

Exploring the economic feasibility of implementing a reusable container program on Dalhousie University's Studley Campus



Joshua Chabinka (Department of Environmental Science), **Juan Elevancini** (College of Sustainability and Department of German), **Ashleigh Myles** (Department of International Development Studies, College of Sustainability and King's Department of Journalism), **Joshua Pye** (Department of Environmental Science), **Yiwen Sun** (College of Sustainability and School of Planning)

Submitted April 17, 2015
ENVS3502/SUST3502
Professor: Dr. Tarah Wright
TA Mentor: Eliza Jackson

Table of Contents

Executive Summary.....	2
Introduction	
Project Definition.....	2
Background and Rationale.....	3
Methods.....	5
Research Tools.....	6
Semi-Structured Interviews.....	6
Limitations.....	6
Delimitations.....	7
Results	
Quantitative Results.....	7
Qualitative Results.....	9
Discussion	
Summary of Research Question.....	9
Overview and Examination of Findings.....	10
A consideration of the findings in light of existing research studies.....	10
Implications for Theory and Practice.....	10
Conclusion	
Recommendations.....	11
References.....	12
Acknowledgements.....	13
Appendices	
Appendix I- Preliminary Proposal	14
Appendix II- Ethics Form.....	25
Appendix III- Rochelle Owen Interview.....	40
Appendix IV- Scott Read Interview.....	46
Appendix V- Angela Emmerson Interview	49
Appendix VI- Naina Ummaut Interview.....	53
Appendix VII- Derrick Hines Interview	63

Executive Summary

The main objective of this research project was to find out whether a reusable/sealable container program would be economically feasible at the Dalhousie Food Services (DFS) vendors. Our focus was to ask the vendors, and Dalhousie Food Services whether or not the proposed project would be economically feasible. We could have surveyed students on Dalhousie University's Studley campus to see if they would be interested in participating in such a program if it was implemented. However, we found it more useful to see if the actual economic feasibility through the Dalhousie Food Services would allow such a program. If Dalhousie Food Services would not allow a reusable/sealable container program, then the interest of students in a program would not have much leverage. One of the main reasons we researched the possibility of implementing a program, was to see what barriers stood in the way of previous attempts and discussions surrounding the reusable/sealable container, or any other waste reduction program.

As we collected interviews, transcribed, and coded them, we discovered that our original barrier, economic feasibility, was only one of the main barriers limiting the implementation of such a program. Other barriers included: food safety, washing, waste management, management, packaging, and behaviour. Eventually, our semi-structured, open-ended interviews evolved into discussions with the interviewees about the main barriers they brought up. Face-to-face interviewing with Office of Sustainability members, Dalhousie Food Services vendors and their affiliations, lead us to believe reusable/sealable container programs are difficult to implement because barriers exist in the fine print. Franchise standards, policy, and behaviour are a few of the underlying components that make a reusable/sealable container program only a discussion, and not a campus-wide initiative. For further action, we recommend looking into the fine print of health and safety standards, franchise standards, and policy in order to successfully implement a reusable/sealable container program at Dalhousie University.

Introduction

Project Definition

One way to possibly reduce waste accumulated by the Dalhousie Food Service (DFS) vendors is for students to bring their own reusable/sealable containers (Tupperware, Rubbermaid, etc). If students were to bring their own containers, it may help reduce the waste created by vendors, both while dining-in and taking-out food. The economic feasibility of the reusable/sealable containers brought in by students can be determined based on the resulting savings of disposable containers expenses, which could support a 5% discount. A 5% discount was decided based on the University of Maryland's offer to students of a discount of 25 cents per

every meal valued at \$5.25, which translates into approximately a 5% discount (Department of Dining Services, 2014).

The intent of this project is to determine the economic feasibility for Dalhousie Food Services vendors to provide meals to students and staff in reusable/sealable containers. These can be of a universal size, similar to the current disposable ones used on campus. Our research question is: would it be economically feasible to offer students a discount at Dalhousie University who bring their own reusable/sealable containers? In doing so, the end goal is to promote waste reduction by DFS vendors and waste diversion on campus.

This study is relevant to the overall reduction of waste on campuses, as well as the waste diversion which can occur if small actions like bringing in reusable/sealable containers are implemented. In comparison to other studies, which focus on bringing reusable/sealable containers to reduce waste, our project focuses on the economic feasibility instead of health, waste management, behaviour and packaging. Economic barriers the vendors face can affect the potential incentive and discount offered to students. By focusing on the economic feasibility aspect of the reusable/sealable containers, it inherently shifts focus to the waste diversion and reduction surrounding sustainability issues regarding waste on campus.

Background and Rationale

Dalhousie University is the largest university in Atlantic Canada with approximately 18,500 students, 1,100 faculty members and thousands of additional staff (Dalhousie University, n.d.). As a result, Dalhousie Food Services has developed an expansive network of vendor locations across campus to serve students and staff. The number of disposable cups, plates and containers are a major contributor to Dalhousie's waste, and a program aimed at reducing this waste should be explored (Davidson, 2011).

As a leading institution in sustainability, Dalhousie has made numerous upgrades to infrastructure around campus and all new buildings comply with the highest standards of energy efficiency, but still has room for improvement in waste reduction. A possible solution for waste reduction on campus involves the option to use reusable/sealable containers by students when they purchase food. An incentive for students could be implemented by Dalhousie, where they could reduce the cost of a meal by 3-10%, if students brought a reusable/sealable container.

The Office of Sustainability released a report in June 2011 outlining the approximate quantities of waste produced by Dalhousie. It was estimated that across all campuses, 2464.6 kg

of garbage was generated per day (Davidson, 2011). Although it is unspecified where the garbage originated, it is likely that a significant percentage came from food packaging.

Dalhousie's waste contributes to methane production in landfills and increases its atmospheric concentration; therefore, contributing to global warming and the greenhouse effect. In addition, soil and aquifer contamination may occur in the local environment causing health issues to humans and wildlife. (Wegreen-USA, n.d.)

The economic feasibility of this project will be determined by certain factors, although there are also numerous options for implementing a sustainable container system for takeout or on-campus dining. Rather than proposing a specific model, we identify several possibilities and their barriers to entry, which can potentially lead to the implementation of such a program in the future. These solutions include, but are not limited to the following:

1. A system in which the university may sell a student or staff member to keep their own reusable/sealable container for a low fee (approx. \$5.00).
2. Students or staff provide their own reusable/sealable containers without purchasing them from the university. Consequently, the university does not need to provide them.
3. The university upgrades existing infrastructure to install or expand areas for dishwashers, in order to provide a "dine-in" or "takeout" option, thus reducing the need for disposable containers. Several fast food outlets have already implemented this option, such as Tim Hortons and A&W.

To address health and food safety issues, a system could be implemented in which a student purchases a container from the university, but returns it for a new, clean one each time food is purchased from vendors. In this case, the university will be responsible to provide clean containers for students and staff participating in the reusable/sealable container program. This possible solution aims to meet health and safety regulations while substantially reducing the waste produced by food services. The University of British Columbia already implemented a system where participating students receive a to-go container, which they return each time they use the service (UBC Sustainability, n.d.).

The University of Maryland also uses a system where students place a deposit on a container, which is returned to them upon returning the container and washed in an industrial strength dishwasher. Numerous models have been implemented that could be adapted to meet the needs of Dalhousie University. The University of Maryland also offers students a \$0.25 discount each time a reusable/sealable takeout container is used (Department of Dining Services, 2014).

From the previous programs and systems implemented at other institutions, including some further research to follow, it should be possible to clearly identify how economically feasible it would be to implement a program similar to those at other institutions at Dalhousie University.

Methods

We applied qualitative research techniques in order to understand the feasibility of implementing a reusable/sealable container program. For this purpose, we identified potential stakeholders in such a program, by approaching members from the Office of Sustainability and the Dalhousie Food Services website. These included representatives from a small subset of campus eateries (Killam Bistro, Topios, Green Café and Grille Works), the Director of the Office of Sustainability, and Director of Dalhousie Food Services. We used a non-probabilistic snowball sampling technique, which led us to other people who could provide us with specific information related to our research.

Potential stakeholders were asked to participate in an interview via email. We planned to contact via phone or drop into the office should they not reply within a three-day period. They were asked to answer a series of interview questions pertaining to the economic and social feasibility of the implementation of a reusable/sealable container program on campus at the locations specified previously. The interviews were semi-structured, open-ended questions, allowing participants to explain and elaborate on their answers (see Appendix I, Preliminary Proposal, Appendix A for a list of questions). Interview notes capturing the respondents' answers were recorded by the interviewer. A qualitative interview of this type is used to collect data on the perceptions and values of the participants (Creswell, 2014).

The data was coded using the grounded a posteriori context sensitive approach. This method allows for the coder to identify topics or themes from the interview notes without any presumptions of what is found in the results, which makes it ideal for this type of exploratory, nondeterministic research (Might & Manolios, 2009). Coding was completed by three researchers to allow cross checking, which provided increased reliability of the results.

The code frequencies were sorted and displayed in a pie chart and a Pareto chart to determine the most important factors in the implementation of a reusable/sealable container program at Dalhousie. Frequently used words were also displayed in a word cloud to provide an alternative, qualitative visual summary of information discussed in the interviews. Using information from current literature and case studies, a list of recommendations was made of the factors that need to be addressed to implement a reusable/sealable container program at Dalhousie.

Research Tools

Snowballing

Through non-probabilistic snowball sampling, we were able to interview people who had the most impact on implementing a reusable/sealable container program.

Interviewing

Face-to-face interviews allowed us to use semi-structured questions in order to gauge main themes associated with a reusable/sealable container program. Most of these main themes focused around what barriers stood in place of implementing a reusable/sealable container program.

Coding

By categorizing the main trending themes from the interview transcripts, we were able to identify recurring barrier trends in our proposed reusable/sealable container program. These codes were: barriers, food safety, washing, packaging, behaviour, waste management, economy, and management.

Semi-Structured Interviews

Interviewees were briefed as to the purpose of the study and how the collected data will be utilized. Due to the limited number of stakeholders identified for this study, confidentiality was not always feasible. Some interviewees are identified by the organisation that they represent to avoid the use of individuals' names.

From the coded interviews with various managers and the Sustainability Office members, it is possible to identify barriers or obstacles that exist when determining how economically and socially feasible would be to implement a reusable/sealable container program across campus locations.

Limitations

Our research was dependent on whether or not the people we contacted replied to us and also their willingness to participate in the research project. Our goal was to conduct seven interviews to increase the validity of the project, but due to time constraints it was only possible to conduct five interviews.

Delimitations

Delimitations of the project are the fact that we chose specific people to interview who were in a position to give us answers on the economic and social feasibility of implementing a reusable container program.

Results

Quantitative Results

Frequency (times mentioned in interviews) by topic



Figure 1: Pie chart of topics identified in interviews by frequency.

The pie chart represents a Grounded A Posteriori Context Sensitive scheme of coding. We transcribed all five interviews and coded them according to what themes emerged during the interview process.

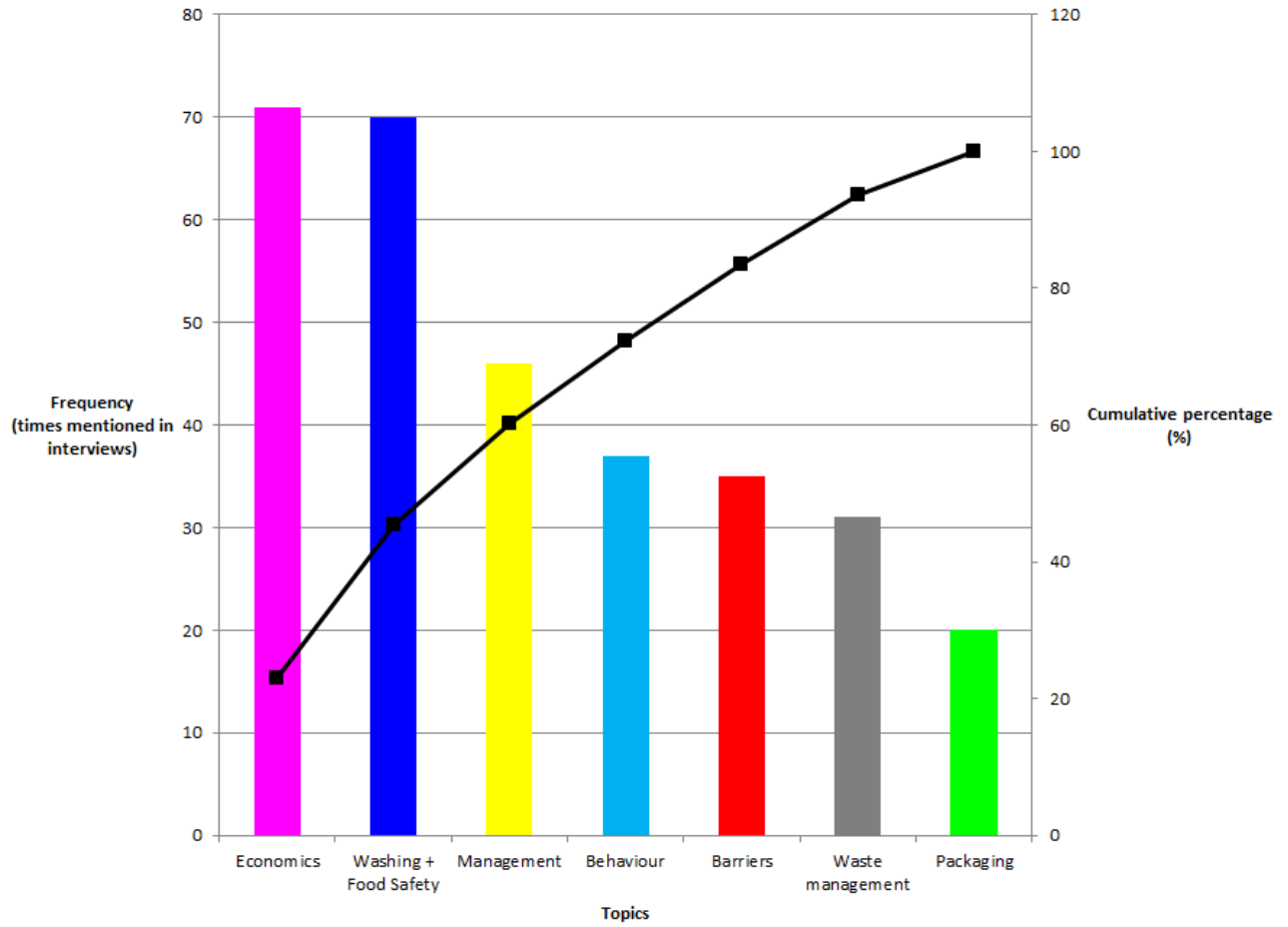


Figure 2: Pareto chart of common topics identified in interviews, listed in order of decreasing frequency.

The Pareto chart represents how often each theme was mentioned over the five transcribed interviews. All seven topics are listed in order of descending frequency, not importance.

Qualitative Results



Figure 3: Word cloud of common words used in interviews.

Figure 3 is a word cloud created using the app Wordle. It reflects the most common used words in our interviews. Despite the obvious ones (for example: think, container, food and waste), if we look closer, more meaningful keywords arise and are linked closely to some of the topics identified while coding.

Discussion

Summary of Research Question

The research question of our study was “Would Dalhousie Food Services be willing to offer a discount to students who bring their own reusable/sealable containers?” The objective of our study aiming to have a deep looking at the both the economic feasibility and the social feasibility of conducting a reusable container program.

Overview And Examination of Findings

By using the research tool snowballing, interviewing and coding, we come up with the three figures above. To be specific, we identified the interviewees using snowballing, then interviewed each of them. After we transcribed the recorded interviews, we coded the words that identified the barriers, other than the economic feasibility, of implementing a reusable/sealable container program. The key, high priority words from coding were: “food safety”, “management” and “economic”. It should be noted that while economics was brought up frequently in the interviews, this was not seen as the primary barrier by the interviewees (as seen in the original interview transcripts in Appendices III- VIII). Therefore, food safety/washing should be seen as the most important barrier to the implementation of a reusable/sealable container program.

A Consideration of the Findings in Light of Existing Research Studies

Back in 2014, a group of Dalhousie students did a similar project: *Reducing Disposable Cups on Dalhousie Campus: A Second Cup Case Study*. The research was focused on determining the effectiveness of reusable mug promotions (lug-a-mug campaign), discovering why people are using or not using their reusable mugs, examining the effectiveness of the current incentives, and finding solutions from students and administration. The methods they used were observation, survey, interview and literature reviews. Their results showed the implementation of reusable containers had a satisfactory outcome, mainly due to behavioural and participation levels being low on behalf of the students. It also showed the food service vendors lacked incentive when implementing such a program. In comparison, our results highlighted management, food safety and economic factors, not behavioural factors as a major barrier.

Implications for theory and practice

Based on the priorities set in Figure 2 and in accordance with the results discussed above, further investigation should focus on food safety aspects in particular. Likewise, management, behavior, waste management and packaging are also important issue to consider for the project. Correspondingly, on the vendors and food service office’s perspective, finding a way to giving consideration on better management upon the food safety issue and an economic-friendly reusable/sealable container are the agenda for next step. And for the students’ perspective, a positive behavior change shall be expected.

Conclusion

Recommendations

Our major findings throughout the research were the importance of managing a reusable container program as well as meeting the requirements of the health and safety board. Although we originally thought the economic and social aspects would be the most important, the interview results proved management as well as health and safety are some of the most important issues.

Based on our research, our recommendation is to further investigate the economic and social feasibility of the implementation of a reusable/sealable container program. It would be especially important to create a business case that focuses on the management of a reusable container program at Dalhousie, as well as to further investigate provincial health and safety issues.

References

- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles, CA: Sage Publications.
- Dalhousie University. (n.d.) *Dal at a Glance. Dalhousie: By the Numbers*. Retrieved from <http://www.dal.ca/about-dal/dal-at-a-glance.html>
- Davidson, G. (2011). *Dalhousie University Waste Auditing History*. Retrieved February 26, 2015, from [https://www.dal.ca/content/dam/dalhousie/pdf/sustainability/Appendix D - Dalhousie University Waste Auditing History \(841 KB\).pdf](https://www.dal.ca/content/dam/dalhousie/pdf/sustainability/Appendix D - Dalhousie University Waste Auditing History (841 KB).pdf)
- Department of Dining Services. *Reusable Carryout*. (2014). Retrieved February 26, 2015, from <http://dining.umd.edu/whats-new/1088>
- Might, M., & Manolios, P. (2009). A posteriori soundness for non-deterministic abstract interpretations. *Proceedings of the 10th International Conference on Verification, Model Checking, and Abstract Interpretation*, 260-274. doi:10.1007/978-3-540-93900-9_22
- UBC Sustainability. (n.d.). *Reusable Takeout Containers*. Retrieved February 26, 2015, from <http://sustain.ubc.ca/get-involved/staff/sustainability-coordinators/toolkit/reusable-takeout-containers>
- WeGreen-USA. *Landfill Problems*. (2015). Retrieved from <http://www.wegreen-usa.org/landfill-problems.html>

Acknowledgements

We'd like to acknowledge Tarah Wright and Eliza Jackson for their guidance and support through this project. We'd also like to thank Derrick Hines, Rochelle Owen, Scott Read, Angela Emmerson, and Naina Ummaut for their participation and input for this project.

Appendix I - Preliminary Proposal

Preliminary Proposal

Feasibility Study for Waste Reduction at Dalhousie Food Services Vendors

ENVS/SUST 3502

February 26, 2015

By Juan Elevancini, Yiwen Sun, Josh Pye, Josh Chabinka, Ashleigh Myles

Mentor: Eliza Jackson

Table of Contents:

Project Definition.....	p. 16
Background and Rationale.....	p. 16-18
Proposed Research Methods.....	p. 18-19
Schedule.....	p. 19-20
Budget.....	p. 21
Project Deliverables.....	p. 21
Communication Plan.....	p. 21-22
Objective.....	p. 21
Target Audience.....	p. 21
Tools.....	p. 21
Evaluation.....	p. 22
Communication Process.....	p. 22
References.....	p. 23
Appendices.....	p. 24
Appendix A: Interview Questions	p. 24

Project Definition

One way to possibly reduce waste accumulated by the Dalhousie Food Service (DFS) vendors is for students to bring their own reusable containers. If students were to bring their own containers, it may help reduce the waste created by vendors, both while dining-in and taking-out food.

The intent of this project is to determine the economic and social feasibility for Dalhousie Food Services vendors to provide meals to students and staff in reusable containers. These can be of a universal size, similar to the current disposable ones used on campus. Our research question is: would it be economically and socially feasible to offer students a discount at Dalhousie University who bring their own reusable containers? In doing so, the end goal is to promote waste reduction by DFS vendors and waste diversion on campus.

This study is relevant to the overall reduction of waste on campuses, as well as the waste diversion which can occur if small actions like bringing in reusable containers are implemented. In comparison to other studies, our project focuses on the vendors offering a discount incentive to the students who bring their own reusable containers. Other studies have focused on bringing reusable containers to reduce waste, whereas our study focuses on the feasibility of the vendors to offer the discount. Economic barriers the vendors face can affect the potential incentive and discount offered to students. By focusing on the feasibility aspect of the reusable containers, it inherently shifts focus to the waste diversion and reduction surrounding sustainability issues regarding waste on campus.

Background and Rationale

Dalhousie University is the largest university in Atlantic Canada with approximately 18,500 students, 1,100 faculty members and thousands of additional staff (Dalhousie University, n.d.). As a result, Dalhousie Food Services has developed an expansive network of vendor locations across campus to serve the students and staff. The number of disposable cups, plates and containers are a major contributor to Dalhousie's waste and a method of reducing this should be explored (Davidson, 2011).

As a leader in sustainability, Dalhousie has made numerous upgrades to infrastructure around campus and all new buildings are to the highest standards of energy efficiency. A possible solution for waste reduction on campus involves the option to use reusable container or reusable dishes by students when they purchase food. An incentive to do so could be provided

by Dalhousie and reduce the cost of the meal by a certain amount or percentage in the range of 5%.

The Office of Sustainability released a report in June 2011 outlining the approximate quantities of waste produced by the university. It was estimated that across all campuses, 2464.6 kg of garbage was generated per day (Davidson, 2011). Although it is unspecified where the garbage originated, it is likely that a significant percentage was from food packaging.

The feasibility of this project will be determined by certain factors, although there are also numerous options for implementing a sustainable container system for takeout or on campus dining. Rather than proposing a specific model, we hope to identify several possibilities and their barriers to entry, which can potentially lead to the implementation of such a program in the future. These options include, but are not limited to the following:

1. A system in which the university may sell a student or staff member their own, reusable container for a low fee (approx. \$5.00).
2. Students or staff provide their own reusable containers without purchasing them from the university. Consequently, the university does not need to provide them.
3. The university upgrades existing infrastructure to install or expand areas for dishwashers, in order to provide a "dine in" or "take out" option, thus reducing the need for disposable containers. Several fast food outlets have already implemented this option, such as Tim Hortons and A&W.

To address obvious health and food safety issues, a system could be implemented in which a student purchases a container from the university, but returns it for a new and clean one each time food is purchased from vendors. In this case, the university will be responsible to provide clean containers for students and staff participating in the reusable container program. This possible solution aims to meet health and safety regulations while substantially reducing the waste produced by food services. The University of British Columbia already implemented a system where participating students receive a to-go container, which they return each time they use the service (UBC Sustainability, n.d.).

The University of Maryland also uses a system where students place a deposit on a container, which is returned to them upon returning the container and washed in an industrial strength dishwasher. Numerous models have been implemented that could be adapted to meet the needs of Dalhousie University. The University of Maryland also offers students a \$0.25 discount each time a plastic takeout container is used (Department of Dining Services, 2014).

From the previous programs and systems implemented at other institutions, including some research to follow, it should be possible to clearly identify how economically and socially feasible it would be to implement a program similar to this at Dalhousie University.

Proposed Research Methods

For this study, we will apply qualitative data techniques in order to understand the feasibility of implementing a reusable container program. For this purpose, we have already identified potential stakeholders in such a program, by approaching members from the office of sustainability and the Dalhousie Food Services website. These include representatives from a small subset of campus eateries (Killam Bistro, Topios, Green Cafe and Grillworks), the Director of the Office of Sustainability, and Dalhousie Food Services. We will use non-probabilistic snowball sampling to continue

Potential stakeholders will be asked to participate in an interview via email. Should they not respond within a three day period we will attempt to contact them via phone call. They will be asked to answer a series of interview questions pertaining to the economic and social feasibility of the implementation of a reusable container program on campus at the locations specified above. The interviews will be loosely structured with open ended questions, allowing participants to explain and elaborate on their answers (see Appendix A for a list of questions). Interview notes capturing the respondents' answers will be taken by the interviewer. A qualitative interview of this type is used to collect data on the perceptions and values of the participants (Creswell, 2014).

The data will be coded using the grounded a posteriori context sensitive approach. This method allows for the coder to identify topics or themes from the interview notes without any presumptions of what will be found in the results, which makes it ideal for this type of exploratory, nondeterministic research (Might & Manolios, 2009). Coding will be done by a pair of researchers to allow cross checking, providing increased reliability of the results.

The code frequencies will be sorted and displayed in a Pareto chart to determine the most important factors in the implementation of a reusable container program at Dalhousie. Using information from current literature and case studies, we will then present a list of recommendations as to how these economic and social factors can be addressed.

Interviewees will be briefed at the beginning of the process as to the purpose of the study and how the gathered data will be used. Due to the limited number of stakeholders identified for this study, confidentiality may not always be feasible. Interviewees will be identified by the

organisation that they represent whenever possible to avoid the use of individuals' names. We do not anticipate any further ethical issues.

From the described interviews and other research methods, it should be possible to have a clear outline of any barriers or obstacles there might be when looking at implementing a reusable container program.

Schedule

The following time frame table illustrates our plan and the related steps:

Week/Date	Mission	In charge of
Week 3: Jan 20	Defined environmental interest; Narrowed to 3 potential topics	group
Week 4: Jan 27	SNOW DAY	
Week 5: Feb 3	Finalized the topic to stick with; Defined research questions and objectives; Brainstorm for literature review	group
Week 6: Feb 10	Finalize Research Question; Define research scope and research tool; Started Proposal	group
Week 7: Feb 17	Reading Week	
Week 8: Feb 23	Developing the project proposal individually as per assigned sections; Define research limitation	Individually
Week 9: Mar 3	Receive feedback about proposal from mentor and online; Review content accordingly; Figure out outstanding issues and questions	group
Week 10: Mar 10	Receive feedback; Revise Methods and Ethics Form	individually with group communication

Week 11: Mar 17	Pilot testing; Conduct interviews	individually with group communication
Week 12: Mar 24	Conduct interviews; Transcribing	individually with group communication
Week 13: Mar 31	Transcribing; Coding; Data display/analysis Pecha Kucha preparation (weekend)	individually with group communication
Week 14: Apr 7	Pecha Kucha Writing for Final Report	individually with group communication
Week 15	Final report and peer review due on April 17	individually with group communication

Working section of each member for the proposal

Project Definition	Ashleigh, Juan
Background and rationale	Juan, Josh C.
Research Method	Josh P.
Project Deliverables	Ashleigh
Communication Plan	Ashleigh
Schedule	Yiwen
Budget	Yiwen
Reference	Group

Budget

Our project does not require a budget, as we do not anticipate incurring any expenses in conducting this study.

Project Deliverables

This project will focus on the feasibility of students bringing reusable containers to Dalhousie Food Services vendors. It will explore case studies of other universities which have considered or implemented the bring-your-own-container solution, as well as the barriers found in their projects. Our methods will be to code certain case studies and explore the core barriers presented in a select few. We will conduct interviews with Rochelle Owen, the Director of the Office of Sustainability at Dalhousie, as well as Dalhousie Food Services vendors. In our interviews, we will explore whether or not it will be feasible to the Dalhousie Food Services vendors to give a discount to students who bring their own containers. On a global scale, this project aims to provide information on the feasibility of reusable containers to other universities and food vendors, in order to reduce the amount of waste created with non-reusable containers.

Communication Plan

Objective

The project will explore case studies done by other universities on reusable containers, and code interviews with Rochelle Owen and Dalhousie Food Services vendors. It will seek to understand the barriers outlined throughout the interviews and case studies, and bring awareness to the greater barriers of waste diversion, and reduction.

Target Audience

The faculty and staff at Dalhousie University, especially those in the College of Sustainability, Dalhousie Food Services, and those in charge of the feasibility of projects at Dalhousie.

Tools

An exploratory qualitative research method, with case studies, coding, and interviews conducted with Rochelle Owen and Dalhousie Food Services vendors.

Evaluation

An evaluation of the project will be discussed after interviews and case studies have been conducted and coded.

Communication Process

The project will be communicated by email and face-to-face interviews with Rochelle Owen, and Dalhousie Food Services vendors. Once our communication is complete, we will sit down with the information to code and discuss the barriers identified in each interview and case study.

References

- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Los Angeles, CA: Sage Publications.
- Dalhousie University. (n.d.) *Dal at a Glance. Dalhousie: By the Numbers*. Retrieved from <http://www.dal.ca/about-dal/dal-at-a-glance.html>
- Davidson, G. (2011). *Dalhousie University Waste Auditing History*. Retrieved February 26, 2015, from [https://www.dal.ca/content/dam/dalhousie/pdf/sustainability/Appendix D - Dalhousie University Waste Auditing History \(841 KB\).pdf](https://www.dal.ca/content/dam/dalhousie/pdf/sustainability/Appendix D - Dalhousie University Waste Auditing History (841 KB).pdf)
- Department of Dining Services. *Reusable Carryout*. (2014). Retrieved February 26, 2015, from <http://dining.umd.edu/whats-new/1088>
- Might, M., & Manolios, P. (2009). A posteriori soundness for non-deterministic abstract interpretations. *Proceedings of the 10th International Conference on Verification, Model Checking, and Abstract Interpretation*, 260-274. doi:10.1007/978-3-540-93900-9_22
- Meagan, F., Alli, F., Anna, L., Martina, J.P. (2014) Reducing Disposable Cups on Dalhousie Campus: A Second Cup Case Study. Dalhousie University, ENVS 3502.
- UBC Sustainability. (n.d.). *Reusable Takeout Containers*. Retrieved February 26, 2015, from <http://sustain.ubc.ca/get-involved/staff/sustainability-coordinators/toolkit/reusable-takeout-containers>

Appendix A - Interview Questions

The interview will be loosely structured and consist of seven or eight semi-structured, open-ended questions. Notes should be taken for the answers given to each question, as well as any clarifications or follow-up questions that may arise.

Office of Sustainability Members:

1. Are you aware of any current or past initiatives aimed at allowing reuseable containers to be brought/promoted in food service locations on Dalhousie Campus?
2. If the proposed waste reduction project did not move forward, what were the problems that arose?
3. How would you propose the project be economically feasible?
4. Are there other barriers regarding economic feasibility that you can identify that would make a similar waste reduction project difficult to implement?
5. Are there any minimum requirements regarding the feasibility that would have to be met in order for Dalhousie's sustainability members to agree to such a program?
6. Would the Dalhousie sustainability members be open to engaging in a discussion regarding implementing a similar waste reduction program at Dalhousie?
7. What are your main concerns/reservations about this kind of economic feasibility project aimed at waste reduction?

Vendors:

1. Are you currently, or have you been, aware of similar waste reduction project(s) proposed in the past?
2. If the proposed waste reduction project did not move forward, what were the problems that arose?
3. How would you propose the project be economically feasible?
4. To what extent would a 5% price discount offered to participants in the reusable container program impact your business?
5. Are there other barriers regarding economic feasibility that you can identify that would make a similar waste reduction project difficult to implement?
6. Are there any minimum requirements, like the size of a container, that would have to be met in order for **[the vendor] to participate in such a program?**
7. **Would your organisation be open to engaging in a discussion regarding implementing a similar waste reduction program at Dalhousie?**

SUMMARY OF PROPOSED RESEARCH

1. Purpose and Rationale for Proposed Research

Briefly describe the purpose (objectives) and rationale of the proposed project and include any hypothesis(es)/research questions to be investigated.

Our research project objective is to determine the economic feasibility and barriers of introducing such a program for disposable waste reduction at Dalhousie Food Services (DFS) vendors, like Topios, Green Café, Killam Bistro, and Grille Works. One way to possibly reduce disposable waste accumulated by the DFS vendors is for students to bring their own reusable/sealable containers. If students were to bring their own containers, it may help reduce the waste created by the vendors, both while dining-in, and taking-out food.

The intent of our project is to find out how economically feasible it would be for Dalhousie Food Services vendors if students brought in reusable/sealable containers, with a percentage discount incentive to be researched during interviews.

Our research question is: how economically feasible would it be for Dalhousie Food Services vendors to provide a discount to students who bring their own reusable/sealable containers?

A follow-up sub-question is: if so, would Dalhousie Food Services be willing to offer a discount to students who bring their own reusable/sealable containers?

This study is relevant to the overall waste reduction efforts on campuses, as well as the waste diversion which can occur if small actions like bringing in reusable/sealable containers are implemented. In comparison to other studies, our project focuses on the vendors offering a discount incentive to the students who bring their own reusable/sealable containers. Other studies have focused on bringing reusable/sealable containers to reduce waste, whereas our study focuses on the economic feasibility of the vendors to offer the discount. Economic barriers the vendors face can affect the potential incentive and discount offered to students. By focusing on the economic feasibility aspect of the reusable/sealable containers, it inherently shifts focus to the waste diversion and reduction surrounding sustainability issues regarding waste on campus.

2. Methodology/Procedures

a. Which of the following procedures will be used? Provide a copy of all materials to be used in this study..

- Survey(s) or questionnaire(s) (mail-back)
- Survey(s) or questionnaire(s) (in person)
- Computer-administered task(s) or survey(s)]
- Interview(s) (in person)
- Interview(s) (by telephone)
- Focus group(s)

- Audio taping
- Videotaping
- Analysis of secondary data (no involvement with human participants)
- Unobtrusive observations
- Other, specify _____

b. Provide a brief, sequential description of the procedures to be used in this study. For studies involving multiple procedures or sessions, the use of a flow chart is recommended.

CONTACTS:

Potential Vendors: Topios, Green Café, Killam Bistro, Grille Works
(<http://www.campusdish.com/en-US/CA/Dalhousie/Locations/>)

Offices at Dalhousie Food Services: Howe Hall (Lower Level)
6230 Coburg Road
Halifax, Nova Scotia, B3H 4J5

Phone: (902) 494.2078

Fax: (902) 494.2174

Email: food@dal.ca

(<http://www.campusdish.com/en-US/CA/Dalhousie/ContactUs/>)

CONTACTS:

Campus Sustainability Members: Rochelle Owen, others if suggested

Rochelle Owen: rjowen@dal.ca

Office website: (http://www.dal.ca/dept/sustainability/about/Office_Staff.html)

Procedural description:

Google “Dalhousie campus dish” (<http://www.campusdish.com/en-US/CA/Dalhousie/ContactUs/>) → email the *modified* vendors script in question **4b to food@dal.ca → google “Dalhousie Sustainability Office Staff” (http://www.dal.ca/dept/sustainability/about/Office_Staff.html) → email the campus sustainability members script entitled “Email to Rochelle Owen” to Rochelle Owen (rjowen@dal.ca) → wait for responses.

Once you’ve received responses to the emails, move forward in either setting up an interview time, phoning, or emailing suggested people.

IF someone you emailed would like to participate in an interview, set up a date and time as instructed in the script for phoning/email/face-to-face interviewing in question 4b. → Get verbal consent (ask) → Get verbal consent again (ask) while recording interview for on-record statement → ask scripted interview questions as seen in question 4b → end interview with vendor, or campus sustainability member with: *Thank you for your time and input for this research project.* → transcribe interview(s) from recording device → back-up recorded interview on external hard drive → code interview(s) with group members → analyze transcribed interviews → write into final research project.

****4b:** question 4b on ethics form*

3. Participants Involved in the Study

a. **Indicate who will be recruited as potential participants in this study.**

- Dalhousie Participants: Undergraduate students
 Graduate students
 Faculty and/or staff
- Non-Dal Participants: Children
 Adolescents
 Adults
 Seniors
 Persons in Institutional Settings (e.g. Nursing Homes, Correctional Facilities)
- Other (specify) Dalhousie food vendors_____

b. **Describe the potential participants in this study including group affiliation, gender, age range and any other special characteristics. If only one gender is to be recruited, provide a justification for this.**

N/A

c. **How many participants are expected to be involved in this study? _Number of participants will be determined after they consent.**

4. Recruitment Process and Study Location

a. **From what source(s) will the potential participants be recruited?**

- Dalhousie University undergraduate and/or graduate classes
 Other Dalhousie sources (specify) _____Dalhousie Food Services
- Local School Boards
 Halifax Community
 Agencies
 Businesses, Industries, Professions
 Health care settings, nursing homes, correctional facilities, etc.
 Other, specify (e.g. mailing lists) _____

b. **Identify who will recruit potential participants and describe the recruitment process.**

Provide a copy of any materials to be used for recruitment (e.g. posters(s), flyers, advertisement(s), letter(s), telephone and other verbal scripts).

Ashleigh will send an email to Rochelle Owen and Dalhousie Food Services (DFS) main office at Howe Hall. Depending on who responds to the DFS email, and which vendors are specified for our research group to interview, will we engage in setting up phone or interview dates and times. The interviewee will be approached by one of the researchers who is available at the set interviewing time.

Email to Rochelle Owen:

Rochelle Owen,

We're students from ENVS/SUST 3502, with Tara Wright, working on our research proposal and would love your insight. Our project proposal will explore the barriers and opportunities that occur in ideas like our "bring your own plate." Similar to bring your own coffee mug, the bring your own plate/container option is aimed at reducing the amount of waste produced by disposable plastic and paper plates used by Dalhousie's Food Services vendors.

Our questions to you are: Are you currently, or have you been, aware of similar project(s) proposed in the past? If the proposed idea/project did not move forward, what were the barriers and lessons learned? If the proposed idea/project did move forward, what were the gains and lessons learned? We'd love to know of any barriers and opportunities gained by the failure, and/or success of the idea/project.

Thank you for your time,

Team Strong

(Josh Pye, Josh Chabinka, Yiwen Sun, Juan Elevancini, and Ashleigh Myles)

Interview introduction to campus sustainability members by phone:

phone etiquette: Don't spring the introduction to the research project on them, it may scare them away with too much information at the start of the conversation

Hello,

How are you today?

(wait for response)

(respond if they ask how you are)

(continue with introduction to research project)

My name is **Ashleigh**, I'm a student at Dalhousie conducting a group research project on the economic feasibility for waste reduction at Dalhousie Food Services vendors.

slight pause (let them digest this information)

We're interested in knowing if it would be economically feasible for students to bring their own reusable container, like, tupperware, ziplock, glad containers to Dalhousie Food Services locations, like Grille Works, Topios, Killam Bistro, and Green Café, and if they would be able to offer a discount.

(wait for a response)

Would it be possible to set up an interview in the next couple of days?

(wait for response)

If no, say:

OK. Thank your for your time. Have a good day.

If yes, say:

*Great! Does **interview time already pre-determined** work for you?*

(work out an interview time)

*I look forward to meeting with you on **interview day at time**. Since this is an interview, I will be recording it for transcribing and analysis later. Are you OK with being recorded and consent to this interview?*

(wait for response)

If no,

OK. Thank your for your time. Have a good day.

If yes,

*Excellent. I'll see you on **interview day at time**.*

hang up

*****Note:** When asking for an interview on the phone, always mention you will be recording the interview after you've set a date and time. If a date and time has been set, the interviewee is more likely to show, and will feel like they can trust you a little more because you disclosed this information ahead of time. It also gives them time to think and get back to you if they wish to be anonymous, or confidential. Due to the nature of the research project, if they wish to be anonymous, it saves you time by telling them you will record and transcribe, instead of meeting them and realizing they need to be anonymous for some reason.

Also, mention the date and time at least three times in conversation. Be sure to give them your contact info before hanging up in case they need to reach you.

Interview Introduction to campus sustainability members face-to-face (Rochelle Owen and other recommended members):

My name is Ashleigh, I'm a student at Dalhousie conducting a group research project on the economic feasibility for waste reduction at Dalhousie Food Services vendors.

**slight pause* (let them digest this information)*

We're interested in knowing if it would be economically feasible for students to bring their own reusable container, like, tupperware, ziplock, glad containers to Dalhousie Food Services locations, like Grille Works, Topios, Killam Bistro, and Green Café, and if they would be able to offer a discount.

(wait for a response)

Would it be possible to set up an interview in the next couple of days, or if you have time to speak today? Is there someone in specific I should speak to about this?

(wait for response)

If no, say:

OK. Thank your for your time. Have a good day.

OR

If yes, determine an interview time and day, or let them know about the recording, transcribing and analysis part of the research project if they wish to go ahead with the interview today. Mention anonymity and confidentiality. Be sure to get their consent verbally before you record, and on the recording once they have agreed to be a participant. If they refer you to another person, be sure to continue with the lead until you have a solid source(s) to interview.

Once the interview is set up, ask Office of Sustainability Members these interview questions one-by-one:

1. Are you aware of any current or past initiatives aimed at allowing reuseable containers to be brought/promoted in food service locations on Dalhousie Campus?
2. If the proposed waste reduction project did not move forward, what were the problems that arose?
3. How would you propose the project be economically feasible?
4. Are there other barriers regarding economic feasibility that you can identify that would make a similar waste reduction project difficult to implement?
5. Are there any minimum requirements regarding the feasibility that would have to be met in order for Dalhousie's sustainability members to agree to such a program?
6. Would the Dalhousie sustainability members be open to engaging in a discussion regarding implementing a similar waste reduction program at Dalhousie?
7. What are your main concerns/reservations about this kind of economic feasibility project aimed at

waste reduction?

At the end of the interview say:

Thank you for your time and input for this research project.

Interview introduction to vendors by email:

Dalhousie Food Service Vendor.

*I'm a Dalhousie student from ENVS/SUST 3502, with Professor Tara Wright, working on a group research project about the economic feasibility of waste reduction for Dalhousie Food Services vendors. We're interested in knowing if it would be economically feasible for students to bring their own reusable container (tupperware, ziplock, glad containers) to **your location**, and if you could offer a discount.*

Would it be possible to set up an interview in the next couple of days? If so, I would be recording the interview for on-record and transcribing purposes for the analysis component of the research project. If there are any questions or concerns, or you wish to be anonymous, or your information kept confidential for any reason, please let me know in advance.

I look forward to meeting with you if you're interested in participating in this study.

Thank you.

Cheers,

Ashleigh Myles

1 (778) 866-5241

Interview introduction to vendors by phone:

phone etiquette: Don't spring the introduction to the research project on them, it may scare them away with too much information at the start of the conversation

Hello,

How are you today?

(wait for response)

(respond if they ask how you are)

(continue with introduction to research project)

My name is Ashleigh, I'm a student at Dalhousie conducting a group research project on the economic feasibility for waste reduction at Dalhousie Food Services vendors.

slight pause (let them digest this information)

We're interested in knowing if it would be economically feasible for students to bring their own reusable container, like, tupperware, ziplock, glad containers to your location, and if you could offer a discount.

(wait for a response)

Would it be possible to set up an interview in the next couple of days?

(wait for response)

If no, say:

OK. Thank your for your time. Have a good day.

If yes, say:

Great! Does interview time already pre-determined work for you?

(work out an interview time)

I look forward to meeting with you on interview day at time. Since this is an interview, I will be recording it for transcribing and analysis later. Are you OK with being recorded and consent to this interview?

(wait for response)

If no,

OK. Thank your for your time. Have a good day.

If yes,

Excellent. I'll see you on interview day at time.

hang up

*****Note:** When asking for an interview on the phone, always mention you will be recording the interview after you've set a date and time. If a date and time has been set, the interviewee is more likely to show, and will feel like they can trust you a little more because you disclosed this information ahead of time. It also gives them time to think and get back to you if they wish to be anonymous, or confidential. Due to the nature of the research project, if they wish to be anonymous, it saves you time by telling them you will record and transcribe, instead of meeting them and realizing they need to be anonymous for some reason.

Also, mention the date and time at least three times in conversation. Be sure to give them your contact info before hanging up in case they need to reach you.

Interview Introduction to vendors face-to-face:

My name is Ashleigh, I'm a student at Dalhousie conducting a group research project on the economic feasibility for waste reduction at Dalhousie Food Services vendors.

slight pause (let them digest this information)

We're interested in knowing if it would be economically feasible for students to bring their own reusable container, like, tupperware, ziplock, glad containers to your location, and if you could offer a discount.

(wait for a response)

Would it be possible to set up an interview in the next couple of days, or if you have time to speak today? Is there someone in specific I should speak to about this?

(wait for response)

If no, say:

OK. Thank your for your time. Have a good day.

OR

If yes, determine an interview time and day, or let them know about the recording, transcribing and analysis part of the research project if they wish to go ahead with the interview today. Mention anonymity and confidentiality. Be sure to get their consent verbally before you record, and on the recording once they have agreed to be a participant. If they refer you to another person, be sure to continue with the lead until you have a solid source(s) to interview.

Once the interview is set up, ask vendors these interview questions one-by-one:

1. Are you currently, or have you been, aware of similar waste reduction project(s) proposed in the past?
2. If the proposed waste reduction project did not move forward, what were the problems that arose?
3. How would you propose the project be economically feasible?
4. To what extent would a 5% price discount offered to participants in the reusable container program impact your business?
5. Are there other barriers regarding economic feasibility that you can identify that would make a similar waste reduction project difficult to implement?
6. Are there any minimum requirements, like the size of a container, that would have to be met in order for **[the vendor]** to participate in such a program?
7. Would your organisation be open to engaging in a discussion regarding implementing a similar waste reduction program at Dalhousie?
8. What are your main concerns/reservations about this kind of economic feasibility project aimed at waste reduction?

At the end of the interview say:

Thank you for your time and input for this research project.

5. Compensation of Participants

Will participants receive compensation (financial or otherwise) for participation? Yes [] No []

If **Yes**, provide details:

6. Feedback to Participants

Briefly describe the plans for provision of feedback and attach a copy of the feedback letter to be used. Wherever possible, written feedback should be provided to study participants including a statement of appreciation, details about the purpose and predictions of the study, contact information for the researchers, and the ethics review and clearance statement.

Note: When available, a copy of an executive summary of the study outcomes also should be provided to participants.

When interviewing, we'll end the interview with a "thank you for your time and input for this research project"

POTENTIAL BENEFITS FROM THE STUDY

- 1. Identify and describe any known or anticipated direct benefits to the participants from their involvement in the project.**

The participants will be informed about the benefits to the Dalhousie and contribution to sustainability goals.

- 2. Identify and describe any known or anticipated benefits to society from this study.**

Waste reduction and saving money.

POTENTIAL RISKS TO PARTICIPANTS FROM THE STUDY

1. **For each procedure used in this study, provide a description of any known or anticipated risks/stressors to the participants. Consider physiological, psychological, emotional, social, economic, legal, etc. risks/stressors**

No known or anticipated risks

Explain why no risks are anticipated: If they give their consent, their opinions should cause them no harm.

Minimal risk

Description of risks:

Greater than minimal risk

Description of risks:

2. **Describe the procedures or safeguards in place to protect the physical and psychological health of the participants in light of the risks/stresses identified in Question 1.**

N/A as long as they give their consent.

INFORMED CONSENT PROCESS

Refer to: <http://pre.ethics.gc.ca/english/policystatement/section2.cfm>

1. **What process will be used to inform the potential participants about the study details and to obtain their consent for participation?**

Information letter with written consent form; provide a copy

Information letter with verbal consent; provide a copy

Information/cover letter; provide a copy

Other (specify) _____

2. **If written consent cannot be obtained from the potential participants, provide a justification.**

If we receive verbal consent, there's no need for written consent.

ANONYMITY OF PARTICIPANTS AND CONFIDENTIALITY OF DATA

1. **Explain the procedures to be used to ensure anonymity of participants and confidentiality of data both during the research and in the release of the findings.**

Upon consent, if the participant wishes to be kept anonymous, their name will not be collected or asked for during the interview. However, they may not be used as a participant because voice recording can be an identifier, and we must record each participant in order to conduct further research analyses. For the sake of the research project and their anonymity, we would not use them as a participant in our study. Instead, we would say, "Thank you for your time and interest in helping with our research project, but if a participant wishes to be anonymous, we can't use them due to the nature of our research method and the essential voice recording we need in order to analyze the interviews."

Upon consent, if the participant wishes to be kept confidential, their name will be put on record with the voice recording; the voice recording and information attached will not be released if asked for by another party. The only reason confidentiality would be breached is if the participant admitted to committing a crime, or threatening the general public. In such a case, it would be necessary to relay the information, which was recorded, to the Halifax authorities.

2. Describe the procedures for securing written records, questionnaires, video/audio tapes and electronic data, etc.

We will record and transcribe all interviews to ensure truthfulness, and on-record details. Verbal consent will be given before the recording of the interview, and once again when the recorder is on at the beginning of the interview for on-record, verbal consent. All recordings will be backed-up on a hard drive, with the date, time, and name of individual, unless they choose to be anonymous.

3. Indicate how long the data will be securely stored, the storage location, and the method to be used for final disposition of the data.

Paper Records

Confidential shredding after 1 years

Data will be retained indefinitely in a secure location

Data will be retained until completion of specific course.

Audio/Video Recordings

Erasing of audio/video tapes after 1 years

Data will be retained indefinitely in a secure location

Data will be retained until completion of specific course.

Electronic Data

Erasing of electronic data after years

Data will be retained indefinitely in a secure location

Data will be retained until completion of specific course.

Other _____

(Provide details on type, retention period and final disposition, if applicable)

Specify storage location: Various researchers recording device (phone) and backed-up on the external hard drive of Ashleigh Myles _____

ATTACHMENTS

Please **check** below all appendices that are attached as part of your application package:

- Recruitment Materials:** A copy of any poster(s), flyer(s), advertisement(s), letter(s), telephone or other verbal script(s) used to recruit/gain access to participants.
- Information Letter and Consent Form(s).** Used in studies involving interaction with participants (e.g. interviews, testing, etc.)
- Information/Cover Letter(s).** Used in studies involving surveys or questionnaires.
- Parent Information Letter and Permission Form for studies involving minors.
- Materials:** A copy of all survey(s), questionnaire(s), interview questions, interview themes/sample questions for open-ended interviews, focus group questions, or any standardized tests used to collect data.

SIGNATURES OF RESEARCHERS

__Ashleigh Myles _____
Signature of Student Investigator(s)

__March 6, 2015 _____
Date

__Josh Pye _____
Signature of Student Investigator(s)

__March 7, 2015 _____
Date

__Yiwen Sun _____
Signature of Student Investigator(s)

__March 7, 2015 _____
Date

__Josh Chabinka _____
Signature of Student Investigator(s)

__March 9, 2015 _____
Date

__Juan Elevancini _____
Signature of Student Investigator(s)

__March 9, 2015 _____
Date

Signature of Student Investigator(s)

Date

Signature of Student Investigator(s)

Date

FOR ENVIRONMENTAL PROGRAMMES USE ONLY:

Ethics proposal been checked for eligibility according to the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans

Signature

Date

Appendix III : Transcript of interview with Rochelle Owen (Director, Office of Sustainability)

1. Before my time in 2008, Aramark had mentioned that they were exploring a take-away container program. But ran into some **barriers** within the **health dept** **[Barriers?]** Some of the **potential barriers** could be: **washing**, if it's a take-away program- it depends on how the program's implemented- so, if it's a take-away where I'm responsible for bringing a container, and then taking it back and **washing it and bringing a clean container**, that's one type of program vs. the vendor providing a fresh container every time. And it's based on some sort of **deposit** system. So that **washing** component becomes really important if it's the vendor providing **clean containers** because now they have to have a **whole washing system supporting that program**. So, that could be a **barrier** depending on if the vendor's responsible for that because then they may not have access to **washing facilities** or the **dishwasher** may not take this type of container, then they have to transport it depending on where the **dishwashers** located. So, for example, if it was in the Killam library, the food services there, if they had provided their own take-away container, they would have to bring the old ones- dirty ones back to Howe Hall to **wash them**. So, you're collecting them. Other **barriers** are concerns about **rodents** attracting them for that particular program. Other **barriers** would be any kind of **health code** preventing that kind of program from happening in the first place. So, if it was a program- because usually a lot of these **programs are built on convenience** so that the model where the vendor provides you with the reusable container and you bring it back if you do some sort of **deposit** is more **convenient cause you're not carrying around a container**. So, that probably is from a **behavioural point of view** is probably the **most**

convenient cause you're just replacing a non-reusable with reusable container for the customer. But there may be some **barriers** to the vendor for that reason- the **washing**, the **up-front capital cost**. Running the **administration** of a **deposit** refund program. So, if it was the customer bringing the container, just like a reusable mug, then **participation rate** of reusable mug programs with the type of percent **rebate discount**, lots of promotion, I'm going to guess on the conservative side- 10% uptake.

[from a study other students did]: If you were doing the model of the bring your own container, **you may get some uptake**, you would solve the **washing problem**, but the **participation rate** would be sacrificed because of the **lack of convenience**. But you'd still- the **crucial barrier** to me, the thing that would stop all things, is the **health**.

1. My knowledge was limited, so where we were focusing with food services, is on **eliminating, or reduce packaging, or make it compostable**. So, some of the good successes in the states around have those football games- there's been some seminars on how to make those **waste** free. Make something like that **waste-free** is you make sure that any **packaging is compostable, you have compostable containers**, you don't have garbage container. And everything else there's no **packaging** for. That's kind of where I'd like to see us move more towards- **reducing the packaging**, or making it **organic packaging**.
2. Well, let's consider the environmental context for this. So, for example, if you have a reusable container, like, I have one in my knapsack, I bring one to work. I have to **wash** that thing. So, depending on who **washes** that thing. Do they **wash** it in cold water? Do they **wash** it in hot water? Do they put it in the **dishwashe**? How much water? What kind of aerator do they have on their tap? So, there's no free lunch around the environmental conditions of it. So, one is there's a built-in assumption of the program that it's better environmentally to bring in a reusable container, maybe that's true? Another hypothesis

may be, how about an edible container? Or how about very little **packaging which is organic in nature- a paper base**. So, what would that look like if it was recycled paper wrap? So, when you get a sub at Subway- So, here's a good example, the Subway. 'Hey listen, you guys can save yourselves some **money** and reduce packaging **waste** by just not giving people bags' Use less wrapping. So, if you unfold a subway, I did it about a month ago. It was probably 2 or 3 sheets more of paper than required to wrap the sandwich, to have it hold-able. From an efficiency point of view, right there, we can **save money** and reduce **waste** by them saying 'only give a bag if somebody asks for it; only use one sheet of paper that is organic'. Now we have to work on the person to put it in the organics container, and make sure there's an organics container there. So, those are all the- from a **waste management** point of view- I'm trying to push us to say, don't have any plastics in with that organics. This goes back to the disposable cup scenario. Paper cups are compostable, and there are compostable coffee cups. Not all coffee cups are compostable. It's the lids that are not, even in the compostable cup, including the stir stick. Unfortunately, not everybody drinks all their coffee, and then, do you think they'll take the lid off and take out the stir stick? So, I've been after every vendor who calls me and asks me- I had one today who tried to sell us bamboo cups. I was like, great, do you have a compostable cup? No? Okay. Don't email me back til you have a compostable top. Cause we can compost it, but it's the contamination part of it.

If you want to make it simple and provide an offering, and of the **10% or 5% that are committed**, that would be an easy option if the **health code** would – you could just check it, which would be a great part of your work- if I brought my reusable container to any of the food vendors, would they put the stuff in it and give it to me? As **somebody's who**

more committed and would prefer to do that. And not get extra packaging. That's a pretty simple thing, but knowing it would only reach a certain audience.

1. Washing, rodents, costs of transporting- the dishes if it was a vendor-related program, administrative costs- people forget that's a large part of costs, so, somebody actually set-up the program to figure out how to administratively collect deposited- part of the program? Does that go through the cash system? How about people not bringing them [dishes] back. All right, you have to make the rebate deposit high enough that it covers the actual cost of the item. Because in residence they lose stuff every year. So, somebody has to do all of that administration and that's a cost. And then there's space, which is always a huge problem on campus. We're really tight for space, so, now, with the food services, if you look at any of the kiosk areas, where would you? Behind the counter, some have space to put containers, some wouldn't have space. That would be another potential barrier
2. So, in our- because our office is an influencer, or facilitator in the food services area, or even waste management planner, the people that would actually deliver the program would be the ones that would have to be on board with any kind of initiative. People actually running a program, so that would be food services and facilities. So, our focus now on waste management is working with those different departments on design guidelines or containers. So, we're over-binned on garbage bins, so we're looking at trying to rectify that. We're also looking at take-away dumpsters, switching to clear bags, internal enforcement. So, this is one way- potentially waste-reduction measure we probably have in our waste management plan which is on-line. We probably have about 10 identified. And those are identified, because infinitely, there would be about 100 potential projects. But we're picking ones where we think we have the best ability to

divert the waste and also reduce the total amount. That's kind of where our efforts are right now.

3. We would be interested in reducing packaging waste. How that is best done for the most [effectiveness?] You have to look at the cost-benefit of the solution. So, if our ultimate goal is reduce packaging waste, what are the potential solutions, what are the cost-benefits of each? So, we'd definitely be interested in supporting initiatives to reduce packaging waste, on the lines of the first one- streamlining. Another example: straws. Just don't put straws in anything. If someone requests a straw, give them a straw. Generally speaking, that could be good testing for a further group. Just don't give out a straw.
4. There's a lot of interesting ideas out there. Sometimes they're piloted, but people don't think through the management system. One example I'll use, vermicomposting. We collect organics on campus, it's re-packaged at the warehouse and it goes to a centralized composting facility 15kms away. There was a student project to do vermicomposting on campus- 'why would we do vermicomposting when we already have a system that feeds centralized compost? Anaerobic system 15kms away'. To put vermicomposting means we'd have to buy hundreds of worm containers, then people would have to manage them. And then, manage them because you have to keep the worms alive, and then they don't take all the stuff that you could put in a centralized composting system. So, why would we do that? Because we're already achieving the end purpose by diverting the organics from the landfill. In my mind, somebody didn't think through the scale. A lot of this is scale. What you do at your home, is much different when you ramp it up to 150 buildings, 125,000 people. So, the scale and administration systems are quite different when you're talking about a university vs homeowner or small restaurant. Sometimes people pilot something in one location, but don't realize, in order to be a full

campus-wide program, it has to have **relevant scale too**. Something like the Grad House, if you wanted to do a pilot on something like this, they would be a good test case for **something small scale**. They also have **washing facilities** there, they have space.

Code	Colour	Frequency
Barriers	Red	10
Food safety	Green	6
Packaging	Light green	7
Washing	Blue	17
Behaviour	Turquoise	9
Waste management	Grey	13
Economy	Pink	15
Management	Yellow	19

Appendix IV: Transcript of interview with Scott Read (Operations Officer at DAGS)

1. I wouldn't say first hand that I've been aware of anything. You know, seeing things with the Ladle in regards to you bring Tupperware and stuff like that. But, with the exception of- there have been, in the Faculty of Management building, there's- if you get coffee and use a reusable mug, then you get a **reduction in price**. But aside from that...
2. From a perspective of the Grad House as well. **Waste reduction** previously. So, we had had an individual who was contracted out and she would basically make the food on-site. And generally, we don't do any take-away from what I gather, I mean- we have a little bit but not much. That contract has since ended. And what happened was- we've been purchasing food from local source. So we do try and buy, you know, local, try and reduce footprint in that regard. But, because of that, we- uh, it comes in **pre-packaged food**. So as a result, we do have a little bit of **waste** with regards to that. So, I think that's basically our biggest **barrier**, is the fact that the food that we do purchase for sale is **pre-packaged**. That's probably the largest **barrier**.
3. **Economic feasibility** is probably one of the **largest barriers**, because from the Grad House perspective, our **mark-up on food** is small. So, we do **purchase** our food from local source and because those tend to be **high cost-to-good-sales prices**, our **mark-up** is very small. So to try to **encourage people** to come in and say, use Tupperware and things like that and providing a **discount** might be **a little bit difficult**, and also not as applicable because most people eat in-house. It's very rare that people will actually purchase stuff to-go. So, as a result, it might be a little more **difficult to implement** a **Tupperware policy**, however, we

are looking to change our menu in the coming year, so that is something that we could include and incorporate into the **new system and new policies**.

4. I don't see why not. That's something that we could easily put into place. So, right now we would generally put the food right onto the plate we have, and then we would use that to **clean**. If someone brought in their own, I don't see why we couldn't include that, because it's going to **cut-down on the amount of work the staff would have to do**. I mean, and **the cleaning** that we would have to do. It would be perfectly reasonable to do a **5% discount**.
5. **Economic difficulties**... no, I think the main one is the one that I mentioned- that we have **small mark-ups** and ... other than that, I can't think of anything off the top of my head that would make that more difficult. If people are getting a **discount** anyways, they **might be more apt to purchase more**. So maybe there's an **economic market** in supporting it.
6. With regards to what students are bringing in? [containers]. The only thing that I can think of that might be a **barrier** is whether or not there would be some sort of liability issue. Let's say someone eats, they use their own container, and then call in and say 'oh, you know what, I have **food poisoning, or I'm sick** and I think it's a result of the food that I ate there.' When, in reality, it might be the result of some type of-whether or not they **cleaned** their own container. Now, I think that's- the likelihood of that happening is extremely small, but, it certainly is something to take into consideration, because if someone brings in their own Tupperware, we do not have control over the **cleanliness** of that equipment. Whereas, if we provide our own cutlery and our own equipment, or our own plates and stuff like that. **We do have control** over that, and so it's a little bit of customer control in that regard.

7. Yeah, absolutely. Now, I say that, but bear in mind that my mandate position is up at the end of the month. However, I'm pretty sure if you go to the board of directors of DAGS- I'm sure they would be perfectly willing and accepting to implement that.

[Position?] I'm the operations manager for DAGS. DAGS owns the business, the Grad House, and it's run by a manager. But the policy decisions in its operations are done by the board of directors. And the operations officer is the direct contact between the manager of the Grad House and the board of directors.

1. As far as **economic feasibility**, there's not a tremendous amount of concern. I think **5%** is very little to ask. Again, the **main concern** would come down to **food safety** and those issues again, because we are –in some other word- **liable for the food that we sell**. But, if we give up the **control over the cleanliness** of the receptacle then that causes some **potential problems**. That would be your **largest barrier**.

[Additional info?] It's not necessarily the **economic feasibility**; it's the **food safety** and the litigation, and the-

And it's not like you can have everyone who comes in sign a waiver. 'It's okay, I accept the responsibilities of this'

I mean, whether not, I don't know if it's something that could be instituted campus wide- but, whether or not it's understood and **an accepted policy** that if you go into a food vendor place with your own receptacle, Tupperware, or whatever, that **you assume the risks** that are liable with that. Whether or not that becomes **an over-arching policy** that can be instituted from Dal campus wide, then that eliminates that concern from the vendors.

Code	Colour	Frequency
Barriers	Red	9
Food safety	Green	5
Packaging	Light green	3
Washing	Blue	5
Behaviour	Turquoise	2
Waste management	Grey	1
Economy	Pink	15
Management	Yellow	6

Appendix V: Transcript of interview with Angela Emmerson (Registered Dietician)

1. Not full-out initiatives, but the discussion has been brought forward before. But no execution.

[Barriers?] Well, the discussion with the barriers were cleaning the containers. Because the campus is quite large so the space that we cover on the campus itself is quite large, and cleaning the containers were two of the biggest ones.

1. It wasn't really even a full-out project, it was just – it wasn't a student project, it was just a conversation we were having as a company, and just talking about the possibilities because we do have a lug-a-mug, so it was kind of another step we could take for reusable containers. Just never executed it.

[Why wasn't it put in place (the program)?] it was just one of those things that, honestly, we just brought up and discussed it, and then it was just a discussion and multiple things were probably discussed, other things got brought on for projects instead. So, it's something that we do have in the back of our minds as an idea that we're open to and would like to try. We just haven't had the opportunity to actually try it yet. But, this would actually be a good time to do it since you guys are interested in it and doing your research on it in your course studies. So, that's basically why. No big reason why, we just haven't gotten around to it yet.

[What other projects came out of it?] It was just a general conversation.

1. I think I like your idea of people bringing their own containers. They would be responsible for bringing a clean container. That would make it a lot easier for us to execute. If it was clean, for an example, if it's not then we're going to have to figure out

issues around **food safety**- would be my **biggest concern** right there. We could also offer a **discount**, similar to what we do when people bring their mugs- we offer a **discount**. So, we could definitely do that. The **container would have to be the appropriate size**. So, if someone's ordering a pizza, for example, the container would have to fit. I can see it working in a lot of different items on the menu. Not all of them, but for a lot of them. [Container size?] We would have to take a look at what sizes we're serving now, like at the bistro for an example, how many ounces are the salads? What's the size of the lasagna? Things like that. Based it on that. That's something that would have to be looked at, just to give people an idea, so they don't show up with a container and it doesn't end up fitting. If information like that could be given to people, like, this is **how you prepare to become part of the program**, this is what the container should look like, make sure that it's **clean** when you bring it to the counter for **food safety** reasons. Things like that would be helpful.

They'd have to look into- for the **food safety** on both ends- even with the mugs, the reusable thing, not a problem, it's good for everybody, we don't want any more paper products, we can carry the **discount** over to the customer, that's no problem. The **food safety** thing is the only thing we'd have to work around. And that's because when you pass the container to the associate, just like you would your mug, if that's **contaminated** then that associate is handling it and although we can change gloves after we handle the containers, which would eliminate it. If we get that container back to the customer and it wasn't **washed** properly, just rinsed kind of between, and there's **harmful bacteria**, and then that customer **gets sick**- how do we approach that? Cause that might happen, whereas, cause **we wouldn't be responsible** for **cleaning them**, so, how do we get around that? **We can't get them to sign a waiver** whenever they use it, so **what would make it**

easy for people so they're not reading about bacteria as they're trying to use their reusable container to do something good. We don't want to burden people with everything. But, how do we sort of get around that?

1. That would probably be the biggest barrier, like I said, just the food safety thing. Making sure that- we don't want people to get sick, kind of thing, right?
2. Yeah, I think we would set standards, like I said. Just to be helpful for the customer too, so they bring the appropriate size container.
3. No. Even participation wise, no. It wouldn't matter if one person did it, or 100.
4. Yes.
5. I would really like to execute something like this.

Well, Aramark runs the four dining halls and about 15 retail locations on campus. Now, the problem with a franchise is that sometimes you can't get around their food safety regulations and rules. Just like anything else when it comes to fair trade coffee and fair trade standards and packaging, so it's a little harder to bend the franchises, but we can always put it out there, definitely. But, we, the Aramark brands, the ones that you hit on here, are all our brands, so we have flexibility to do what we want there. But, we are held to the franchises standards, so we would have to look into that. Compass runs the agriculture college and student union building, so they would do Pete's and everything, and they have retail locations in Truro. So, they might be able to offer the same program if it would be a standard for all places that could do it. And of course, there's university Club- we don't run that. And the DawgFather, we don't run that either.

[Tim Hortons?] I'm pretty sure that they have the lug-a-mug program, cause I know that we do that. Tim Hortons's people bring their own mugs and get a discount, and so does

Second Cup. So, we'd have to dig a little deeper to see what they'd allow. Which I haven't done before.

Same with Subway, cause their **food safety standards** are kind of high. Even if they don't allow it, maybe ask people if they want a bag? They don't always need the **packaging** and the bag. Try to limit the amount of **packaging** that goes onto the sub.

Some franchises might be more flexible. Aramark employees work there, but it's still **franchise standards**. And **compass runs the Tim Hortons in the SUB.**

Code	Colour	Frequency
Barriers	Red	6
Food safety	Green	11
Packaging	Light green	3
Washing	Blue	7
Behaviour	Turquoise	5
Waste management	Grey	0
Economy	Pink	4
Management	Yellow	12

Appendix VI: Transcript of interview with Naina Ummaut

Interviewer: Juan Elevancini

Are you aware of any current or past initiatives aimed at allowing re-useable containers to be brought/promoted in food service locations on Dalhousie Campus?

The only one that I am aware of is “The coffee cup... the coffee cup promotion that if you bring your own coffee cup... Dalhousie...all coffee people if you bring your own... container if you bring your own reusable mug they give you some kind of discount...I’m not sure I can’t remember what it is like 75 cents or 10 cents I can’t remember but that is the only one that I am aware of.

Interviewer: Do you know if there is anything else besides that?

That’s to my knowledge... now you do have to realize that I worked on this project almost two years ago... I don’t come to Dalhousie and that I’m not a Dalhousie student no more, so my knowledge is limited.

Interviewer

This project...do you see any barriers to this implementation of bringing your own container to implement a program like this? What would be the main barriers?

Interviewee

I think if you would like the food services to provide one that would be... maybe it would be financial that is the first one that comes to mind. If you expect the food services people to provide that then we will have to provide like a business case for those guys... and I like the idea of putting in some deposit that you mentioned that might be a good starting point for them.

As far as the students are concerned, I think for them it would be more of a behaviour change as it is with all the reduction?? production ????? ??? It’s more of a radical? change so it will take a long time but... that... what else? let’s see... the other barriers? Those are the ones that come to

mind... I think with students it would be more of a **behaviour change** and you will have **to monitor it carefully** ??? promote it, monitor it... see what kind of changes are required in the promotion or campaigning if required... monitor it quite closely do some ??? studies ? I think that is more of a **behaviour change**... I think that would be... actually at this point in time either way is... I can't say which one would be easier to implement... 'cause it is too early to say

If the proposed waste reduction project did not move forward, what were the problems that arose?

How would you propose the project be economically feasible?

I was thinking about that when I was reading your email. So, what does **economic feasibility** means to you when you say economic feasibility?

Interviewer:

Economically feasible to me means that... business from a business perspective it's good for the vendors... and also the students would be able to save some money... so we need the economic incentive to be there... but at the same time maybe we also need to look at... from an environmental perspective, from a reputation perspective and not just from an economic perspective... but when we approach the vendors the first thing they will ask "How much it will cost us? So, that is what I understand by economic feasibility... the business case.

Interviewee:

So I will say... mm I was never good at **economic feasibility cases**... I'm not a business student.

Interviewer: But from your experience with this research

Interviewee:

From my experience I will say... first of all the thing that comes to my mind with **waste reduction** and **economic feasibility** is the tipping fee at the tipping floor... So what happens is when all the **waste** that is collected it goes to the tipping floor... the tipping floor is where the trucks empty their **waste** and depending on the weight... you have to give a certain amount of **fee**

based on the weight... like I don't know I can't remember what it is... I hope that this has changed but the waste hauler that Dalhousie was using earlier did not give a breakdown of the tipping fee that Dalhousie was paying. Hopefully that has changed...but that was one of the problems that a student previous to me was working on...he was working on a waste management plan for Dalhousie which might be a good resource for you... I think that should be [available] on the office of sustainability website.

So... anyway that is the tipping fee concept. So the first thing that comes to my mind is less waste the less [lower] fee that you have to pay. That is the first thing that comes to my mind, which is for Dalhousie in general for paying that.

Interviewer

Is this service provided by a 3rd party?

Interviewee

Yeah...so we have a waste hauler...it's either Miller Waste or... what's the other one?

Interviewer

So, should they be able to provide numbers about the actual weight of the waste.

Interviewee

They should be able to provide it, but at the time when I was working, the waste hauler, the 3rd party person was not breaking down the fee. He just said... yep... these are I don't know whatever... A \$1,000 you have to pay, but for what? The breakdown was not very clear. The student who was working on the waste management plan was encountering that and that was one of the problems that he then [had]

Interviewer

Maybe that have change because that was about two years ago...

Interviewee

Maybe... I hope that that has changed because that it's a big problem

Interviewer

If they have any numbers, would it be the sustainability office that we need to approach?

Interviewee

I would say so... I'm not sure if you can get access to those numbers or not... but read the waste management plan... [she] it may have mentioned something in it. Yeah, I would say the waste management plan would be a good start to your economic feasibility, because you can always go back and say that this is the Dalhousie plan and you know we want all vendors to be onboard with this plan... this is our vision and we want everybody to be onboard with the plan.

What other economic feasibility can I think of...let's see...So what would the deposit look like?

Interviewer

We tentatively... without doing a major study [and] just considering other institutions perhaps a 5% discount.

Interviewee

So, it's not far away from the coffee cup. So I'll talk to... all right... or maybe not Yeah...maybe get in touch with the coffee cup people and see how would they approach this? You know that... you can say that this is what... you know this is what coffee cups you have this discount fee with the coffee cups bring your own reusable mug on campus and we want to extend that to food containers, because there are so many vendors here so many take-out containers and they all go most of them are Styrofoam and they all go into the waste... to the black garbage they cannot be recycled at the present moment.

Interviewer

No compost

Interviewee

At the present moment, I know there are some municipalities [which] do recycle Styrofoam but Dalhousie at HRM is not one of them right now. So for the time being, **Styrofoam take-out containers** go in the garbage.

So that's what I'll do because I'm personally not very good with **economic feasibility** plans but that's what I'm thinking your concept of **deposit** seems similar to the **deposit** that we give to people who bring their own reusable mug for coffee so this is not that alien a concept and just extending it to food services. And I'm sure that bringing your own reusable mug has made a little bit of a difference in the **coffee cups**... you know **waste**...yeah because I know we still have tonnes and tonnes of **coffee cups**, but it's just something of a promotion and like you said it's more of an image, it's more of you know a sustainability concept you know this is what we do... and we are **very clean** and things like that.

Are there other barriers regarding economic feasibility that you can identify that would make a similar waste reduction project difficult to implement?

Let's see... you know **one problem** might that I can think of with **food waste**...because one of my friends has done food waste is just **getting everybody onboard with the idea**... and I don't want to name anybody but there were one of my co-workers was working on this to get everybody on board with... not particularly with **food waste reduction** but on a particular plan that we wanted all Dalhousie vendors to be onboard with this idea and **everybody was onboard except this one guy** [who] delayed the whole process. I don't know if that is an **economic feasibility** problem or not, but that is definitely a **problem** you want everybody to buy it. So you **want everybody to be onboard with the idea** to buy in a program, which can be hard sometimes... I mean **waste reduction** is not that hard of a ...I don't know... I hope we don't get into that problem but it had happened before and sometimes it's harder to solve it than necessary?

Interviewer

So just to be aware that that could be an issue

Interviewee

Yeah... that could be an issue and to be aware of it that everybody might not be as accepting and forthcoming about this as...

Interviewer

So you mean specifically the vendors... that might not buy in?

Interviewee

Yeah... so you need to really make a strong business case... so how to do that I'm at loss of thoughts on how to do that... and I want to be honest here I don't like to lie. [Laughs]

Are there any minimum requirements regarding the feasibility that would have to be met in order for Dalhousie's sustainability members to agree to such a program?

I think the only thing that I can think of is just have to prove why is important. What is the value of it? And I see value in it. I definitely see value in it. I'm sure that the Sustainability office can provide you with some signs, waste signs. That is the project that I worked on. But I'm sure we can provide some waste signs to the food waste people. I don't know if you need them in this case or not, but that is something that the sustainability office can help you with.

I don't think that there are any like minimum requirements, like it's just basically that you have to pitch your idea and say this is what I'm working on what do you think about it.

I'm just trying to think what would be a good place to start to do this, if you want to do this, definitely talk to the Sustainability office people.

Interviewee

Have you talked to Rochelle yet?

Interviewer

Yes

Interviewee

You had. OK

What did she think about it?

Interviewer

She thinks it is a good idea but there are pros and cons like we mentioned. One of the issues she mentioned about students bringing their own containers is the health regulations.

Interviewee

Oh I was not aware of that. See that is why she is the director. She knows all these things and I don't.

So, are you doing this for the Halifax campus and for the Truro campus as well?

Interviewer

No, just for the Halifax campus [show list of vendors selected to interviewee]

Then if it is for the health regulations then that is a big problem. She suggested as a pilot project the Grad house [lounge].

Interviewee

Yeah... the Grad House that is a good place to start. Yeah, sometimes students are more open to new ideas.

You know... the Dhaba Express is a place in Bares Lake, and they have recently done this deposit/container system. You might be able to get some insight information on how is working, is it good, how you like it. It is a restaurant in Bares Lake and they have recently done the deposit. This is a commercial restaurant. It was on the paper. So, I'm not sure if they have already done it or if they are planning to do it, but you can get some insights by talking to them.

Would the Dalhousie sustainability members be open to engaging in a discussion regarding implementing a similar waste reduction program at Dalhousie?

Sure.

What are your main concerns/reservations about this kind of economic feasibility project aimed at waste reduction?

Mmm

Interviewer

What was the project that you were involved with?

I was involved with... well one of the ones that I was involved with was this [she pointed to individual garbage bin placed nearby in the Killam atrium food area]... getting rid of that right there. That was part of it. And most of that could go into compost... either recycle or compost. What we wanted to do in my project was to get rid of that... and just have that right there [she pointed to bins with sorting signs] with more consistent signage. And we wanted to make sure that all ??? We wanted to make sure that all classrooms have the same type of system, with the signs and the black bin is out... ?? and to have all four sorting bins outside in the hallways. And then we wanted to do the same thing with the kitchen saying that OK...no single garbage bins. That was the main [thing] no single garbage bins because we need to have this sorting system or however...the space and the space was sometimes we have tonnes of space to work with, sometimes we didn't have enough space to work with. So I think the old buildings... we didn't have a lot of space so that was something that is when the Facilities Management people come in and they say ok by... and they suggested to do it in phases. So they say ok phase 1 is ok by the

end of October or by the end of next year... we should have got we should do all [of this] in these buildings in so many floors so just phased out. So that was my project. But one part of it was to get rid of that, [for which] we really have ½ year, but this is very popular so yeah I think that would be one of them.

Obstacles will be... trying to tackle big public places **with this behaviour, with this kind of behaviour**. [Having single black bins along with the sorting **system does not help to change behaviour**]. That is exactly the point. One of the papers that I was reading, she put it so, the author put it so nicely she said: **It is harder for you to put your garbage in**... it is easier for you to put your garbage and take it to a sorting station just and sorted out, but then when you are passing, when you have your garbage in your hands, and you are passing a black bin you have to come over the effort, you have to make an **extra effort** to not throw your garbage in the black bin so you are mind is trained to throw your garbage in the bin, in the black bin but it takes extra effort on your part to go pass that black bin and not throw your garbage there and then go to the 4-ways sorting bins. I wonder if would be easier if that black bin wasn't there like... oh ok I can throw my garbage... oh ok here is the 4-way sorting system and throw it out.

Code	Colour	Frequency
Barriers	Red	7
Food safety	Green	0
Packaging	Light green	5
Washing	Blue	1
Behaviour	Turquoise	12
Waste management	Grey	15
Economy	Pink	24

Management	Yellow	4
------------	--------	---

Appendix VII: Transcript of interview with Derrick Hines, Director of Dalhousie Food Services

Interviewer: Juan Elevancini

Interviewer:

Are you aware of any current or past initiatives aimed at allowing re-useable containers to be brought/promoted in food service locations on Dalhousie Campus?

Interviewee:

Yes, well we can use lug-a-mug. Lug-a-mug is a great program, it's on campus. So if you bring your own mug, it's **discounted** for coffee and tea. And – don't quote me on this – I think it's **fifteen cents off**. It **incentivizes students, faculty, staff, administration** to use their own mug as opposed to a **paper cup**.

Interviewer:

And how long has this been going on?

Interviewee:

Oh my gosh – ten years? There's been different initiatives that the university and ourselves have done over the years to educate people. I think sometimes there's just so much information that it gets lost.

Interviewer:

What about if you could evaluate the success of that initiative? How many people—

Interviewee:

I couldn't give you a percentage, there would be some data mining that would need to be done. I don't think it's a strong percentage. I think there's probably—on the consumer side, **you've got to lug a mug with you**, that means you have to stick it your backpack. **You've got to make sure you don't put it away dirty or it will start smelling**. I know myself, I got caught with my mug,

and all of the sudden four days later there's something growing in it. So, you've got to take care of it, and I think that's a **deterrent** sometimes.

Interviewer:

My next question is what kind of barriers you see for that.

Interviewee:

Well, **you've got to remember to put it in your backpack** in the morning, that's the first thing. First step, right? If your mug's not in your backpack, you're not doing it. **It's got to be habit forming**, I think.

Interviewer:

So, we're trying to extend this idea beyond the coffee mugs to actual food containers. So this one was successful— do you remember any other ones that didn't go through, that couldn't be implemented?

Interviewee:

I remember there was one in the UK that was a container program. The university had a dish machine and a recycler. I think the way it used to - bear with me, it's been a number of years since I've looked at it - I think the one in the UK, there was a dish machine, and you would **drop off your dirty one and pick up a clean one**. But I think they had some **challenges with it**. One, you had to buy into it, I think. So it means there's only one certain size container, you get, you get another one. Which means that you might not like that size, you might—you know? And I don't have the research in front of me right now. I think if you were doing a container program, I would like a Tupperware, you would like something else.

Interviewer:

Different options. I guess you would have to provide them with different options, and different sizes.

Interviewee:

Different sizes, because all of a sudden, if decide to go grab a slice of pizza, and you've got a round bowl... It might not fit in or something, right?

Interviewer:

It would depend on the type of container.

Interviewee:

Right, so you as a consumer would have to decide that. Say, I'm a soup person. OK, I need a bowl then. I would buy a bowl and then I would look after it and I use it.

Interviewer:

How would you propose the project be economically feasible?

Interviewee:

Well, actually, I think that would be very simple, because the consumer would decide on the type of container that they would want. So as for the feasibility, it wouldn't cost me anything to run it. If you come in with a bowl to buy the soup, I would say it's probably a dime for the container, so that's ten cents off soup to encourage you to use the bowl.

Interviewer:

There has to be some incentive to use it. For the vendor, too.

Interviewee:

Yes. Which means I'm not going to use a paper cup, I would use your bowl – I'll get back to risks later – but that would be the actual economics of it. On the consumer side, there would be the up-front cost of buying the containers. That would be an initial investment that somebody would have to make on an individual basis. So if you're saying, "OK, I'm going to buy a bowl and I'm going to reuse it, and it's going to cost seven dollars..."

Interviewer:

I would have to use it seventy times—

Interviewee:

Seventy times, yes. So that would be the economics on the consumer side.

Interviewer:

But what about the vendor?

Interviewee:

The vendor would, again, be the dime – so it cost me a dime for the bowl, I'm going to discount your dime, pass that along. It saves the university so that there would not be that packaging into the stream.

Interviewer:

So, whatever it takes to pay off the initial investment, that would be the economic question.

Interviewee:

Right, on an individual basis, as opposed to a university investment.

Interviewer:

That's provided that the student brings their container.

Interviewee:

Correct, yes.

Interviewer:

Now, to what extent would a 5% discount offered to participants for a reusable container program impact your business?

Interviewee:

Well, again, I would do it as a cost of the vessel as opposed to a percentage. Because – I'll use an example – well, coffee's a real good example, the cost of the discount is the cost of the cup. So for your bowl of soup and it's three dollars, a 5% discount would be fifteen cents. I would more relate it to the cost of the cup than to a fixed percentage. Relate it to the cost of the savings. So I'm not going to charge somebody over and above that I saved some money for the container, because I bill the cost of the container into the cost. The overhead. So when you buy a bowl of soup, I assume that you're going to want a container to put it in, and the ingredients...

Interviewer:

And then you also have to think about the logistics to bring the containers here, and all those arrangements.

Interviewee:

And you still will have to, because there's still going to be a good percentage of the population that would still require a bowl. Because all of a sudden you're going to not sell soup because you don't have bowls.

Interviewer:

So you cannot phase it out completely. You still have to provide the old way, and then give the option to people who bring their own.

Interviewee:

If, down the road – say four years down – we looked at this and saw there was 90% uptake, nobody using paper bowls, you might take a leap and delete paper bowls. You could put up a sign to say, “We're proud to serve free-range bowls,” bring your own as opposed to us providing them.

Interviewer:

Are there other barriers regarding economic feasibility that you can identify that would make a similar waste reduction project difficult to implement?

Interviewee:

Barriers would be – and this one would be a risk one, I guess – you're going to have the risk of somebody – let's just use the soup, since we're talking about the soup. I come along, I use my own bowl, I rinse it, I put it in my backpack. Three days later, I get another bowl of soup, I rinse it. All of a sudden on the weekend I have a bowl of soup and I get sick. And then all of a sudden, you go back and say, “You made me sick, because I had a bowl of soup.” Well, the soup didn't make you sick, it was the container that you did not wash properly. And that would be a concern for the wellbeing of somebody, because you're entrusting that they take those measures into hand. I'm not sure on the province – I think the Department of Agriculture would be interested in looking at a program like that as well, just to make sure that the legality is covered off. So maybe there would be a sign in the operation that said, “If you bring your own bowl for your soup, we will assume that you've sanitized or washed it properly.”

Interviewer:

Because it would be hard to know who is responsible. So that's one of the major obstacles, actually.

Interviewee:

Right. If it was a non-risk product – like if you're talking about coffee, especially if you don't put cream in it, you're reducing your **risk of food-borne illness**. You start putting milk in it, listeria is related to milk. So if I don't **rinse** my—

Interviewer:

It could be a focus of disease.

Interviewee:

Right.

Interviewer:

Are there any minimum requirements regarding the feasibility that would have to be met in order for Dalhousie's sustainability members to agree to such a program?

Well, let's continue on with the soup as an example. That would be something that would be something to look at as well. **So if you bought a four ounce bowl and I sell in eight ounce portions**—well do I start doing half-prices for soup? And all of a sudden, how do I know yours is four, his is six, his is eight. Or all of a sudden I get a deal where there's a twenty ounce bowl and I pour six ounces of soup in it, it doesn't look very full. I guess that would be something both the consumer and the vendor would have to look at, whether it's a soup bowl or a Tupperware container or whatever else it is. Maybe there's a sample, or there would be some **kind of an educational process there**. And I don't know if you've seen those big travel mugs, some of them are actually 32 ounces, so it would actually be a whole lot of coffee.

Interviewer:

Would your organization be open to engaging in a discussion regarding implementing a similar waste reduction program at Dalhousie?

We always are. I mean, that's why we're here on campus. And I talked about – right now is trying to look at **waste streams**, and trying to educate everybody on production versus selling of items. So if you're overproducing by 100 pounds at some spot, it's going to affect prices for students and faculty and staff, because we haven't done a good job of managing the stream. Plus that's waste that's going into the compost—it's unacceptable, it just needs to be controlled. Now there's different aspects, for example, like Subway has a policy, like after 11 o'clock the morning after, you can't use their bread, because it's not an acceptable product, there's no preservatives in it, it doesn't hold up. So you've got to be careful how much you produce. You're always going by past history of what that day would be. And they get nailed once and awhile, summer time's a great example. You've pared down your production, things are pretty slow, and then all of a sudden you've got a hundred visitors come on, and you run out of bread. And it's because they go by whatever the previous – they might go with fifty subs has been their standard for the last two weeks, and all of a sudden it could have been a hundred today. It could have been double. But again, but if somebody didn't say, "Listen, there's a tour coming through. It's a hundred people. They're probably going to go to Subway," they would've baked more bread. Or, if all of a sudden, if a department has a big barbecue or conference and they go off-campus, again they would've baked fifty, and all of a sudden all these people are gone. So it's always a balancing act, right?

Interviewer:

You need to know your business.

Interviewee:

Or actually, a really good one is—we've had a number of storms this winter. My Tim Hortons baker comes in at two in the morning to start baking. They don't make the announcement for the university until six. I can't say, "Don't bake anything," because my luck would be that they wouldn't cancel school, and then we'd have no donuts, no muffins. So it's one of those ones where you're saying, "Hopefully there's school today." Sometimes it's hit-and-miss, but most days you're pretty good on—

Interviewer:

So this time with the storms, you just lost the food?

Interviewee:

Yeah. Well, the first day you produce – and again, the standard for Tim Hortons is you can't use all those products the next day – so if I'm able to have somebody on campus that maybe drops them off at residence. But the roads are so bad that day, you couldn't even have a van around. That's an extreme case, but it happened. You've got to be honest about those things, but they happen. It's the cost of doing business. And again, if I was to say, "Don't produce any donuts—"

Interviewer:

It could backfire on you.

Interviewee:

Yes, the university could say, "You know what? We're opening." And everything's empty. And it's the same with my staff. "Derrick," they'll say, "do I have to come in?" And I'll say, "I don't know, I don't make that call." It's the university that decides if we're here, we need to provide a service. If we're not, then they tell us.

Interviewer:

What are your main concerns/reservations about this kind of economic feasibility project aimed at waste reduction?

Interviewee:

I really don't have any. My concern would mainly be, back to the previous question, on how we ensure that **somebody doesn't become sick** from something that is **improperly washed**. Besides that, I think that's my only concern for the consumer, **you don't want somebody getting sick from something**. And I know from my own kids – one of them is at Dal here – sometimes you have to say, "**It's got to be washed properly**." Sometimes you're in a hurry, you rinse it out and it looks clean, and off you go. And **salmonella's a nasty thing, you got listeria, botulism** – there's just so many different—

Interviewer:

Have you had any case here of any...

Interviewee:

Knock on wood, we have a lot of things in place for that. We take core samples of all fibrous proteins. We take checks. Plus we do it out back, we have very stringent receiving—you've got to be extremely careful—

Interviewer:

So you're taking the right measures to avoid that.

Interviewee:

Yes. And you know, we've had—you've got to have all those things in place. So if somebody does think they're sick, the first thing I would do is call the department of health and say, "Listen, we think somebody got sick." And they'd say, "What did the person have?" You'd tell them. They would then ask the person, they would contact them and say, "What did you have three days beforehand?" Because it could be not what they think they had, it could be something else. "Oh, you went to the Thai restaurant on Quinpool? Interesting." So they look at the three days. And then I would share with them, "Here's all of our data. Our fridge temperatures. Our temperature checks for the products. Here's the information on the core sample of the product." And they would say, "That's interesting, those are all reducing risk." And then they would look at the Thai restaurant say, "Do you have a core sample?" More than likely they don't. "Did you document temperature checks?" Sometimes they don't.

Interviewer:

So you have the data to back you up, everything you did.

Interviewee:

Right. And where you're surveying 200 meals – and it could be a **sickness** from anything else. It could be a stomach bug that goes on, you have something to eat and it doesn't agree with you.

Interviewer:

It could be related to the person themselves.

Interviewee:

Exactly.

Code	Colour	Frequency
Barriers	Red	3
Food safety	Green	10
Packaging	Light green	2
Washing	Blue	8
Behaviour	Turquoise	9
Waste management	Grey	2
Economy	Pink	13
Management	Yellow	5