ORGANIC WASTE IN RESTAURANTS

Steps to minimize the issue

Ekaterina Sergeeva

Capilano University | 100129312

Table of Contents

Executive summary

Vancouver is on track to become a zero-waste city by 2040, and although this is an ambitious goal, it is not impossible. (Vancouver C. O, n.d.) Along with the goal, the City of Vancouver released a plan with several focal points to make the zero-waste city a reality. This plan highlighted several factors, but this paper's main issue is the importance of preventing all types of waste, including wasted food from farm and table and composting inedible food or converting it into fuel. This ties in directly with the UN sustainable goal of creating sustainable cities and communities and responsible consumption and production (THE 17 GOALS | Sustainable Development. n.d.). Although the numbers have shown an improvement, there is still a long way to go.

Restaurants and foodservice facilities across Canada produce an enormous amount of food waste every day, specifically organic food waste. For most restaurants, compost options are few and expensive and most end up throwing out the majority of their organic waste along with their garbage for simplicity and cutting time and expenses (Adhikari, Barrington, Martinez & King, 2008). The issue with this is the food doesn't biodegrade for a long time. Each recycling group (compost, plastics, paper etc.) has a separate recycling process they need to follow. When organic waste is tossed in with regular garbage and taken to the landfill, it is placed in the air-locked containers, depriving the compost of the oxygen and microorganisms it needs. Their ability to decompose is severely deprived (n.d.). Each container releases greenhouse gas emission (GHG) when being pressed, and the more organic waste in containers, the more container loads and the more GHG being emitted into the air. Restaurants in Vancouver throw away so much garbage daily, and a lot of it contains items that should be in the organic waste bins. There needs to be a solution to ensure that restaurants in Vancouver are going above and beyond to ensure this is not a permanent issue.

The immediate solution to this issue is implementing a training program that would help eliminate some of the waste that goes into the landfill and turn it into compost, which can be input back into the ecosystem. Ideally, this would result in a decrease in carbon emissions and reduce landfill waste, which ties directly into the city of Vancouver's sustainable goals.

The Issue

One of the most important principles for a circular economy is effective recycling programs, especially organic waste (Jakubus, 2020). On a global scale, organic food waste thrown in landfills accounts for approximately 11% of total greenhouse gas emissions. This is an immense amount for something that can be solved as easily as properly composting your food waste. Because this has a simple solution, in theory, it is a critical issue to solve now. On a local scale, this ties in with the City of Vancouver's zero waste community 2040 and greenest city action plan. Their goal was to reduce community-based greenhouse gas emissions by 33% from 2007 levels by 2020 (Vancouver C. O, n.d.) At this point in time, they are calculating if their target to see if it has been met and planning their future targets. Regardless, the percentage of greenhouse gas emission (greenhouse gas emission) needs to be on a steady decline – and seeing how a significant portion of GHG are from landfills, the waste in landfills needs to decrease.

Based on the study "A cross-industry evaluation of food waste in restaurants" done in Canada, casual and fine dining restaurants are the leaders in food waste. This study took into account the preparation phase (when they are preparing the food), production phase (when the food is being made) and plate waste (food that went out for dinner but for some reason was not consumed and thrown away). The measurements they used are total waste generated per customer and are in grams. See Appendix 1 for this study (Mcadams, Massow, Gallant & Hayhoe, 2019). It states that food waste, not including plate waste is 53.06g and 236.33g for casual dining and fine dining, respectively. Interestingly, including plate

waste, the number for casual dining jumps up 46.23g to 99.29g and 24.76g to 261.09 for fine dining. The waste for casual dining nearly doubles (Mcadams, Massow, Gallant & Hayhoe, 2019). The plate waste is what is being tossed away by the servers at these restaurants, and the preparation and production phase is done by the chefs. This makes it their responsibility to dispose of the scraps or spoiled food correctly.

Taking this into consideration, this pinpoints an important issue to be tackled. Training the staff in restaurants to properly dispose of their food waste will drastically reduce the amount that ends up going to the landfill.

SWOT analysis

Solutions

Training programs for staff

One potential solution is to create and implement training programs for all restaurant staff to educate staff on the importance of separating organic waste from garbage. If an assigned group takes the time to find a strategic and beneficial way to make this a priority for restaurant staff, it will significantly help this cause. Most servers and kitchen staff are usually rushed and busy. In those times, they may not think that throwing things here and there has a significant effect, but creating that extra sense of urgency in a non-stressful way will help the servers and other staff to double-check before they toss everything in the garbage. It's also essential for the restaurant to create small changes that cater towards a more successful composting program. This is shown to work because many restaurants in Canada have implemented some kind of green program, which has a positive impact.

Create incentives to become a green restaurant by creating an award that is provincially recognized

Having an incentive for the managers and key decision-makers will help create the urgency and importance around the issue. Unfortunately, many restaurants do the bare minimum when it comes to sustainability in their business. Thankfully, eating at green restaurants and marketing your restaurant as sustainable is becoming a trend, and lots of people specifically look out for those businesses to support them. Suppose the provincial government had a way to recognize the restaurants excelling in this area. In that case, there might be more motivation for the restaurants to find ways to make their businesses more green and sustainable. It's important this award is given out by the province and not a green organization. This way, it's recognized on a grander scale and maybe even has some sort of monetary or tax compensation.

Create more strict legislation

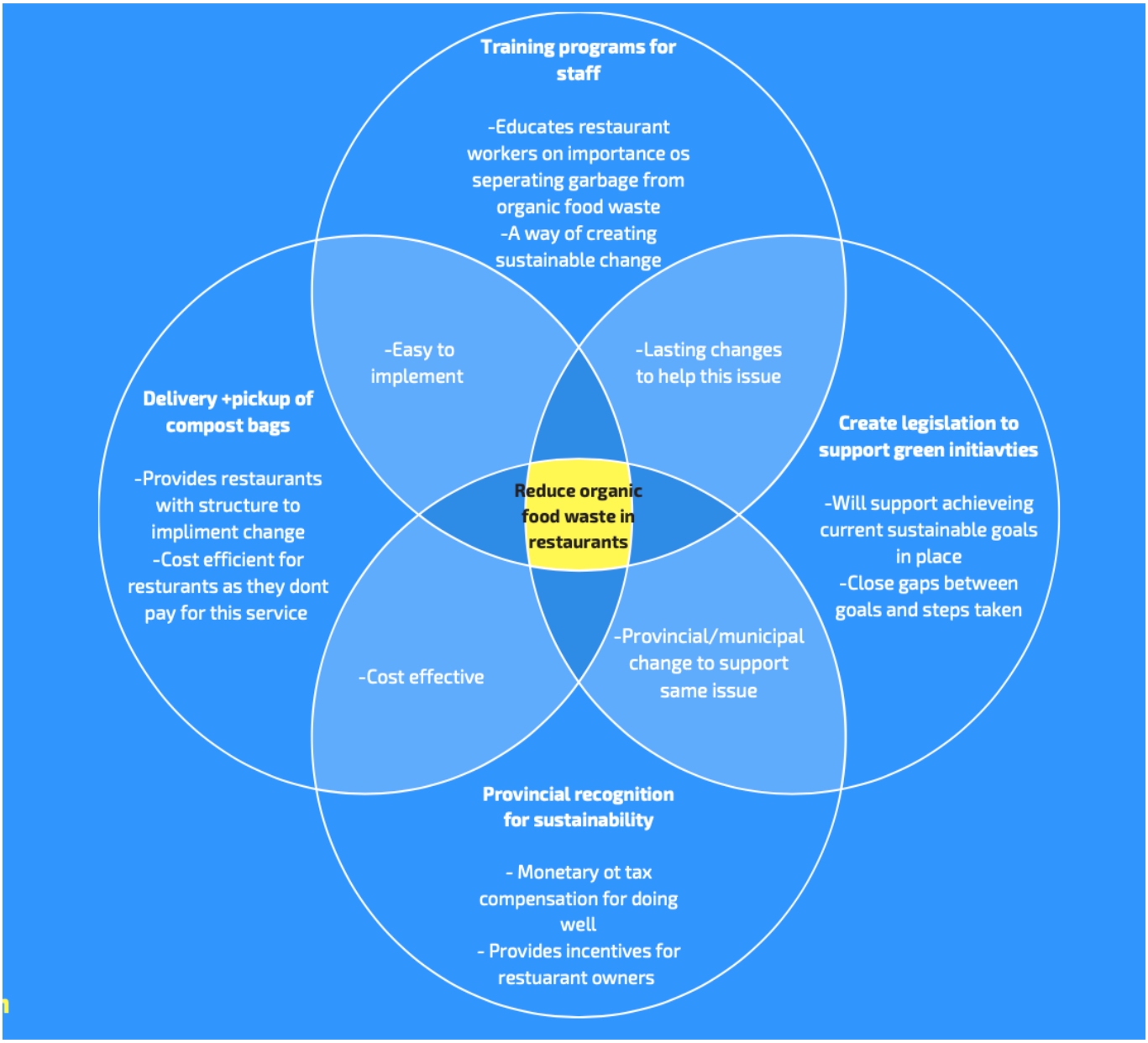
Organic food waste has severe environmental repercussions. Although there is beginning to be light shed on the lack of policy in Canada, that needs to be more done on a federal and provincial level (Bemmel & Parizeau, 2019). The city of Vancouver does have a bit of green legislation in place and has some specific rules that need to be followed. After reading through their website that contains all the information, it seems like there are very ambitious goals, such as zero waste 2040 (Vancouver C. O, n.d.). Ambitious goals are not the issue, as long as there are enough small steps to ensure those big goals are achieved. Unfortunately, this was not quite the case. If the city of Vancouver wants to see a drastic change, they need to put the proper legislation in place that will make strides towards achieving the goals they've created. There is a massive gap between the goals and current policies, which can be fixed but creating new policies and legislation. For example, there can be legislation about the amount of waste that your restaurant produces and fines or other consequences if it's proven you're not following a sustainable waste program and trying to lower the amount of waste your restaurant has. There needs to be a way to monitor this that efficient and makes that change the City of Vancouver wants to see.

Put a system in place to deliver compost bags to restaurants with curbside pickup available for these bags

Another helpful solution is to have a system put into place that delivers and picks up the restaurants' bags of compost. Compostable bags can be expensive, and if there is a lot of organic food waste, it might be easier to toss it in the garbage bin. If there is a curbside pickup program in place, restaurant owners can organize when and where to leave the bags so they don't have to worry about waiting for the weekly pickup to store the waste. This can be a partnership program with local farms for the biodegradable waste to be dropped off at various farms in the area for farming purposes. This

eliminates organic food waste taking up space at landfills while simultaneously helping local farms with natural soil/fertilizer.

Compare + Contrast chart



The strongest solution

Creating a training program for staff

According to a study, 14% of restaurants dump their food waste directly in the garbage which gets taken to the landfill (Sakaguchi & Pak & Potts, 2018). This is due to a joint lack of effort on management and restaurant staff. The solution that would create the most change immediately would be making a training program for the restaurant staff. Unless the workers took it upon themselves to learn about this topic or are very passionate about sustainability, to begin with, they most likely have the basic knowledge about the importance of recycling and the ecosystem. Restaurant staff are typically under-informed about the importance of separating organic food waste and need to be educated to execute the proper micro-level practices to better this issue (Zanella, 2020). This has already been proven to work at other restaurants in the Vancouver restaurant; one specific example is Cactus Club Café in Coal Harbour. They have demonstrated that educating their staff correctly and implementing small changes around the restaurant will drastically increase the amount of food that goes into compost instead of the landfill. If it were mandatory to have this training program, the reduction of organic waste from landfills would be significant. This is a small step that will make a substantial impact. It should begin with the downtown area to start, and once there is success, the training program should be implemented throughout the rest of the Vancouver area.

Implementation

As mentioned earlier, Cactus Club Café Coal Harbour has a compost program implemented. During the staff training period, they do a restaurant tour; this includes the dish pit. The dish pit there has a different layout than most restaurants. Side note: the dish pit is where all the dishes in the restaurant

are washed, so after clearing dirty plates from a table, the servers bring them there and organize these dishes, and the chefs drop off their pots/pans, containers, and other cooking equipment there to be cleaned as well. In this dish area, there are three large compost bins, the size of residential garbage bins, and one small garbage bin that's about less than ½ the size of the compost bins. They ensure new employees know that when throwing away leftover food and other biodegradable things (like biodegradable napkins), to throw it into the compost while throwing the remainder of the garbage in the garbage. The trainers make sure to provide examples of what goes in the trash - which is soy sauce wrappers and plastic bags/gloves, and what goes in the compost. Having this system in place makes it easier for the servers and kitchen staff to put the items in the proper bins since it's so accessible. This is a great starting step for restaurants to help keep organic food waste out of landfills, but there is still lots of room for improvement; this is where the Green table network comes in.

The Green table network is a local Vancouver not-for-profit that supports and recognizes sustainable restaurants. There are six main criteria that need to be satisfied to become recognized, but some restaurants go above and beyond that. The criteria fitting in with this paper's topic is eliminating biodegradable waste from landfills from their recycling program. The green table network has four partners they work with to have this recycling program (A BETTER FUTURE. ONE DISH AT A TIME, n.d.). Since the Green table network has such broad knowledge, is local to Vancouver and already has partners, partnering with them to create a mandatory organics recycling program in restaurants in the downtown area is ideal. Using their vast knowledge base of both restaurants and sustainability, they would make a sustainable program for all restaurants in the downtown area to implement that would generate great success in keeping biodegradable food out of landfills. This program could include the fundamental aspects of what's implemented at Cactus Club Cafe Coal Harbour but use their resources to make it viable on a larger scale.

Sustainable Development Goals (SDG's)

Sustainable Cities and Communities

The purpose of implementing a training program for composting at work is to reduce the amount of organic food waste in restaurants. Completing sustainable actions and doing green things- such as composting - brings a sense of community and belonging. That, along with the lasting partnerships, will amplify that feeling and create a stronger community. Cities need to be able to support their local restaurants, who, through the composting program, will support local farms. This creates a circle of sustainability and eliminates the need to outsource as much while simultaneously reducing the impact big cities have on the environment.

Responsible consumption and production

The global environmental crisis is a big deal, and it is only getting worse. The footprint that restaurants leave behind is massive, and there needs to be a change to make it more sustainable for future generations. The amount of greenhouse gas emissions needs to decrease drastically, and the carbon footprint or importing/exporting food and food waste after consumption needs to reduce too. Focusing on this small targeted area (the organic waste in restaurants) will promote responsible consumption and production.

Climate action

Although there has been a 6% drop in greenhouse gas emissions (due to COVID-19), it's still 7.6% short of the annual reduction needed to combat climate change. The amount that the governments invest in fossil fuels is way more than the amount invested in climate activities, this needs to change, and this

change needs to be speared through small actions such as composting programs. Climate change affects everyone; therefore, everyone needs to participate in fixing it.

Conclusion

After looking into the impact that organic food waste from restaurants has on the local and global environment, the government needs to create a solution. Implementing a training program for restaurant staff to follow proper disposal procedures would reduce the number of waste going to the landfill instead of the compost. A simple compost program is proven to reduce these numbers already, so working with local, sustainable not-for-profits and other partnerships to create a more robust program for more restaurants is a viable option that is guaranteed to produce results. This is the strongest and most straightforward solution to implement, although it cannot stop there. The government needs to take further action and create more strict legislation surrounding the waste restaurants produce, including consequences when not followed and rewards if done well. This is an excellent opportunity to develop a sense of community and become less dependent on external sources by having restaurants and farms work together; they already work together to create beautiful dishes when it's farm to table, so now it's time to have table to farm - in terms of giving the biodegradable waste back to the farms so they can use it for farming needs. These solutions are all entirely feasible and are in sync with the UN sustainable development goals, so it's time to create this change!

Appendix A: Informational charts from "A cross industry evaluation of food waste in restaurants"

	Spoilage	Preparation	Production	Plate	Unidentifiable	Total food waste	Total food waste (without plate waste)
Quick-Service	1.46 (2.4%)	27.35 (46.1%)	28.98 (48.9%)	Unable to collect	1.5 (2.5%)	n/a	59.28
Limited-Service	0.34 (2.1%)	2.96 (17.9%)	3.65 (22.1%)	Unable to collect	9.58 (58%)	n/a	16.53
Casual Dining	4.1 (11.7%)	28.44 (53.1%)	18.05 (34.0%)	46.23	2.47 (4.7%)	99.29	53.06
Fine Dining	23.03 (9.7%)	176.37 (74.6%)	36.92 (15.6%)	24.76	0 (0.0%)	261.09	236.33

2 *Note.* *values in parentheses represent percentages of total **food waste** without plate **waste**

Since plate **waste** could not be measured in all four **restaurants**, total **waste** generated (without plate **waste**) per customer was observed. Table 3 presents the data for the four **restaurants** graphically. The fine dining **restaurant** had the highest per customer **waste** (statistically significantly higher than all three $p \leq 0.01$). Quick-service and casual had similar average per customer **waste** (no difference statistically) while the limited-service **restaurant** had the absolute lowest average **waste** per customer (lower than all three $p \leq 0.01$). This is likely due, in part, to the number of customers. The limited-service **restaurant** served an average of 1,002 customers per day during the sample period whereas the quick-service, casual and fine dining **restaurants** served an average of 381, 286 and 73 customers respectively.

(Mcadams, Massow, Gallant, Hayhoe, 2019)

Reference

A BETTER FUTURE. ONE DISH AT A TIME. (n.d.). Retrieved from https://greentable.net/home/about/

Adhikari, B. K., Barrington, S., Martinez, J., & King, S. (2008). Characterization of food waste and bulking agents for composting. *Waste Management,28*(5), 795-804. doi:10.1016/j.wasman.2007.08.018

Bemmel, A. V., & Parizeau, K. (2019). Is it food or is it waste? The materiality and relational agency of food waste across the value chain. *Journal of Cultural Economy,13*(2), 207-220. doi:10.1080/17530350.2019.1684339

Ciulli, F., Kolk, A., & Boe-Lillegraven, S. (2019). Circularity Brokers: Digital Platform Organizations and Waste Recovery in Food Supply Chains. *Journal of Business Ethics,167*(2), 299-331. doi:10.1007/s10551-019-04160-5

Fight climate change by preventing food waste. (n.d.). Retrieved from https://www.worldwildlife.org/stories/fight-climate-change-by-preventing-food-waste

Jakubus, M. (2020). A Comparative Study of Composts Prepared from Various Organic Wastes Based on Biological and Chemical Parameters. *Agronomy,10*(6), 869. doi:10.3390/agronomy10060869

Mcadams, B., Massow, M. V., Gallant, M., & Hayhoe, M. (2019). A cross industry evaluation of food waste in restaurants. *Journal of Foodservice Business Research,22*(5), 449-466. doi:10.1080/15378020.2019.1637220

(n.d.). Retrieved from https://www.ecoproducts.com/faqs-compostingandrecycling.html

Sakaguchi, L., Pak, N., & Potts, M. D. (2018). Tackling the issue of food waste in restaurants: Options for measurement method, reduction and behavioral change. *Journal of Cleaner Production,180*, 430-436. doi:10.1016/j.jclepro.2017.12.136

THE 17 GOALS | Sustainable Development. (n.d.). Retrieved from https://sdgs.un.org/goals

Thiel, C. L., Park, S., Musicus, A. A., Agins, J., Gan, J., Held, J., & Bragg, M. A. (2021). Waste generation and carbon emissions of a hospital kitchen in the US: Potential for waste diversion and carbon reductions. *Plos One,16*(3). doi:10.1371/journal.pone.0247616

Vancouver, C. O. (n.d.). Zero Waste: Priorities and background. Retrieved from https://vancouver.ca/green-vancouver/zero-waste-priorities-and-background.aspx

Vancouver, C. O. (n.d.). Zero Waste 2040. Retrieved from https://vancouver.ca/green-vancouver/zero-waste-vancouver.aspx

Zanella, M. A. (2020). On the challenges of making a sustainable kitchen: Experimenting with sustainable food principles for restaurants. *Research in Hospitality Management,10*(1), 29-41. doi:10.1080/22243534.2020.1790207