

**Sustaina“beer”ity:
Promoting sustainability through local microbrew beer options
on campus**



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Executive Summary

The idea of shopping local has become a trend amongst many cohorts, and the students at Dalhousie are no exception. For example, students are currently taking initiative by serving locally produced food three times a week through an organization called the Loaded Ladle (The Loaded Ladle, 2012). This society was created in 2010 and encourages a local alternative to the growing global food system (The Loaded Ladle, 2012). In addition, Dalhousie University remains committed to becoming a carbon neutral university by 2050 (Dalhousie University, 2010). One of the ways to pursue this carbon neutrality and continue to encourage the work of the Loaded Ladle would be to provide more locally sourced products at campus establishments. Based on an interest in local foods and university values geared towards sustainability, the purpose of this project was to determine if transitioning to local microbrewed beers on campus is in the interest of Dalhousie students.

Our project objectives included examining if students were interested in transitioning to local microbrewed beers on campus, and subsequently identifying if local Halifax microbreweries were interested in having their products available at all Dalhousie campus bars. To gauge the interest of the study participants, we utilized qualitative research methods including in-person and telephone questionnaires. We conducted in-person questionnaires with at least one member of staff from each of Dalhousie's campus bars – the Grad House, the Grawood, the T-Room, the University Club and the Ward Room. We also surveyed students at each of these establishments, as well as at the Killam Library, amounting to a total of 94 students participating. Lastly, we called representatives from four Halifax microbreweries, including North Brewing Company, Propeller, Garrison and Granite.

The overall consensus was that 83% of students enjoyed drinking craft beer and that 89% of students said they would buy craft beer if it were available at the campus bars. However, only 61% of students surveyed said they would pay more for craft beer over non-craft beer choices. The results from the staff interviews at campus bars revealed that The Grawood does not serve any local microbrews, while The University Club serves only local microbrewed beers. Due to time constraints, we were only able to survey representatives from Garrison and Granite; the other breweries did not have time to complete our questionnaire. Garrison Brewing Company said they would definitely be interested in becoming more prominent in the campus beer market, whereas Granite Brewery stated that they are not necessarily looking to expand but would always consider the opportunity.

From these surveys we can conclude that our hypothesis (that transitioning to local microbrewed beer at campus bars would be feasible) is greatly supported. However, we are still uncertain that all the local microbreweries in Halifax would be interested in expanding their brands in this market. Our recommendations for Dalhousie are to follow their sustainability values and implement more local microbrewed beers at the campus bars. If they cannot transition solely to local microbrewed beers on campus, Dalhousie University should at least provide all the beers at campus bars at the same price, to encourage students to drink local if they prefer. Other recommendations for further work in this field would be to determine whether a decrease in greenhouse gasses would result from a switch to local microbrewed products, and to find out if other local microbreweries in Halifax would be interested in expanding supply to Dalhousie campus.

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1. Introduction

1.1 Background

Based on our literature review, transitioning to local microbrewed beers has not been previously examined, especially in a university setting. The fact that there is little to no previous research conducted on this topic means that this project has the potential to set a precedent for future research and implementation in this field. This study will play a vital role in the potential greening of the Dalhousie campus, as it supports local businesses and raises awareness of the global food system.

Many studies, such as Talve (2001) and Koroneos et al. (2005), have looked at the life cycles of specific beers, and have found that greenhouse gas emissions from transportation and sourcing of the ingredients are the most variable factors when considering environmental impacts. The effect of transportation varies based on distance travelled between production and distribution, as well as the type of transportation being used. Many other studies have investigated the sustainability and environmental impacts of the brewing industry itself. Talve (2001), Koroneos et al. (2005), Hospido, Moreira, & Feijoo (2005), and Matilla, Helin, & Antikainen (2012) all undertake life cycle assessments or focus on the indicators used in life cycle assessments for breweries. Studies have looked at a multitude of areas in the life cycle of beer and helped to identify key areas that would distinguish differences between local and import breweries. Transportation is a key factor when comparing the two beer options, but it is also important to note that local microbreweries are often times considerably smaller than international breweries, and the amount of actual production could differ significantly. With this in mind, it would be important to look at the impact per keg, or even per bottle of beer in order to compare the overall sustainability of such breweries. Furthermore, studies conducted by Muster-Slawitsch et al. (2011) and Sturm et al. (2013) suggest that smaller breweries have lower energy and water efficiency than their international sized competitors.

While there is an abundance of information on the general sustainability of breweries, there is minimal information and few studies that directly compare the sustainability of smaller local breweries to the larger domestic or international breweries. Furthermore, with regards to our research topic, there is limited information about the feasibility and promotion of local micro brewed beer in comparison to large brands at campus bars.

1.2 Goals and Objectives

Our project objectives included examining student interest in transitioning to local microbrewed beers and identifying if local Halifax brewers are interested in having their product available on Dalhousie campuses. Together, these two objectives will determine the feasibility of transitioning to local microbrewed beer in the Studley, Carlton and Sexton campus bars of Dalhousie University. The purpose of our research is to identify if we can positively impact the local movement on campus by providing more local micro brewed beer at campus bars.

2. Methods

2.1 Study Design

Since this study was mainly concerned with student preferences at campus bars, we were primarily interested in having patrons of campus bars respond to the questionnaire. Non-probabilistic purposive sampling was used to achieve this (Kirby, Lorraine & Greaves, 2010). In practical terms, this means that the questionnaires were administered inside, or directly outside, of the five campus bars in order to collect information from the sub-population of interest. We chose this sampling method, as it seemed the quickest and easiest way to gauge the general interest from students and staff. We also attempted to conduct telephone questionnaires with representatives from four local microbreweries in Halifax. This option was chosen due to time constraints and other factors that rendered personal contact unfeasible.

This study has looked at the beer preferences of students at campus bars in an attempt to establish how students' beer choices would change if more local microbrew options were available. This study used qualitative research methods to assess the feasibility of offering more local microbrews in campus bars.

To begin, in-person questionnaires were conducted with patrons at the five campus bars (the Grad House, the Grawood, the T-Room, the University Club and the Ward Room) and a randomly sampled survey of students at the Killam Library. These questionnaires were used to determine:

- The level of knowledge regarding local microbreweries that university students possess
- How much interest in local microbrewed beer exists among Dalhousie students
- The level of willingness students have in trying new products, including microbrewed beers, and
- The interest of students in choosing locally produced, microbrewed beers over domestic beers with no price difference present and with a price difference present

Next, in-person questionnaires with bartenders from each of the five campus bars previously mentioned were executed to establish:

- What beers are currently offered at each bar
- What local microbrewed beers, if any, are offered at each bar
- The price of locally microbrewed beers, if offered, compared to the price of domestic beers offered
- How often patrons ask for locally brewed options

Lastly, phone questionnaires with representatives from four Halifax microbreweries (Bridge, Propeller, Garrison, Granite) were undertaken to determine:

- The interest of microbreweries in supplying beer to campus bars where their products may not yet be sold
- The reasons for interest, or absence of interest, in supplying campus bars
- What actions microbreweries are taking, if any, to reduce environmental impacts

2.2 Procedures

To survey students and bar staff, we visited each bar on at least one occasion. At each bar we approached students, approximately 20 per bar, to ask if they were willing to participate in our survey. If they responded yes, we read them our oral consent form and then administered the questions (Appendix B). We also conducted student surveys, approximately 20, at the Killam Library, to provide us with a sample from a public place that does not serve alcohol. At each of the five campus bars, we also approached bar staff, read them the oral consent form and then continued to ask them the survey questions. From these surveys we believe that this was a realistic sample size and gave us sufficient results needed for this study.

In order to preserve the anonymity of questionnaire respondents, no personal identifiers were placed on survey responses or questionnaire transcripts. A copy of the questionnaires can be found in Appendix B.

2.3 Limitations and Delimitations

The results we have collected from this study have certain limitations and delimitations that were evident throughout this process. These limitations, such as time restrictions, disallowed us from engaging all of the survey participants we had initially desired to contact. The initial plan had been to go to each bar at least twice to survey 10 students at a time. However, the ethics approval process took longer than anticipated, leaving us with less time than anticipated. As a result, there was no longer enough time to go to each bar twice so, in some instances, we surveyed all 20 students in one bar visit. Also, we had originally planned to conduct a total of 120 student surveys but only conducted 94 surveys. Another limitation imposed by time, or lack thereof, was the various campus bars' differing hours of operation, which made it difficult to get to every bar.

An additional limitation that our group did not foresee was that two of the four local microbreweries in Halifax were unable to complete our questionnaire. When trying to contact the representatives from Propeller and North Brewing Company they were not available. If we had not been constrained by time, we might have been able to go to the actual breweries and conduct surveys in person but unfortunately this was not the case.

The primary delimitation that our group imposed on ourselves took the form of our research design, which only aimed to survey 120 students, when an adequate sample size for 18,500 students would be to survey 377 students (Raosoft, 2004). The initial idea for only getting 120 students was that we knew there would be an extreme time constraint placed on us, and we assumed that not every student we approached would want to participate in our survey. Another delimitation experienced came in the form of the homogeneity of the subjects studied at the bars. We attempted to address the potential bias posed by surveying students whom predominantly drink at campus bars by including 20 subjects from the Killam library in our research. As such, we hoped to introduce some more heterogeneity in our research by surveying students whom may not drink at campus bars.

3. Results

3.1 Student Surveys

Given the time constraints imposed by the ethics review process, and the rapidly approach semester end, it was not possible to administer the questionnaire to 120 students as intended. Only nine students were surveyed at the T Room and no students were surveyed at the Ward room. However, 25 students were surveyed at the Grad House (instead of the intended 20 students), bringing the total of students surveyed to 94. We feel that 94 questionnaire responses is an adequate number to gauge whether there is sufficient student interest for more microbrewed beers to be offered on campus. However, the lower number of responses from the T Room and the absence of responses from the Ward room will create a bias in the combined data from the questionnaires. This bias is kept in mind during the interpretation of our results.

Which campus bar do you most often visit?

Among the questionnaire participants, it was found that the largest proportion of respondents visited the Grad House most frequently (39.4%). The Grawood was the next most frequently attended (33.0%), followed by the University Club (10.6%), the Ward Room (5.3%) and the T Room (4.3%), while just under eight percent of participants reported never visiting campus bars. Since fewer participants were surveyed at the T Room and no participants were surveyed at the Ward Room, it is likely that the true proportion of participants that attend these bars most frequently is higher.

How often do you drink beer at a campus bar?

It was found that 39.4% of participants drink beer at a campus bar more than once a week, 28.7% drink beer at a campus bar more than once a month, 22.3% drink beer at a campus bar a couple times a year, and 9.6% never drink beer at a campus bar.

What brand of beer do you usually order?

When examining all the responses, it was found that Keith's and Rickard's were the brands of beer most frequently ordered by participants. However, when the responses were examined by campus bar, it was found that a proportion of participants usually order craft beers where offered. At the Grad House, 20% of participants usually order local microbrewed beer, and at the University Club, 35% of participants usually order local microbrewed beer. At the Grawood, where no local microbrewed beers are offered, 20% of participants reported usually ordering microbrewed beers when drinking at other campus bars.

How often do you try new brands of beer?

It was found that 38.7% of participants try new brands of beer more than ten times a year, 22.6% try new brands six to ten times a year, 23.7% try new brands four to six times a year, 11.8% try new brands one to three times a year, while 3.2% of participants reported never trying new brands.

Do you enjoy drinking local craft beer?

It was found that 82.8% of participants enjoy drinking local craft beers, 7.5% do not enjoy drinking local craft beers, and that 9.7% were uncertain whether or not they enjoy drinking local craft beers (Figure 1).

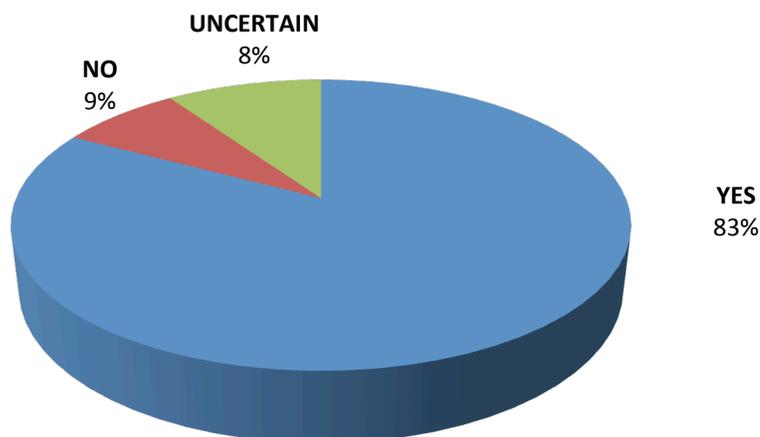


Figure 1: The proportion of questionnaire respondents that chose each response (yes, no, or uncertain) when asked the question “do you enjoy drinking craft beer?” Responses were compiled from questionnaires carried out at the five Dalhousie campus bars and at the Killam library from March 18th - 30th, 2014.

Given the option, would you buy microbrewed beer at a campus bar?

While 84% of participants reported that they would buy microbrewed beer at campus bar if that option were available, 7.5% of participants reported that they would not buy microbrewed beer at a campus bar, and 8.5% reported that they were uncertain (Figure 2).

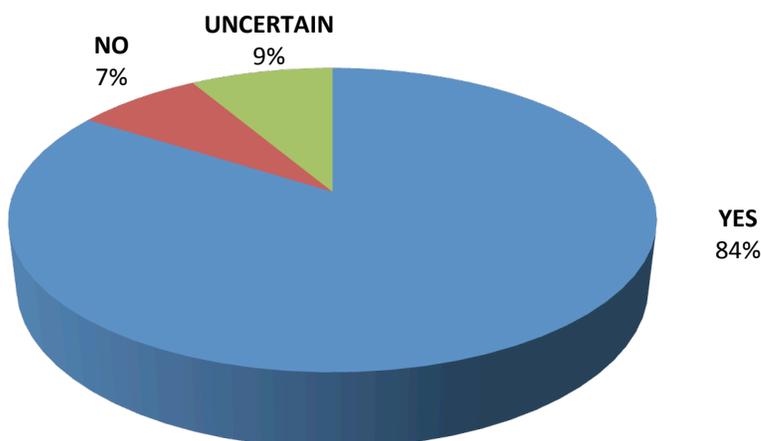


Figure 2: The proportion of respondents that chose each response (yes, no, or uncertain) when asked the question “given the option, would you buy micro brewed beer at a campus bar?” Responses were compiled from questionnaires carried out at the five Dalhousie campus bars and at the Killam library from March 18th - 30th, 2014.

Would you buy microbrewed beer at a campus bar if it were the same price as domestic beers?

Astonishingly, 89.4% of participants said that they would buy microbrewed beer at a campus bar if it were offered at the same price as domestic beer, 5.9% said they wouldn't, and 4.7% said they were uncertain whether they would or not.

Would you buy microbrewed beer at a campus bar if it were a little more expensive than domestic beers?

Unsurprisingly, 61.2% of participants said they would be willing to buy microbrewed beer at a campus bar if it was a little more expensive than domestic beers, 30.6% said they would not and 8.2% said they were uncertain (Figure 3).

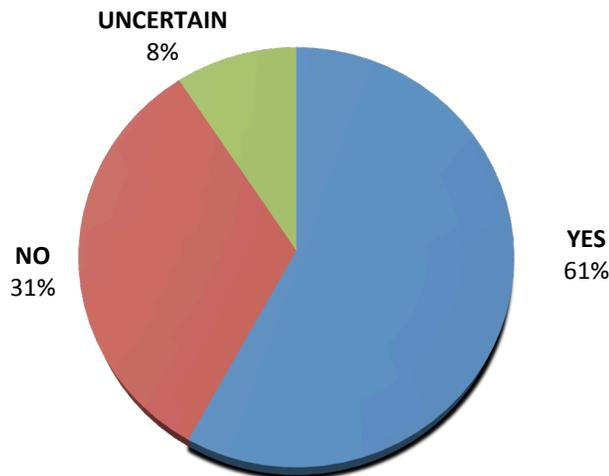


Figure 3: The proportion of respondents that chose each response (yes, no, or uncertain) when asked the question “would you buy micro brewed beer at a campus bar if it was a little more expensive?” Responses were compiled from questionnaires carried out at the five Dalhousie campus bars and at the Killam library from March 18th - 30th, 2014.

How many local microbreweries do you know of in Nova Scotia?

It was found that 5.3% of participants were unable to name any Nova Scotia microbreweries, 18.0% were able to name one NS microbrewery, 14.9% were able to name two Nova Scotia microbreweries, and 61.7% were able to name three or more Nova Scotia microbreweries (Figure 4).

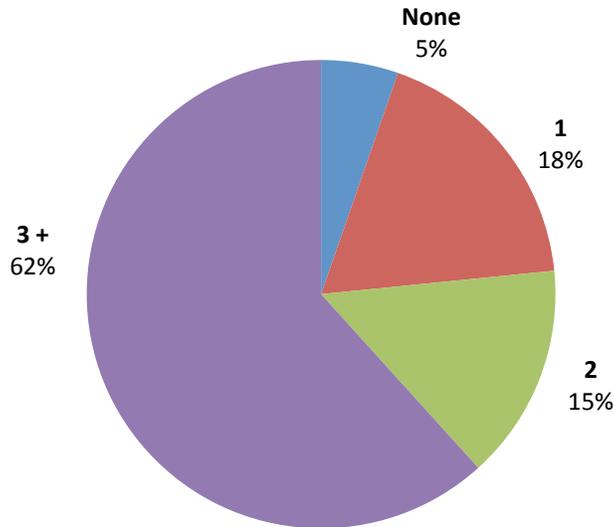


Figure 4: The proportion of questionnaire respondents who were able to name no Nova Scotian microbreweries, one N.S. microbrewery, two N.S. microbreweries, or three or more NS microbreweries. Responses were compiled from questionnaires carried out at the five Dalhousie campus bars and at the Killam library from March 18th - 30th, 2014.

What three words do you associate with micro brewing?

The three words that participants most commonly associated with microbrewing are *local*, *taste* (or *tasty*) and *different*. Other notable words mentioned frequently include *variety*, *unique*, *delicious*, *original*, *small*, and *craft* (Figure 5). A notable proportion of participants also associated the word *expensive* with microbrewing, however this was not added to our collage and will be discussed in the significant findings section.



Figure 5: The words most associated with microbrewing by the respondents when asked what three words they associated it with. The larger the word, the more often it was mentioned by respondents. Responses were compiled from questionnaires carried out at the five Dalhousie campus bars and at the Killam library from March 18th - 30th, 2014.

3.2 Staff Surveys

The results from the staff at the campus bars revealed that while the Grawood and the T-Room do not serve any local microbrews. The Wardroom & the Grad House sell some microbrew options, and the University Club primarily serves local microbrewed beers. The findings for each establishment are as follows:

The Grad House:

The most commonly sold beers at the Grad House are Molson Export, Rickard's White, and Garrison Irish Red. The bar stocks a diverse variety of local microbrewed beer amongst larger scale domestic beer. Draft Beers include Garrison Hop Yard, Garrison Tallship, Garrison Nut Brown, Garrison Raspberry Wheat, Creemore Springs, Murphy's Stout, Rickard's Red, Rickard's White and bottled options include Keith's, Heineken, Corona, Stella, Boxing Rock Red, Boxing Rock Blonde, and Boxing Rock Hunky Dory. There is a price difference of up to 2 dollars between some more expensive selections, such as between Garrison and domestic beers. This price distinction is negated, however, in the case of "Graduate Student Social Club Members," which will be addressed later in the discussion section. While there was a recognized gratitude on the part of customers for the availability of local craft beer, the bartenders surveyed also admitted that there were frequently requests for more local craft beer.

The Grawood:

The most commonly sold beers at the Grawood are draft Keith's, Rickard's Red, and Rolling Rock, and there is no price distinction. They do not carry any local microbrew selections, and the most commonly sold local beers were said to be Keith's and Schooner. The bartender surveyed was misinformed with regards to what *microbrew* means, as he told us that Molson M (which is neither a microbrewed beer nor a local beer) sold poorly and for that reason the bar was not interested in serving other microbrews.

The T-Room:

The most commonly sold beer at the T-Room is Keith's in both draft and bottle form, and Oland in bottles. The T-Room is sponsored by Molson & Labatt, and as such, they primarily sell Keith's, Molson Canadian, Labatt Blue, Coors, Coors Light, Oland, and Schooner. All draft beers are \$3.75 and all bottled beers are \$4.75. The bartenders said that while there were occasionally requests for more local microbrew options, they were not substantial enough to deter patrons from drinking there.

The University Club:

The most commonly sold beers at the University Club are Garrison Irish Red and Garrison Tallship Amber. Their beer selection was comprised of almost solely local microbrews. On draft, they offer Granite Peculiar, Propeller IPA, Garrison Red, Garrison Tall Ship, while bottled options include Garrison Hop Yard, Garrison Tall Ship, Garrison Irish Red, Propeller Bitter, Propeller IPA, Boxing Rock Vicar's Cross, Boxing Rock Hunky Dory, Rickard's Red, Rickard's Dark, Rickards White, Keith's IPA, Labatt Blue, Coors Light, Oland Export, Hell Bay English, Molson Canadian, Heineken and Corona. All draft and domestic bottled beers are equally priced at \$5.75, and imports are \$6.25, which makes local microbrews cheaper than some other beer options when examined from the perspective of price per volume. The bartenders also expressed that customers frequently voiced their

appreciation of the local beer options, and that it resulted in a lot of return customers.

The Ward Room:

The most commonly sold beers at the Ward Room are Garrison Tall Ship, Garrison Irish Red, and Pabst Blue Ribbon. Their beer selection is as follows: Garrison Hop Yard, Garrison Nut Brown, Unibrau Fin du Monde, Pabst Blue Ribbon, and Sleeman Honey Brown. There is no price distinction between draft and bottled beers respectively, and the result is a significant support of local micro brews.

3.3 Representative Surveys

Unfortunately, we were only able to survey representatives from Garrison and Granite, as we were unable to get a hold of representatives at the other two microbreweries selected.

Garrison Brewing Co.

The representative from Garrison Brewing Co. was able to tell us that their products were sold at multiple Dalhousie bars, and they would be interesting in extending that to include all the campus bars. This clearly indicates the desire of Garrison Brewery Co. to further immerse itself into the Dalhousie bar scene, and supports our hypothesis that it is feasible to switch to more microbrews on campus.

When questioned about the sustainable practices that Garrison brewery has in place, it was discovered that they reuse as much waste-water as possible, in addition to implementing the use of recyclable bottles, which allows for a bottle to be used up to 15 times before needing to be thrown out. Interestingly, the t-shirts sold in the Garrison gift shop also emulate sustainable practices, as the shirts are being made from recycled bottles. The brewery was proud to state that they take as many sustainable measure as possible, doing all they can to lessen their ecological footprint.

Granite Brewing

Granite, being a smaller brewery than Garrison, currently only sells their products at the University Club. Although they were hesitant when asked if they would like to expand their market to include other campus bars, they did acknowledge that should the opportunity arise, they would seriously consider the option. It is imperative to note that this hesitation is because, as a smaller brewery, they can only produce so much of their product and expanding their production may entail having to upgrade their operations. They said that they would have to evaluate the viability of expansion, should they be asked to become a more prominent beer supplier on campus.

In terms of sustainable practices and products, they make at least one fully organic beer, but use organic products whenever possible. Although their hops are sourced from the United States, they source their barley and wheat from western Canada. They also boast that they recycle everything possible, from containers to waste, and sell their spent hops to local farmers to be used as feed.

4. Discussion

4.1 Significant Findings

The findings of our research highlighted that a significant majority of respondents were interested in drinking local craft beer, and that they would purchase it at Dalhousie campus bars if it were available. It also found that the most popular and prevalent local craft beer available on campus are sourced from Garrison Brewing Company, specifically Irish Red and Tallship Amber. Moreover, Garrison expressed an interest in expanding its availability into the Dalhousie Campus bar market. The aforementioned findings support our hypotheses.

Our research also uncovered an overwhelming willingness on the part of participants to try new types of beer. With enough people surveyed willing to try new beers it could increase the frequency of patrons discovering new local microbrews, if they are available. This would, in turn, help to establish a wider market-base for local craft beer. This is best exemplified by the University Club's extensive selection of local craft beer, which has, according to the bartender, had a great impact on the popularity of the bar. Evidently, there is likely already a viable market base available on Dalhousie campus for local craft beer. Therefore, if we increase availability of microbrew options on campus, there will likely be a positive response and a better return of investment for the microbreweries, coupled with a heightened awareness of the local microbreweries in Nova Scotia.

Roughly, 60% of those surveyed were willing to pay extra for local craft beer at the campus bars and approximately 30% were not. This highlights a financial barrier that is present within the student population, but the majority of the student populace is still willing to pay a slightly higher price for local craft beer. Furthermore, according to various bartenders surveyed, the popularity of many of the most frequently sold beers at multiple establishments were attributed to their lower price. A price distinction between domestic beer and local craft beer, as is the case at the Grad House, results in more support for domestic beer. However, if there is no economic disincentive for the purchase of local craft beer, our research shows local craft options become more popular than domestic beer, as is the case in the University Club, and for Grad House "club members," as will be discussed in the following section.

Three fifths of respondents were also able to name at least three local microbreweries in Nova Scotia. Only 5% sampled were not able to name any. This can be interpreted as evidence of the increasing prevalence of the local sustainability movement on campus, especially in regards to local craft beer. If more people are becoming aware of their choices and impacts in relation to the locality of their resources, then they may be more likely to indulge in local craft beers available.

As previously mentioned in Figure 5, patrons were asked what three words they associate with microbrewing, and the three most common words included local, taste, and different. Other prominent words mentioned were *variety*, *unique*, *original*, *delicious*, and *craft*. The majority of these words are either positive or neutral associations with microbrewing, and it tells us that people generally view it as different and high quality. There was also one negatively associated word that was occasionally mentioned, which was expensive. Most often, individuals who did not enjoy drinking craft beer or would not buy it if it

were higher in price associated this word with microbrewing. This negative association is likely a result from a perceived financial barrier, although it can also be a real barrier. The reality is that even if these local craft beers are more expensive, it is usually by a marginal difference, such as 50 cents to a dollar more for a pint.

It was found that a significant portion of the subjects surveyed, 83%, enjoy drinking craft beer. Moreover, 89% of those surveyed said they would be interested in purchasing local micro brewed beer at a campus bar. Similarly, the overwhelming majority of those surveyed attested to their indulgence in new beers, with a varying degree of frequency. As such, the six percent difference in abovementioned statistics could likely be attributed to people who have yet to indulge in local craft beer, and increasing its prevalence at campus bars could expose some of these uncertain students to more local beer options. Eight percent of those surveyed admitted to not knowing whether they liked craft beer. For this reason, the inclusion of local microbrewed beers, in the Grawood and the T-Room specifically as they currently do not carry any, could have significant positive implications on the local sustainability movement as well as for awareness of local craft beer in Halifax.

The results of our study, coupled with personal discussions with Grad House staff members, clearly show that the sales of local craft beer at the Grad House bar were hindered by their higher price relative to domestic beers. For example, their highest selling beer, Molson Export, is also the least expensive served. In September 2013, the Grad House created a "Graduate Student Social Club." For the membership price of \$20, club members are privy to happy hour prices for all beers at all times. This membership thus negates the price distinction between draft domestic and local craft draft beers. The result was a significant increase in the purchase of Garrison draft beers offered at the establishment. To quote the Grad House's manager, "where else are you going to get a \$3 pint of Garrison?" He went on to say that, "Garrison loves that we are bringing in more of their brands all the time. We went from stocking two kegs in 2013 to four different varieties in 2014." In regards to the findings of our research project, the implications for the establishment of a mutually beneficial relationship between campus bars and local microbreweries, coupled with the institution of a membership program could greatly increase the popularity and sales of local craft beer here on the Dalhousie Campus. It would do so by addressing the financial barriers affecting the reception of local craft beer, making local options available and economically attractive.

We were surprised to learn that Granite Brewing Co. did not explicitly express interest in expanding their market into the Dalhousie Campus. We hypothesized that all breweries surveyed would be in support of their inclusion on campus, and this finding failed to support our hypothesis. For the time being, Granite Brewing Co. has a relatively small production capacity and it seems as though they have concerns that branching out to the various Dalhousie campus bars could be overly ambitious. However, Granite Brewing Co. does have an existing presence on campus in the form of the University Club, which currently offers Granite Peculiar. The bartender at the University Club expressed that customers were very receptive to Granite Peculiar's inclusion, and even said that many customers returned to the establishment to indulge in Peculiar pints often. This finding actively supported our hypothesis that students would be receptive to the inclusion of diverse local microbrews at campus bars.

The existence of Molson, Coors & Labatt sponsorships on campus bars, specifically the Grawood and the T-Room, also further confounded our hypothesis. Due to these sponsorships, the aforementioned bars do not, and may not ever, carry local craft beer.

5. Conclusion

From the questionnaire results, we can conclude that our original hypothesis is supported. Transitioning to local microbrewed beer at campus bars would be feasible from a Dalhousie student interest perspective. However we are still uncertain that all the local microbreweries in Halifax would be interested in expanding their brands into this market.

5.1 Recommendations for action

Recommendations for further action would be for Dalhousie University to pursue the inclusion of local beers at all of its campus bars. If unable to transition to solely local microbrewed beers on campus due to existing beer sponsorships, Dalhousie University should at least provide all the beers at campus bars at the same price to enable economically sensitive students to drink local if they prefer. In doing so, campus bars should establish mutually reciprocal relationships with local microbreweries that will economically and environmentally benefit both parties. Similarly the establishment of memberships, such as those offered by the Grad House, should be considered at other campus bars so as to provide incentive for local beer consumption on campus and to decrease or nullify financial barriers inhibiting the popularity and prevalence of local craft beer on campus

5.2 Recommendations for further research

Recommendations for further research would be to find out if all the local microbreweries in Halifax would be interested in expanding their markets into Dalhousie campus bars. This would mean contacting Propeller and North Brewing to inquire if they would want to become more prominent in the campus bar market.

Also, further research could be used to determine whether a decrease in greenhouse gasses would result from a switch to serving more local micro brewed beer on campus. This could be done by performing a life cycle assessment of both a local microbrewed beer and a domestic beer to see if there is a difference between the amount of greenhouse gas emissions given off in both processes.

5.3 Acknowledgements

We would first like to thank Hendricus A. Van Wilgenburg and Sydney Toni for the opportunity to conduct this project and for all their help and support during this process. We would like to thank all the survey participants throughout this study. The student, staff and representatives were willing to answer all our questions and provide us with the information needed to complete this study.

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Appendix

- Appendix A: Ethics review
- Appendix B: Oral Consent Scripts
- Appendix C: Questionnaires
- Appendix D: Initial Proposal

**Sustaina“beer”ity:
Promoting sustainability through local beer options on
campus**

SUST/ENVS 3502
February 27, 2014
Sara Campbell B00568646
Alex Pellini B00562137
Megan Pagnello B00577504
David Gibling B00570025
Chauncey Erskine B00552739

Appendix A:

Ethics Review Form

UNDERGRADUATE STUDENT SUBMISSION

RESEARCH ETHICS BOARDS
DALHOUSIE UNIVERSITY

This form should be completed using the guidance document http://researchservices.dal.ca/research_7776.html

SECTION 1. ADMINISTRATIVE INFORMATION

[File No: _____]
Office Use

Indicate the Research Ethics Board to review this research:

Health Sciences OR Social Sciences and Humanities

Project Title:
Sustaina“beer”ity: Promoting sustainability through local beer options on campus

1.1 Student researcher(s): Sara Campbell, Chauncey Erskine, David Gibling, Megan Pagnello, Alex Pellin.			
Department	Architecture & Planning, Arts & Social Science, Environmental Science, Biology.		
Degree program	Community Design & Sustainability, Environmental Science, Sustainability & Political Science, Marine Biology.		
Email	Sr256676@dal.ca , mg730824@dal.ca , david.gibling@dal.ca , ch434874@dal.ca , al295123@dal.ca	Phone	
I agree to conduct this research following the principles of the Tri-Council Policy Statement <i>Ethical Conduct for Research Involving Humans</i> and consistent with the University Policy on the Ethical Conduct of Research Involving Humans.			
Student signature(s)			
1.	Sara Campbell		
2.	Chauncey Erskine		
3.	David Gibling		
4.	Megan Pagnello		
5.	Alex Pellini		

1.2 Supervisor Name: Hendricus Van Wilgenburg			
Department	Environmental Science		
Email	hvanwilgenb@gmail.com , Sydney.toni@dal.ca	Phone	

I have reviewed the attached ethics application prior to its submission for ethics review, including the scientific/scholarly methods of the research project, which is described in the ethics application, and believe it is sound and appropriate. I will ensure this research will be conducted following the principles of the Tri-Council Policy Statement *Ethical Conduct for Research Involving Humans* and consistent with the University *Policy on the Ethical Conduct of Research Involving Humans*.

Supervisor signature(s):



March 15, 14

1.3 Department/unit ethics review (if applicable). Minimal risk research only.

This submission has been reviewed and approved by the research ethics committee.

Authorizing name and signature:

Date of approval:

SECTION 2. PROJECT DESCRIPTION

2.1 LAY SUMMARY [500 words]

In lay language, briefly describe the rationale, purpose, study population and methods.

Dalhousie University is a school that promotes sustainability but has not looked at the distance and greenhouse gas emissions associated with the beer they serve on campus. The purpose of this study is to provide a comprehensive report on our findings of the student interest in local micro brewed beers on campus. The goal of this project is to determine if transitioning to local micro brewed beers on campus is what the student's of Dalhousie want, if it is of interest to the local brewers and if it could lower greenhouse gas emissions.

This study will survey students through a series of survey questions, which will be administered outside or inside campus bars, to bartenders/server staff at campus bars and to representatives of local microbreweries in Halifax, NS. We will only conduct the survey inside the bar with approval of the bar staff at that time, otherwise we will survey people outside of the bar. Our main study population for this project will be students frequenting campus bars at the Studley, Carlton and Sexton Campuses at Dalhousie University: namely, The Grad House, Grawood, T Room, The University Club and Ward Room. We will also conduct a survey inside the Killam Library to provide a neutral setting on campus to gather data. The study will include only those students at Dalhousie who are of legal drinking age in Nova Scotia, and thus, are the most likely to drink at campus bars. We will also survey the bar staff on campus to determine whether or not they know of any local beers they currently sell and if they have heard student patrons ask for local beer options. Lastly, we are interested in surveying the representatives of local microbreweries in Halifax, specifically Propeller, Bridge, Garrison, and Granite, to see whether or not they would be interested in offering their product at Dalhousie bars.

After surveying bartenders/service staff at the campus bars and finding out what beers they regularly supply and sell, we can then determine how far these beers travel to get to Dalhousie, and how the distance would be reduced by choosing a beer that is from right here in Halifax. We can also examine if there are any greenhouse gas emission reducing practices implemented in these local microbreweries. This will, however, be a lesser component of the study.

After gaining the results of these surveys, we aim to discern whether or not students, staff and brewers support our hypothesis that it is feasible to transition to local beers at Dalhousie.

2.2 RESEARCH QUESTION

State the hypotheses, the research questions or research objectives.

The hypothesis of this project is: *It is feasible to transition to local beer in the Studley, Carlton and Sexton campus bars of Dalhousie University.*

The research objectives are to:

- Examine whether or not students are interested in transitioning to local beers and brewers
- Identify whether or not the local brewers are interested in offering their product to Dalhousie bars
- Determine whether or not greenhouse gas emissions can be reduced by making the switch to local beers

<p>2.3 RECRUITMENT</p>
<p>2.3.1 Describe how many participants are needed and how this was determined.</p>
<p>There are over 18,500 students enrolled at Dalhousie University, but we intend to survey 120 students. We will reach out to participants at the campus bars and at the Killam Library. We intend to survey each bar twice in one week, each time administering 10 surveys. We also intend to survey 20 students from the Killam Library to gather patron opinions in a neutral setting. We would never be able to survey all of the students, and similarly are only interested in those students over the legal drinking age at the Dalhousie campus bar at the time that we conduct our survey.</p> <p>We will survey two bar tenders/serve staff at each campus bar location, as we believe this will provide equal input from each bar. Ideally, we will survey all four representatives of the local brewers (Propeller, Bridge, Garrison, and Granite) as this seems like a manageable number to survey and their inputs will be needed if we were to switch to local beer options on campus.</p>
<p>2.3.2 Describe recruitment plans and append recruitment instruments. Describe who will be doing the recruitment and what actions they will take, including any screening procedures. Describe any inclusion / exclusion criteria.</p>
<p>There will be no recruitment plan in place. Students at Dalhousie that are not of legal drinking age will not be included in the study because we do not want to condone underage drinking. We will survey the students who are at the bars and the Killam Library at the time of our visit.</p>
<p>2.4 METHODS AND ANALYSIS</p>
<p>2.4.1 Discuss where the research will be conducted, what participants will be asked to do and the time commitment, what data will be recorded using what research instruments (append copies). Discuss any blinding or randomization measures. Discuss how participants will be given the opportunity to withdraw.</p>
<p>The surveys for students and bartenders/serving staff will be conducted as patrons are entering the campus bars, namely The Grad House, Grawood, T Room, The University Club and Ward Room. For the representatives of the local microbreweries, we will conduct the research by phone or via email. We will first get verbal consent before administering the surveys.</p> <p>Participants who consent to the survey will be asked a series of survey questions (attached to this report). They will be advised that they can withdraw or not to answer any of the questions at any time. The surveys should take between two and three minutes to complete, depending if they want to answer the questions that include providing specific examples of local beers they know of. The data that will be recorded will be primarily yes/no questions, and questions that ask them to explain their choice.</p>
<p>2.4.2 Describe your role in this research and any special qualifications you have that are relevant to this study (e.g. professional experience, methods courses, fieldwork experience).</p>
<p>The skills learned through the SUST 3502 class at Dalhousie University has prepared us with tools and methods to execute this project. We feel confident in surveying patrons using the guidelines provided through our class work and believe these to be adequate qualifications.</p>

2.4.3 Describe plans for data analysis in relation to the hypotheses/questions/objectives.
The data analysis will include coding the responses generated to either support or not support our hypothesis. The organization and coding of responses will then be used to establish the feasibility of our three objectives. This will demonstrate if the transition to local beer on campus is both viable and strongly supported by students.
2.4.4 Describe and justify any use of deception or nondisclosure and explain how participants will be debriefed.
In an effort to not create bias responses, we would like to withhold the fact that we are interested in the sustainable aspects of more local beers and, instead, suggest that we are interested in the beer consumption patterns on campus. Also, for those of us that are in a double major with sustainability we would like to withhold that information, unless asked by the participants. We do not want to give the survey participants the words 'sustainable' or 'sustainability,' as they may use this to answer the questions about the words they associate with local micro brewed beers. We want to learn their knowledge on the topic without influencing their responses.
2.4.5 Describe any compensation, reimbursement or incentives that will be given to participants (including those who withdraw).
✓ Not applicable

2.5 INFORMED CONSENT PROCESS

Describe the informed consent process (i.e. how and when the research will be described to the prospective participant and by whom, how the researcher will ensure the prospective participant is fully informed of what they will be asked to do). If non-written consent is proposed, describe why and the process. If a waiver of informed consent is sought, address the criteria in the guidance document and TCPS articles 3.7 and/or 5.5. Address how any third party consent (with or without assent) will be managed. Describe any plans for ongoing consent, and/or community consent. Discuss how participants will be given the opportunity to withdraw (their participation and/or their data, and any limitations on this).

Append copies of all consent forms or any oral consent script.

For this project, we will provide the students and bartenders/serving staff the opportunity to remain anonymous. When first meeting the student and bartender/serving staff, we will ask them if they are willing to participate in our survey and explain the details behind the research (an oral consent script is attached). If the potential participants agree, they will be asked to complete the survey to the best of their ability; they will be advised that they can withdraw at any time. There will be no further contact with the students or bartenders/serving staff following the surveys, unless they request to read our final report.

When surveying the representatives of the microbreweries, we will use the same strategy of a verbal informed consent and explain to them, over the phone or via email, the details of the project. Potential participants will be asked if they are willing to answer the few questions we have and provide relevant feedback. After consenting, we will ask them the survey questions. They will be advised that they can withdraw at any time or chose to not answer any question they are uncomfortable with. There may be ongoing participation with these stakeholders as they may have more interest in reading the results in our final report.

Should anyone wish to withdraw from the study, all of his or her responses will be removed from the database.

2.6 PRIVACY & CONFIDENTIALITY
2.6.1 Describe how data will be stored and handled in a secure manner, how long data will be retained and where, and plans for its destruction.
Data will be stored in a group binder, with Megan Pagnello being assigned the job of looking after it throughout the process of this project. When the binder is not being used, it will be stored at her residence. The original surveys will be destroyed after the project is handed in, however, the data will be retained in an electronic form for one year after the class ends, in case the data is requested by the professor.
2.6.2 Address any limits on confidentiality, such as a duty to disclose abuse or neglect of a child or adult in need of protection, and how these will be handled. Such limits should be described in consent documents.
Although we do not foresee any direct limits on confidentiality, the issue of underage drinking may arise. Ultimately, we are relying on the bar staff to check the identifications of their patrons. Should we learn of a participant that is under the age of 19, we will omit their responses and notify bar staff immediately.
2.6.3 Does your use of any survey company or software to help you collect, manage, store, or analyze data mean that personally identifiable information is accessible from outside of Canada?
<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes. If yes, describe your use of the company or software and describe how you comply with the University Policy for the Protection of Personal Information from Access Outside Canada.
2.6.4 Describe the measures to be undertaken for dissemination of research results and whether participants will be identified (either directly by name or indirectly). If participants will be quoted in reports from the data, address consent for this, including whether quotes will be identifiable or attributed. Describe how participants will be informed of results that may indicate they may be at risk (in screening or data collection), if applicable.
In the final report, where the information is displayed in graphs or charts, none of the participants will be identified in a way other than as student, bartender/serving staff or representatives of local microbreweries. However, we will add a clause to our consent speech to address consent for any quotes to be used in our final report, because the local brewers may give us suggestions or have a general quote to add to our report. They can be identified by name or as a representative of a local brewery, subject to their choice.
2.7 RISK & BENEFIT ANALYSIS
2.7.1 Discuss what risks or discomforts are anticipated for participants, how likely risks are and how risks will be mitigated.

We do not believe that there will be any risks or discomforts for the participants, as they will only be asked survey questions, and can withdraw at any time. Participants can choose to not participate or refuse to answer any question that they feel is sensitive in nature. Should we deem a participant to be in need of assistance with excessive drinking, we will provide them the contact information for Alcoholics Anonymous, Halifax.

Alcoholics Anonymous, Halifax

Phone: (902) 461-1119

Email: Help.AAHalifax@gmail.com

2.7.2 Identify any direct benefits of participation to participants (other than compensation), and the indirect benefits of the study (e.g. contribution to new knowledge)

After completion of participation, participants may have a greater insight into their beer choices and local beers in general. Bartenders and serving staff may become more aware of where the beer they serve comes from and some of the local options available. The representatives of local microbreweries may choose to try and pursue the Dalhousie campus market, if they have not already done so.

As a means of eliminating bias, we will not be mentioning the issue of sustainability unless the participants bring it up. With that, the participants will not be made aware of potential sustainable benefits.

2.8 CONFLICT OF INTEREST

Describe whether any conflict of interest exists for any member of the research team in relation to potential research participants (e.g., TA, fellow students), and/or study sponsors, and how this will be handled.

The only conflict of interest that may exist in this process would be that one of our group members, David, who works for Propeller. David will not be conducting any interviews with the study participants from the representative of the breweries.

SECTION 3. APPENDICES

3.1 Appendices Checklist. Append all relevant material to this application. This may include:

- Recruitment Documents (posters, verbal scripts, online postings, any invitations to participate, etc.)
- Screening Documents
- Oral Consent Script
- Research Instruments (questionnaires, surveys, interview or focus group questions, etc.)
- Debriefing Forms
- Permission Letters (Aboriginal Band Council, School Board, Director of a long-term care facility)

Appendix B:



Student & Staff Oral Informed Consent Script

Sustaina“beer”ity: Promoting sustainability through local beer options on campus

We are conducting a survey for our Environmental Science class, ENVS 3502: The Campus as a Living Lab. We are looking to survey students and bar staff at Dalhousie University bars to gain further knowledge on the feasibility of implementing more local beers on campus. The survey should only take 2-3 minutes of your day and you can withdraw from it at any time. At the end of the survey, the answers you provide to the questions will be used by our group to write a report for our class on the feasibility of switching to more local beer options on campus. At no time will your personal information be used in relation to the results. There are no known potential risks associated with your participation in this survey. Your participation may be able to influence the local beer movement on campus. We will be sharing our findings of this study in our final report and Pecha Kucha presentation at the Grawood on April 1st, 2014. If you have any questions regarding the study or ethical concerns, please contact Hendricus Van Wilgenburg at the Dalhousie ethics office.

NOTE: You understand that by completing this survey, you are consenting to participate in our study.

Would you be willing to take part in our survey?

Local Brewers Oral Informed Consent Script

Sustaina“beer”ity: Promoting sustainability through local beer options on campus

We are conducting a survey for our Environmental Science class, ENVS 3502: The Campus as a Living Lab. We are looking to survey local microbreweries in Halifax to gain further knowledge on the feasibility of implementing more local beers at Dalhousie University bars. The survey should only take 2-3 minutes of your day and you can withdraw from it at any time. At the end of the survey, the answers you provide to the questions will be used by our group to write a report for our class on the feasibility to switch to more local beer options on campus. We will be sharing our findings of this study in our final report and Pecha Kucha presentation at the Grawood on April 1st, 2014. There are no known potential risks associated with your participation in this survey. None of your responses will be directly quoted, shared, or attributed to your business. Your participation may be able to influence the local beer movement on campus. If you have any questions regarding the study or ethical concerns, please contact Hendricus Van Wilgenburg at the Dalhousie ethics office.

NOTE: You understand that by completing this survey, you are consenting to participate in our study.

Bridge

Are you willing to take part in our survey? Yes No

Garrison

Are you willing to take part in our survey? Yes No

Granite

Are you willing to take part in our survey? Yes No

Propeller

Are you willing to take part in our survey? Yes No

Appendix C: Proposed Questionnaires for Students, Staff and Microbreweries



Student survey

Location: _____ Date: _____ Survey Number: _____

Which campus bar do you most often visit?

Grawood

The Grad House

Ward Room

T Room

The University Club

How often do you drink beer at a campus bar?

More than once a week

A couple of times a year

More than once a month

Never

What brand of beer do you usually order?

Why?

How often do you try new brands of beer?

1-3 times a year

4-6 times a year

6 -10 times a year

10+ times a year

Do you enjoy drinking craft (local) beer?

Yes

No

Uncertain

If so, which?

Given the option, would you buy micro brewed beer at a campus bar?

Yes

No

Uncertain

What if the micro brewed beer was the same price?

Yes

No

Uncertain

What if the micro brewed beer was a little more expensive?

Yes

No

Uncertain

What local microbreweries do you know of in Nova Scotia?

What three words do you associate with micro brewing?

1.

2.

3.

These next questions are only being asked to help us identify trends in our data collection for our final report. Feel free to choose not to answer them.

What do you identify as?

Male

Female

Other

How old are you?

19-21

22-25

26-30

30+

What program are you in?

What year of your program?

1st

2nd

3rd

4th

4th or more

Bartenders/Serve Staff Questionnaire

Campus Bar: _____ Date: _____ Survey Number: _____

What are the most common beers sold at this establishment?

What beers do you currently carry?

Which are your top selling beers?

What are your top selling local beers sold here?

Is there a price difference between local beers and other beers?

Yes

No

Uncertain

If yes, what is the price difference?

Under \$1

\$1-\$2

\$2 or more

Are there requests for more micro brewed beers on campus?

Yes

No

Uncertain

Beer Representative Questionnaire

Do any Dalhousie campus bars currently sell your product?

Yes

No

Uncertain

If yes, which ones?

Grawood

The University Club

T Room

Ward Room

The Grad House

Would you be interested in becoming more prominent at Dalhousie University?

Yes

No

Uncertain

What sustainable practices do you employ within your company?

How do you transport your beer to the establishments?

Do you have any comments or suggestions for our research?

Do you have any general comments concerning the microbrewery movement on campus?

Appendix D: Initial Proposal

Sustaina“beer”ity: Promoting sustainability through local beer options on campus

SUST/ENVS 3502
February 27, 2014
Sara Campbell B00568646
Alex Pellini B00562137
Megan Pagnello B00577504
David Gibling B00570025
Chauncey Erskine B00552739

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Definitions

Feasibility: Based on student interest, what is the plausibility of a transition to local microbrews.

Greenhouse gas emissions (GHG emissions): Gases that trap heat in the atmosphere, including carbon dioxide, methane, nitrous oxide and fluorinated gases (United States Environmental Protection Agency, 2013).

Life Cycle Assessment (LCA): A cradle to cradle assessment of a product or process established through the compilation of all relevant inputs and outputs of the system or product (Ayer & Tyedmers, 2008).

Microbreweries: For this project we are using the definition of a microbrewery from the Liquor Control Act for Nova Scotia; A microbrewery is a “small free-standing brewery which produces less than 15,000 hectoliters of beer per year” (Government of Nova Scotia, 1991).

Project Definition

Food miles have become a fairly well known phenomenon, and shopping local has become a trend amongst many cohorts, especially amongst the Dalhousie campus student body. However, there is still progress that can be made to help to decrease the GHG emissions associated with consumer products on campus. Resultantly, choosing local products should be a priority of Dalhousie so we can reduce GHG emissions and become a more sustainable university. Based on this identified issue, the purpose of this project will be to determine if transitioning to local beers on campus is what the students of Dalhousie want.

We have set out three project objectives, including examining student interest in transitioning to local micro brewed beers, identifying if local brewers are interested in having their product available on Dalhousie campuses, and examining the decrease in greenhouse gasses that would result from such a switch. Through these objectives, we will support our hypothesis that it is feasible to transition to local beer in the Studley, Carlton and Sexton campus bars of Dalhousie University. To meet these objectives, the scope of the project will be both temporal, where we will study students at the campus bars and library, and geographic, where we will visit all five Dalhousie campus-bars and the Killiam library on Halifax, Nova Scotia.

As per our research, this relationship has not been previously examined, especially in the context of a university setting, which is why it poses an important and interesting subject of study to address. The fact that there is little to no previous research conducted on this phenomenon, this project has the potential to set a precedent for future research and implementation in this field. Through the close examination of the feasibility of local microbrews on campus, we can establish if a campus-wide transition is realistic or not. This

research will significantly contribute to understanding the consumptive patterns of locally micro brewed beer. It will seek to better comprehend the issues surrounding microbrews, as well as to provide an understanding of why domestic beer appears to dominate the beer market of Dalhousie campuses.

This study will play a vital role in the potential greening of the Dalhousie campus environment because it has incredible potential to decrease GHG emissions associated with transportation. Furthermore, it supports local businesses, raises awareness of potential problems and provides precedence for future studies, addressing all facets of sustainability.

Background and Rationale

Through the proposed study we will look at the beer preferences of students at campus bars and establish if student's beer choices would change if more microbrews options were available. Many studies, such as Talve (2001) and Koroneos et al. (2005), have looked at the life cycle of specific beers, which find that greenhouse gas emissions from transportation are one of the most variable factors, dependent on the distance and type of transportation being used. If more local micro brewed beers are offered at campus bars it would likely result in lowered consumption and demand of imported beers, reducing the net GHG emissions being emitted from the transportation of aforementioned imported beer(s). This would be important, in terms of campus sustainability, as it is an easy way to reduce the community's environmental impact and is also a great opportunity at the present time because it poses a relatively untouched facet of sustainability on Dalhousie campuses. Furthermore, it is rumored that the contracts for the taps at the Grawood are up for renewal next year, which acts to increase the significance of this timely research.

With our study focused on the feasibility of introducing microbrews on campus bars to reduce imported beer consumption, there is unfortunately little to no other studies directly related to our topic. However, many studies have investigated the sustainability and environmental impacts of the brewing industry itself. Talve (2001), Koroneos *et al.* (2005), Hospido, Moreira, & Feijoo (2005), and Matilla, Helin, & Antikainen (2012) are studies that perform life cycle assessments or focus on the indicators used in life cycle assessments for breweries. They look at a multitude of areas in the life cycle of beer and help to identify key areas that would distinguish differences between local and import breweries. As already mentioned, transportation is a key area of concern when comparing the two beer options, but it is also important to note that local breweries can be smaller than international breweries, and the amount of actual production could differ significantly. With this in mind, it would be important to look at the impact per keg or even per bottle of beer in order to compare the overall sustainability of such breweries. Furthermore, studies conducted by Muster-Slawitsch *et al.* (2011) and Sturm *et al.* (2013) suggest that smaller breweries have lower energy and water efficiency than their international sized competitors, they have great potential to remove the difference.

With such an abundance of information on the general status of sustainability of breweries, there is lacking information or studies that directly compare the sustainability of smaller local breweries to the larger domestic or international breweries. Furthermore, with regards to our research topic, there is limited information about the feasibility and promotion of local micro brewed beer in comparison to large international companies at campus bars.

Research Methods

This study will use primarily use qualitative research methods to assess the feasibility of offering more local microbrews in campus bars, as opposed to beers from domestic breweries, and the impact that this change could have on reducing GHG emissions. Some quantitative summaries of results will be prepared for the purpose of more easily justifying conclusions.

First, brief interviews with two bartenders from each of the five campus bars (The Grad House, The Grawood, The T Room, The University Club and The Ward Room) will be performed to determine:

- What beers are currently offered at each bar
- What local beers, if any, are offered at each bar
- How the price of locally brewed beers, if offered, compare to the price of domestic beers offered
- How often patrons ask about locally brewed options

Information regarding the number of domestic beers offered, the number of locally brewed beers offered, and the price differences between offered beers will be summarized statistically where appropriate.

Next, brief interviews with representatives from four Halifax microbreweries (Bridge, Propeller, Garrison, Granite) will be performed to determine:

- The interest of microbreweries in supplying beer to campus bars
- The reasons for interest or absence of interest in supplying campus bars
- The current amount of beer supplied to campus bars by microbreweries
- What actions microbreweries are taking, if any, to reduce environmental

impacts

Following, questionnaires of patrons at the five campus bars (The Grad House, The Grawood, The T Room, The University Club and The Ward Room) and a survey of students at the Killiam Library, will be performed in order to determine:

- The level of knowledge regarding local breweries that university students already possess
- How much interest in local beer there exists among Dalhousie students
- The level of willingness students have in trying new products
- The willingness of students are to choose locally produced beers over domestic beers granted there is no price difference
- The willingness of students to choose locally produced beers over domestic beers with a slightly higher price for the local option

Information about the number of patrons that purchase locally brewed beer or would purchase locally brewed beer given the option will be summarized statistically where appropriate.

Since this study is mainly concerned with student's preferences at campus bars, we are primarily interested in having patrons of campus bars respond to the questionnaire. Non-probabilistic purposive sampling will be used to achieve this (Kirby, Lorraine & Greaves, 2010). In practical terms, this means that questionnaires will be administered inside, or directly outside, of campus bars in order to collect information from the sub-population of interest. We will visit each bar on two different nights to administer the questionnaires, interviewing 10 people each night. This will give a total survey size of 20 respondents per campus bar, equating to 100 respondents in total. We feel that administering the questionnaire to 20 patrons at each location is a realistic sample size and will be sufficient in

gaining the information needed for this study. Through this process we will also survey 20 random students entering the Killam Library to deliver the opinions of those students in a public place on campus that does not serve alcohol. A total of 120 questionnaires will be administered at the six campus locations.

In order to preserve the anonymity of questionnaire respondents and interviewees, no personal identifiers will be placed on questionnaire responses or interview transcripts. A copy of the questions that will be asked during the interviews and questionnaires carried out during this study can be located in Appendix C.

A theoretical analysis will also be performed to determine a rough estimate of how much of a reduction in greenhouse gases could result from a shift to serving more locally micro brewed beer at campus bars. This analysis will use data such as approximate distances from different breweries to campus bars, approximate fuel consumption of trucks used by various breweries (if information is available), and approximates shipping capacity of trucks used by various breweries (if information is available).

Project Deliverables

The deliverables of this project include the production of a final report and a presentation. The final report will be handed in at the end of our study and include our groups research methods, results from the survey participants, significant findings and our recommendations. We will use the information from this study to determine what to include in our final presentation. The presentation will be in the form of a Pecha Kucha, which is a timed PowerPoint consisting of 20 slides changing at 20 seconds intervals. The time limit that is imposed on the presentation makes it important to be concise and direct in explaining our project. Practicing this presentation multiple times before the presentation date of April 1st will make the information flow and ensure we are covering the main ideas to make it comprehensive for our classmates and the general public.

Project Communication Plan

We will communicate the outcomes of this project through our Pecha Kucha presentation. This presentation will be delivered to our SUST/ENVS 3502 class, professor, teaching assistants and the general public in the Grawood on the night of April 1st, 2014. We will inform student and bartender/serve staff survey participants that they will be able to view the reports online after the due date and that they are welcomed to attend the presentation, should they be interested in the final results. We will extend an invitation to the local brewery representatives that we survey as well. If they cannot attend, we will offer to send them our findings when the final report is put together.

Schedule

Timeframe for completion

Stage 1

- Research Proposal Due: February 27th, 2014
- Hope to have feedback back on proposal: March 4th - 11th, 2014
- Start surveying students, bartenders, and representatives of microbreweries: March 12th - 19th, 2014

Stage 2

- Compile and analyze survey results: March 20th - 25th, 2014
- Create Pecha Kucha presentation: March 26th - 28th, 2014
- Practice Pecha Kucha presentation: March 27th - April 1st, 2014
- Hand in Pecha Kucha presentation: March 29th, 2014
- Complete final report: April 9th, 2014

Stage 3

- Pecha Kucha Presentation: April 1st, 2014.
- Final Report Due: April 11th, 2014.

All stages of this project will be completed as a group. The questionnaires will be conducted in groups of two or three members and interpretation of the results will be done collectively.

We will all have to help in the preparation of the Pecha Kucha and final report.

Detailed budget

The budget of this project is minimal. The only costs we foresee from this project will be printing expenses for the questionnaires. There will have to be a minimum of twelve questionnaires printed for students, ten for the times we enter the campus bars and two for the questionnaires conducted at the library. There will have to be five questionnaires printed for the bartenders/serve staff, one for each location. We will also have to print four questionnaires for the different microbrewers. The total cost will be under ten dollars, if we print at the Killam Library as a student. There will be no sources of funding for this project.

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