



Final Report

Food Rescue Potential and Benefits

RCA RECYCLING COUNCIL
OF ALBERTA

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1 Introduction

The Recycling Council of Alberta was established in 1987 to promote and facilitate waste reduction, recycling, and resource conservation in Alberta. Since then, the RCA has worked with a variety of stakeholders, including government, industry and other stewardship organizations to protect our environment.

The RCA's mission is to promote, facilitate and advocate for a Circular Economy in Alberta through waste reduction and resource conservation.

Through a consultative approach and support of the RCA Committees and partners (i.e., government, industry, stewardship organizations and other associations) and additional stakeholders, the RCA will pursue protection of the environment through resource conservation following the 3Rs hierarchy.

One of the RCA's current priorities is the promotion of food waste reduction initiatives and to collaborate and share resources with a variety of stakeholders across Canada to create awareness of the impact organics have on the environment, including GHG emissions, as well as promoting the social benefits of diverting consumable food to families that are the beneficiaries of food rescue organizations, which play a key role in the supply chain of food distribution and landfill diversion strategies across Canada.

2 Background

Food is an essential purchase for all Canadians. Since late 2021, food retail cost increases have exceeded 10%. Food prices have risen due to multiple factors that have put upward pressure on costs along the food supply chain. Since the onset of the COVID-19 pandemic, many factors have impacted prices at the grocery store, such as supply chain disruptions, labour shortages, changes in consumer purchasing patterns, poor weather in some growing regions, tariffs, higher input costs, and higher wages. Unlike past trends, many of these conditions and pressures have been occurring simultaneously or in a more pronounced manner, leading to broad-based increases in food prices. Rising food costs have also resulted in an escalating food insecurity crisis.

Data from the Portraits of Canadian Society survey (conducted April 2022) reveal that 43% of Canadians surveyed reported they are affected by food inflation; 20% of Canadians are very or somewhat likely to obtain food from community organizations in the next six months.

Despite rampant inflation and an escalating food insecurity crisis, 63 percent of the food being disposed of by Canadians is consumable - equating to over 20 billion dollars annually. There is also a significant food insecurity crisis occurring due to the current economic situation.

For the average Canadian household, that amounts to 140 kilograms of wasted food per year – at a cost of more than \$1,300 per year!

For Canada as a whole, that amounts to almost 2.3 million tonnes of edible food wasted each year, costing Canadians in excess of \$20 billion!

Food waste is also a significant environmental concern. Organic material, if composted, is a valuable commodity for producers such as farmers looking to enhance their organic farming practices. Food waste makes up a significant portion of what goes into a landfill so viewing and managing it as a commodity instead of being treated as waste helps solve a significant environmental issue, especially as farmers are being mandated to reduce nitrogen levels in their farming practices 30 percent by 2030.

3 Purpose

The purpose of this report is to support Second Harvest's report on reducing methane gas through a collaboration with ECCC. Food waste going into landfills is a significant source of methane gas. In addition, there is a significant food insecurity crisis in Canada impacting families and children. Farmers are required to reduce the nitrogen levels in pesticides by 30% by 2030.

Thus, there is a need to look at the current state of the linear food rescue supply chain where far too much food is being wasted. More food to families, more organic compostable food back to farmers for organic on-farm composting practices and less food to landfills is essential and presents both challenges and opportunities to create a more efficient, circular food rescue supply chain.

The RCA is focused on activities and projects that promote Circular Economies and zero waste and will be looking at opportunities with various stakeholders across Canada to collaborate on programs and projects that drastically reduce food waste.

As a first step, the RCA has identified food rescue organizations from British Columbia, Alberta, Saskatchewan, Manitoba, Yukon, Northwest Territories and Nunavut. Each of these organizations was sent a questionnaire asking:

1. What was the weight of food your organization collected and dispersed? What percent of it was perishable items?
2. What were its estimated monetary values?
3. If known, how many kilograms of greenhouse gases (GHG) did your organization help prevent from being released by rescuing food from landfills?⁴
4. How many communities do you collect food from or disperse food to?

These organizations will be mapped and a directory of these food rescue organizations will be hosted on the RCA website. Additionally, we will be doing a series of future workshops and webinars.

4 The Social Impact of Food Waste

4.1 Food Insecurity

Food insecurity is inadequate or insecure access to food due to financial or geographic constraints.

Household food insecurity in Canada is a serious and preventable crisis. Food-insecure people are much more likely than others to suffer from chronic physical and mental health problems and infectious and non-communicable diseases. Food insecurity and the challenges of accessing healthy and nutritious food has a significant impact on the social, physical, and academic development of children. Experiencing food insecurity at an early age is associated with childhood mental health problems, such as hyperactivity and inattention. Exposure to severe food insecurity has been linked to increased risk of developing depression and suicidal ideation in adolescence and early adulthood.

Household food insecurity is tightly linked to income. As a household's income declines, the risk of food insecurity increases. Severe food insecurity is particularly sensitive to income. Households with very low incomes are at much higher risk of being severely food-insecure.

Climate change, population growth, rapidly rising food prices and natural disasters all have an impact on food security.

4.2 Canadian households

15.9% of households in the ten provinces were food-insecure in 2021.

4.3 Canadian children

Food insecurity affects 1.15 million – or one in six – Canadian children under the age of 18.

4.3.1 Alberta

Alberta has the highest prevalence of food insecurity among all 10 Canadian provinces at 20.3 per cent. That means that about one in five Alberta households is food insecure.

4.3.2 Territories

The 2021 estimates also do not include data from the territories, which are not available yet. Food insecurity in the territories, especially Nunavut, has always been extraordinarily high. The most recently available CIS data were collected in 2020 and do not include marginal food insecurity. In 2020, 46.1% of people in Nunavut, 23.1% in the Northwest Territories, and 15.3% in Yukon lived in moderate or severely food-insecure households. It is especially concerning that almost a quarter (23.3%) of people in Nunavut lived in a severely food-insecure household in 2020.

4.3.3 Indigenous communities

27% of Indigenous Canadians experience food insecurity.

4.4 Economic

While the impact of food insecurity on our economy is difficult to measure, food insecurity significantly impacts physical and mental health. The annual economic cost of mental illness in Canada is estimated at over \$50 billion per year. This includes health care costs, lost productivity, and reductions in health-related quality of life.

4.5 Environmental

Food waste is also a serious environmental concern. Food waste makes up a significant portion of what goes into Canadian landfills. Reducing the amount of food that goes into landfills is part of the solution to reduce organic waste that contributes to GHG emissions and our ever-increasing environmental crisis. Diverting more food to families helps reduce an ever-increasing food insecurity crisis, and increasing the amount of organic, non-edible food that goes back to farms for on-farm composting keeps the food value supply chain more sustainable and increases the efficiency of our circular food supply chain. This is especially important as farmers are being mandated to reduce nitrogen levels in their farming practices 30 percent by 2030 increasing their reliance on more organic materials for fertilizer to keep growing the food crops that sustain us.

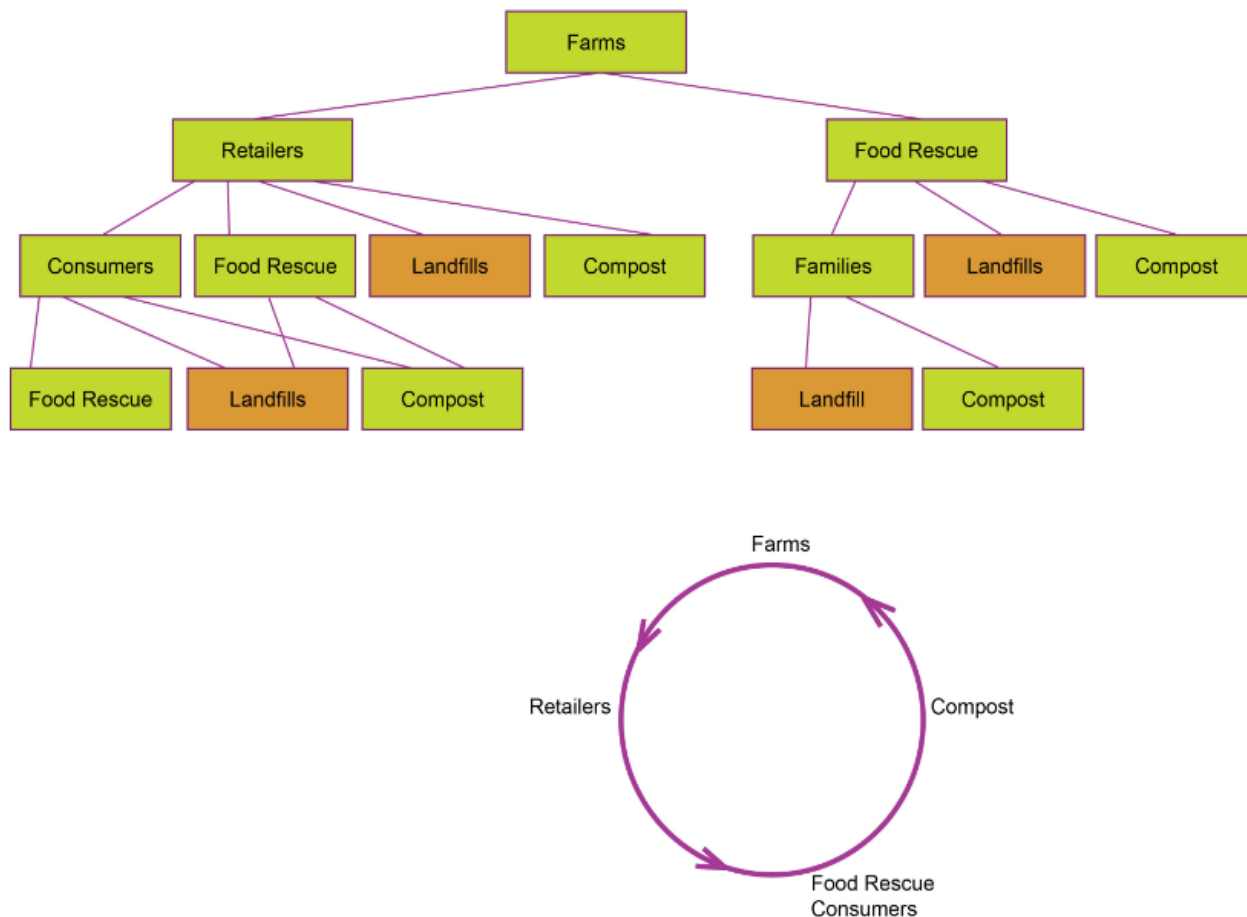


Figure 1: flow chart

Food in a linear value chain has five main components: farms, retailers, consumers, food rescue organizations, landfills, and compost facilities.

Significantly reducing or eliminating food waste from going into landfills would create a more efficient circular food value chain resulting in more food going to families and less to landfills.

Three of the main components of the food value chain are retailers and food rescue organizations (which we will focus on):

4.6 Retailers

Retailers operate in a consumer driven marketplace and primarily sell produce and packaged food. Typically, they have a 1-3% profit margin and are subject to the demands of consumers. Because of their unique position at the center of the supply chain, they have a lot of power to influence food waste reduction decisions – yet they face a number of unique challenges. Consumers demand a large variety of high quality of food be readily available at a low-cost adding strain to inventory management and food purchasing. Additionally, adjusting or dynamically changing stocking practices or product sizes is challenging – especially when those practices are intricately tied to their brand identities. High customer standards for freshness lead businesses to dispose of safe, edible food based on a perception that is past its prime. When the COVID-19 pandemic struck, retailers experienced sudden demand surges and struggled to adjust – while sales have since leveled off at more typical levels, changing consumer preferences has led many to experiment with curbside pick-up and delivery adding to their overhead.

Retailers generate 10.5M tons of surplus food, nearly 35% of which goes to landfills or is incinerated as waste. Most comes from produce (32.6%), dairy & eggs (29.3%), and dry goods (14.8%), and nearly half is caused by concerns or confusion over freshness date labels. Just over 30% of food waste in grocery stores goes to landfill, but 19.5% – more than any other sector – is given as donations to those struggling with food insecurity.

While many food retailers donate food to food rescue organizations, some cite a variety of reasons for not donating food. These include:

- Lack of space for food rescue organizations to store large volumes of donated food (especially for meats and other foods requiring refrigeration)
- Rising transportation costs
- Low volumes of waste due to efficient inventory control measures
- Inconsistent regulations across provinces and fear of liability should someone get sick from food they donate

It should be noted that many retailers do donate surplus food to food rescue organizations and send non-consumable food back to farms for composting or livestock feed. While there is an opportunity to increase the number of retailers who do donate food and a willingness on their part, it requires a lot of coordination, support, time, and other resources to make that happen.

4.7 Farms

Farms supply retailers with produce but also donate excess crops, or crops specifically grown for food rescue organizations, directly to food banks themselves. Transporting this donated food is often done at their own expense. ECCC is mandating a 30% reduction in Nitrogen used in fertilizers and pesticides by 2030 resulting in increased reliance of on-farm composting practices. Food rescue organizations often return non-edible food back to farms for compost or livestock feed. Many retailers also send non-consumable food back to farms for compost or feed, but often send it in the cardboard and plastic it was packaged in. This results in farms having to dispose of or recycle excess plastic and cardboard at their own expense, which is often higher because of geographic isolation and distance from recycling facilities. Like retailers, farms often operate on very narrow profit margins making them vulnerable to rising fuel and transportation costs, in addition to weather and other taxes and tariffs on crops.

4.8 Food rescue organizations

Food rescue organizations encompass everything from large food banks with storage facilities, paid staff, and offices to small groups of volunteers who operate out of vans distributing food they rescue from restaurants to distribute directly to churches, the homeless, elderly, and other vulnerable members of the community. They also play an important role in diverting consumable food from landfills.

For purposes of this study, we focused on traditional brick and mortar community food banks as they have physical locations, addresses, websites and support staff where many others tend to be mobile, staffed by just a few volunteers and do not have consistent hours of operations so do not track and measure their efforts.

5 Challenges

Food rescue organizations operate independently under different jurisdictions and rules. These primarily non-profit organizations are under-resourced and if they do measure and track the amount of food they distribute to families or divert to landfills, they have different methods for collecting data to measure social and environmental impact. Also, methods of measurement are inconsistent. Some measure food given

away by weight, some measure by number of meals, while most don't measure waste, or at least make that data public, out of concern that publishing their own food waste volumes may lead to negative public perception and possible reduced donations. Food rescue organizations are also spread out geographically, making it harder for them to connect, collaborate and share resources or best practices.

Other significant challenges to improving supply chain efficiency and circularity are:

- Volunteer driven. Limited paid staff to perform duties above and beyond their organizational objectives of getting food and giving food away
- Limited space for food storage, especially food requiring refrigeration
- Limited access to their own transportation generally relying on donors for delivery as well leading to inventory control challenges
- Transporting food waste back to farms for composting is also a challenge and often done at the expense of farms
- Rural food banks have extremely limited hours of operation and are often operated by non-profit and charities, such as The Salvation Army or churches, that provide a variety of other services to vulnerable community members
- Geographic isolation adds costs to receiving donations and distribution to clients adding inefficiency to the value chain and the shelf life of food
- Pandemic put some small, mobile and independent food rescue organizations out of business due to added logistical challenges and cost of operating
- Siloing, extremely limited human resources and the demands of simply acquiring and distributing food results in networking, sharing best practices and other resources extremely difficult
- Food rescue organizations operate independently under different jurisdictions and rules
- Tend to operate as non-profits or charities which are under-resourced and may have different methods for collecting data to measure social and environmental impacts. Food rescue organizations are also spread out geographically, making it harder for them to connect and collaborate
- No unified, consistent and agreed upon metric for measuring food given to families, donations, and waste
- High demand combined with low supply in the Territories combined with geographic isolation of small rural communities results in significant infrastructure challenges with collection, transportation and distribution
- Some organizations, such as Second Harvest, serve western provinces but have a head office in Ontario resulting in one organization operating in multiple jurisdictions

6 Opportunities

Significant challenges within the food rescue supply chain means there are significant opportunities as well to increase value chain circularity resulting in more edible food going to families, non-edible food to farmers for composting, and less to landfills where it contributes to GHG.

These include:

- Working closer with First Nations communities in the spirit of Reconciliation to reduce rampant food insecurity
- Regulatory and legislative. Governments at all levels need to look at policies that support and enhance efforts to improve the circularity of the value chain and reduce barriers that contribute to inefficiencies. This would include policies that encourage retailers to donate food and protect them from concerns around liability as well
- More unified and consistent policies and legislation to support food rescue efforts at all levels of government
- Proactive investment at the municipal level to increase the amount of food that goes to members of their community, decreasing the amount that goes to local landfills. This would yield a return on investment by reducing use of landfills and increasing economic productivity lost due to the impact of food insecurity via physical and mental health
- Increased public education (such as LFHW) that create awareness of the social, economic and environmental impact food waste has on communities and promote activities and behaviours that can reduce food waste
- This could also result in consumers creating more upward pressure on government and businesses to be more active in food rescue efforts and increase donations to food rescue organizations by the public
- Use of technology. Food rescue organizations such as Loop and Second Harvest have implemented the use of apps that bring donators and donees together
- Increased recognition of farms and retailers that donate food. For example, Second Harvest's annual report lists companies and organizations that donated 100,000+ to 10,000 lbs+ of food. In the competitive marketplace food retailers operate in, good corporate citizenship amongst consumers has significant public relations benefits
- Creating universally agreed upon methods for measuring rescued food that goes to families, food that goes back to farms for composting and food that goes to landfills to accurately measure GHG emissions and using the data to justify better legislation and fiscal investment to increase more efficient circular economies of food

7 Summary of findings

We identified 403 food rescue organizations across the western provinces and three territories. We contacted each of them to ask:

What the was weight of food your organization collected and distributed?

What percent was perishable?

What was the approximate monetary value of food distributed?

How many kilograms of GHG did you prevent by keeping food from landfills?

The response rate was too low to accurately quantify the answer to these questions. Inconsistent units of measure, if measured at all, created secondary challenges. But based on the responses we did receive:

Overall Response Rate – 8%

| Province/ Territories | Food Waste Diverted (kgs) | No. of Orgs. | Food Waste Diverted (in \$ Value) | No. of Orgs. | GHG Emissions Averted (CO 2 eq kg) | No. of Orgs. | Time Period |
|--------------------------|------------------------------|--------------|---|-----------------|--|-----------------|-------------|
| Alberta | 167,633,455 | 37 | 420,391,453 | 20 | 7,370,315,588 | 11 | 2016-2022 |
| British Columbia | 10,701,576 | 8 | 12,807,971 | 3 | 1,886,006 | 2 | 2016-2022 |
| Northwest Territories | 136,601 | 1 | 778,626 | 1 | — | — | 2021-2022 |
| Saskatchewan | 1,319,508 | 6 | 3,474,665 | 2 | — | — | 2020-2021 |
| Yukon | 70 | 1 | 320,000 | 1 | 318 | 1 | 2022 |
| Total | 179,791,210 | | 437,772,715 | | 7,372,201,912 | | |

8 Research Methodology



8.1 Challenges



8.2 Opportunities



Identifying secondary links in the food rescue supply chain to ask these same questions, such as restaurants and hotels, would take significant resources and likely yield even less data as they are not likely to track it, but also exist in a volatile business sector where the failure rate is very high. Anecdotally however, we have been able to identify a more accurate picture of the current landscape of the food rescue value chain as well as identified both challenges and opportunities to move away from a linear food rescue value chain and close to a circular and more efficient supply chain. Significant opportunities exist for businesses, agriculture, all levels of government and a variety of non-profit and charitable organizations supporting vulnerable populations to collaborate, share best practices and resources to support food rescue organizations. This has obvious short term benefits such as fighting hunger and food insecurity, but secondary and long term benefits culturally by working with and supporting diverse communities and cultures, increased physical and mental health benefits for communities by better access to nutritious food, better academic performance of children otherwise diminished because of food insecurity and economic benefits due to decreased loss of productivity in the DGP otherwise lost due to diminished mental and physical health. Lastly of course, minimizing or eliminating altogether, the environmental impact of food waste is critical. Fundamentally, food is an extremely valuable commodity. Recognizing its true value, knowing how much is wasted, resolving challenges, and building on opportunities is a key step in maximizing the value of food. Public education, increased awareness, and collaboration amongst a variety of stakeholders is also critical. Simply put, we need to move away from a linear food value supply chain where an important commodity like food is wasted and move towards a circular model that increases the amount of food that feeds families to negate an escalating social crisis and less to landfills where it contributes to GHG and an escalating environmental crisis.