

**ENV461**

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## **Final group report**

### **Introduction**

In Canada, 2.2 million tonnes of edible food is wasted each year (Food Waste in the Home, 2020). Although food waste does not grab a headline as frequently as many other environmental crises do, it does not mean that we do not need to pay attention to it. We found that 63% of the food Canadians throw away could have been eaten and that means we are throwing away the resources that could be used to produce and grow new foods (Food Waste in the Home, 2020). The treatment of waste management continues to be a problem worldwide. The purpose of this report is to outline what U of T has done and come up with suggested possible recommendations by comparing with other universities and their waste management strategies.

### **Topic Area & Scope**

Now The Sustainability Office is developing an "Adopt-A-Biodigester" Program for some federated colleges and off-campus buildings. The program includes formulating advice for dining hall staff and stakeholders. Our project will communicate concepts about sustainability, food waste and benefits for St. George campus to adopt a Biodigester program, provide a communication guide for St. George dining hall staff and recommendations for the other two campuses.

### **Goals & Objectives**

We intend to raise students and staff's awareness and help them understand the importance of reducing and managing organic/food waste. Moreover, the recommendations will include how the St. George campus currently manages the food waste and how they can benefit from adopting a Biodigester program. Based on the recommendations, we aim to help U of T to meet sustainability goals including achieving zero waste.

Our project has three objectives: (1) Give recommendations for the current food & waste management services of UTSC & UTM and federated colleges at UTSG (2) Find and analyze how other universities do food waste management, programs and communication best practices (3) Offer guidance on communication and engagement best practices and best practice for St. George campus dining hall stakeholders.

### **Methodology**

Our team's methodology has chosen literature review, academic review, survey with chestnut residence students and provides recommendations and communication guide. We have examined the literature review on what other universities have done about food waste management. We have done an academic review of the intersection between food waste and behaviour. After the academic review, we released survey questions to the students at Chestnut and asked them questions about food waste management and U of T sustainability goals. To better understand the current situation of UTSG dining hall, we collected and analyzed the suggestions and attitudes of chestnut residents to better offer a communication guide to UTSG dining hall. We used the STARS self-reporting framework and three criteria to find the university that has made outstanding contributions to the food waste management guide. The three criteria are: first, having a food waste composting program, second, the effort of the pre-consumer and third, the effort of the post-consumer.

### **What have we done now?**

The University of Toronto has joined the University Climate Change Coalition (UC3) in 2018. The main focus is to reduce the amount of greenhouse gas emissions on campuses. To achieve the goal, the University of Toronto set a 37% GHG emission (including direct emissions from sources that are owned or controlled by the organization and indirect emissions that occur in the value chain of the organization, such as emissions associated with travel & food) reduction goal by 2030. Besides, of all the organic food waste that is generated at U of T, food waste from dining halls accounts for approx. 60% of the University of Toronto's total organic waste disposal costs each year (Sustainability Office Proposed Adopt-a-Biodigester Turn-Key program brief, 2020).

According to the research, the current waste collection method that U of T is using is to collect the organic waste materials through green bins across campus and delivered to a local landfill facility that responsibly captures methane emissions (Sustainability Office Proposed Adopt-a-Biodigester Turn-Key program brief, 2020). We also researched some of the actions that sustainability offices did already. For examples: Veggie Mondays (10% off), educating customers about sustainable options, Encouraged to become trayless (University of Toronto Food Services Rules and Regulations, 2012).

## **Literature Review**

Through research, we found that St George campus still has a lot of shortages in food waste management. To provide useful and practical recommendations for food waste management on St. George campus, we conducted case studies analysis on universities with outstanding contributions in food waste management.

We used the STARS self-reporting framework and three criterias to find the university that has made outstanding contributions to the food waste management guide. The three criteria are: 1. having a food waste composting program 2. the effort of the pre-consumer 3. the effort of the post-consumer. Through the examination, we found three outstanding universities which are UC Davis, Mcgill, Dalhousie.

### **University of California- Davis**

The University of California- Davis wants to achieve the zero waste goal by avoiding sending trash to the landfill and buying things that can only go to a landfill(Sustainable 2nd Century, 2020). Also, to achieve this goal, UC Davis has established a waste collection system to collect pre and post food waste.

So, what is pre and post-consumer food waste? “The pre-consumer waste is a material that was discarded before it was ready for consumer use”(JESSICA, 2020). In UC Davis, students and staff collect organic waste across campus for the compost. The compost will be sold to the Resident Garden and to the larger Davis community(Project Compost, 2020). Also, the kitchen staff may be instructed to separate compostable food scraps into different containers during food preparation(UCDavis, 2020).

UC Davis has a centre which is called Project Compost(Project Compost, 2020). This centre is a student-run, student-funded unit of the Associated Students of UC Davis that started in fall of 1999 from an internship with the campus recycling program(Project Compost, 2020). The Student staff and volunteers of Project Compost will transport the food waste which is sorted and collected by the dining hall staff to the composting location(Project Compost, 2020). Finally, compost will be sold to the campus, including for use at the Resident Garden and to the larger Davis community(Project Compost, 2020).

Approximately 14% of the food in the UC Davis campus cafeteria is locally grown, which means that pre-consumer waste can be used for plantation composting, which makes food waste management more meaningful(Sustainable 2nd Century, 2020). UC Davis classified the recyclable garbage and made a Waste Diversion Guide for people. The UC Davis bring the dining hall staff to the composting location to show them and introduce the composting process. At the composting site, professionals teach and train employees how to sort pre-consumer waste and how to compost the waste(Sustainable 2nd Century, 2020). UC Davis regularly holds cafeteria staff meetings to discuss and exchange experiences and discover what kind of food is most likely to produce pre-consumer waste(Sustainable 2nd Century, 2020).

UCDavis makes posters of the food management process so people can understand visually what is happening to the material. The UC Davis made a banner to place over recycling bins. This can help canteen staff to more easily classify pre-consumer waste(UC Davis Student Housing and Dining Services, 2020).

Post-consumer waste also known as “plate waste” or “table scraps,” in “which is food waste that was discarded by customers after food is provided or sold”(Mise en place, 2014). UC Davis has done several accomplishments in post-consumer waste, for example, the UC Davis Sustainability Office created the Trayless Dining, Meatless Monday, Just ask program and Try-a-Taste program(Sustainable Dining, 2020).

#### **- *Trayless dining***

Some benefits that UC Davis dining hall established are trayless dining, for example, reducing food waste, reducing electricity water and overhead cost. Since June 2008, all four dining halls at UC Davis have no trays, by taking this action, it can reduce food waste by nearly fifty per cent. Remove plastic trays help to reduce food waste as well as allow customers in the dining hall not to take excess food that they cannot finish. Before, when UC Davis has not

implemented the trayless dining, the food waste with a tray is “5.2 oz per person, however, after June 2008, the food waste with a tray-less is 1.98 oz” per person (Lee, n.d). There is a 60 per cent reduction in food waste and a reduction in food cost. Also, not merely reducing waste moreover, it can save more than “1,200 gallons of water” per day (Lee, n.d).

#### ***- Meatless Monday***

UC Davis dining hall engages with the students and guests on the nation-wide Meatless Monday campaign. Over the past, each year there are over “680 UC Davis students” pledged to cut out meat one day a week through the Dining Services Meatless Monday Campaign (About Meatless Monday, 2020). UC Davis has recognized the benefits of Meatless Monday and is offering it in their campus dining halls. The Meatless Monday action that UC Davis dining hall takes not merely “benefits customers' health, and the health of the planet” but it also greatly reduces meat waste (About Meatless Monday, 2020).

#### ***- Just ask program and Try-a-Taste program***

The “Just ask Program” that UC Davis dining hall creates, it gives students the option to customize their meals. UC Davis provides pre-plate entrees in different portion sizes, as well as students can choose whether they want the plating entrees with and without the sides (Lee, Adams, Kosoff, and Nazari, n.d). The “Try-a-Taste program,” which allows students to try a bite of a dish before taking a whole serving (Lee, Adams, Kosoff, and Narazi, n.d). By doing these two programs it helps reduce food waste in the UC Davis dining hall.

#### ***- Where post-consumer waste leads to***

Post-consumer organic waste is composted at every retail food site. Also, there is a sun-powered post-consumer compost compactor located at the Coffee House in UC Davis, in which it can reduce transit times, as well as better, reduce food waste. The organic waste collected in Dining Services will be sent to the commercial composting facility “Northern Recycling Compost Facility in Zamora, California” (UC Davis Campus Progress, n.d). The facility recycles green material, food waste, wood waste, and agricultural waste to provide compost, biomass fuel, and value-added soil. Later on, the compost can be used by “local farms and vintners,” as a way to support the community (UC Davis Campus Progress, n.d).

#### **- University of McGill**

McGill's the Director of the Office of Sustainability and the Director of Utilities and Energy Management jointly formulated an effective waste management strategy which is: Waste

Reduction and Diversion Strategy (2018-2025) (McGill Office of Sustainability, 2020). This strategy includes roles in the Waste Management System for different units on the two campuses. For example, the Office of Sustainability Develop is mainly responsible for training faculty, staff and student leaders on waste reduction (McGill Office of Sustainability, 2018). Such a clear division of labour can better coordinate the tasks of waste management on campus.

This strategy includes various existing waste initiatives: Ozzi Machines, Waste Educators, Communications and engagement, etc. (McGill Office of Sustainability, 2018). For example, for communications and engagement initiatives, McGill uses various communications materials to educate community members about waste management (McGill Office of Sustainability, 2018). Every year McGill Office of Sustainability will hold communication campaigns and workshops to engage and educate the McGill community (McGill Office of Sustainability, 2018). McGill had set up a waste hierarchy to better sort and recycle garbage: reduce, reuse, recycle and the landfill (McGill Office of Sustainability, 2018). And, At McGill University, non-hazardous waste is sorted into four streams: compost, paper/cardboard, recyclable containers and the landfill (McGill Office of Sustainability, 2018). For different streams, McGill has clearly described their corresponding trash can colours and formulated lists of "YES" and "NO" items.

Besides, to achieve the goal of "zero waste", McGill University has adopted a series of measures including educating the community, optimizing the classification, collection, transfer and disposal of community waste, etc. (McGill Office of Sustainability, 2018).

For compost, McGill uses the following slogan to guide the campus faculty, staff, students and community members:



514 690 5773  
compostmontreal.com



Besides, to meet the “provincially mandated 60% organic waste diversion” rate McGill conducts various initiatives to reduce the post-consumer waste in McGill Community and dining halls, for example, waste educators, McGill Plate Club and Zero-Waste Team (McGill Office of Sustainability, 2018).

#### ***- Waste Educators***

Both the McGill’s student housing and Hospitality Services Waste Educator Program have cooperated, and started the organic waste collection in the University of McGill’s residence buildings as well as facilitate “effective waste management practices” (McGill Office of Sustainability, 2018). Moreover, University of McGill started a program in 2014, the “Waste Educators,” in which it wants to educate students proper waste sorting practices. This Educator Program greatly increases the amount of compost collected in the dining hall of the residential buildings. According to the statistical data that the McGill Sustainability Office collected in 2015-2016, over “196,179 litres of organic material” have been collected in the five residential dining halls at the University of McGill ( McGill Office of Sustainability, 2018). There was an increase of “42% compared to 2014” in collected compostable material (McGill Office of Sustainability, 2018).

#### **McGill Plate Club**

Moreover, the McGill Student Society has established the McGill Plate Club. The Plate Club offers “reusable utensils, dishware, and glasses” in the SSMU dining hall (McGill Office of

Sustainability, 2018). The goal of the McGill Plate Club is to reduce unnecessary waste generated by disposable food containers, as well as encourage sustainable habits on campus.

### ***-Zero-Waste Team***

The University of McGill implemented the Zero Waste Action Plan, it aims to transform McGill into a zero-waste campus. Both McGill undergraduate and graduate students have work form a “Zero Waste Team” (McGill Office of Sustainability, 2018). This Zero-Waste Team put forward suggestions for improving these buildings to reduce waste and transfer waste, including strategies for introducing compost on campus.

### **Dalhousie University**

Dalhousie University has also made great progress in the food waste program and pre-and post-consumer’ effort. For example, “The Chef’s Garden Project,” in which it encourages campus sustainability, for the supply of Dalhousie grown vegetables for on-campus dining and education. An audit was conducted in 2007 at Dalhousie University, to investigate rates of food waste on the campus. It was found that at the university’s largest cafeteria an average of 227 kilograms of food was wasted per day. Given the heavy burden of food loss, Dalhousie University has worked out a sustainability plan, aiming to remove 70% of school waste from landfills by 2020 (Facilities Management and the Office of Sustainability, 2017).To fulfil the goal, it has released standards for trash cans in the campus area. In line with the standard, in December 2016, Dalhousie university replaced all the old waste disposal tanks and started a four-bin waste management system.

Besides, food processing has always been a problem in which a significant deal of waste is generated. Dalhousie University has made its way to turn to local products which are organic, fresher, and cheaper. The process of transferring food from local suppliers to the university costs less so that students can afford organic local food, which contributes to the consumers’ effort. In Dalhousie University, the Farm-to-Table program and the Sea-to-Table program have been initiated to ensure students’ sustainable consumption.

### ***-Chef Garden***

\_\_\_\_\_To further engage the staff and students in the overall project, Dalhousie University set up the Chef Garden on the Agricultural Campus, 1.1-acre farmland. It can not only provide vegetables grown by Dalhousie for dining but also serves as an educational resource for students as a living classroom. The Chef Garden also assumes the responsibility of improving the



sustainability of the campus, creating an atmosphere for the staff and students to engage themselves in advancing food waste management.

#### ***-Four-bin system***

The four-bin waste management system focuses on the idea of garbage classification which is beneficial for garbage transfer as well as its disposal. This program can help people develop their awareness of garbage classification through the actual action. With this system, a greener and more sustainable working environment can be created by the joint effort of teachers and students. The purpose is to better manage and mitigate the amount of solid waste as well as help people to realize the importance of garbage classification.

#### ***-Reducing Portion Sizes***

Another favourable way to reduce food loss in the dining areas of campus is to use smaller plates. According to Aramark's Food Service Director at Dalhousie, when it went to small portions in universities, the amount of food loss and waste was reduced by 25%-30%. Moreover, the use of smaller dining plates has now become a required practice, and Aramark has replaced the 33-cm dinner plates with 23-cm plates, to further alleviate food loss and waste.

#### **Academic Review**

The author found that habits and emotions have a significant influence on food waste behaviour. When people want to reduce food waste, people's negative emotions will increase, leading to more food waste. The author also believes that encouraging stronger subjective norms can help people change their food waste behaviour. Russell mentioned that people's behaviour is directly determined by intention. This is related to our project. We believe that formulating reasonable effective communication guidelines can help people change their intentions to reduce food waste and promote better food sorting habits.

#### **Survey**

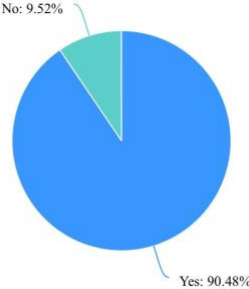
To provide recommendations for the campus, it is important to hear more from the residences. We developed a survey to circulate and undertake with students at the Chestnut, which is the largest group of dining hall patrons. The survey identified the daily amount of food waste in the dining hall, the students' understanding of biodigester knowledge, and their food waste behaviour habits. We posted the survey on both Facebook and Wechat groups and received 56 responses. Before taking the survey, we gave background information about biodigester to the students. The biodigester is a system that can break down organic waste and

turn it into natural gas for burning to generate electricity which can transfer waste to useful resources. It's a helpful system in saving the environment and reaching U of T sustainable goals. We also informed them that the information collected in this survey will be included in the Communication and Engagement guide to reflect the views of the Chestnut Residence community members and how they may wish to engage with U of T Sustainability Office, Dining Hall and Food Services staff and stakeholders in future campaigns or related programming activities on food, waste and sustainability.

We started the questionnaire by asking about their habits, and we found that more than half of the students would separate their wastes in daily life and they would separate the waste by different kinds, for example like recycling, organic waste, food waste, etc. However, most of them do not know the approximate percentage of food waste that they produced per day.



To have a full understanding of their background knowledge of the environment, the next question is are you aware that waste can cause lots of environmental problems in life (Pollution, methane gas, greenhouse gas emission)? The results were as expected. Over 90% of the students have paid attention to environmental issues.



From the previous research, we found that the Chestnut residence has a buffet-style dining hall. To solve the problem of food waste, we asked the students' opinion on changing it to a limited amount of food in the dining hall, but more than 50% of the students disagree with our idea even if this action can help to decrease the amount of food waste. The figure below is a screenshot of part of the student's comments. We can conclude that the main concern they have is that Chestnut is extremely expensive, and there are no direct benefits to students. If the price of the meal plan is not going to decrease, it is hard to carry out a new plan.

6	Not a good idea. Chestnut is expensive and far from college, food is its only advantage.
11	good
12	good
13	It could be a solution but it's hard to carry out
14	No benefits for students, if we pay the same money for it
15	That's good but it will be very hard to decide the limits
18	Yes
19	Good idea but hard since Chestnut is all u can eat
21	Change the meal plan to limited will decrease the amount of food waste. However, the price of the meal plan should also decrease. Students can just pay the amount of food they are getting, in which it will benefit for both dining hall and the students.

Last but not least, most of the students believe that there are lots of obstacles to informing the food waste separation. For example, some people mentioned that the Chestnut residence is very far from the campus and the cost is expensive. The only reason that they want to continue living here is because of the food. Besides, some students talked about their lazy habits and they think it's complicated to organize the waste. Some students also mentioned that it's hard to get people's attention, especially during the covid-19 period.

Through research, Literature Review, Academic review and survey of St George campus, we found that St George campus has done a lot of initiatives and actions, but still needs improvement in communication deliveries. Based on our data, we will provide some major suggestions to the University of Toronto Scarborough and the University of Toronto Mississauga

campus. For St George campus, we will offer guidance on communication and engagement best practices.

### **Recommendations**

Many schools believe that much food is wasted because the students do not develop the habit of frugality, so they educate the students to reduce food waste in various ways and forms. However, the result is still unsatisfactory. There are many reasons for the food waste phenomenon on campus. Students have not developed the habit of diligence and frugality, but only one aspect. The more important reason is that the food provided to students by schools or catering enterprises is unreasonable and unscientific in both variety and quantity. Some dining halls still serve buffet instead of order-by-order mode, but the buffet regardless of the students' eating habits and size. Students will naturally choose the food they like to eat, and try new dishes. If the new dish is not delicious, they will throw it away. If they take more food than they can eat, it will lead to food waste. Therefore, we offer the following Suggestions on food waste management for UTM and UTSC's dining hall.

First, dining halls that still serve buffet could change mode to order-by-order mode and pay by weighing your food as campus one did for their cafeteria. This recommendation is based on the survey that students provided in their answers to suggestions for chestnut food service. Each person ate a different amount of food and the girls ate less. The cafeteria offers a salad bar and the main course area. The dining hall can set the main course area as the mode of the order by order and the price for the fruit salad area can be weighed. This recommendation lets people decide how much they like to eat and the food amount they are willing to pay which reduces food waste.

Second, donate unadulterated fruits and vegetables to local farms to feed livestock or poultry. This suggestion comes from both McGill and UC Davis universities, they transfer waste to useful resources or they leave it to local farms. At the University of Toronto, students and kitchens throw away a large amount of fruit or vegetables each day, reasons may be stale or overtake or overcut and left at the end of the day. We can use these resources to provide fodder to livestock for farmers. This is a mutually beneficial choice for both schools and farmers.

Schools can achieve sustainable goals and reduce waste, and it also saves farmers money on feeding livestock. Moreover, these vegetables are very nutritious for livestock such as pumpkins. Pumpkins are higher in calories, eating pumpkins will let pigs absorb a large amount of vitamins B, which can not only strengthen the animal's immunity and keep it healthy but also make it grow faster, have better meat quality and be more nutritious (Valdez-Arjona & Ramírez-Mella, 2019). Moreover, fruit and vegetables are organic waste which is useful in the system of the biodigester. Bio-digester is an innovative modular, in-building application that will use the organic wastes to create energy for the building, the Residence and U of T stakeholders. It is a method to support U of T goals to achieve zero waste.

Third, dining halls could try the program called 'Try-a-Taste' which reduces food waste action UC Davis did. During the creation of the new food, dining halls provide students with a little food to try and decide whether they like it or to make sure that they know exactly how much to take otherwise it will cause serious food waste. It does not request a sample for every dish but should have a sample for every new dish so that people can know the taste and intuitive feeling of the new dish more quickly. Many people are willing to buy a new dish when they don't offer a sample to taste. There will be a problem that if the new dish is not on preference, they will only take a few bites and throw it in the garbage. Staff also know students' preferences through this program and adjust the amount of this course. The best time for new products to try is during the weekdays because everyone is busy studying and eating in the cafeteria. Many students might choose to hang out with friends or go back home on weekends, so the data will not be accurate if there are fewer people.

Fourth, Uoft may start Meatless Monday which means no meat provided on Monday in the dining hall. UC Davis starts meatless Monday and overviews the impact on customer's health, the health of the planet but it also dramatically reduces meat waste. Livestock and their by-products account for at least 51% of global greenhouse gas emissions, according to the WorldWatch Institute (WWI)(McMahon, 2019). Carnivores are at the top of the food chain, and eating meat is much more carbon-intensive than a vegetarian diet. Because if you eat a kilo of meat, you probably need 10 kilos of grain to produce that meat, and 10 kilos of grain requires lots of water and large amounts of land to grow so less meat protects the environment(Grindrod,

2016). The Benefit of it is over the long term, the cumulative environmental impact can reduce the rate of climate change. Therefore, meatless Monday should be a great activity for Uoft to achieve a sustainable goal and greatly reduce the meat waste each week.

Fifth, Uoft assigns a group of students or staff members to be an environmental educator and then conducts monthly environmental education to other students living in the residence. McGill introduces an educator program to increase the student's awareness of garbage classification through different activities. The University of Toronto should set activities like posters posted on every floor of the dormitory, speeches about protecting the environment and reducing waste, communication guides can be put at the door of the cafeteria and so on. Through these activities to educate everyone to reduce waste, what is the meaning of garbage classification, where are the benefits, how to separate garbage and all the knowledge about garbage classification and protecting the environment. Although this activity cannot directly reduce the waste or directly classify the waste, this education will make students increase awareness of sorting when they throw garbage and improve their behaviours of not wasting.

Sixth, become a trayless university. UC Davis has had this action since 2008 and they reduce 60 per cent of food waste with tray and it does not allow excess food to be packaged if the food cannot finish. The University of Toronto cafeteria should provide bowls and plates for students or students bring their container to fill their meals and thus reduce the number of food packages. If students use the utensils provided by the university or self container, they will reduce their food bill by 50 cents each time and we believe many of them will begin to use the plates or bring their one instead of the food container.

Seventh, adjust the amount of each dish according to the students' preference. This recommendation is based on the survey since chestnut is offering a buffet mode, students are thinking the kitchen needs to prepare the same amount of food each day. However, there will be numerous dishes with a large amount of food left. The Cafeteria staff can determine the student's preference by observing what's left by the student and left by the dining hall that hasn't been taken. And then the Cafeteria staff can reduce the amount of this course a little bit to avoid unnecessary waste when they prepare the same dish next time. Or they can directly ask the

students if they have any opinions about the taste and then they can modify it through the feedback of the students.

Eighth, draw different types of garbage that throw in each bin. From the survey, we recognize that students prefer looking at drawing instead of texts so we introduce this suggestion. Students look over the graph to choose which bin should the garbage be thrown easily. For example, recyclable garbage bins can draw waste paper, plastic, glass and other recyclable garbage, so that students can know more intuitively how to accurately classify garbage. The same as kitchen waste garbage bin, have some drawings about food waste such as leftovers, bones, peels and so on, to facilitate the staff for the next step of garbage disposal.

**Different dining halls can look over the recommendations listed above to help reduce food waste.**

### **Communication Guide**

The University of Toronto- St. George Sustainable Office has already introduced several recommendations from above to the dining hall stakeholders so we are providing a communication guide for them. We listed several methods to promote our recommended best practices on St. George campus.

First, put stickers to remind students. Students can be reminded of the canteen activities next week by Posting on the cashier desk, at the door of the canteen or other places, notes include Next Monday is Meatless Monday, the date on which you'll find events to promote waste management, and extra. All notifications can be posted on the Residence floor or bulletin board.

Second, add information in Menu such as our dining hall is providing order-by-order mode and recommend students to take the appropriate amount of each dish and don't waste food.

Third, posters can include slogans, pictures of garbage classification and more information to increase students' awareness and knowledge on waste management.

Fourth, based on the Waste Educator Program in McGill, we believe that a "floor meeting" program can be held in each residence of the University of Toronto- St. George. Many residences in UTSG, such as Chestnut and new college, hold regular floor meetings as far as we know. We believe that the dorm on each floor at the floor meeting can share food waste management information with students when they hold the first meeting. Students can also be brought to visit their dining hall to understand better how the dining hall staff collects and sorts of food waste. The sustainability office staff can introduce various the University of Toronto St. George's existing food waste management programs, such as meat-less and tray-less dining, during the tour. This can help students reduce food waste and increase their awareness.

Fifth, each dining hall in the University of Toronto- St. George campus can provide a monthly survey, to better improve the dining hall as well as adopt students' suggestions to the dining hall.

## **Conclusion**

To sum up, we believe that food waste and waste sorting management at campus canteens is a severe problem, and the University of Toronto needs the cooperation of students and staff to actively solve this problem. With the increase in food waste, it has an impact on many aspects such as fresh water and land resources as well as a great pressure on the whole environment. Greenhouse gas emissions from food waste could therefore increase significantly. Wasting food is equivalent to wasting a large amount of water resources, which increases severe water shortage challenges more seriously. Population growth and the need for agriculture and livestock land are increasingly leading to bringing great pressure on land resources. Reducing food waste would also reduce the demand for land (Depta, 2018). Moreover, doing garbage classification is the same as doing a series of activities about garbage storing. Classification is a way to express their resources' value and economic value of garbage. We need to make the best use of everything, reduce waste disposal to decrease the price of disposal and also lower the consumption of land uses and so on. Examples like food, plants and fabrics are able to be composted through the biodigestive system to produce organic fertilizers; power, heat, or refrigeration may be produced by systematic incineration and etc. (Schwarz, 2007) Fully recycled and then converted into usable resources. It can be shown that recycling is the better



way to solve the waste problem if people timely classify the garbage generated in the consumption link. Also, garbage classification is an important step before adopting the Biodigester program. Organic Garbage can transfer to useful resources by biodigester program so if we do the organic sorting on the campus then it can be easier for the University of Toronto to accept biodigester programs. Therefore, the benefits of garbage classification and reducing food waste are obvious. Recommendations help the University of Toronto to achieve the sustainability goals and the goal of zero waste by reducing wastes and doing garbage classification on campus. Furthermore, the University of Toronto is working with us to tackle food waste and garbage sorting on campus and believes there is a room for the University of Toronto to grow on wasting management in the future.

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