UBC Social Ecological Economic Development Studies (SEEDS) Student Report

Ubc Food System Project: Food Waste Management – The Hot Beverage Cup

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UBC FOOD SYSTEM PROJECT:

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GROUP 8

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ABSTRACT

This report aims to evaluate the current practices of waste management at UBC and to focus on the reduction of waste. The disposable hot beverage cup is one major component of the 12 tonnes of waste produced at UBC per day, and it is used to represent UBC's waste problem. [redacted] Waste management programs like "WasteFree UBC" have been implemented to encourage consumers to reduce the amount of waste produced. A survey was conducted by our group to determine trends associated with the purchase of hot beverages. To measure the sustainability of waste management, measurable ecological, social, and economic indicators have been developed. Based upon the results of our survey and research, we have included recommendations and research alternatives for the future regarding waste management at UBC.

Introduction

Currently, the Greater Vancouver Region District (GVRD) is producing upwards of 2.7 million tonnes of garbage per year, all of which is entering our finite landfills (GVRD, 2002). These waste sites constitute a large area of land in the district, and if this situation continues, it will lead to serious damage to our environment. As the population grows exponentially in the district, we are quickly running out of the land and natural resources that are necessary to sustain our community.

As part of the GVRD, the University of British Columbia (UBC) contributes a considerable amount of garbage to the district's landfill. Approximately 12 tonnes of garbage are produced each day by the UBC community, and [redacted] these wastes are exported and reallocated to landfills off campus (WasteFree UBC, 2002). Even though these wastes are not disposed of physically on campus, the UBC community still remains responsible for the wastes it produces and the potential damage it creates. The UBC Community should strive to reduce the amount of wastes on campus, and, in order to achieve this goal, a sustainable waste management system should be established and implemented.

In general, a sustainable system should be viable for an extensive period of time, and it should "meet the needs of the present without compromising the ability of future generations to meet their own needs" (Bomke, 2000). Since UBC's current practices in waste management do not meet the requirements of a sustainable system, we believe it is necessary to alter these practices. A sustainable waste management system should consider both the short-term and long-term consequences of its policies and actions, and it should work towards maintaining or even improving the health and safety of current and future generations, as well as our environment.

Sustainable waste management at UBC remains a complicated and intricate problem, one that requires intense research from many aspects of the UBC community. As a model of this system, we have chosen disposable paper cups, which are currently being used to dispense beverages such as coffee, tea, and hot chocolate, as a representative of the current waste practices at UBC. In the 2000/2001 year, there were approximately 38,621 students, full-time faculty and non-faculty employees at UBC (UBC Department of Plant Operations, 2001). If each of these individuals purchased a cup of coffee every day, for 261 working days, this would total 164,564,081 cups of coffee purchased per year. 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). Our main objective in writing this report is to determine the current methods of waste reduction on campus, and how these methods can be changed to make waste management more sustainable at UBC. We believe that by taking a small step and focusing on one type of waste, namely hot beverage cups, we can more effectively analyze the current practices and make recommendations to promote a more sustainable waste management system.

In this report, we will first explain the underlying value assumptions of this project. Secondly, we will describe the current practices in waste management at UBC, focusing on disposable hot beverage cups. Thirdly, we will present our research methods and results, and, by using sustainability indicators, we will evaluate the current practices of waste management of these cups. Lastly, we will provide our recommendations to reduce disposable container waste at UBC.

[redacted]

Underlying value assumptions

Our group decided to take an ecological approach to analyze the problem of waste management within the UBC food system. We believe that waste management at UBC does not only affect the UBC community, but the communities outside campus as well. A sustainable waste management system should consider every aspect that relates to the system as a whole, which includes the environmental impacts of the system.

The improper management of disposable waste at UBC is largely due to the number of consumers that choose convenience over the well-being of the environment. It is our belief that the reason consumers choose to purchase disposable cups is because of the cups aesthetic quality and for personal convenience. For example, Andrew Parr, director of UBC Food Services, stated that "customers prefer using paper cups, probably due to the Starbucks phenomenon" (Parr, 2002). Our fear is that these individuals are not considering the negative impact they are having on the environment due to the amount of waste generated from these disposable cups.

Since the decision to use disposable cups is based upon individual choice, our recommendations for the future are geared towards individuals. [redacted] We hope that in the future, community-based approaches will be designed to increase the awareness of consumers regarding the environmental impacts of improper waste management.

We believe that waste management is a subsystem within the UBC food system. The components of this subsystem that are important to our group are the consumers, the waste produced on campus, the landfill (where UBC waste is deposited), and the land that ultimately produces UBC's food.

In terms of the entire UBC food system, we are supporters of local food systems that can provide nutritious food that is grown locally (within the GVRD) to the UBC community. We also believe that food

safety and food security are important aspects of the food system because without them, the health of the UBC community may be compromised. Ultimately, we want the UBC food system to provide food that is accessible, safe, and nutritious for all and we believe that better waste management practices, such as reducing the amount of waste produced on campus, is a step towards providing food in this capacity.

Current UBC Practices in Waste Management

Although there are a number of stores [redacted] throughout the UBC campus that sell a variety of items, there is one product whose popularity never declines. Coffee is sold at almost every location at UBC, and is generally dispensed in paper disposable cups. The Waste Management division of UBC imposed a program in the year 2000 entitled "WasteFree UBC," in order to encourage consumers to bring their own reusable mug to school, rather than purchase a disposable mug every day. The incentive that is offered is a decrease in the purchase price by $0.15 for every cup of coffee. UBC Food Services has also initiated "happy hours," when, on certain days of the month, individuals who bring their own mug to school will receive a free cup of coffee from participating outlets. Unfortunately, these have not had a great effect on the number of disposable coffee cups purchased daily on campus. 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 (Aziz, pers.com.). Of this number, only 4, 476 cups were purchased from individuals that brought their own mug (Aziz, pers.com.). Another option provided by the Food Services outlets are china cups, or "for here" mugs. In the same month, only 514 students purchased these mugs, even though they were also sold at a reduction of 15 cents in price (Aziz, pers.com.).

Although the concept of a "WasteFree UBC," is ideal, one can't help wonder why these paper cups can't be recycled like so many other food-associated products in the Lower Mainland. The reason is that each paper coffee cup has a protective moisture-resistant coating that is added during production, and since the coating is not recyclable, the processing plants will not accept them (Moffit, 2002). The only

acceptable way to recycle these cups would be if a municipality chose to build a proper processing plant that could manage these cups. At present, the city of Vancouver will recycle plastic milk jugs, but will not take milk cartons, nor tetrapak milk and juice containers (Aziz, pers.com.). These products contain more than one material (ie. paper and wax), and therefore cannot be recycled in the current processing plants.

Survey Evaluation

A survey was conducted by our group pertaining to the purchase of hot beverage cups at UBC. The survey respondents included 76 UBC students, professors and related people on campus [Appendix 1].

The survey results are shown in Tables and Figures 1, 2 and 3 in Appendices 2 and 3. Overall, 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. Our results exhibited that the $0.15 price discount did not take precedence over the convenience of a disposable cup.

Sustainability Indicators

i. Ecological Indicator

The percent reduction of disposable garbage at UBC over time provides an indicator of the ecological sustainability of the Waste Management system. We believe that the amount of waste produced on UBC campus can have an impact on the local ecosystem especially if space in landfills is becoming limited. By annually measuring the reduction in disposable container waste on campus, the Waste Management division of UBC can determine whether the "WasteFree UBC" program is effective.

ii. Social Indicator

The key to waste reduction at UBC is dependent on the education and awareness of consumers. If the Waste Management division were to count the number of individuals that purchase beverages in

reusable mugs as compared to disposable mugs, they could determine the awareness of the general UBC public pertaining to the reduction of disposable container waste. If the number of reusable coffee mugs does not increase over time, then the sustainability of the system needs to be reconsidered.

iii. Economic Indicator

By initiating a "cost-benefit analysis," the UBC Food System can determine whether the current "WasteFree UBC" practices are sustainable over the long term. According to this program, customers can save $0.15 per cup (ie. $60 a year) if they choose to bring their own mug to school, and the stores save money with a reduction in the purchase of paper cups. The cost-benefit analysis allows the stores to determine whether the program is economically viable, in order to determine if they can continue to sell coffee at a reduced price. If the outlets begin to lose money because of this program, then the Waste Management division may need to consider other sustainable options.

Recommendations to the UBC Sustainability Office

The Waste Management Division of UBC has implemented many programs throughout campus that address the issue of waste reduction. These programs, although beneficial, 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 (Parr, 2002). A large 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.

Other recommendations extend from the overall non-participative action of students buying hot beverages in disposable cups. As previously discussed, students are aware of the discounted option of

bringing a reusable cup to school, yet many choose not to. To counter this, several suggestions have been made:

1) *Recyclable hot beverage cups*

The hot beverage cups that are currently available on UBC campus are not recyclable. 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. [redacted]

2) *Environmental Tax*

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 rational behind it, should be clearly advertised so customers are aware that they are paying extra.

3) "*Mug Card"*

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.

Conclusion

Based upon our findings, the current programs designed to reduce the purchase of disposable hot beverage cups on campus do not provide a large enough consumer incentive. It is our hope that, in the future, alternative practices can be designed to reduce the amount of waste produced and thus ensure the sustainability of the UBC food system.

Recommendations for future research

- Focus on other components of waste produced on UBC campus such as disposable plates, utensils, soup containers, etc.
- 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.

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Appendix 1

Survey of hot beverage cups purchases on UBC campus

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

   None:
   1 cup:
   2 cups:
   3 cups:
   4 cups:
   5 cups:
   6 cups or more:

2. **If buying hot beverages such as coffee, tea or hot chocolate on campus, do you bring/use your own mug?**

   Yes:
   No:
   Sometimes:

3. **Did you know that you can get a discount when purchasing hot beverages such as coffee or hot chocolate on campus? (If yes) How much do you think the discount is?**

   $0.05:
   $0.15:
   $0.20:
   $0.30:
   $0.50:

Appendix 2

Table 1:

Hot beverage consumption on UBC campus per week	
Do not purchase any hot beverages	25%
Buy at least one hot beverage per week	75%

Table 2:

Bring own mug for hot beverages	
No	70%
Yes	19%
Sometimes	11%

Table 3:

Knowledge of the discount associated with bringing own mug and value of the discount	
Don't know about the discount	28%
Know there is a discount	72% (63% → $ 0.10 to $0.20 discount)

Appendix 3

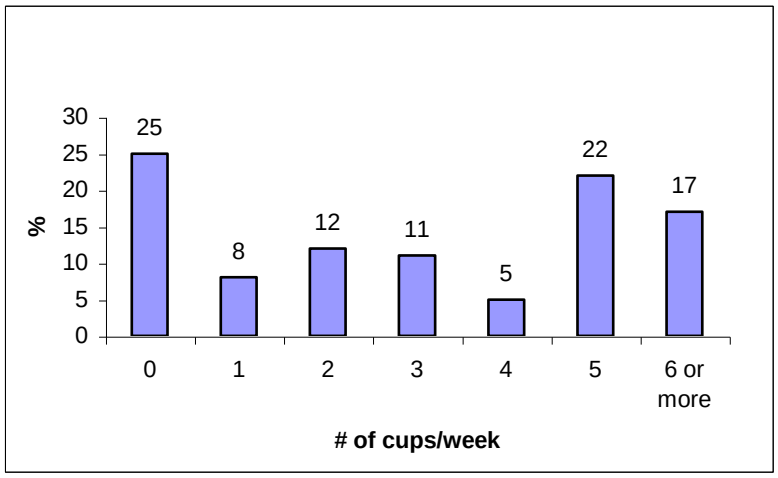

Figure 1: Hot beverage consumption on UBC campus.

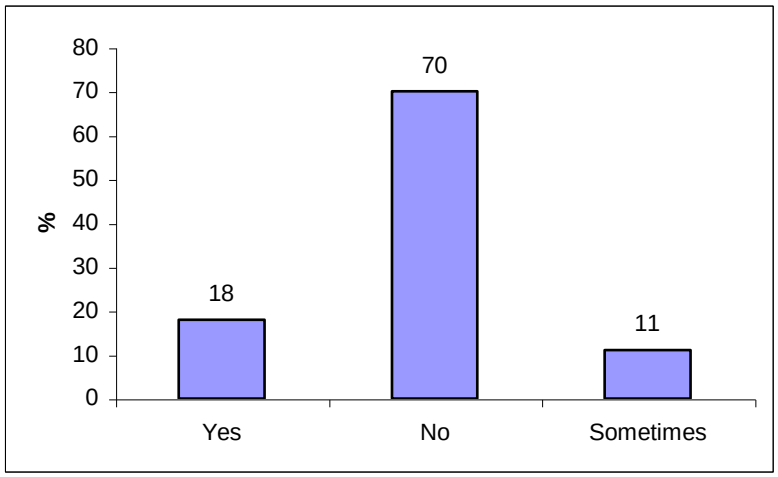

Figure 2: Usage of own mug for hot beverages.

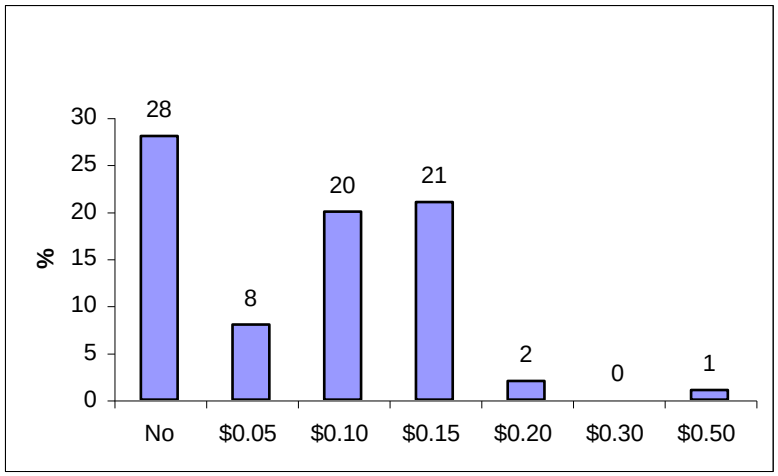

Figure 3: Knowledge of estimate of the discount associated with using own mug.