

The Loop Cafe

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University of British Columbia

LFS 450

April 04, 2014

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The Loop Café

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April 4, 2014

Executive Summary

The Loop Café aims to be the most sustainable eatery on the UBC Vancouver Campus. It is a testbed to pilot new ideas for sustainable food services practices. We evaluated whether the Loop Café is meeting its sustainability mandate by creating a framework that includes five aspects of sustainability: food, waste, energy use, water use, and community engagement. Our methods included literature review, key informant interviews, on-site observations, and data collection. We found that there were opportunities to improve the café's performance in each of the categories examined.

Food

A formal mandate and/or purchasing policy needs to be implemented that ensures the integrity of the Loop Café's sustainability goals. Food procurement should take into account the external carbon costs imposed by currently offered foods such as beef. There is an opportunity to shift procurement to foods associated with a lower environmental impact such as grass fed beef, game animals, OceanWise seafood, and locally procured foods. While Fair Trade options exist for teas and coffees, there are additional opportunities to pursue Fair Trade products such as sugar found in bakery food items and sugar sweeteners for drinks.

Waste

There are no reusable wares at the Loop Café, but findings suggest that the implementation of dishes can significantly decrease the amount of waste and greenhouse gas emission produced by the café. In addition, the prevalent use of plastics wraps generates unnecessary waste, and the installation of a display case can eliminate the need for plastics wraps. Waste contamination in disposal bins is a major issue that hinders waste reduction efforts. In addition to clear signage, increasing the accessibility of recycling and cor closing hours posting bins may promote proper waste sorting.

Energy Use

Electricity use of the café has been recorded and compared to the UBC Fred Kaiser Starbucks. However, without sales data, it is difficult to assess whether the Loop Café is more energy efficient when comparing the operating intensity and customer traffic. No other café's at UBC have dedicated energy meters; future research will need to include the energy use of other similar cafés to use in comparison to Loop Café energy efficiency.

We found that beverage machines are not turned off when the café is closed. Energy savings can be achieved by turning off the coffee grinder when not in use, replacing the outdated hot water machine with a newer model that has an "Energy Save" mode, ensuring that "Energy Save" mode is activated on all machines with the feature, and installing energy saving timers to ensure beverages are ready in the morning.

Water Use

The majority of faucets exceeded the WaterSense standard of low flow rate, and have the potential for individual faucet water savings of 11.5% to 27.4%. Loop Café planned to have dedicated water metering at initial inception, this was never installed. Dedicated water metering should be installed to measure water use performance of operations if the CIRS intends to reduce water use.

Community Engagement

The lack of brand promotion limits public awareness of the Loop Café's leadership in sustainable food services. We recommend increasing the visibility of the café's name to enhance brand recognition. The café space was also used inefficiently. Replacement of decorative plastic plants with promotional materials for sustainability programs may increase community awareness and engagement.

TABLE OF CONTENTS

The Loop Café 5

Food 6

Purchasing Policy 7

Flexible Menu Offering 8

Food Procurement 9

Fair Trade 11

Waste Management 12

Single-use Disposable Ware 13

Plastic Wraps 14

Waste Sorting 16

Energy Use 18

Aggregate 19

Coffee, tea, and hot water machines 21

Water Use 22

Community Engagement 26

Group Reflection 28

Media Release 30

References 31

Appendix 35

The Loop Café

The Loop Café is one of the many food establishments on the University of British Columbia (UBC) Vancouver campus that belongs to the UBC Food Services department. The main feature that sets the Loop Café apart from other locations is its commitment to become the most sustainable eatery on the UBC Vancouver campus. Aptly located in the Centre for Interactive Research on Sustainability (CIRS), the café aspires to achieve its goal by complying with the UBC Food Services' sustainability initiatives. Additionally, the Loop Café also aims to become the leading sustainability business model in the UBC food system. To assume this leadership position, the Loop Café identifies itself as a living laboratory to pilot new and innovative sustainable practices before they at other university eateries. However, to this point, no research has gone into verifying whether the Loop has been successful in achieving these lofty goals.

The purpose of this project was to construct a framework to evaluate whether the Loop Café was meeting its sustainability mandate and that of the CIRS. Our assessment focused on five areas of sustainability: food, waste, energy use, water use, and community engagement. These categories serve as the main headings of our paper. Within each category, we reported our methods, findings, and discussions as separate subheadings because each of the areas required a distinct analytical approach. Our hope is that the recommendations that we have provided, based our research of sustainable business best practices, will help the Loop Café improve, in order to become a true leader in sustainable food services.

Food

Introduction

The Loop Café's sustainability and food sourcing goals position it as the vanguard in sustainable café or food establishments at UBC's Vancouver Campus. Food sourcing is a complex process which considers the delicate balance of meeting sustainability standards such as UBC's goal to reduce greenhouse gas emissions by 33% by 2015, while allowing for the access to culturally appropriate and affordable foods. Food encompasses a network component contributing to social welfare (culturally appropriate foods meeting dietary restrictions of customers), consumer health (nutritious and safe food), and environmental health (external environmental costs of food production). UBC Food Services and the AMS Food and Beverage Department report a 48% expenditure on locally grown food within 150 miles of campus (Climate Action Plan, 2014).

As the premiere sustainable eatery at UBC, the Loop Café must constantly work to further distinguish itself from other campus food outlets. UBC Food Services takes pride in its achievement for making UBC the first Fair Trade campus in Canada. Not only is the food menu the main embodiment of any café or restaurant, but it also a means to advance its position as a leading model in sustainability through food procurement, given that 10-12% of worldwide greenhouse gas emissions are from agriculture (Friel et al., 2009).

Methods

Our research team set out to visit the sales area and kitchen of the Loop Café to create an inventory of the café's food products and analyzed their environmental impacts (GHG emissions etc.) using peer reviewed literature with a focus on greenhouse gas emissions.

In order to identify which Fair Trade certified products were sold at the Loop Café and whether the outlet was more committed to these products than the average UBC eatery, we performed site visits while photographing various products and cross-referenced them with Fair Trade products lists. We also reviewed academic literature that highlights the factors driving the increased prevalence of Fair Trade products in the global food industry.

Findings and Discussion

All food, except for a few limited items such as yogurt parfaits, are produced and prepared off site at the Totem Central Commissary (Figure 1).

1) Purchasing Policy

Our team identified that the Loop Café did not have a formally defined purchasing policy for sourcing food. However, broadly speaking, we identified that the café's goals for food selection were to (UBC Food Services, 2011):

1. Place a priority level from where to source food, starting with the UBC Farm, followed by 150 miles from campus, within BC, nationally, and outside Canada.
2. Highlight Fair Trade selections
3. Provide seasonal and local menus with hot entrées, a made to order salad bar with feature salads, soups, stews, vegetarian, and vegan choices
4. No Beef
5. Offering a meat free service day

Unfortunately, not all these goals were being met, such as seasonal local foods not always being procured, beef being present on the menu for hot entrées, and meat free service days being discontinued. Furthermore, there was no visible Oceanwise certification on the packaged tuna sandwiches sold at the café (Figure 2).

The purchasing manager and responsible chefs should create a purchasing policy that allows the café to remain as an economically viable business, while specifying menu items, when

they should be purchased (i.e. in season), and source location. The criteria for the Loop Café's purchasing policy should include, but not be limited to:

1. Always having in season food procurement when it is possible, as long as it remains economically viable.
2. Account for all the negative externalities associated with the transportation of non-local food and greenhouse gas (GHG) emissions associated with the production of food. Carbon offsets could be purchased as a potential way to account for these externalities.

2) Flexible Menu Offerings

We observed that vegetarian options are almost always offered as hot entrées and soups. Furthermore, vegan and gluten-free options are also regularly available at the café. Currently, seafood options are limited to the aforementioned packaged tuna sandwich and meat options consist of turkey, beef, chicken, lamb and pork.

The amount of vegetarian, vegan, and gluten free options are adequate. However, there should be a push by chefs to create a more appealing vegetarian menu that would encourage customers to purchase these options more often. Since the Loop Café has previously experienced financial difficulty in implementing 'Meatless Mondays', one alternative is to encourage the availability of more vegetarian options throughout the entire week, rather than isolating them to one day.

In addition, we feel the Loop Café can reduce its carbon footprint by diversifying its meat procuring options into seafood, game meats, bison and grass fed beef (Casey and Holden, 2006, p. 231; Kari, 2011). Despite these meats having a higher cost, the Loop Café should analyze whether this cost can be justified by the decreased greenhouse gas emissions associated with the production of these foods.

3) *Food Procurement*

Identifying where packaged food comes from is incredibly challenging because food labels sometimes only specify the location of the distributor's corporate headquarters, and not necessarily where the food is processed. Unfortunately, these labelled locations can often be mistaken for where the foods are produced. This issue is evident when examining Saputo dairy products that only list Montreal, Canada as a location (Figure 3). However, due to our knowledge that Saputo operates a plant in Burnaby, BC, we ended up being unsure where this dairy was actually produced.

Nevertheless, even with this uncertainty, we found the following issues with the Loop Café's food procurement:

- Lemonade Bulk Drinks Concentrate: Figure 4 and 5 show that these products are being procured from a concentrate that is made in Arizona, USA.
- Gala Apples: Figure 6 shows US gala apples being offered, while BC apples are in season
- Bartlett Pears: Figure 7 shows pears from Argentina
- Wraps and to-go foods: Figure 8 highlights a to-go wrap that is produced off-campus even though UBC's on-campus, ThinkFood Brand has its own line of to-go foods.
- Soy Milk: Silk brand soy milk is sourced from Colorado, USA (Figure 9)
- Salad Mix: Organic lettuce and greens from the packaged salad mix are sourced from California, USA (Figure 10)
- Salad Dressing: Unilever brand salad dressing is sourced from the United States (Figure 11)
- Coffee Sweeteners: Coffee sweeteners (sugar cane, honey, sucralose) are procured from Florida, USA (Figure 12)

Our findings conclude that many Loop Café products are not being sourced locally. Whether this is a more sustainable option should be closely analyzed by food procurement managers or chefs. Our team recognizes that non-local foods can be sourced at lower prices compared to local foods, but it should be recognized that non-local products do not offer the same of benefits for local economies. We identified that some processed products, such as lemonade concentrates, may be difficult to find at an affordable local vendor. However products, such as Earthbound Salad Mix from California (Figure 10) can be switched to available local products. Salad dressings and to-go wraps can also be prepared easily onsite or at Totem Central Commissary. Also, we suggest to research whether if the ThinkFood tuna sandwiches (Figure 2) are using OceanWise tuna, and to shift towards this sustainable source if it is not already (Leadbitter, 2008, p. 187).

4) Fair Trade

All of the coffee sold at the café, which is produced by Ethical Bean and the entire selection of loose leaf teas, which are produced by Gypsy Tea are certified as Fair Trade products. However, signs highlighting Fair Trade options, such as the one that was placed below the coffee dispensers (Figure 13) were deemed to be unclear, too small, and badly positioned. Finally, although fruits such as bananas can be certified as Fair Trade, they are not part of present foods offered at the café.

The Loop Café has an opportunity to spearhead the promotion of Fair Trade products at UBC. We recommend replacing all current sugar sweeteners intended for coffee and teas with Fair Trade certified sugars/sweeteners, honey or sugar from Canadian produced sugar beets.

Regardless of sugar being sourced from sugar cane or sugar beets, the refined products are interchangeably usable because their sucrose molecules are identical (Agriculture and Agri-

Food Canada, 2010). Therefore, encouraging sugar sourcing from Albertan sugar beet farms would be relatively easy. Further research should be conducted to see if the carbon footprint or environmental impact of current sugar sourcing could be reduced by sourcing locally from beet sugar in Alberta, and to integrate these results in future sourcing for sugar.

An area of potential is the inclusion of other Fair Trade products could add to the menu offerings at the Loop Café such as Fair Trade chocolate and nuts which can already be found at select outlets on campus. The use of fair trade nuts could bring about an improved variety of ready-to-go foods. For example, the addition of Fair Trade nuts into the popular yogurt parfaits aptly advertising Fair Trade nuts or even a house prepared Fair Trade trail mix to further promote loops concept of zero junk food and sustainability through retail products of Fair Trade principles generates purchasing variety.

This would all tie in with UBC Food Services particular stance as a business on Fair Trade. With Fair Trade coffee and tea offered at the Loop Café, rather than serving them as a niche product for a certain marketing strategy like that of Nestle and Kraft's line of coffee products (Low and Davenport, 2005, p.502), the Loop should actively engage in incorporating more Fair Trade products to provide or sell in addition to sharing Fair Trade principles as part of its values system. This can help position the Loop Café into a more values-driven business. As defined by Low and Davenport (2005), a values-driven business encompasses ethical principles and a certain degree in promoting Fair Trade principles into their business practice and core values. In the marketing strategy for the Loop Café, there is a key difference in providing Fair Trade products as a brand or principle. We strongly encourage the Loop Café to reflect on this should they consider increasing the variety of Fair Trade product offerings.

Waste Management

Introduction

One of the goals highlighted in the UBC Food Services Sustainability Initiatives is to reduce waste and progress UBC towards a Zero Waste campus. According to the Recycling Council of British Columbia (2014), Zero Waste is an overarching goal which aims to reduce consumption and utilize “designed-for-environment” elements in products and their packaging to make them reusable in other forms. In the restaurant business model, complying to the Zero Waste regime means that food products and their packaging should be designed in a way that, when discarded, generate no pollution and are able to be recovered and reused. Zero Waste also aims to eliminate the use of incineration and landfills as means of waste removal. In order to become a Zero Waste eatery, the Loop Café requires a rigorous management system to ensure that the food items and the packaging procured are either compostable or recyclable. Currently, the Loop Café only provides single-use disposable ware. Finally, contamination in the waste disposal bins was identified as a major problem at the café (Anonymous, personal communication, March 13, 2014).

Methods

To evaluate the current condition of waste management at the Loop Café, we performed multiple site visits to inventory the eatery’s list of disposable products. We also observed the waste disposal area, waste material in the bins, and accompanying signage to determine the underlying causes of waste contamination. Alongside these qualitative observations, we conducted a literature review of best practices for waste management in order to provide recommendations to ease the café progress towards UBC’s goal of Zero Waste.

Findings and Discussion

1) Single-use Disposable Ware

Currently, there are no dishes available for customers who wish to eat-in at the Loop Café, even though there is a communal eating area within the premises. Items that go into the recycling waste stream include plastic drinking cups and soup container lids. On the other hand, compostable food packaging include soup containers, soiled paper bags, and the café's novelty wooden cutlery. Interestingly, unlike the cups used for drinks, the plant-based to plastic cups containing yogurt parfaits are compostable.

Life-cycle assessments have shown that the recycling and composting of discarded material can significantly reduce carbon dioxide and methane emissions that are major concerns associated with bioreactor and traditional landfills (Ross and Evans, 2003, p. 570; Cabaraban *et. al.*, 2008, p. 47). However, life-cycle assessments also show that recycling and composting systems are still produce greenhouse gas emissions, especially during the production and recovery phase of the material (Astrup *et. al.*, 2009, p. 765). Therefore, reducing the amount of food packaging used at the Loop Café could substantially reduce these environmental impacts.

According to a study of the Barn Restaurant on the UBC campus led by Chan and To (2006, p. 17), reusable plates may actually be a better alternative than recyclable and compostable eating utensils in terms of economic viability and carbon emissions. The study reported that the life-cycle of 400 porcelain plates would yield approximately 148 kg of carbon emissions per year. On the other hand, the life-cycle of 400 paper plates would yield about 138 kg of carbon per year. While this comparison reveals that paper plates have less of a global warming impact than porcelain plates, Chan and To argued that the life-cycle of porcelain plates are generally much longer than that of paper plates. Therefore, the production and composting of paper plates would actually contribute more to global warming on a long-term scale. The authors

also calculated the costs of using paper plates in the Barn Restaurant on a weekly basis and compared this data to the operational costs of ceramic plates (assuming that a ceramic plate has a life-cycle of 5 years). Their results showed that the costs of maintaining ceramic plates are much lower than the costs of purchasing paper plates, even when factoring in a 30% annual replacement rate of ceramic plates due to breakage.

Key informant interviews revealed that the eatery is almost always full during the lunch hours of 12:00 till 1:30 p.m. (Anonymous, personal communication, March 13, 2014). Since most of the customers at these peak hours eat-in at the outlet, implementing reusable dishes may significantly reduce the amount of waste generated by the café. For those who would like to take-out their food, the Eco-to-Go program is an excellent strategy to further reduce waste. However, a lack of awareness about this program could hinder its impact on reducing waste. Of course, implementing reusable eating utensils in the eatery would entail using an industrial dishwasher to wash them according to Food Safe regulations, and the operational costs and ecological footprint would vary with the dishwasher model being used. In order to ascertain that reusable dishes are truly a more sustainable alternative, a life cycle assessment similar to the one performed at the Barn Restaurant should be conducted for the Loop Café. This research could be completed through collaborative efforts with a future LFS 450 class or other research-based courses.

2) Plastic Wraps

A major waste management concern shared by the Loop Café stakeholders is the prevalent use of plastic wraps for preserving food items such as baked goods and pastries (S. Wellman, personal communication, February 21, 2014). Baked goods and pastries sold at the Loop Café are hand-picked by customers, which due to Food Safe regulations, require the use of

plastic wraps (V. Wakefield, personal communication, February 21, 2014). The plastic wraps used by the Loop Café are non-biodegradable, and must be discarded into garbage bins (Anonymous, personal communication, March 13, 2014). The products are generally made of polyvinyl chloride, which when incinerated, generates high concentrations of toxic chlorine gas into the atmosphere (Marsh and Busugu, 2007, p. R43). Additionally, at present, there are no facilities that recycle plastic wraps in British Columbia.

A potential solution to reducing conventional plastic wraps in the waste stream is to replace them with biodegradable plastic wraps. There is much interest in utilizing biodegradable plastic wraps because they can be made from renewable resources (e.g. crops) and can potentially contribute less to waste production (Song *et. al.*, 2009, p. 2127). BioBag Canada Incorporated (2007) is a major distributor of compostable and biodegradable bags. In many instances, however, it has been reported that biodegradable wraps are not completely digested by microorganisms, resulting in the contamination of in-vessel composting systems (Narayan, 2005, p. 291). Therefore, the environmental benefits of biodegradable wraps sold on the market are still under contention. In the future, collaborative studies with chemical and biological engineers should be conducted to determine the degree compostability of BioBag products, in order to identify whether they would be a good alternative to the existing non-recyclable plastic wraps used at the Loop Café.

Another solution to eliminate the use of plastic wraps at the Loop Café is the installation of a display case, much like the one at Blue Chip Cookies in the UBC Student Union Building. Such a solution sidesteps Food Safe regulations because only the outlet staff are able to safely retrieve food items, thus eliminating customer handling of the food. Any food items in the display case that are not sold by the end of the day could be preserved in an airtight container

for the next day. However, both the lack of space in the Loop Café sales area and potential cost of a display case could dissuade UBC Food Services from implementing this change.

3) Waste Sorting

Contamination in recycling and compost bins hinders efforts of waste reduction programs. Bins are deemed contaminated if a certain proportion of incorrect items are placed in them, resulting in the contaminated waste being sent to a landfill instead of a recycling or composting facility (University of Alberta Office of Sustainability, 2014). Like many eateries in the UBC Vancouver campus, proper waste sorting is a big challenge for the Loop Café. In a rushed and busy university environment, mundane activities that require scrutiny, such as waste sorting, are often overlooked. Proper waste sorting in such an environment is often reinforced by personal convenience (Vining and Ebreo, 1992, p. 1584). Therefore, clear signage and bin accessibility that make waste disposal more convenient may facilitate proper waste sorting.

Currently, the disposal bins at the Loop Café face the eating area (Figure 14) with an additional compost bin to the side (not shown in the figure). The design and writing on the wall panels, as well as the attached plaques, indicate to customers where different kinds of waste are to be discarded. The garbage bin is located at the exit point of the café, making it the most accessible and convenient bin for default disposal behaviour. This permits exiting customers to conveniently throw their waste, including recyclable and compostable products, into the garbage bin. In addition, multiple signs are used for recycling at the Loop Café. Figure 15 shows a plaque with recycling symbols that indicate that the bin accepts waste composed of either paper, metal, glass, cups, and lids. However, the writing and the designs on the wall suggest that only paper should be discarded in the same bin. Observational studies of café customers indicated that this ambiguous use of signage confused people who were willing to spend time to sort their waste.

Furthermore, plastic trays that are often found covering the compost and recycling bins limit their access (Figure 14).

To make waste sorting more convenient at the Loop Café, we recommend increasing the visual clarity of signage above the bins and having messages on the café food packaging that clearly indicate where they should be disposed. Instead of having “Paper” and “Beverage” written on each wall panel as it is currently (Figure 14), it may be better to simply relabel them as “Recycle” to make the signage on the plaques congruent with that on the wall.

Another potential solution to reduce the amount of recyclable and compostable products in the garbage bin is to increase the access of the recycling and composting bins. Because most of the food wares provided by the Loop Café are either recyclable or compostable, increasing the accessibility of these bins could potentially increase recycling and composting behaviour.

Finally, to truly increase the convenience of waste sorting, the Loop Café may opt to only sell food with packaging that can be discarded into one bin without the need for separation (Blaszczak, 2011, p. 4). Except for soup containers lids and drinking plastic cups, all food wares provided by the Loop Café are compostable. Recyclable plastic cups can be replaced with compostable ones that are similar to the one that is already being used by the café to serve yogurt parfaits. Compostable soup container lids may be also purchased from Greenmunch, an online eco-store situated in Alberta, Canada, which specializes in producing compostable products (Greenmunch, 2014). However, monetary disincentives may be a barrier in the procurement of these compostable soup container lids and other products.

Energy Use

Introduction

In accordance with the goals set within the UBC Climate Action Plan, the CIRS building is designed to achieve a net-positive energy performance (University of British Columbia, 2014). However, the university recently reported that the CIRS building consumed 29% more electricity than anticipated in the 2012-2013 fiscal year (University of British Columbia, 2013a). This highlighted the need for considering energy use in our evaluation framework. Therefore, we aimed to examine the electricity consumption of the Loop Café and identify opportunities to improve its energy efficiency.

At the appliance level, it was determined through multiple site visits that the five machines required for drink preparations (coffee, tea, and hot water) remained on after the café's closing. This constant power requirement, for the 15 hours when the café is closed each day, seemed greatly unnecessary. A reduction in the energy usage from these machines would further allow the building to “get the most out of the available energy material flows afforded by the site and its surroundings” (University of British Columbia, 2013b, p. 2).

Methods

We requested and obtained the electricity use data of the Loop Café from June 2012 to January 2014. This data set included monthly records of electricity consumption retrieved from the UBC Building Management System (BMS), which is connected to the electrical panel (2N1F) of the Loop Café (Anonymous, personal communication, March 12, 2014). We also obtained data sets that included monthly electricity consumption data for two student residence dining halls (Place Vanier Dining Room and Totem Park Dining Room) and two campus cafés (Tim Hortons at the Forest Sciences Centre and Starbucks at the Fred Kaiser Building). Using

this data, we calculated the monthly average electricity consumption of all five food services outlets over this 20-month period.

At the appliance level, key informant interviews indicated that the coffee, tea, and hot water machines needed to remain on at all times to keep the water warm, so that the appliances could be immediately used when the café opens the next day (Anonymous, personal communication, March 13, 2014). To verify whether this was true, pictures were taken of each machine's model number and cross-referenced with the operational manuals found on the machine manufacturers' websites.

Findings and Discussions

1) Aggregate

Monthly electricity consumption of the Loop Café (3245 kWh/month) was the lowest, followed by Starbucks (4588 kWh/month), Tim Hortons (9258 kWh/month), Place Vanier (18919 kWh/month), and Totem (44651 kWh/month). Additionally, the Loop Café used 29.3% less electricity than the Starbucks at the Fred Kaiser Building (Figure 16).

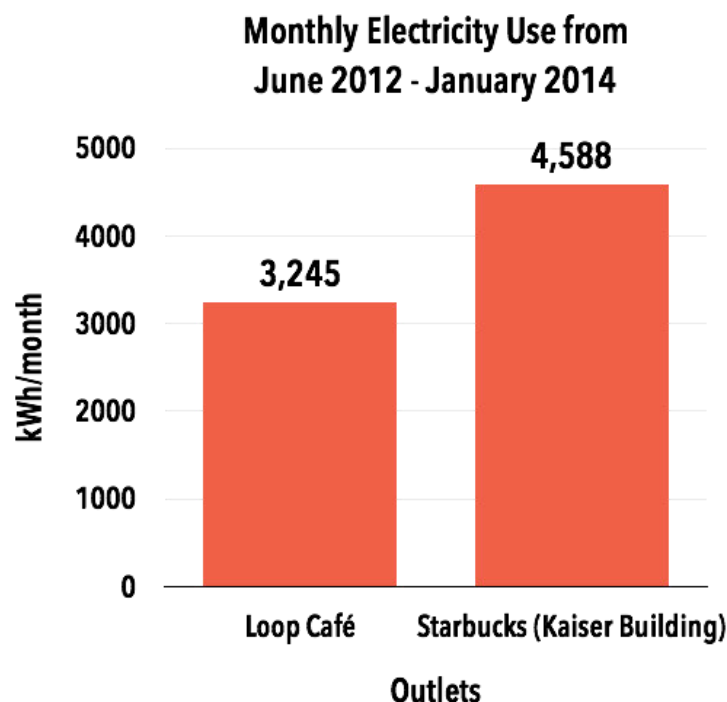


Figure 16. The average monthly electricity use of the Loop Café and Starbucks in the Fred Kaiser Building.

Together with the lobby and the auditorium, the Loop Café was one of the three most heavily used areas of the CIRS building (A. Cayuela, personal communication, February 26, 2014). Therefore, it is perhaps surprising that the annual electricity use of the Loop Café was only about 5% (39 of 755 MWh/year) of the total electricity use of CIRS based on 2012-2013 data (UBC, 2013a).

Among the four other campus eateries for which we had metering data, Starbucks was the most similar to the Loop Café because the food served in both cafés was not cooked on site. However, visitor traffic may vary between the two outlets. As a result, although Loop Café uses less electricity, on average, than Starbucks, this data does not provide a truly meaningful comparison for energy efficiency. The next step would be to audit electricity consumption for Loop and another café on a per visitor basis, using sales data. We propose to measure electricity use per number of transactions, as a way to approximate the number of visitors. This is because Point of Sale (POS) systems that track transactions are already in place at many cafés on campus. This measurement will help establish a baseline for the café itself and other operationally similar cafés on campus such as the Ike's café and the Niche café.

Intended to be a test bed that drives innovation, the Loop Café is in a unique position to experiment with new ideas for improving its sustainability. A recent study has shown that access to real-time feedback leads to an average 5.7% decline in residential energy consumption (Houde et al., 2013). With various feedback technologies up to 20% reduction has been reported (Farhar & Fitzpatrick, 1989; Darby, 2006; Ehrhardt-Martinez et al., 2010; Faruqi, Sergici, & Sharif, 2010). The digital signage and monitors in the foyer of CIRS present an excellent opportunity for delivering the energy use information of the Loop Café.

Energy performance benchmarking for the Loop Café was challenging as there was no recognized standard for energy use in food services outlet that are similar to the Loop Café. Here, we initiated this process by comparing electricity consumption of Loop Café to a Starbucks coffee shop on campus. We recommend that a research project is initiated in the next 12 months to audit the electricity use of the Loop Café on a per customer basis to provide a reference point for the café itself and other similar outlets on campus. This can be coordinated by the UBC Sustainability Initiative or students of the next iteration of the UBC Food System Project. We also recommend that the UBC SEEDS Program works with interested students to develop and implement a project to study the effectiveness of different systems that provide feedback on energy use, in order to see which ones would the best to implement in UBC Food Service locations.

2) Coffee, tea, and hot water machines

Two different companies, Bunn-o-Matic Corporation and Wilbur Curtis Corporation, produced the five machines observed. First, it was determined that the Bunn ICB Twin, the machine for making coffee, has an “Energy Saver” mode that lowers the machine temperature from 97°C to 60°C when the machine is idle for 6 hours. Additionally, it was noted from the manual that the “Energy Saver” setting is not a factory default setting (Bunn-o-Matic Corporation, 2008, p. 12) for the machine and that it takes approximately 25 minutes for the water to heat up when the machine is first plugged in (Bunn-o-Matic Corporation, 2008, p. 8).

The two other Bunn machines are the Bunn H5X used for hot water and the Bunn MHG used for coffee grinding. The H5X machine is an older model with no “Energy Saver” mode (Bunn-o-Matic Corporation, 2012, p. 9) while unlike the other two machines; the MHG machine does not need remain on to keep water warm (Bunn-o-Matic Corporation, 2004, p. 5).

The two Wilbur Curtis machines are the CBHS, which is used for brewing Guayaki Yerba Maté, and the PTT, which is used for brewing iced tea. Both have “Energy Saver” modes that bring the machines’ water temperatures down from 95.5°C to 60°C when the machines have been inactive for 4 hours. The machines’ factory settings come with the “Energy Save” mode turned off (Wilbur Curtis Co., 2013b, p. 3). Finally, in both machines, the water takes approximately 20-30 minutes to heat up (Wilbur Curtis Co., 2013b, p. 1).

Due to the fact that it does not need keep any water warm, our first recommendation to save energy would be to ensure that the café retail staff turn off the Bunn MHG coffee grinder when it is not in use. Secondly, due to its lack of “Energy Save” mode, we would recommend that UBC Food Services replace the Bunn H5X hot water machine with a similar machine that possesses this feature. Next, we would recommend that the UBC Food Services staff familiarize themselves with the machine energy save modes and ensure that they are activated for the Guayaki Yerba Maté machine, the iced tea machine, and the coffee brewer. Finally, in order to ensure that the machines aren’t using unnecessary amounts of energy when the café is closed and that they can be ready to use when the café opens in the morning, we would recommend that a timer like the *Noma Indoor Grounded Timer* (Intermatic Incorporated, n.d.) be installed at the electric outlets for the Yerba Maté, iced tea, coffee brewing, and new hot water machines. These devices would be inexpensive for UBC Food Services or the CIRS building staff to implement, at a price of \$14.99 per unit at the Canadian Tire outlet.

Water Use

Introduction

In further examining whether the Loop Café was meeting its sustainability mandate, it was natural for our group to examine whether the café was being efficient in its usage of water.

This was echoed by the CIRS Sustainability Charter, which highlights water as one of the resources that must be considered within the ‘mindful resource use’ section of the charter (University of British Columbia, 2013b, p. 3).

Methods

In order to identify how much water was being used, we first attempted to determine whether there was any metering in place in the CIRS building. Our background research indicated that there was a Building Management System that tracked energy and water usage (Inhabitant Sustainability Charter, 2013, p.3). Unfortunately, the water metering data was only available for the entire building and the Loop Café’s water usage could not be isolated from the aggregate total (Anonymous, personal communication, March 12, 2014). Therefore, through site visits, our research team proceeded to identify the café appliances that were using water. These appliances included the ice machine, dishwasher, two tea machines, one hot water machine, one coffee brewing machine, five taps, and the soup station. We decided that it would be easiest to look into the five sinks because, if deemed necessary, certified low-flow water fixtures have a modest cost of only \$6.99 for two fixtures (AM Conservation Group, Inc., 2014).

Further investigation revealed that only four of the five sinks were used on a regular basis (Anonymous, personal communication, March, 13, 2014). These included two taps on the sales floor that were primarily used for hand washing (Taps A & B), one tap in the kitchen for dishwashing (Tap C), and another tap in the kitchen that was used for hand washing (Tap D) (Figure 17). Water flow rates were subsequently measured for the four sinks.

Each sink’s water flow rate was measured using the same methodology. Both the hot and cold-water taps were turned on fully in order to maximize the amount of water flowing through each tap. One researcher was responsible for placing an empty 1 litre Nalgene bottle under

running water, while a second researcher was responsible for timing how long it took for the water to fill the bottle using a Casio F-91W watch. The second researcher gave a count of “1, 2, 3, Go!”, where “Go” served as an indication for the first researcher to quickly place the water bottle under the tap. Once 1 liter of water had been filled into the bottle, the first researcher yelled, “Stop!” to terminate the running time on the stopwatch. The time it took for the tap to fill up 1 litre was then recorded in a spreadsheet for further analysis (Table 1 in Appendix). This methodology was repeated five times for each of the four sinks in order to minimize the effects of research error. Subsequently, we calculated the mean time for each sink. Once this mean was calculated, the flow rate for each tap was calculated in litres per min. These flow rates were calculated by dividing the volume of the Nalgene bottle (1L) by the mean time (in seconds) and multiplying it by 60 to turn the time unit into minutes. Once the four flow rates were calculated, the next step was to find out whether they were in fact “low-flow”.

Findings and Discussion

WaterSense, a partner organization of the United States Environmental Protection Agency, certifies taps with flow rates at or below 5.7 litres per minute as “low-flow” (WaterSense, 2014). When looking at our water flow rate data, it is clear that sinks A, B, and C exceed this flow rate. Additionally, although sink D’s flow rate was within the “low-flow” range, at 5.56 litres per minute, visual examination of the tap indicated that the tap itself had a flow rate of 8.3 litres per minute. A possible explanation for this lower than specified flow rate could be a lack of water pressure. It was also seen at Tap C where the flow rate of 6.44 litres per minute was well below the 8.3 litres per minute specified on the tap.

Incorporating low-flow faucets to sinks A, B, and C would lead to significant water savings for the Loop Café. Assuming that nothing is done to rectify any of the aforementioned

water pressure deficiencies, low-flow fixtures with a flow rate of 5.7 L/min would lead to water savings of 27.42% for sink A, 19.52% for sink B, and 11.48% for sink C. Due to the low-water pressure at sink D, a flow rate of 5.7 L/min would lead to a slight increase in water usage. Nevertheless, due to the low tap pressure, it still may be possible that a low-flow water fixture could lead to water savings for Tap D.

Table 2. Water flow rates for Taps A, B, C, and D and potential water savings from low-flow water fixtures.

	Tap A	Tap B	Tap C	Tap D
Flow rate (L/min)	7.85	7.08	6.44	5.56
WaterSense low flow rate (L/min)	5.70	5.70	5.70	5.70
Litres saved per minute	2.15	1.38	0.74	-0.14
% of water saved	27.42%	19.52%	11.48%	-2.45%

Due to the significant water savings, it is recommended that the responsible body, be it UBC Food Services or the CIRS building staff, immediately add low-flow water fixtures to the four sinks that are used on a regular basis at the Loop. Additionally, in order to monitor future water usage, we recommend implementing water metering that goes beyond the CIRS building level and allows for the isolation of the Loop Café's water usage.

In order to take into account the full spectrum of water usage for the café, future research should look into whether the other water appliances that use water, namely the ice machine and dishwasher can be made to be less water intensive through changes in employee practices and/or

the potential replacement of these appliances. Finally, an examination of the water intensity of food preparation footprint at Totem Residence Hall would need to be completed to discover other strategies for improving the water footprint of food preparation for the Loop Café.

Community Engagement

Introduction

Community engagement is an important part of the Loop Café since it is not only a food service café, but a location to educate the public, showcase innovative ideas, and create future leaders in sustainability (UBC, 2013b). Not only does the Loop Café aim to be the most sustainable UBC café, it is also aiming to be the leading café to impact other eateries on campus.

Methods

Through multiple site visits, we looked into the effectiveness of the Loop Café's efforts in conveying its message at the core of its sustainability business model. We specifically observed whether staff and signage at the café promoted awareness about the sustainability initiatives taken at the outlet. Through an experiential approach to assess how customers would interact with the café, we were able to identify weaknesses in how information was communicated, and could address specific instances to improve community outreach.

Findings and Discussion

We observed that a lack of signage and ineffective use of space limit the potential to showcase the Loop Café's commitment to sustainability. Studies have shown that recommendation signs can potentially change consumer choices in consumers with more developed preferences (Goodman *et. al.*, 2012, p. 165), encouraging consumers to consider more sustainable options. Not only can signage promote sustainability of the Loop, but also help communication between staffs and customers.

The Loop Café intends to convey ideas of sustainability, but failed to showcase its name or and ambitions through any clear signage. From a key-informant interview (Anonymous, personal communication, March 13, 2014), we found that the CIRS building does not allow large posters to be placed on walls and windows or hung from the ceiling. Education and community outreach are lacking features of the building (A. Cayuela, personal communication, February 26, 2014). However, other areas of the café, such as the side of coffee stations, offer an excellent opportunity to promote the name and sustainability initiatives of the Loop Café.

Similar to other eateries on campus, customers can also bring their own containers for food or drinks to save 15 cents per transaction. The discount will be shown on the receipt, but there is no signage for the discount, nor does the staffs promote the discount. However, we identified an operational flaw with bring-your-own containers, as portions became more difficult to standardize. For example, during one of the site visits, one of our group members purchased a lemonade with her own mug and did not receive a discount because the cashier thought the filled mug was larger than the standardized size. From experiences like this, customers may be discouraged to participate in similar programs that supports the Loop Café's sustainability initiatives.

One of the design philosophies that underlies the CIRS building was modularity (Haworth, n.d.), which allows for greater flexibility to reconfigure existing furnitures to meet changing future needs. Given this design consideration, the Loop Café should “maximize every inch of interior space” to promote its sustainability initiatives (UBC, n.d.). However, we identified underutilized space such as the shelves on the wall and space on the sides of the movable tables that were occupied by decorative plastic plants. We recommend repurposing this

space to display eco-to-go containers and signages for promoting this program, to increase enrollment of the eco-to-go program.

In order to encourage campus-wide engagement, the Loop Café can collaborate with other sustainable organizations and courses by creating volunteer opportunities for students. Organizations such as Common Energy UBC or courses such as LFS 100 can encourage student involvement in sustainability initiatives to become agents of change.

Group Reflection

Our group found the UBC Food Services program a valuable experience as it allowed us to bring our learning outside the classroom. Through experiential based learning, our group was able to benefit from both the leadership component of the course, and further through peer reviewed journals assigned as readings. We found the leadership component of LFS 450 gave us the necessary tools to effectively communicate and collaborate with stakeholders, while motivating us to create a quality project which each of us took individual and group leadership for. We also found it great how we were able to educate ourselves outside a lecture setting, and reflect ourselves on where learning can take place like how Orr (1991) describes in *What is Education for*. We were also able to take specific learnings from the readings by expanding on the importance of the major pillars of sustainability described by Burlingame and Dernini (2010) in relation to the Loop Café. Furthermore, we were aware of the dangers of narrowing our vision to focus upon certifications such as locally produced as always being the best sustainable practice, and instead analysed Loop Café practices and procurement on a case by case basis, from Born and Purcell's (2006) recommendations of avoiding the "local trap" (2006, p. 195). We unfortunately did find ourselves in instances where it was incredibly difficult to contact primary stakeholders. While this led us to take independent leadership in how we wanted

our project to be structured, we lacked guidance on what would be the best areas to focus upon for our stakeholders. Furthermore, with numerous stakeholders that hold a focus in different departments of UBC, we found it difficult to satisfy our scope to meet the expectations of building managers, food procurement, retail operations, and financial viability as a business.

Media Release

4th April, 2014

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The Loop Café: The UBC Evolving Café for Sustainability

The Centre for Interactive Research on Sustainability has been designed to be the greenest, most innovative and high-performance building in North America. The Loop Café located in this building is a food outlet, living laboratory, and testing ground, which aims to become the leading sustainability business model for UBC Food Services. This project constructed a framework to evaluate whether the Loop Café was meeting its sustainability mandate. The assessment focused on five areas of sustainability: food, waste, energy use, water use, and community engagement. With input from food procurement managers, retail operations, and building management, a sustainable framework was created to capture the holistic idea of sustainability being viewed through different lenses. With a more concrete mandate on how this sustainably minded café will pursue its goals, the Loop Café can truly become a leading player in sustainability at UBC and beyond.

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2013 Fall Menu Rotation for the Loop Café/ Stir it Up/ Niche/ Moo / Low / ESB						
Days	Monday	Tuesday	Wednesday	Thursday	Friday	
SOUP	Chick'n or Wild Mushroom	Butter Chicken Curry	Ground Potato & Spinach Soup	Spiced Lentil with Veg	Tomato Soup (Dutch)	Meat
SOUP	Pasta Bean & Veg	Bean Lentil	Butter Beans & Butter Beans	Garlic & Orange	White Bean & Carrot	Vegan
MEAT	Mediterranean Chicken Curry	Indian Lamb Curry	Chicken Curry	Roasted Pork	Beef Stew	Vegetarian
START	Spiced Rice	Lentil Rice	Spaghetti Aglio e Olio	Lentil Rice	Roasted Potato	Vegan / GF
VEG	Butter vegetable & carrot curry	Spiced Bean Soup	Leek & Potato Soup	Butter vegetable soup	Pasta Mushroom Sauce	
START	Spiced Rice	Spiced Rice	Spiced Rice	Spiced Rice	Spiced Rice	
MEAT	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	
VEG	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	
SOUP	Roasted Lentil & Lentil (Lentil)	Minestrone	Ham & Potato	Mushroom & Vegetable	Carrot & Potato	
SOUP	French Onion	Butter Beans & Butter Beans	French Veg	Tomato Soup	Bean Lentil	
MEAT	Chicken Curry	Meat Boney Chow	Mediterranean Curry	Roasted Pork	Spiced Chicken	
START	Spiced Rice	Spiced Rice	Spiced Rice	Spiced Rice	Spiced Rice	
VEG	Butter vegetable & carrot curry	Roasted Potato	Leek & Potato	1 Bean Soup or Roasted Pot	Roasted Potato	
START	Spiced Rice	Spiced Rice	Spiced Rice	Spiced Rice	Spiced Rice	
MEAT	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	
VEG	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	
SOUP	Chicken Mediterranean	Chick'n or Wild Mushroom	Hot Mediterranean	Roast Potato & Spinach Soup	Mushroom & Vegetable	
SOUP	Chick'n or Wild Mushroom	White bean & lentil soup	French Bean	Garlic & Orange	Butter	
MEAT	Butter Chicken	Hot Mediterranean	Turkey Potatoes with mushrooms	Hungarian Pork	Chicken Curry	
START	Meat Boney Chow	Bean Soup	Spiced Rice	Roasted Egg Boney Chow	Spaghetti Aglio e Olio	
VEG	Pasta Mushroom Sauce	1 Bean Veg Soup	Roast Egg Pot Soup	Mushroom Chick'n	Lentil Spiced Rice	
START	Spiced Rice	Hot Pot	Hot Pot	Leek & Potato	Hot Pot	
MEAT	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	Meat Boney Chow (Lentil)	
VEG	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	
SOUP	Roasted Lentil & Carrot (Dutch)	Garlic & Orange	Hot Mediterranean	Mushroom & Vegetable	Roasted Lentil	
SOUP	French Onion	Spiced Veg & Carrot	Butter Beans & Butter Beans	Bean Lentil	White Bean & Carrot	
MEAT	Mediterranean Chicken	Mediterranean Beef Soup	Chicken Curry	Spiced Turkey with mushrooms & bean	Hungarian Pork	
START	Spiced Rice	Spiced Rice	Spiced Rice	Spiced Rice	Spiced Rice	
VEG	Butter vegetable & carrot curry	Roasted Potato	1 Bean Veg or Roasted Pot	Mushroom Chick'n	Pasta Mushroom Sauce	
START	Spiced Rice	Roast Potato or Herb	Spiced Rice	Spiced Rice	Spiced Rice	
MEAT	Turkey Boney Chow	Turkey Boney Chow	Turkey Boney Chow	Turkey Boney Chow	Turkey Boney Chow	
VEG	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	Veg Boney Chow	

Figure 1. Loop Café menu options.



Figure 2. ThinkComfort packaged sandwiches



Figure 3. Saputo dairy product



Figure 4. Strawberry Lemonade produced from Arizona, USA.



Figure 5. Bulk drinks and lemonade from concentrate.



Figure 6. Gala apples sold at the Loop Café sometimes come from the US.



Figure 7. Organic pears sold at the Loop Café are transported from Argentina.



Figure 8. To-go veggie wraps sold at the Loop Café are produced off site at Kingsway, Vancouver, B.C.



Figure 9. Silk brand name organic soy milk is procured from Colorado, U.S.



Figure 10. Earthbound Farm Brand organic lettuce sourced from California.



Figure 11. Unilever brand salad dressing sourced from the US.



Figure 12. Cane sugar sweetener (left) and sucralose sweetener (right) are sourced from Florida.



Figure 13. Fair Trade coffee is provided at the Loop Café.



Figure 14. The wall facing the Loop Café eating area showing the recycling, compost, and garbage bins as well as the signage



Figure 15. Multiple signage located above a recycling bin. The plaque indicates that the bin accepts plastics, metal, glass, cups, and lids. However, the text written next to the plaque suggests that the bin only accepts paper, which may be ambiguous to the general public.

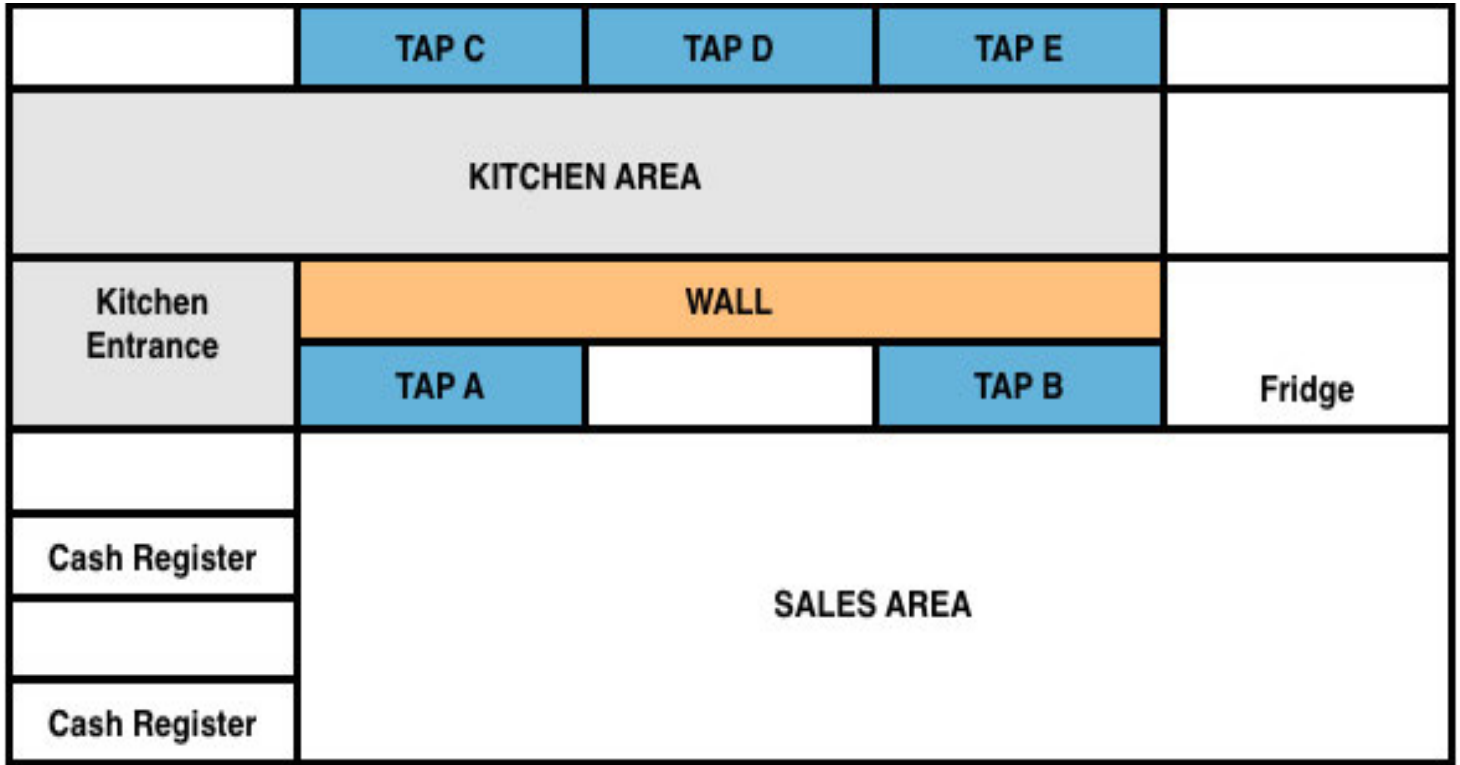


Figure 17. Map of the Loop Café water tap locations. There are five sinks in total: 2 in the sales area and 3 in the back kitchen.

Taps A, B, and D are used for hand washing.

Tap C is used for dish washing.

Tap E is rarely used.

Table 1. Water flow rates for Taps A, B, C, and D, and potential water savings from low-flow water fixtures.

	Tap A	Tap B	Tap C	Tap D	Tap E
Replication					
1	7.78	8.6	9.19	10.69	/
2	7.68	8.25	9.28	10.74	/
3	7.48	8.27	9.47	10.9	/
4	7.61	8.64	9.4	10.51	/
5	7.65	8.6	9.25	11.08	/
Mean (seconds)	7.64	8.47	9.32	10.78	/
Margin of Error	0.14	0.24	0.14	0.27	/
Flow rate (L/min)	7.85	7.08	6.44	5.56	/

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To whom it may concern

This is to introduce Ms/Mr. Andrew Riseman and her/his team of students from **The University of British Columbia's Faculty of Land & Food Systems**. Between February 1, 2014 and April 3, 2014 teams of students from our Faculty will be conducting a study on the Sustainability of the UBC Food System entitled 'The UBC Food System Project', within their course on "Land, Food and Community III" (LFS 450). The 150 students involved in this course will visit many sectors of the UBC campus, finding out about the food situation in our university.

The study is a collaborative effort involving the UBC Food Services, the Alma Matter Student Society (AMS), AMS Food and Beverage Department, UBC Waste Management, Faculty of Land & Food Systems, Centre for Sustainable Food Systems at UBC Farm, the UBC Sustainability Office and its SEEDS Program (Social, economic and ecological development studies).

If you have any question please feel free to contact the Principal Investigator at the above contact information or the Course Instructor, Professor Andrew Riseman at
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Thank you very much for your cooperation.



Dr. Andrew Riseman Andrew Riseman

January 7, 2014

THE UNIVERSITY OF BRITISH COLUMBIA

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INFORMED CONSENT

I am agreeing to collaborate in the study entitled "The UBC Food System Project", conducted by students of the Faculty of Land and Food Systems within their course "Land, Food & Community III" (LFS 450) in collaboration with UBC Food Services, the Alma Matter Student Society (AMS), AMS Food and Beverage Department, UBC Waste Management, Faculty of Land and Food Systems, Centre for Sustainable Food Systems at UBC Farm, the UBC Sustainability Office and its SEEDS Program (Social, economic and ecological development studies).

I have been informed of my right to interrupt any interview or questionnaire linked to this project in which I agree to participate, at any time that I consider necessary. Also, I have been assured that my answers will remain anonymous unless I provide written permission (below) to the UBC student conducting the interview or survey, to disclose my name, working position or any other information revealing my identity in any possible future use of the information I provide.

Signature of the person volunteering to participate in the study: [Handwritten Signature]

Name and signature if accept to reveal name, revealing my identity (or freely chosen name and signature, if you prefer): _____

Contact information (Name, Telephone #, fax#, email, mailing address) if accept to be quoted by name or position in public use of the information I provide to review the quotes:

Consent to be voice or video recorded: _____

Date: 03/13/2014
Name of the interviewer: Permboon Priebrivat

If you have any concern about this study please contact the Principal Investigator at the above contact information or Professor Andrew Riseman, the Course Instructor at
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Dr. Andrew Riseman
Principle Investigator
January, 2014