ **Check out the in-vessel composter** - Waste Management can set up a tour for your coworkers or undergrad society to help you and your colleagues learn more about composting.

For Coordinators

- ❖ **Ensure your bin is conveniently located** beside the garbage and recycling containers. If composting seems inconvenient, it is unlikely that someone will make the extra effort to compost.

Appendix A

- ❖ Make sure that the bin is **well marked and that people know how to use it**. Use the signs provided by Waste Management that describe what can go in the bin - using these signs also helps to maintain a consistent message so that users recognize a compost bin by the existence of the signs.
- ❖ **Speak with the building janitor** to ensure he understands that the compost should not be mixed or thrown out with the garbage.
- ❖ **Hold a mini workshop** at lunch so everyone is familiar with the green bin.
- ❖ Waste Management can also place an **ORGANICS sticker** on the bin so it is not confused for a garbage bin.
- ❖ **Have extra brochures on hand to distribute** - Spread the word!
- ❖ **Create incentives to participate** - hold a raffle and challenge the winner with a skill-testing question related to composting before he/she can claim his/her prize.
- ❖ Obtain an **'OUR OFFICE COMPOSTS'** sign from the Sustainability Office. Email Laura Madera at madera@exchange.ubc.ca

Signed, _____ Date _____

What goes in the bins????

YES 

NO 

- | | |
|----------------------------------|---------------------|
| ❖ cooked food waste | ❖ juice boxes |
| ❖ meat and bones | ❖ milk cartons |
| ❖ dairy products | ❖ plastic bags |
| ❖ grains, bread, pasta | ❖ plastic cutlery |
| ❖ paper towels and napkins | ❖ styrofoam |
| ❖ paper cups and plates | ❖ glass |
| ❖ fruit and vegetable scraps | ❖ wooden chopsticks |
| ❖ coffee grounds and filters | ❖ wood |
| ❖ egg shells | ❖ metal |
| ❖ grass, leaves, plant clippings | ❖ hay and straw |
| ❖ tea bags | ❖ sand |
| | ❖ dog and cat feces |

Compost Pledge (pg 5)

I, _____, am committing to a more sustainable way of life; as a member of the UBC community I honour this commitment by choosing to compost.

I will also encourage those around me to do the same so that we can enjoy a greener campus and reduce our energy consumption and waste.