

**An Investigation into Reusable Container Food Outlets**

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**University of British Columbia**

**APSC 261**

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# An Investigation into Reusable Container Food Outlets

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APSC 261 – Technology and Society

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## Abstract

The Student Union Building (SUB) of the University of British Columbia is commonly recognized as the central hub of the campus—it acts as a meeting place among students of all faculties across the campus. That being said, it is no surprise that the cafeteria in the SUB is extremely popular, serving more students than any other food establishment on campus. The Alma Mater Society (AMS) of UBC is currently in the construction phase of building a new SUB, which will house a new cafeteria featuring 11 food outlets. With UBC’s push to improve sustainability, the AMS is looking into operating one of these as a ‘Bring your own container’ (BYOC) outlet, in which students would not be served food in disposable containers. The change from traditional single-use containers is particularly tricky, as university students typically do not have time or patience to vary from their normal routines. This report looks into the feasibility of operating one of these BYOC outlets, with the intent to eventually shift other food outlets on campus to the BYOC ideology.

The investigation was conducted through a triple bottom line analysis, focusing on the economic, social and environmental impacts of operating a BYOC food outlet. The study was mainly conducted focusing on two main types of reusable containers, glass and plastic, as they were found to be the most likely candidates (Al-Khalili, Lau, Chan & Chen, 2011). A student survey was carried out in order to determine the economic and social beliefs held by students in regards to the BYOC idea (Appendix A). Additionally, research on other institutes and businesses with similar concepts was conducted to forecast some of the possible outcomes that putting in a BYOC food outlet on campus would have.

Provided there is some financial benefit associated with bringing your own container, and easy access to purchasing reusable containers, this analysis concluded that the BYOC food outlet concept is worth implementing. Not only will it allow students to save money, but it will also promote UBC’s sustainability initiatives and act as a pilot project for BYOC food outlets on campus. The BYOC food outlet was found not only to have a successful business model, but it could be considered to be the next step forward to make UBC a more sustainable campus.

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## Glossary

1. *Triple Bottom Line Assessment* → An evaluation of a product or service that takes into account social, environmental, and economic factors.
2. *Carbon Footprint/Co<sub>2</sub> Emissions* → The amount of carbon emitted due to the consumption of fossil fuels by an individual or group of people.
3. *Pyrex* → A brand name for any of a class of heat- and chemical-resistant glassware products of varying composition used for cooking.
4. *Reusable Container* → Any sort of container manufactured with the intention of multiple uses—that is, made to not be discarded after single use.
5. *Eco-To-Go Program* → A sustainability program offered at the University of British Columbia in which students can purchase a card that can be traded for a container. After use, the container can then be traded back to the UBC food outlet for washing, in return for the student's card.
6. *Bisphenol A (BPA)* → An organic compound used in consumer products and food containers. BPA was found to pose possible health risks to humans in 2008.
7. *Solvent* → A substance that dissolves a solute, resulting in a solution. A solvent is usually a liquid but can also be a solid or a gas.
8. *Bio-Degradeable* → Capable of being decomposed by bacteria or other living organisms.



## List of Abbreviations

AMS – Alma Mater Society

BYOC – Bring Your Own Container

BYOU – Bring Your Own Utensils

CRF – Container Recycling Fee

SUB – Student Union Building

UBC – University of British Columbia

BPA – Bisphenol A

BC – British Columbia

## 1.0 – Introduction

As the plans for the new SUB are being finalized, the AMS is continuously pushing to incorporate greener initiatives into the building model. With 11 food outlets sanctioned to be opening when the SUB is completed, it seems natural that the AMS should look to the cafeteria in order to promote sustainability, especially considering the vast amount of waste generated by single-use containers and wrappers. One fix to this problem is the ‘bring your own container’ food outlet concept, in which students must provide a container to the outlet in order to be served. This investigation looks into the feasibility of operating such a food outlet in the new SUB, and the possible benefits that this change would introduce.

The feasibility of the BYOC food outlet concept was determined by investigating the economic, social and environmental implications of the outlet. Particular attention has been placed on the possible reusable materials, found to be plastic and glass (figure 1), as well as the operational requirements of the outlet (Al-Khalili, Lau, Chan & Chen, 2011). Although the economic costs of the outlet were quite important to determine if the outlet would be successful, it is by no means the only factor analyzed in this study. Social aspects such as health and labour implications coupled with the needs of the students were also looked into, along with environmental factors such as solid waste reduction and health hazards. Through the diversity of research associated with this triple bottom line analysis, this report aimed to recommend if the AMS should proceed with the implementation of the BYOC food outlet pilot project in the new SUB.



*Figure 1 – Plastic and glass reusable containers*

## 2.0 - Economic Assessment

### 2.1 – Introduction

Since the University of British Columbia currently has no intention of producing its own reusable containers, external sources were considered for the purposes of this project. The university may however be responsible for the distribution and recycling of such containers, should the AMS New SUB Sustainability Coordinator decide to proceed with our recommendations. The main indicators we used for the economic aspect of this project were the students' willingness to pay for a reusable container, and the decrease in prices at the BYOC outlet necessary (if at all) to attract customers.

### 2.2 – Recycling Expenditures

We looked into two options for the material of the container – plastic and glass. As far as recycling is concerned, recovery rates for plastic and glass are approximately 75.8% (Table 1) and 94.2% (Table 2), respectively (Ecorp Pacific, 2011). The value of a recovery rate is based on the percentage of material that can be recovered from the containers collected at recycling depots around the country. Canada relies on the nonprofit agency, Encorp Pacific to do the collecting and recovery of these containers, as well as the necessary calculations of their success rates. At first glance, it would appear that glass would be the obvious choice of material with such a staggering recovery rate, exceeding that of plastic by almost twenty percent. However, there are other factors which have not yet been considered.

*Table 1 – Recovery Rates for Plastic containers*

2011 Plastic	CONTAINERS SOLD	CONTAINERS PURCHASED	RECOVERY RATE
Plastic ≤ 1L	368,331,888	269,691,474	73.2%
Plastic > 1L	66,029,546	58,058,049	87.9%
Plastic Liquor ≤ 1L	10,749,166	8,989,360	83.6%
Plastic Liquor > 1L	3,982,110	3,678,719	92.4%
<b>Totals</b>	<b>449,092,709</b>	<b>340,417,602</b>	<b>75.8%</b>

*Table 2 – Recovery Rates for Glass containers*

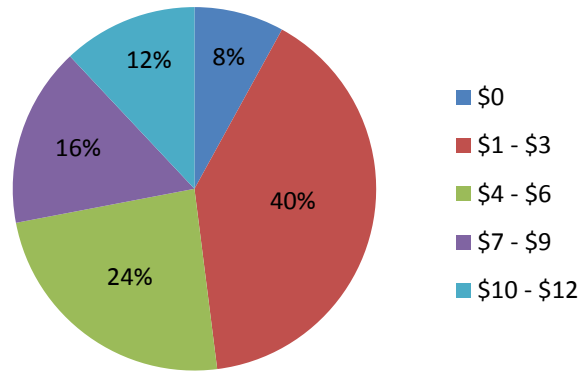
<b>2011 Glass</b>	<b>CONTAINERS SOLD</b>	<b>CONTAINERS PURCHASED</b>	<b>RECOVERY RATE</b>
Glass ≤ 1L	29,506,414	23,833,807	80.8%
Glass > 1L	147,396	171,979	116.7%
Glass NRBC ≤ 1L	96,948,756	96,803,996	99.9%
Glass NRBC > 1L	462,419	429,743	92.9%
Glass W&S ≤ 1L	73,022,080	67,473,957	92.4%
Glass W&S > 1L	11,458,982	10,552,800	92.1%
<b>Totals</b>	<b>211,546,048</b>	<b>199,266,282</b>	<b>94.2%</b>

Container Recycling Fees (CRFs) cover Encorp Pacific’s net cost of recovering and recycling product containers of various sizes and materials. For plastic containers, the CRF is \$0.03 for volumes up to and including one liter, and \$0.06 for volumes over one liter (Ecorp Pacific, 2011). As for glass containers, the CRFs are \$0.12 and \$0.15 for container volumes under and over one liter in size, respectively (Ecorp Pacific, 2011). There is a \$0.03 difference in cost between container sizes for both plastic and glass, but more importantly a \$0.09 difference between the two materials for a given container size. This may seem like a trivial amount, but considering the fact that thousands of students could potentially be participating in the BYOC program, choosing plastic over glass would result in the school saving hundreds of dollars.

### **2.3 – Student Survey Results**

Students would have to want to purchase the product in order for it to be successful. This is why we asked the question, “If you were to purchase a reusable container from UBC, how much would you be willing to spend on it?” in our survey of 125 UBC students in the current SUB basement. The majority were in favor of the \$1 - \$3 option, with a number of students also interested in spending anywhere from \$4 - \$6. Figure 2 depicts our survey results for this question.

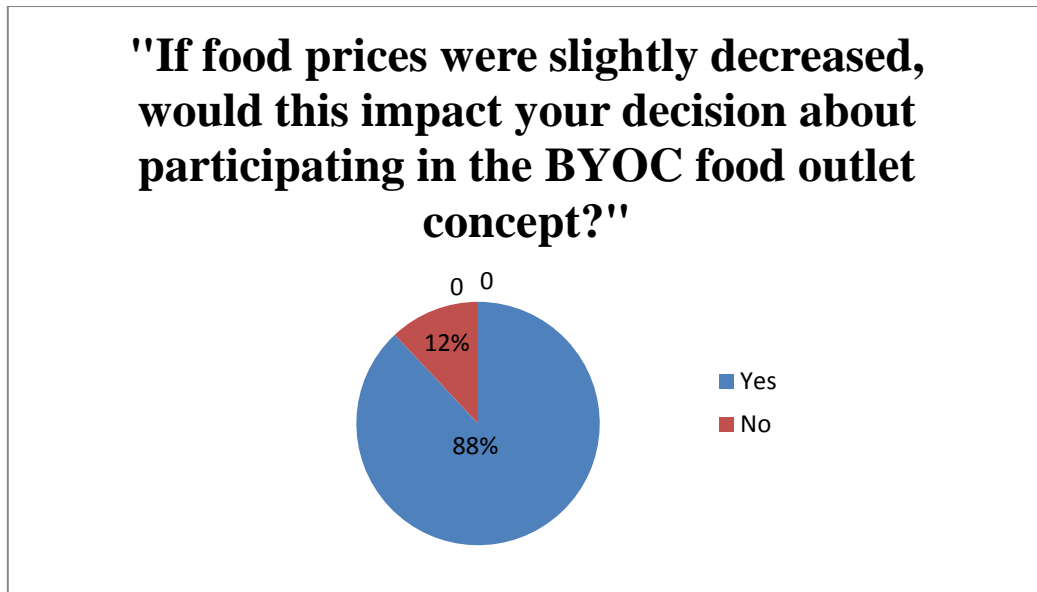
**"If you were to purchase a reusable container from UBC, how much would you be willing to spend on it?"**



*Figure 2 - Survey Results (Pricing)*

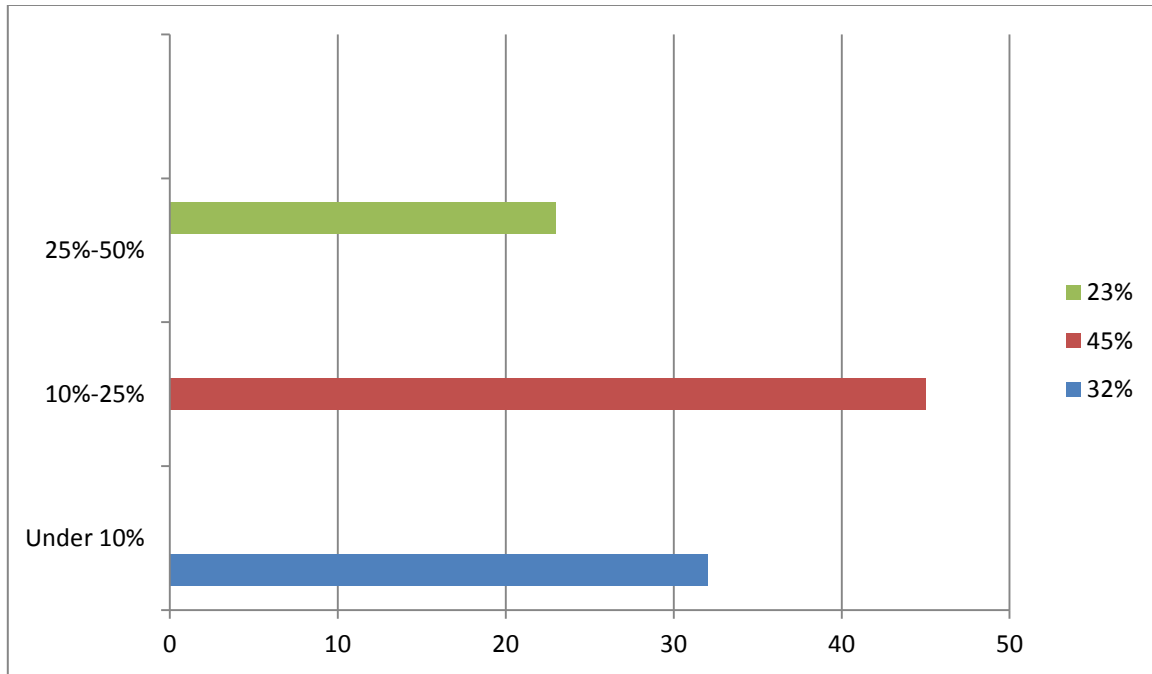
These results proved to be quite useful, and helped to limit the scope of our research. We began looking into specific brands which would satisfy the requirements that the student's feedback gave us. We discovered that Ziploc makes reusable containers out of both plastic and glass, at very competitive prices. Their plastic containers are such a bargain that no other brand could really compete, as they ranged from about three dollars for two or five dollars for four (Ziploc Products), averaging \$1.25 to \$1.50 per container. Their reusable Ziploc VersaGlass containers however, sell for ten to twelve dollars each (Ziploc Products). Seeing as how only about 12% of students would be interested in spending this amount of money on a single container, we thought to investigate further to see if we could bring justice to that 24% willing to spend \$4 - \$6. Pyrex glass containers are commonly known for their quality, but they come at a cost anywhere from seven to fifteen dollars per container (Pyrex Products). \$7 may not seem like it is too far outside the \$4-\$6 boundary, however the sizes available for that price were far below the allowable volume for an average serving of food from the cafeteria. This led us to believe that Snapware glass containers may be the solution we were looking for. Lunch-size containers can be purchased from their website for as low as six dollars (Snapware Products), and the vast majority of customer reviews we read online were very positive indeed.

With information about the container products and materials that should be made available to students, the next step was to evaluate the information we obtained about the BYOC outlet's food prices. Overwhelming results were showcased in the survey regarding the number of students who would be interested in a small decrease in food prices. The following results were obtained when students were asked, "If food prices were slightly decreased, would this impact your decision about participating in the BYOC food outlet concept?"



*Figure 3 - Survey Results (Participation)*

A follow-up question was posed for those students who answered "Yes," to the previous one. "If yes, how large of a food price decrease would make you bring a reusable container to eat?" gave the following results. The results are showcased in figure 4 on the next page.



*Figure 4 – Survey Results (Price Reduction)*

Based on this, it is reasonable to conclude that a 10% decrease in food prices at the outlet would yield the best customer turnout at the lowest cost to the business. Though any student would agree that a decrease upwards of 50% would be more beneficial to them than a 10% decrease, they surely realize how impractical this would be for AMS. Additionally, it is assumed that the students who opted for a 10%-25% decrease in prices would be satisfied with 10%, a reasonable compromise considering nearly as many students would be swayed by less than this amount.

#### **2.4 - Similar Programs**

Programs similar to the BYOC and Eco-To-Go have been established and proven to be successful at numerous post-secondary institutions in the United States. One example is the program which was implemented in 2010 at the University of Texas. The school offers students living in residence a 5% discount on their meal if they bring a reusable container to the dining hall, instead of relying on a disposable container to be provided (“Reusable to go containers,” 2010). Another example is Eckerd College in Florida, which designed its very own reusable container called the “EcoClamshell,” showcased below in figure 5, to replace disposable polystyrene containers (Goodall 2008). A polystyrene container is provided for

the student should they choose, but the teal-colored EcoClamshell has had quite an impact on the students. With no discount on food being offered for purchasing one of the EcoClamshell containers, only selfless buyers have been attracted to the product. Seeing them around campus has clearly made more people think about sustainability and the environment though, as two hundred people had purchased them after just a short few months of their first appearance.



*Figure 5 – EcoClamshell Container*

## **2.5 – Conclusion**

Ideally, a solution is needed that is economically beneficial for both the AMS and the students of the University of British Columbia. We recommend the placement of reusable container vending machines around the New SUB offering both plastic and glass alternatives. There should be more plastic containers offered than glass, as per the preferences of the surveyed students, coupled with the recycling costs to the university discussed at the beginning of this assessment. We recommend that the plastic containers be Ziploc, and the glass ones be Snapware, as these are the most cost-effective options available on the market. Finally, we strongly believe that a 10% decrease in food prices is a necessary incentive which should accompany the implementation of the BYOC food outlet concept, in order to ensure the program's success.



## **3.0 - Social Assessment**

### **3.1 – Introduction**

The introduction of a Bring Your Own Container (BYOC) program to a single food outlet in the New SUB will involve and provide many social aspects and impacts to the students of UBC, the employees of the food outlet, and the manufacturing workers involved in the production of such containers. This section covers the health and labour implications, as well as standards in the manufacturing and production of plastic and glass containers, student opinions and preferences pertaining to the BYOC program, and the necessary changes that the outlet will have to make to meet the requirements of the program. It is very important to take into account these social aspects that can determine the success and outcome of the BYOC pilot program.

### **3.2 – Student Survey Results**

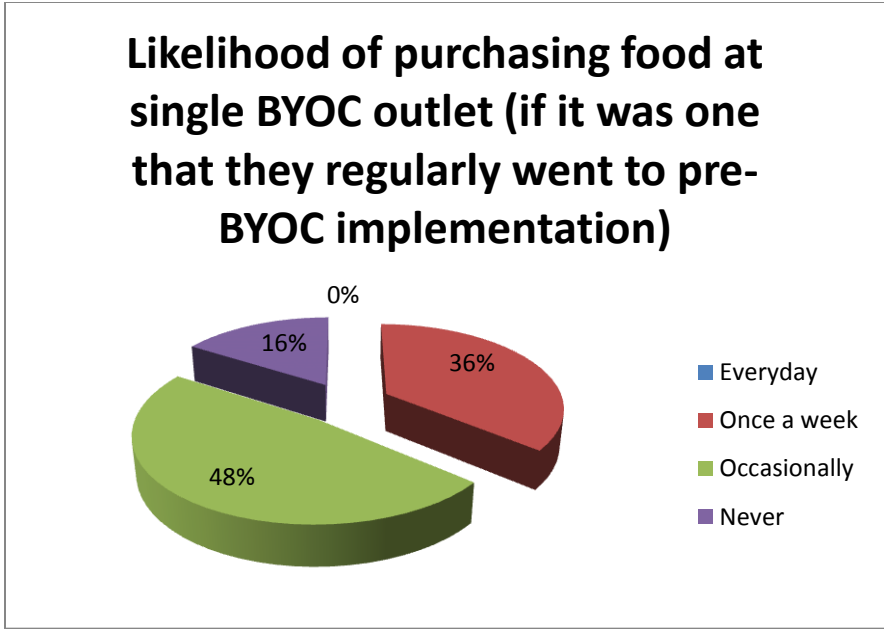
#### **3.2.1 – General Background**

Student participation is crucial to the success and spread of the BYOC program. Their involvement will foreshadow the feasibility of implementing BYOC to all of the AMS outlets. Because the BYOC program's main goal is to promote sustainability within the student population and evoke a waste-reducing lifestyle, there must be enough incentive for students to come and participate in order for the effect to take place. The survey, which can be found in Appendix A, was taken by 125 students – all found in the SUB basement where most of the AMS outlets currently operate. Our sample consisted of 44% male and 56% female students, with 28% in Arts, 20% in Applied Science, 40% in Science, and 12% in other faculties. Of the students surveyed, 38% were in First Year, 30% in Second Year, 12% in Third Year, and 20% in Fourth Year. For research purposes, this is an appropriately wide and varied range of students that completed the survey. 12% of the students ate at the SUB/purchased food at AMS outlets more than five times per week, 28% for four to five times per week, 44% two to three times, and 16% once a week. The results from the 16% will be taken with less regard and importance with relation to the rest of the students because of their relatively minimal impact on the business of AMS outlets.

When asked about the Eco-To-Go program that UBC offers – where students can sign up for a \$5 membership card that can be exchanged for a reusable container and return it to get it cleaned for pick-up again, 28% were aware of it, while 72% of students were not aware of such a program existing. This shows a large populace of students that are not aware of the sustainable and waste reducing practices that the AMS provides. The implementation of BYOC at a single outlet in the new SUB will have a much greater chance of educating and spreading sustainable food practices in UBC simply due to its presence and ideology. After explaining what Eco-to-Go was, 52% of people said they would use the program and get a reusable container provided by UBC while 48% of people would rather bring their own container from home if BYOC was implemented. It is apparent that there will be a need for the Eco-to-Go program to become more prevalent when the BYOC outlet is introduced due to the large number of students (approx. 50%) that do not want to bring a container from home. This will require more water use in UBC to clean the Eco-to-Go containers, and more employees may be necessary in order to organize and wash hundreds of containers. Eco-to-Go may also require more infrastructure space or room in order to have an accessible outlet for students to pick up and drop off their container.

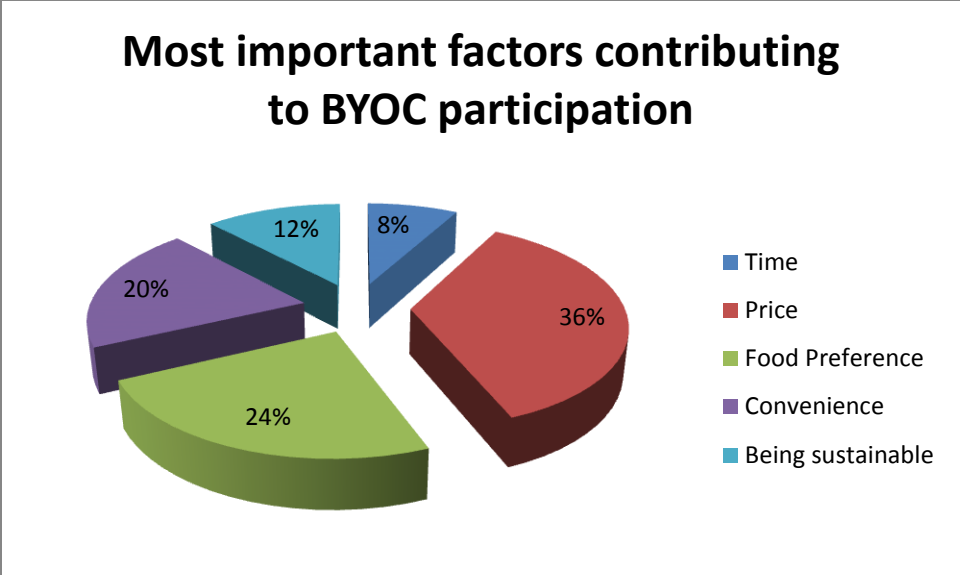
### **3.2.2 – Student Needs**

A large 88% of students wanted to see a food price decrease if BYOC was to be introduced in order to provide some incentive for giving their business to the single outlet when there are multiple other outlets that provide single-use containers. There is already a price discount in effect of 15 to 25 cents off food purchases when bringing in a reusable container at all UBC Food Services and AMS outlets (“Reusable takeout containers,” 2012). If the discount were to be advertised more frequently or aggressively, most students would not have a problem with purchasing food at the BYOC outlet. Figure 6 displays the results of question 11, which asked students about the possibility of eating at a BYOC outlet if no price changes were made.



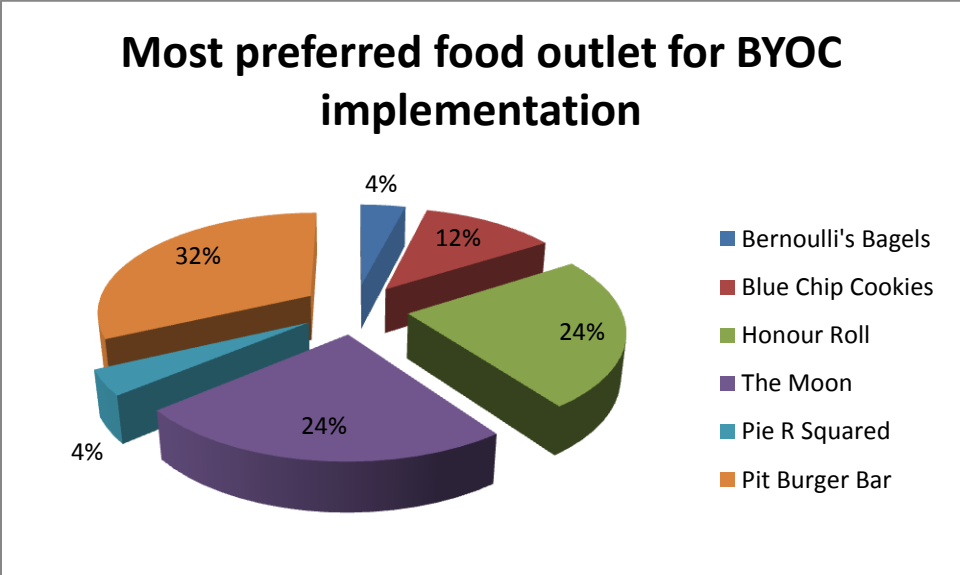
*Figure 6 – Survey Results of Question 11*

Note that no students put ‘Everyday’ and 16% put ‘Never’ as a choice for purchasing food from the single BYOC outlet if it was the same as their regular outlet. This is the same 16% that said they ate at the SUB once a week. From these results, it is apparent that the BYOC outlet will see less business if there is no price reduction; the 12% that ate at the SUB 5 or more times per week did not pick ‘Everyday’ and the 16% that ate once a week were demoted to ‘Never’. A price reduction may get the students’ business back, but there are still 48% of students who will purchase food at the BYOC outlet occasionally. When asked if they would avoid the outlet simply due to inconvenience, 72% said no and 28% said they would avoid the single outlet. Again, a price reduction/discount may provide enough incentive for students to eat at the outlet. Figure 7 below shows the most important factors that would affect students’ decision to purchase food at the BYOC outlet.



*Figure 7 – Survey Results of Question 22*

Price is the biggest factor, followed by food preference, and then the convenience of bringing a container around (if not using Eco-to-Go). If prices were reduced, and the right type of food was chosen as the single BYOC outlet in the new SUB, there is a very large chance that business from students would increase and the outlet would be successful. Below, figure 8 displays that the BYOC outlet may have the best chance of success if it offered food similar to what the Pit Burger Bar currently does.



*Figure 8 – Survey Results of Question 17*

### 3.2.3 – Student Preferences

When asked which type of food outlet students preferred, 68% of students said they favoured the BYOC outlet concept and 32% said a regular outlet. Framed as a general question without specific details, this showcases that about two-thirds of students prefer a BYOC type of outlet. Regarding question 20 (Appendix A), 32% of students would only buy food if the outlet provided utensils, in other words, they would not buy food if it was BYOC and BYOU ('Bring your own utensils'); 52% of students surveyed would buy food if it was BYOC and BYOU, and 16% said that they would not buy food at all from the BYOC outlet. Initially, we recommend implementing BYOC without the BYOU part, since 32% of student business will be theoretically lost. Another option would be to implement BYOC and BYOU at the pilot outlet, and if students don't have utensils they could simply go to another regular outlet and pick one up – similar to how it currently works in the SUB.

One of our most promising questions asked whether students thought that exclusively using reusable containers and utensils in the new SUB sounded like a good idea. 88% of students answered yes and only 12% thought it was a bad idea. The same numbers were found for if they wanted to see BYOC eventually implemented at all AMS outlets. This showcases how the implementation of BYOC across campus may be a possibility in the future.

If BYOC were to be implemented at all AMS outlets, 20% of students would continue purchasing food from AMS outlets exclusively, 80% would have no preference and would eat at either or AMS or other outlets (Subway, A&W, ect.), and none of the students would avoid AMS outlets and eat at other outlets exclusively. Looking ahead, there will be very little chance of specific avoidance of AMS outlets due to BYOC.

### 3.2.4 – Student Happiness

Below, figures 9 and 10 display the results for the BYOC program’s impact on student experience and social awareness of sustainability issues.

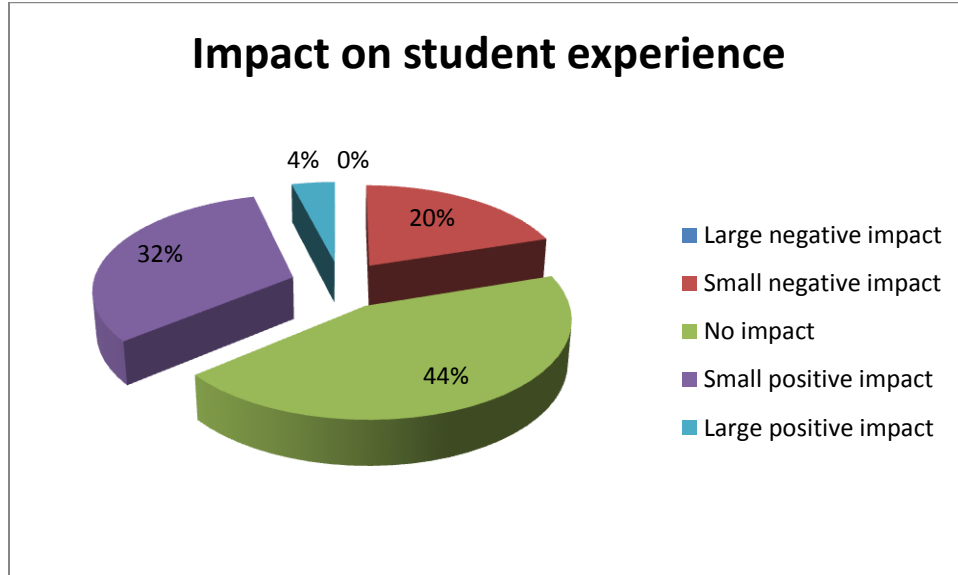


Figure 9 – Survey Results for Question 19

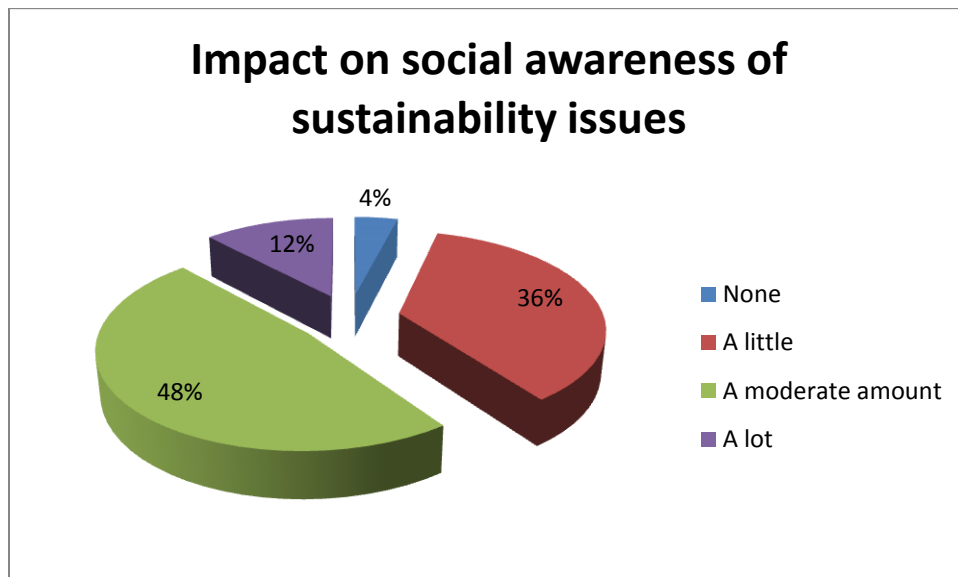


Figure 10 – Survey Results of Question 14

No student said that the BYOC program will have a large negative impact on their student experience, and half the students say that it will have no impact. As a whole, the positive/neutral experience outweighs the negative, but the AMS should still proceed with the BYOC program slowly and gradually, not pushing it onto students who don't want it at first at the risk of having a detrimental effect on their student experience at UBC. However, from another question, 0% of students would be displeased if BYOC were to be implemented at all SUB food outlets, 60% would be indifferent or somewhat pleased, 36% would be pleased, and 4% would be very pleased. Yet again, these results are promising looking into the possible expansion of the BYOC concept in the future.

The majority of students claim that the BYOC concept will have a moderate to large impact on their social awareness and view of sustainability issues. This is very good as it fulfills what the main intent of the BYOC program—to promote sustainability and sustainable awareness at UBC.

### **3.3 – Labour Implications and Standards**

#### **3.3.1 – Plastic Manufacturing**

Plastic reusable containers are mostly polypropylene BPA-free containers, and are massively produced by many companies such as Ziploc, U.S. Plastic Corp., and Lab Depot ("Lab container, plastic," 2007). The manufacturing of plastics is a large industry with 2422 establishments and 106,890 people employed in Canada alone ("Industry profile for," 2012). In the United States, over 489,000 employees work in the plastics industry. The average hourly wage is \$15.34 where the lowest ten percent made less than \$10 ("Metal and plastic," 2012). The minimum wage is \$7.25 in the U.S. and \$10.25 in BC ("Government of B.C.," 2012). Workers are prone to the emission of hazardous air pollutants such as styrene and toxic fumes and dust from plastic factories ("Ibisworld us -," 2012). These chemicals and solvents that workers inhale, may lead to respiratory problems and skin conditions. There is also the health issue with the large amounts of noise in plastic factories, causing temporary hearing loss or even permanent damage ("Health and safety," 2012). Many steps are taken by manufacturers and companies to reduce the risk of employees being harmed. For

instance, they provide ear plugs and regular health surveillance as well as educate workers on the possible dangers of the job and provide exhaust ventilation for dust collection ("Health and safety," 2012).

### **3.3.2 – Glass Manufacturing**

Glass containers and the glass product manufacturing industry has steadily decreased in recent years. In Canada, the number of employees has decreased from 11,012 in 2001 to 6,494 in 2010 for all of Canada ("Canadian industry statistics," 2011). In the U.S, the employment number is at 79,080. The Canadian average annual wage is \$50,486 and the US average is \$40,130 ("Glass and glass," 2012). Minimum wages are the same as above. The health implications that workers face are the inhaling of silica dust and harmful emissions from the melting of glass. Companies employ local exhaust ventilations systems and EPA monitors to reduce the risk of worker harm. Rapid Melting Systems have also been used to reduce emissions and energy consumption ("Ibisworld us -," 2012).

### **3.4 – Conclusion**

From the results of the conducted survey, a single BYOC outlet in the new SUB is an appropriate step towards promoting sustainability in students at UBC and continuing to attract student business. The most important feature to fulfill would be to pick the appropriate food outlet to implement the BYOC concept and discount the price of food. An online poll on the UBC or AMS website may provide the best results for what kind of food students want at a BYOC outlet.. Sustainability in UBC will increase and the promotion of waste-reducing behaviour should be a success, according to survey results. No additional cleaning services need to be provided in the outlet itself, as people were against the idea of paying more for cleaning services. The labour standards for polypropylene and glass containers are fair and expected for work dealing with chemicals. Numerous health concerns are present for workers but many steps are taken by companies to prevent illness and injuries. With the technology of today, continuous improvements are being made to limit human exposure to these harsh chemicals, so we do not see any overwhelming setbacks associated with using such containers in correlation with the BYOC food outlet pilot project.



## **4.0 - Environmental Assessment**

### **4.1 – Introduction**

During the course of research on the environmental impact of the BYOC food outlet concept, emphasis was put on two aspects: solid waste reduction and human health risks. In order to evaluate the potential benefits of the BYOC outlet, these two aspects were investigated primarily through research of similar programs currently in existence, as well as external reports dealing with similar issues.

### **4.2 – Solid Waste Reduction**

Currently, the majority of food outlets at UBC provide disposable takeout containers, either bio-degradable, or composed of extruded polystyrene foam. Considering that they are single-use containers, a rapid generation of solid waste occurs. Although bio-degradable single-use containers promote the decomposition of solid waste, materials such as polystyrene foam, although recyclable, have shown no signs of decomposition in the natural environment. The polystyrene foam containers are used in this study for comparison with reusable containers.

In a study investigating comparing the potential environmental impact of using reusable beverage cups vs. disposable ones, it was concluded that a reusable container decreases environmental impact significantly as the number of repeat uses increases (Garrido 2007). The study also stresses that it could have had much better results if the reusable containers used in the study were lighter in material. This is because lighter containers are synonymous with decreased solid waste, should the need to dispose of the container arise.

This study showcases that using reusable containers in the BYOC food outlet presents some potential environmental benefits, as it is a great way of combating solid waste. This is done by significantly reducing the amount of non-recyclable solid waste that is either incinerated or goes to landfill similar to figure 11 on the next page.

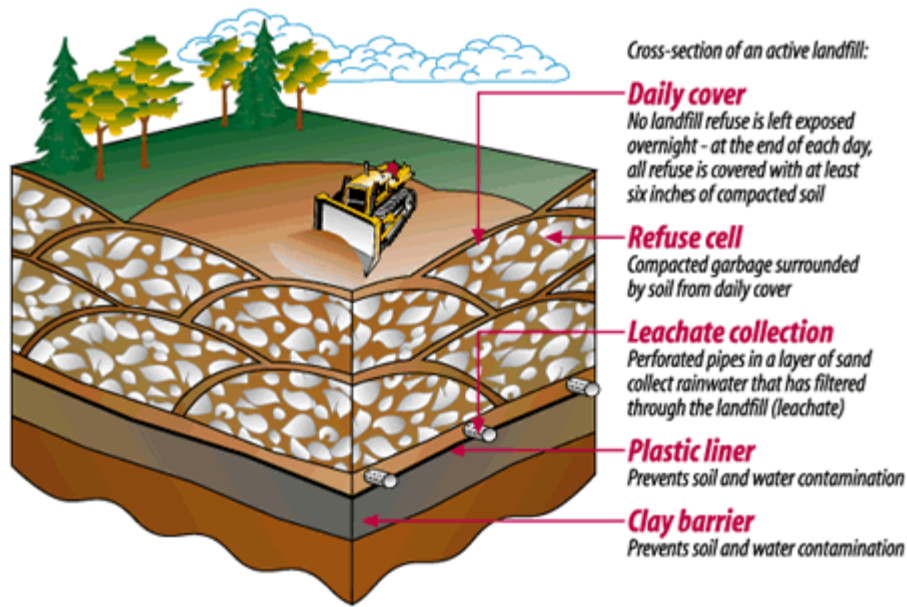


Figure 11 – Cross section of a modern landfill

### 4.3 – Health Hazards

The use of reusable containers raises some issues related to human health. Because a lot of goods and accessories are manufactured abroad and imported, questions arise about the possible health risks associated with the manufacturing of reusable food containers abroad, as working standards are often not as strict as those found in North American factories. This is a crucial consideration when discussing the BYOC outlet, as the new SUB will be offering to sell these reusable containers on site; students health is a big concern to the AMS, and unsafe containers would not be permitted.

In an article for the New York Times, a local grocery store’s reusable bags were found to contain unsafe levels of lead (Grynbaum, 2010). If the food containers had hazardous materials used during their manufacturing process, repeatedly washing and reusing the container may take off protective coatings masking the harmful chemicals, and result in a negative impact on human health. One solution to such a problem would be to promote and educate these offshore manufacturers about the importance of complying with standards, or even to shift manufacturing back to North America. So long as we can ensure the containers are free of such toxins, the health concerns associated with the reusable containers would not be an issue for the BYOC outlet or the reusable containers sold in the new SUB.

#### **4.4 – Conclusion**

Using one reusable container as opposed to many single use containers has a definite advantage where solid waste reduction is concerned. Unfortunately, the environmental costs that washing the containers also increases as the time progresses, using various resources to ‘reuse’ the container (Garrido 2007). Regardless of resource consumption issues associated with washing the containers, the use of reusable containers at the BYOC outlet will ultimately provide a net environmental gain when compared to single-use containers.

### **5.0 – Conclusions and Recommendations**

All in all, this study found that the implementation of the BYOC food outlet would be a feasible pilot project that would hold its own in the cafeteria of the new SUB. That being said, there are several features that should accompany the new food outlet, in order to ensure its success.

First, because students are no longer paying for the single-use container, they expect a price reduction in the food; a reduction of 10% was found to be the most feasible to sustain profit and appease the students. Additionally, there should be some sort of reusable container distribution system implemented in the new SUB to accompany the sustainability initiatives as well as provide students convenient access to the containers. This could be anything from a vending machine distribution system to an over-the-counter system at the BYOC outlet itself.

As intended, the environmental benefits associated with the BYOC outlet are also a great step for innovation and sustainability at UBC. However, this study did find that the resources spent washing the containers does take away from the positive environmental effects, but there is still a net environmental gain associated with the introduction of the BYOC food outlet and the reusable containers that will accompany it.

In short, the 'bring your own container' food outlet will be a great addition to UBC's portfolio of sustainable initiatives. The AMS should proceed with the implementation of this pilot project, and monitor its success with the intention of spreading it across campus in the future.

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## Appendices

### Appendix A – Student Survey

This is a survey which we are conducting for our APSC 261 sustainability project. Bring Your Own Container (BYOC) is an option that AMS is looking into for one of the eleven new food outlets that will be located in the new SUB upon its completion. This means that for this outlet, disposable take-out containers and cups would not be provided, and customers would be required to provide their own containers and/or mugs. The AMS BYOC food outlet would serve as an educational model and help the AMS evaluate the feasibility of moving in this direction with a larger number of food outlets. It would be a tremendous help to our research if you could answer the following questions regarding how you view this idea. Please circle your answers.

**1. Are you a male or female?**

Male    Female

**2. Which faculty are your studies focused in?**

Arts      Applied Science      Dentistry      Kinesiology      Mathematics      Medicine  
Science      Other

**3. What year are you currently in for your program?**

First      Second      Third      Fourth      Graduate studies

**4. How often would you say that you eat at AMS SUB outlets on average? Remember, the AMS outlets do NOT include chain companies like A&W, Subway, Starbucks, etc.**

More than 5 times per week    4-5 times per week    2-3 times per week    Once a week  
Less than once a week

**5. Are you aware of the Eco -To Go: Container Exchange Program which is currently operated by AMS?**

Yes                      No

The Eco - To Go: Container Exchange Program is available at Totem and Vanier Dining Rooms, as well as at all participating UBC Food Services Locations. A one-time purchase of a \$5 membership card gets you access to a reusable container, which is then washed for you after you are finished eating.

**6. Now that you are aware of the Eco - To Go Program, would you prefer to participate in that and have a reusable container provided for a one-time fee of \$5, or bring your own container from home to the food outlet?**

Eco – To Go Program              Own container



**7. If you were to purchase a reusable container from UBC, how much would you be willing to spend on it? Keep in mind that a slightly more expensive container (glass) may last longer than a cheaper one (plastic).**

\$0    \$1 - \$3    \$4 - \$6    \$7 - \$9    \$10 - \$12    \$13 - \$15

**8. If container cleaning services were provided, like in Eco-To Go, what would you be willing to spend?**

\$0    \$1 - \$3    \$4 - \$6    \$7 - \$9    \$10 - \$12    \$13 - \$15

**9. If food prices were slightly decreased, would this impact your decision about participating in the BYOC food outlet concept?**

Yes                  No

**10. If yes, how large of a food price decrease would make you bring a reusable container to eat?**

Under 10%    10%-25%    25%-50%    Over 50%

**11. How likely would you be purchasing food from the single outlet that will have BYOC implemented (if it was one you regularly go to pre-BYOC implementation)?**

Not at all    Once a week    Occasionally    Everyday

**12. How pleased would you be if BYOC were to be implemented at all SUB foot outlets?**

Not at all    Somewhat/Indifferent    Pleased    Very pleased

**13. Would you like to see it eventually implemented at all the AMS outlets?**

Yes    No

**14. How much of an impact do you think this BYOC program at UBC would have on your view and social awareness of sustainability issues?**

None                  A little                  A moderate amount    A lot

**15. How convinced are you that this program has the potential to stand out from other sustainability initiatives that have been introduced in the past?**

None at all    Small chance    Somewhat (in between small and large chance)    Very

**16. Would you avoid the outlet that will be taking part in the BYOC program simply because of inconvenience?**

Yes    No

**17. Which outlet would you MOST prefer to see implement the BYOC program?**

Bernoulli's Bagels          Blue Chip Cookies    Honour Roll    The Moon    Pie R Squared  
        Pit Burger Bar        

**18. If BYOC were to become successful and implemented at all AMS outlets, would you continue purchasing food from the AMS outlets or move to other outlets such as A&W, Subway, or eateries in the village?**

AMS          Other          AMS + other (no preference)

**19. How would the BYOC tentatively impact your student experience at UBC?**

Large negative impact    Small negative    No impact          Small positive impact    Large positive impact

**20. If the BYOC outlet did not provide utensils as well, that is you would need to bring your own container and utensils, how would this affect your decision to purchase food at that outlet?**

Would buy food if it was just BYOC/Would not buy food if it was BYOC AND bring your own utensil

Would buy food if it was BYOC and bring your own utensil

Would not buy food if it was just BYOC

**21. If the one BYOC outlet was beside or within walking distance of a regular outlet that provides containers, which outlet would you go to?**

BYOC          Regular

**22. Please tick the factors that would affect your decision and circle the one that would be the most important to you.**

Time    Price    Food Preference          Having to bring a container around/convenience  
Being sustainable

**23. Does the idea of exclusively using reusable containers and utensils in the new SUB sound like a good idea to you?**

Yes    No