THE FOOD SYSTEMS LAB TEAM

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ACKNOWLEDGEMENTS

We gratefully acknowledge that Food Systems Lab 2016 is being held on the sacred land on which the University of Toronto operates. It has been a site of human activity for 15,000 years. This land is the territory of the Huron-Wendat and Petun First Nations, the Seneca, and most recently, the Mississaugas of the Credit River. The territory was the subject of the Dish With One Spoon Wampum Belt Covenant, an agreement between the Iroquois Confederacy and Confederacy of the Ojibwe and allied nations to peaceably share and care for the resources around the Great Lakes. Today, the meeting place of Toronto is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work in the community, and on this territory.

We would also like to thank the following sponsors and partners for supporting our work:
THE CHALLENGE

Food Waste is a Global Problem

In recent years, food waste has become a hot topic, garnering attention in mainstream media internationally. Globally, about **one-third of all food produced is wasted**. In Canada, this amount is closer to 40%, of which nearly half is from consumers. High levels of food waste negatively impact the environment, contributing to greenhouse gas emissions, nutrient loss, and the inefficient use of resources for food production.

In September 2015, the United Nations announced a target of **halving global food waste per capita** by 2030 as part of the Sustainable Development Goals, which almost all countries in the world, including Canada, have committed to. With such an ambitious target, all levels of government, industry associations, businesses, non-profit organizations and citizens are talking about the issue and looking for solutions to reduce food waste.

In this frenzy of activity, most solutions are being developed in a hurry by individual entities or special interest groups, without careful consideration of root causes or all of the stakeholders that are affected, especially marginalized groups. Without a **systems approach** to addressing food waste, deeply held assumptions may not be challenged, critical features of the broader system may go unnoticed, and opportunities for innovation and collaboration may be missed.

Toronto: A Place of Challenges and Opportunities

Toronto is the largest city in Canada with a population of 2.8 million and one of the most culturally diverse and densely populated metropolitan regions in North America. Close to 20% of Canada’s population resides in the Greater Toronto Area alone. To feed such a large number of people in an urban environment, the logistics and complexity of food distribution increases, which also **increases food waste**.

The food industry in Toronto is a major driver of local industry. With over 1100 processing, warehousing, distribution and retail establishments¹, and over 8,000 restaurants, caterers and bars, the food and beverage cluster of local business employs nearly 60,000 employees², and in 2011 generated about $17 billion in annual sales³.

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This economic and employment activity also has a multiplier effect that generates growth in related industries including agriculture, packaging, production of food industry equipment, biotechnology, storage and transportation. The food industry in the GTA is dominated by small business with 80% of companies operating with less than 50 employees. This presents a challenge in that smaller businesses don’t benefit from the same economies of scale as larger companies, yet they offer great opportunity for innovation as smaller businesses can be more agile and better able to respond to market trends and innovations. For this reason, smaller food businesses will play a large role in the conversation in the Food Systems Lab.

In Canada, it is estimated that food waste costs $31 billion annually while in a Hunger Count report, close to 900,000 Canadians (many of them children) require access to food banks. Being Indigenous in Canada means that you are 28.2% more likely to be food insecure. This is also the case with being black, which increases your chances of being food insecure by 27.8%.

Although Toronto is the financial services capital of Canada and a cosmopolitan city, the issue of food insecurity is quite high. In fact, Toronto has one of the highest rates of urban poverty in Canada. One study found that anywhere between 10-13% of Toronto households suffer from food insecurity. That means approximately 364,000 households in Toronto are going hungry, which is more than six times the number of people that could fit inside the Rogers Centre. Toronto is also vulnerable to hunger. According to estimates by retailers, at any particular time, there are only three days worth of fresh food in the city. Despite more than thirty years of food banking in Canada, only 20 to 30% of Canadians experiencing food insecurity use food banks due to factors such as the stigma associated with these programs, limited operating hours, ineligibility, long line-ups, or low quality of food provided.

While there are numerous challenges in Toronto, there is opportunity for change. The City of Toronto has developed a Long Term Waste Management Strategy and food waste is on the agenda. The members of the Toronto Food Policy Council have also recognized food waste as a priority issue. With the launch of the Food Systems Lab in the City of Toronto, we hope to facilitate intersectoral collaborations between policy makers, industry, academia, civil society and community to address the issue of food waste.

THE CONVENING QUESTION

Based on the background research to date and interviews with more than 40 stakeholders across Toronto’s food system, we propose the following convening question for the Food Systems Lab:

"How can we reduce food waste while ensuring that food is accessible, affordable, and that we support a vibrant food sector?"

This convening question is a work in progress that we will explore and refine with lab participants at the first workshop. It came about due to recurring themes in our interviews. For example:

“Affordability is an interesting question because farmers are making so little on food. This can be a little controversial, but I think food is underpriced and farmers are making too little as a result. In many ways we’re not paying the full value of food.” (Academic)

“Ontario has some of the most affordable food. The key isn’t that food is unaffordable, but that people’s other expenses are so high and non-variable. You can’t skip out on paying rent. People often sacrifice food in favor of fixed expenses like rent, heat or electricity.” (Food Bank)

The interpretation that may be taken from these quotes is that food is too cheap and perhaps there is a need to reconsider the true cost of food. On the other side of the equation, raising the cost of food could make it unattainable to even more people exacerbating food security issues. Our convening question integrates the tension between affordability and the need to ensure that farmers are paid for the real cost of food production.
In the last part of our convening question, we highlight questions raised by respondents around consumption, overconsumption and the market for food. There were calls to re-examine the amount that consumers purchase:

“We need to move to smaller quantities when we buy, move towards the ‘buy today eat today’.” (Academic)

“Reduction essentially means less consumption, therein lies the problem because here we have a society that is funded on keeping the wheels of industry turning and it’s all based on consumption. At least two-thirds of the GDP comes from household expenditure. So if suddenly...a government group at any of the three levels starts encouraging people to spend less we have a problem. I think here that would be huge fall out.” (Waste Consultant)

In the interviews, respondents repeatedly mentioned the need to buy just the “right amount”, or to plan better as approaches to reducing food waste. However, as one of the respondents noted, the potential side effect of a society that moves to buy in smaller quantities is that retailers may be impacted by decreasing sales.

How would reduced food purchasing impact the labour force in the food industry? And how would a world with less consumer food waste through less spending impact the bottom line of the retail industry? Hence, our convening question included the importance of supporting a vibrant food sector as a desirable goal that may go hand in hand with food waste reduction.

The convening question is a work in progress and one of the goals of our lab is to have a clearly defined convening question based on participant input and collaboration after the first workshop.

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ABOUT THE LAB

Social Innovation Labs are multi-stakeholder platforms created to address complex system challenges. Lab members work together to gain a deep understanding of the system, then identify and prototype innovations and opportunities that can address root causes of challenges.

The Food Systems Lab is bringing together up to 40 organizations and individuals representing all parts of the food system in the Greater Toronto Area. Lab participants include representatives from farms, food businesses, Indigenous leaders, consumers, schools, associations, civil society groups, faith organizations, charitable foundations, and local government. Together, we are piloting a Social Innovation Lab for one year, from September 2016 to August 2017. The format of the Lab will consist of ongoing research and experimentation, as well as three workshops working on the following themes:

1. Seeing the System (November 2016)

   The goal of this workshop is to gain a broad and deep understanding of the system and open new possibilities for interpretation. We will use whole system thinking tools to uncover assumptions, mental models, and bring a diversity of viewpoints.

2. Designing Solutions (March 2017)

   Social innovation tools and methods will be used to identify emerging patterns, programs, initiatives, ideas that could transform the system. Possible innovations and opportunities will be explored.

3. Prototyping (June 2017)

   Design thinking tools will be used to prototype possible innovations and opportunities.

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8. Food Systems Lab: Design Brief
ABOUT THE DESIGN BRIEF

This design brief was written as a background document for the first Food Systems Lab workshop. Research for the design brief was conducted by the Food Systems Lab team from September to November 2016. More than 40 stakeholders across the food and waste systems in Toronto were interviewed to gather input for this design brief along with a review of existing data and reports.

Breakdown of stakeholders interviewed by sector:
The City of Toronto is one of the few municipalities in Canada that has conducted a detailed analysis of food waste. Based on single-family waste audit data from 2015/2016, the average Toronto household throws away about 223 kg of food per year at home, of which about 62% could have been eaten. About half of edible food waste is fruits and vegetables. Most food waste (73%) goes into the green bin for composting, so some energy and nutrient value is recovered through composting and biogas recovery. However, there is still a lot that can be done to keep edible food from being wasted.

In the commercial sector, food waste tracking is not a common practice. Of our interviewees, less than 20% had metrics or an estimate of food waste generated by their business or organization. Since the City of Toronto does not manage the majority of commercial waste, this is a large data gap. In other metropolitan regions in Canada such as Metro Vancouver, about half of the food waste generated in the region comes from commercial sources. Businesses and organizations are taking action though to reduce, recover and recycle food waste. Composting food waste is by far the most common practice. Food waste reduction tactics identified by interviewees include monitoring supply, tracking food waste to inform better purchasing and planning, and educating staff and customers about food waste. Repurposing or processing is a common way for businesses to salvage leftover food or byproducts into menu items or food products. Donations of surplus food to charities is another common method of food recovery.

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1. Average quantity of food waste in single-family compost, recycling and garbage.
To better understand the issues around food waste, we asked key informant interviewees to define what is food waste, why and how it is being wasted, and whether it is possible to eliminate food waste in Toronto. The following quotes from interviewees are highlights which may spark further questions and discussions.

Food Waste Is…

“A *disconnect* between people and agricultural systems.”

“If food gets thrown out, whether it is still good or not, it’s *food waste*.”

“The phrase of waste is a *misnomer*.”

“No one definition that is accepted in Canada.”

“We call it food *surplus* because it is edible food and there’s an implication that food waste is not edible.”

“Food waste for me is a *loss of profit*.”
Why is food being wasted?

Time scarcity and cheap cost of food
“Because as busy eaters, they[consumers] go out to eat meals at restaurants while the food they bought from the farmers’ market gets wasted. That has happened in our family during busy periods. People are also buying everything that they see and life is so unpredictable. The fridge is basically a composter. Food is so cheap and buying prepared stuff is so easy that people can afford to just leave their food to go to waste at home.” (Academic)

Lack of skill and planning, combined with demand for abundance
“..when I waste it’s really because of my lack of skills, say for example, I don’t use something quickly enough, or because of my lack of equipment so for example my fridge is not big enough so when sometimes if you overfill the fridge it doesn’t work as well and the food will go off. I don’t like that. It’s a big problem that I try to solve every year. Every year I try to do inventory management, but I always buy too much, especially in terms of the vegetable matters. It’s hard for me not to seek the abundance.” (Food Vendor)

Convenience economy
“I think a lot of it is probably generated due to convenience economy. We have to have everything available at all times, so stuff sitting there at the supermarket that doesn’t sell in a couple days has to be thrown out. I think that is driving a lot of food waste. ” (Food Retailer and Farmer)

Bureaucracy and rigid regulations
“If we were to go back 50 years to a less industrialized and less regulated environment, food waste would be going to feed animals. So pigs were traditional in the old agricultural systems and were fed slops from the kitchen table. Unfortunately, we have a comprehensive, regulatory regime for biosecurity and the Canadian food inspection agency has regulated that and that is not actually legal to do. (Manufacturer)
How are we wasting food?

Aesthetics

“I think in the private sector, especially in the restaurant business, we waste a lot of food. Food needs to be at its optimum and needs to look its prettiest. The higher level (quality) of the restaurant, the more food that will be wasted because if you go and all of your onion pieces look exactly the same size, that means you can use only a part of the same onion in order for all of your squares to be the same for example. I’ve seen it firsthand, I think there’s a lot of waste in the private business because food has to be at its prime and there’s a lot of processing and whatnot.” (Chef)

Mismatch in portioning

“In my own home I try to be very conscious about food waste but I do find myself still throwing out food items. For example, I bought a small tub of sour cream for a recipe but only needed a couple of tablespoons of it. I don’t usually use sour cream and ended up forgetting about it in the back of my fridge and throwing it out when it was past the expiration date.” (NGO)

Freedom to return food to retailers

“We have a fairly open return policy, people can return things for number of reasons, if the food product is returned [it] must be organically recycled. It can’t be put back on the shelf because it was taken out of our custody and we don’t know why it is being returned.” (Retailer)

Complexity around forecasting

“At the retail level, it hard to know how much to order and when and knowing your expiry dates. Also how fast your turnover happens and being responsible for measures to have it absorbed or sold at a reduced price or used by other means.” (Food Co-op)

Disregard for food

“In the bakers guild listserv someone was talking about lemon zest, and how they just needed to use the zest for the bread but then they would throw away all the lemons, which totally blew my mind. I thought it would never be possible. That’s like calculated waste. And then somebody pipes in...there is a company that just makes the zest, so instead of buying all the lemons, just buy the zest from the company. So you see all of the implication of that, it’s just unfathomable. I mean you don’t even get to zest your own lemons....” (Food Vendor)
Is it possible to eliminate food waste in Toronto?

“To eliminate it completely, I mean we have gone to the moon so why not eliminate food waste?” (Consumer)

“I think everything is possible with planning and determination.” (Farmer)

“Closing the loop on food waste, I think it's a really solvable problem. You just need buy in from key decision-makers, and that’s the hardest thing.” (Technology Start-Up)

“I'm not sure it's possible to entirely eliminate food waste. I believe it is possible and entirely achievable to greatly reduce food waste in Toronto.” (Faith Leader)

“I think it is a worthy goal, but I do not know if it is possible.” (Food Recovery Organization)

“I think it’s possible to reduce it significantly. At the end of the day, things still rot before we can use them.” (Chef)

“There's simply no way to get around using 100% of the vegetable/fruit in a production kitchen, in my opinion. People simply do not want to eat apple cores, banana peels, squash skins, corn husks or used coffee grinds.” (Manufacturer)

“I don't think it’s possible to eliminate it 100%. No, and that’s because a lot of time you’ll have a recall or a food safety issue.” (Retailer)

“We can’t fully eliminate food waste. Zero waste is bad language. Waste is inevitable. It should not be made into an obsession. What we need is a backup system.” (Academic)
KEY ISSUES

Food Sector and Resiliency

Opportunities for creativity, collaboration and social enterprise

Food waste has been recognized as a global crisis yet amidst this crisis there have been attempts by businesses, youth and industry to find opportunities to innovate and reduce food waste.

Essentially I think that industry has been looking at optimization and waste minimization for awhile now. So industry is already doing it because they realize the value in doing it. So the recognition is already there in our sector. I think we can continuously enhance and work towards reducing food waste, absolutely yeah. We can definitely look into new...you know, whether it’s technological innovations or any other best practices that have been applied elsewhere to apply here to eliminate food waste. I think when you’re speaking with somebody who is working within industry, I think the elimination factor is always on their mind. I think they are constantly working towards it, it’s just about making the direct linkages, linking it specifically to food waste. I think there are lots of opportunities in those sort of spaces.” (Industry Association)

Get creative with other small businesses that see the by-products of our production line (aka food waste) as a usable product. For example, we send our used coffee grinds to a local soap maker for use as a body scrub, and our cacao shells to a local tea maker as an ingredient in her tea lines. We also we sell the cacao shells to gardeners and community gardens as garden mulch!” (Processor)

I come with a very youth perspective as well...we can actually turn this into an opportunity for youth to explore options for social enterprise...How can this, from a youth perspective, open up economic opportunity and employment opportunities so that issues of low incomes in the food sector and low paying jobs can connect with that as well.” (Youth Advocate)
Food insecurity

Is it possible to work towards zero hunger by addressing systemic food waste?

The connection between food waste and food security is a sensitive one—one that according to some of our respondents should not be conflated or even connected. Unfortunately as some of the respondents noted, food insecurity, food waste, and food surplus have become a fact of life in Toronto. How can our social innovation lab work through these complex systemic issues and discover solutions that are dignified, collaborative and just?

“When I grew up here there was no hunger within the city. Of course there were soup kitchens and a salvation army. But it was still the life of “Toronto the Good.” The fact was that hunger was not a fact of life.” (Academic)

“The thing I’m concerned about is that I wouldn’t like to see as a society be ok with serving food waste to people who can’t afford food. I think we need to be very aware of the fine line of what rescuing food means……I believe in the dignity of people and the respect for a human being. Serving garbage, highly processed food, and rotten food to anybody in disrespectful. I do not serve any food here that I wouldn’t give to my son. I serve everybody here like the person who I love the most in the world.” (Chef)

“If we only follow the Islamic teaching which says that ‘Love for your brother what you love for yourself’ then we will be able to solve food waste which is a product of greed and unconcern for the need of others.” (Faith Leader)

“I look forward to the day that I can sit in the circle with our brothers and sisters from Europe and they will say, hey, this is our ceremony, this is how we did food work. I look forward to that day because it will be reciprocal”. (Indigenous Leader)

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Ensuring food safety

Food waste and food safety are often interconnected, how can one ensure food safety while promoting food waste reduction and prevention?

In the narrative around food and waste, there are calls from various campaigns, literature, and policies for zero food waste. At the same time there is recognition that best before dates, anxiety and confusion over food safety can result in individuals or companies wasting perfectly edible food. The question raised by our respondents is whether it would ever be possible to have zero waste in a world where people have the rights and choice to do food returns. How does one tackle the issue of food waste amidst food safety and concerns around food recalls.

“For us food safety is paramount, it’s our top priority. So if you’re going to have something that’s going to make people sick, you’re going to have food waste.” (Retailer)

“We see food being returned every day. The food safety team has guidelines on how long refrigerated or frozen food can stay outside the food chain during transit or replenishment, and if it’s left out of the cold chain, it goes into recycling. Also, any food recall has to go into recycling…I see a return cart full of food and wonder why, what’s wrong with this product? It may look perfectly good or normal but just the fact that it has been returned it has to go in the recycling.” (Retailer)

“I was at events where so much food gets put into the garbage that can feed communities and families. This happens because of both health and safety laws and legal implications. In one meeting someone just took the sandwiches to a centre but you’d need to have the time, and connections. You can’t just walk into a shelter and yell “Free sandwiches!” Also, people in shelters don’t have to eat the remains of our sandwiches, it’s not the solution at all.” (Academic)

“We do have very high standards, so in terms of us being able to donate food that perhaps has already been set out...any kind of hot foods for example, if we are serving a buffet and we have chafing dishes, for something like a stew or a chili, it can only sit out a certain amount time. [It] has to be kept at specific temperatures, and then we actually can’t allow people to take that food away because we don’t have takeaway containers for them.” (Food Service Provider)
IDEAS FOR SOLUTIONS:

Interviewees offered diverse ideas to tackle food waste. Note that solutions to food waste suggested by some may be challenged by others. Although **the aim of the first workshop is not to dive straight into solutions**, it is useful to understand what solutions are on people’s minds and how it may affect how they see the problem. Solutions will be explored in the second workshop.
Connecting the Nutrient Loop

By connecting the nutrient loop, it is possible to address the issue of food waste and food security together. For example, this can be done through the creation of infrastructure that make it possible to connect farm to fork and farm. One example is to feed food waste to insects to create high quality protein, therefore upcycling the nutrients and increasing job opportunities. Another is to address legislations that makes it difficult for communities to create mid-small scale composting facilities.

Improving Food Literacy and Knowledge

Several respondents noted that knowledge and skills in food processing and preservation can help salvage food that’s about to go bad. Therefore, one way to improve food literacy and the ability to transform food is the reinstatement of basic food preparation skills in school curriculum. At the retail level, both small and large retailers have proposed more cooking and food processing classes such as canning and pickling.

Collaboration Between Sectors

The issue of food waste is systemic and collaboration between different sectors across the food systems and food supply chain is considered necessary to try to understand the complexity of the problem. Intersectoral working group is one example of an approach mentioned.

Education: Re-Learning Food Values

From an indigenous perspective, re-learning respect for food can be done through learning how to work with the land (as offered by land-based universities) or speaking to elders. In other cases, it means reconnecting with the producers of the food. Some respondents noted that schools would offer a space that is conducive for learning how to grow food, process food and compost food waste.

Innovation

To tackle the issue of food waste, a supportive environment and investment in innovations, inventions, and youth leadership is necessary.

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