NATIONAL IDENTIFICATION OF COMMUNITY FOOD ORGANIZATIONS

NEEDS AND SHORTFALLS IN SUPPLY VERSUS DEMAND 2019 TO 2021

SECOND HARVEST FOOD RESCUE

VCM International

ACKNOWLEDGEMENTS

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Accessible from: www.SecondHarvest.ca/Research

Second Harvest is Canada's largest food rescue organization and an expert in perishable food recovery. Every year we are expanding our network to include more farms, manufacturers, distributors and retailers. We work with hundreds of businesses across the food supply chain, reducing the amount of edible food going to waste, which in turn stops millions of pounds of greenhouse gases from damaging our environment. The food Second Harvest recovers is redirected to social service organizations and schools, ensuring people have access to the good food they need to be healthy and strong. Second Harvest is a global thought leader in preventing food loss and waste, and continually innovates processes and shares methods, to create a better future for everyone.
www.SecondHarvest.ca

Value Chain Management International (VCMI) has authored/co-authored several publications on food loss and waste and is a leading public and industry voice in bringing awareness to the opportunities and solutions surrounding food waste reduction, traceability, and the environment. VCMI measures waste within the overall analysis of food systems to create pragmatic and sustainable solutions for businesses and industry organizations along the value chain. VCMI applies specialized value chain diagnostic tools to detect where waste occurs and to determine how to eliminate it. VCMI then participates in the implementation of new practices to solve the issues and ensure successful outcomes.
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EXECUTIVE SUMMARY

The Avoidable Crisis of Food Waste (Second Harvest & VCMI, 2019) identified that a staggering 24.6 billion lbs (11.2 million metric tonnes) of avoidable food loss and waste occurs across the Canadian supply chain every year. Much of this food loss and waste is avoidable, edible and could be recovered or redistributed.

Second Harvest is Canada's largest food rescue charity, with a dual mission of environmental protection and hunger relief.

Second Harvest redistributes nutritious, unsold food from across Canada to charities, non-profits and Indigenous communities in every province and territory. Their free, essential service helps nourish people through school programs, seniors' centres, shelters, food banks, and regional food hubs, while preventing dangerous greenhouse gasses from entering the atmosphere.

This report details the results of research conducted on charities and non-profits supporting people with food in 2019 and 2021. The purpose was to understand the amount of food support being provided to Canadians and to aid the national expansion of Second Harvest.

The 2019 research identified 61,310 organizations that may use food as part of their programming; this number includes 15,207 schools. The 2019 and 2021 research surveyed community organizations' level of need in terms of regional location and food type, and gaps between the supplies of foods and beverages that they were able to distribute versus the demand for foods and beverages that exists amongst vulnerable populations across Canada.

The analysis and initial reporting of data gathered in late 2019 was completed less than a month prior to the COVID-19 pandemic occurring in March 2020. The release of the report was halted due to the pandemic.

After a year of crisis management, the charitable sector has transformed significantly. The purpose of the research conducted in 2021 was to estimate changes in demand that occurred among vulnerable populations as a result of the COVID-19 pandemic, and the impact that these changes had on the volume and type of food handled by charitable and not-for-profit organizations providing food to vulnerable populations, along with the shortfalls between supply and demand.

The research identified that significant increases in demand for foods and beverages occurred among the Canadian populace following the onset of the COVID-19 pandemic in March 2020. The median number of people served by community food organizations increased by 72 percent, from 160 to 275. The estimated total volume of food distributed outside of schools' student nutrition programs increased by 61 percent from 6.19 billion lbs to 9.99 billion lbs. With the inclusion of schools, total post-COVID pandemic national needs equated to 10.45 billion lbs of foods and beverages. At $3.14/lb, the value of this food equates to $32.85 billion. While needs increased, the overall national shortfall between community food organizations' supply and demand in fact decreased from 319 million lbs to 162 million lbs, due to unprecedented support from public and private sources.

The research also identified the transitions that had occurred among community food organizations in response to increased needs and an operating environment shaped by COVID-19 regulations and circumstances. Some organizations were forced to close (including many meal production kitchens), five percent of 2021 respondents established food distribution programs, and other organizations transitioned to distributing food vouchers in place of food. The respondents whose programs pivoted the most in reaction to increased demand, and who experienced the greatest comparative increase in volume distributed, are typically community development organizations.

The analysis concludes by applying the same methodology applied at the national level to estimate changes in volumes of foods and beverages distributed and shortfalls in supply versus demand that was experienced by community food organizations at the regional level. For reasons cited in Sections 4.3 and 5.0, these estimations are moderately higher and less robust than the national estimates described above. The primary purpose of the regional analysis was to provide direction in terms of the comparative regional effect of the COVID-19 pandemic on increasing the demand for foods and beverages across the charitable non-profit sector in relation to population size and supply.

The only region in which shortfalls between supply and demand for foods and beverages by charities and non-profits did not diminish was Quebec. The ability to respond to the sudden and significant increase in demand for hunger relief is a testament to the unprecedented support exhibited towards community food organizations. Financial donations, government programs and grants enabled community food organizations to supplement the donation of foods and beverages with products acquired from processors, farmers, the seafood industry, etc. Survey respondents are concerned that this support will not be sustained for the duration of the COVID-19 pandemic.

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1. INTRODUCTION

Each year, 24.6 billion lbs, valued at $49.5 billion, of avoidable food loss and waste occurs in Canada, according to Gooch et al (2019). At the same time, it was estimated that 1.2 million households were food insecure in 2019 (Statistics Canada, 2019). Despite the fact that interventions are in place to provide some supports (via food banks, meal programs and student nutrition), the food charity and non-profit sector is disjointed and often not easily accessible. Due to fresh foods' perishability, it can be challenging for the sector to provide healthy foods, such as fresh produce and proteins, to those in need. At the same time, there is enough excess edible food to feed Canada's food insecure populations and help support other social service organizations that use food in their programming.

Second Harvest builds community by connecting organizations like school nutrition programs, meal programs, soup kitchens, pantries, and food banks to their local food businesses, augmenting existing programming with healthy food. In addition to addressing food insecurity, they play a vital environmental role in keeping edible food out of landfill, by preventing millions of pounds of carbon dioxide and methane from entering our atmosphere and contributing to the negative impacts of human-made climate change.

Second Harvest has a social, environmental and economic triple bottom line that is unique in the charitable and non-profit sector. By ensuring surplus food is directed to community organizations, food rescue can help the non-profit and charitable sector save significantly on food purchases. These savings can be redirected to other programming, such as training, daycare, education, activity, and sport.

To guide and support the expansion across the country, Value Chain Management International (VCMI) was commissioned to achieve these two goals:

1. Identify and map the locations of organizations providing foods and beverages to vulnerable populations across Canada; and
2. Survey these organizations to identify their needs and capability gaps.

The onset of the COVID-19 pandemic necessitated surveying the same organizations in 2021 to identify the effect the COVID-19 pandemic had on their ability to meet their clients' food demands.

This report details the organization identification, mapping and survey methodologies, and the subsequent research results.

2. METHODOLOGY

The following section describes the research methodologies that VCMI employed in 2019 and 2021.

The 2019 methodology was designed to identify community organizations that currently, or could, use food as part of their programing and services, then quantify their food needs and the extent to which they are able to meet those needs.

The 2021 methodology was designed to quantify changes in demand for food that had occurred amongst vulnerable populations since the onset of the COVID-19 pandemic in March 2020, and the ability of community food organizations to meet those needs.

Subsequent sections detail the analysis of resulting data and scenarios completed to identify gaps between community organizations' capabilities and their capacity to meet the needs of the communities that they served in 2019. These are then compared to changes in demand for food that community organizations reported in 2021, and these organizations' ability to meet their communities' food needs.

2.1 ORGANIZATION IDENTIFICATION (PRE-COVID-19, 2019)

When identifying organizations that provide food to vulnerable populations, there was a challenge: many organizations do not explicitly identify whether the distribution of food to vulnerable populations is their primary purpose, or whether they provide community and social services where food is used as a means to support their clients and encourage the use of services. As such, they provide food without explicitly saying so. There are, of course, many organizations that do explicitly direct their efforts towards the provision of food; for example, soup kitchens, foodbanks, and homeless shelters.

For the 2019 study, VCMI employed a four-phase approach to identify as many organizations as possible that use food and/or food vouchers as part of their programming, to provide a more comprehensive view of how food is used in the charitable and non-profit sector.

The four phases (described in detail below) were:

1. Access publicly available data on charities from Canada Revenue Agency (CRA)
2. Conduct extensive internet search, networking and building a database
3. Include organizations provided by Second Harvest's database
4. Conduct survey and incorporate survey responses and referrals

Table 2-1 below summarizes the 81,355 organizations from across Canada that were identified as those that do, or could, use food in their programs, divided up into the four main sources of data.

Table 2 1: Number of Organizations Identified and Data Source

Data Source	Organizations Identified
CRA	53,610
VCMI search	25,105
Second Harvest	1,639
Survey responses/referrals	1,001
TOTAL	**81,355**

The methods used to capture data from each of these four sources is described below.

2.1.1 CRA DATA

VCMI requested information from CRA on charities from all provinces and territories in Canada. The organizations spanned a variety of social welfare sectors. The query submitted to CRA forms Appendix A. The CRA request yielded over 75,000 records, which VCMI sorted and then eliminated duplicates and irrelevant entities. This reduced the number to approximately 53,600 relevant entities; the sorting process is referred to below.

The data requested from CRA included programs and services provided by the charities. This information is coded according to specific categories established by CRA, each of which relate to different services and programs offered to a specified community. Certain programs and services specifically relate to food. This was achieved by searching the CRA database for organizations that had included the words "food," "meal," "repas," "cuisine," or "aliments" in their program descriptions.

In consultation with Second Harvest, categories of programs viewed as having the potential to use food and/or food vouchers were established. These categories, along with information within the CRA database that gave percentage data concerning their overall programming, were applied to select the charities most likely to be using (or could be using) food or food vouchers. A total of 910 organizations were found to have categorized their programs outside of the categories agreed with Second Harvest, though still had "food" in their program description. These were therefore included in the final master database.

To extract any organizations that predominately worked outside of Canada, the CRA database was searched for program descriptions that contained terms such as "international," "developing," "Africa," or "India." Other searches and queries were also conducted to remove any duplicate organizations, namely by comparing organization registration numbers, names and addresses.

2.1.2 EXTENSIVE SEARCH

VCMI conducted an extensive internet search for organizations such as NGOs, not-for-profits and schools that were unlikely to be included in the CRA database. These were not registered charities, yet still likely to use food within their programming. Examples of the types of entities that were sought are listed below:

- Health services (including social work services; clinical services)
- Community development centres (including community centres and children and youth programs)
- Before- and after-school programs (including student nutrition)
- Faith-based organizations
- Homeless shelters (including drop-in meal programs)
- Day programs for both adults and people with developmental disabilities
- Drop-ins for both people experiencing homelessness and clients with mental health challenges
- Mental health programs (including harm reduction programs)
- Homework clubs
- Recreational and social clubs (including retirement centres, programs for the physically disabled)
- Multiservice centres (including support groups)
- Respite facilities (including medical respite centres and beds for people experiencing homelessness)
- Social service facilities (including medical, school-based, addiction centres, job training, justice, and corrections)
- Outreach organizations (including newcomer/immigrant settlement, low income and supportive housing)
- Wellness centres (including crisis intervention)
- Clinical services (including residential treatment and all health-related programs)
- Public institutions (including schools, libraries, community centres)

To help direct the search, VCMI's research team identified 160 internet database resources, and also approached individuals involved in social programs with whom VCMI had a prior relationship. The country was divided into regions, and the VCMI team examined the databases and other resources associated with those regions, recording each relevant organization name, address, postal code, contact name, email address, and phone number. This process was systematically applied across the country and yielded over 24,000 records that were added to the master database.

In Newfoundland and Labrador, the team engaged with the Kids Eat Smart Foundation (KESF). KESF used their extensive network to identify approximately 400 organizations in that province, including approximately 150 schools, which were added to the master database and cross-referenced to prevent duplication. A national survey (described below) identified an additional 63 previously unknown organizations. These records were also cross-referenced by name and address against the full database to prevent duplication.

2.1.3 SECOND HARVEST DATA

Second Harvest provided lists of organizations that they work with across the province of Ontario which use food in their programing. These were added to the master database, with duplications from VCMI's research findings (detailed above) or within the CRA-sourced data removed.

2.1.4 SURVEY DISSEMINATION

In 2019, to reach as many and as varied respondents as possible, links to the online survey were disseminated across the country to organizational contacts contained in the master database. The team also reached out to umbrella organizations (such as Ontario 211, Salvation Army, and Food Banks Canada), religious councils, and service providers (such as FoodMesh). These organizations circulated the survey links through their membership and networks. KESF was key to the dissemination of the online survey in Newfoundland and Labrador. These distribution efforts helped ensure that responses were captured from a variety of large, medium and small organizations serving vulnerable populations across Canada.

While the primary purpose of the survey was to gather data on organizational needs and gaps relating to food and overall capacity to service their client base, the final survey question asked respondents if they knew of an organization in their local area that uses food in its programs and is not well known.

In 2021, two surveys containing questions regarding the number of clients served, the volume of food handled, and their ability to meet demand were distributed via a number of routes. Closely matching questions contained in the 2019 survey, the surveys were designed to capture the data required to identify changes in the number of people served by organizations across the country that are actively engaged in providing food to vulnerable populations.

The first 2021 survey was distributed in January to organizations who had received food from the Surplus Food Rescue Program (SFRP). The SFRP initiative enabled highly perishable nutritious foods, which due to closure of the foodservice sector were surplus to market requirements and would otherwise have gone to waste, to be redistributed to vulnerable populations across Canada. Respondents were asked to indicate the number of people they served prior to the onset of the COVID-19 pandemic, the number of people they now serve, the increase in demand that they experienced, and their ability to meet that demand. The second 2021 survey, distributed in February 2021, sought additional information regarding the number of pounds of foods and beverages handled prior to COVID-19 and during the COVID-19 pandemic.

2.2 LOCATION AND MAPPING

2019 Survey Respondents

All organizations identified in the master database created in 2019 were allocated geospatial coordinates, using the Postal Code Conversion File (PCCF+) purchased from Canada Post. In some cases, these geospatial coordinates are approximate; for example, where the rural postal code or coordinates are directed to the postal forwarding station, not a street/block face location. This enabled the production of customized geospatial maps of organization locations and types, and allowed regional differences in organizations' capabilities, needs and gaps to be plotted.

The map that forms Figure 2-1 shows the location of respondents to the 2019 survey and who stated whether their organizations use food and/or food vouchers in their programming. The organizations which responded "yes" are represented by a green check mark. Those organizations which responded "no" to this same question are represented by a red "X."

2021 Survey Respondents

A total of 943 organizations responded to the 2021 surveys. As occurred in 2019, these were allocated geospatial coordinates. Of these 943 organizations, 141 (15%) had previously responded to the 2019 survey. Each respondent's location is shown below in Figure 2-2. The comparative analysis of 2019 and 2021 survey data forms Sections 3.6, 4.1, 4.2 and 4.3.

Figure 2 1: Map of 2019 Survey Responses

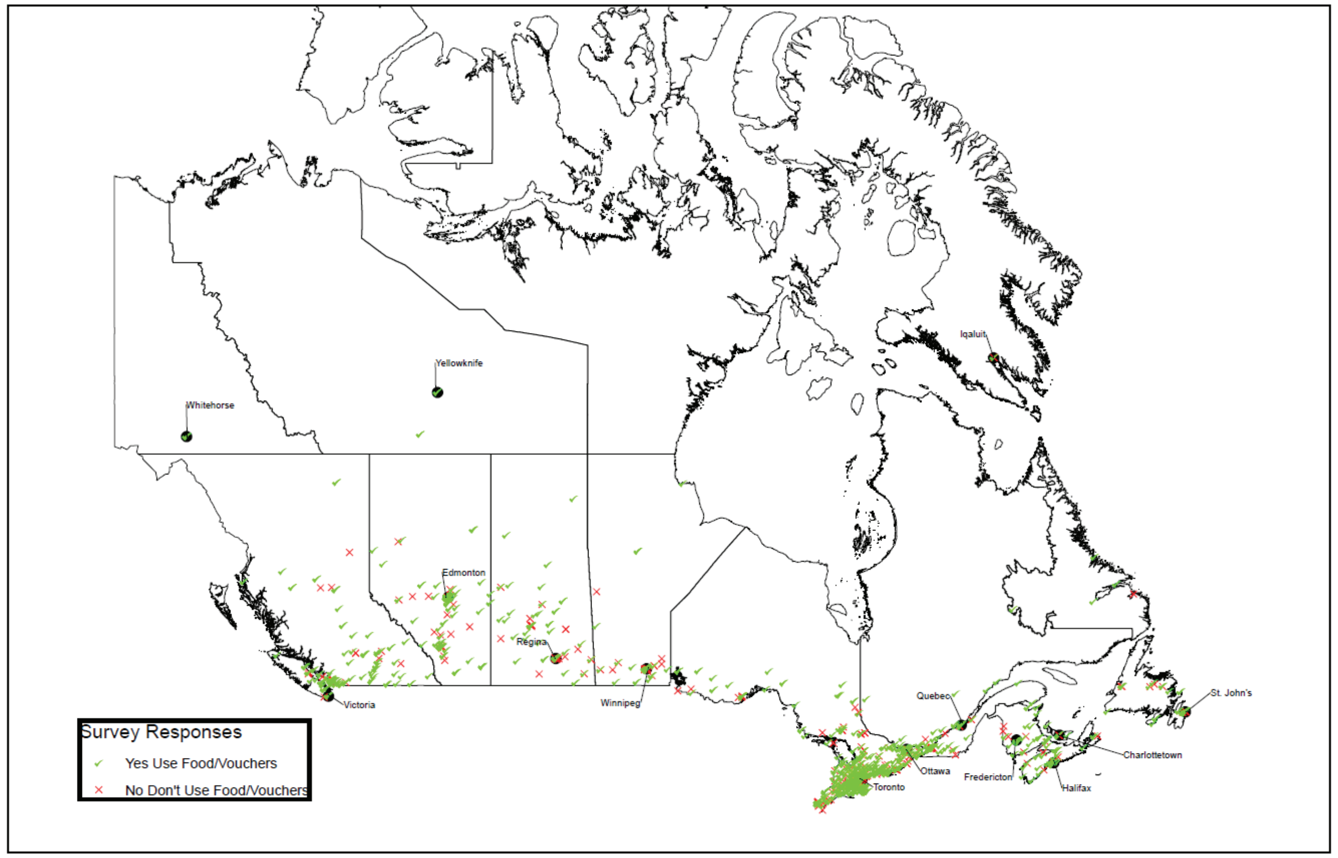
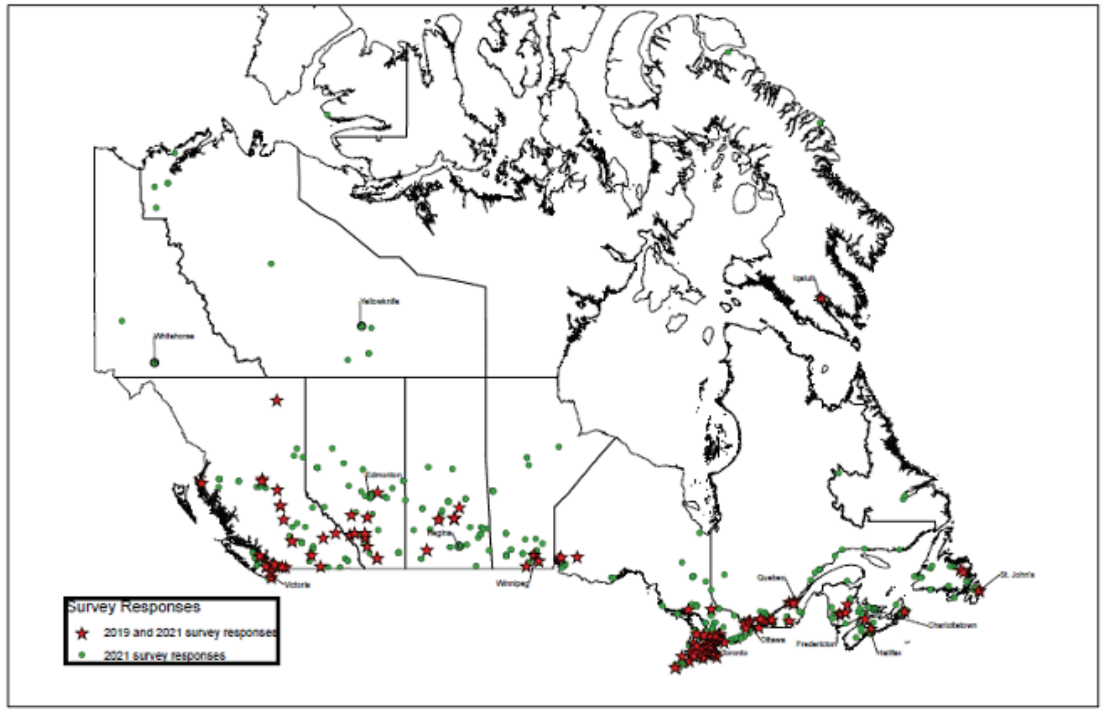


Figure 2 2: Map of 2021 Survey Responses



3. ONLINE SURVEYS – ANALYSIS

Although interventions are in place to address hunger by providing food (via food banks, meal programs and community student nutrition) through food recovery or redistribution, the food charitable and non-profit sector is disjointed and often not easily accessible.

In 2019, to quantify a community organization's food and beverage needs and the causal factors affecting their ability to meet those needs, VCMI targeted a sample of the 81,355 organizations identified during the mapping process. The organizations mapped and the organizations that responded to the 2019 online survey, as a proportion of identified organizations, form Appendix B. The organizations that assisted in the survey's distribution and capture of responses from across a broad range of geographies and programs are listed in Appendix D.

The concluding section of this chapter (Section 3.6) presents a comparative analysis of the 2021 and 2019 survey data, to illustrate the extent to which the COVID-19 pandemic impacted vulnerable populations across Canada and organizations providing foods and beverages to those individuals across Canada.

3.1 SURVEY REPRESENTATION (2019)

The 2019 survey received 1,577 responses. Figures 3-1 and 3-2 below show the proportion of organizations mapped and survey responses by province/territory, respectively. Figures 3-3 and 3-4 show the proportion of organizations mapped and survey responses by organization type, respectively. The results are shown numerically and as a percentage of a) the number of organizations identified, or b) the number of survey responses received. Organizations from Quebec and BC were underrepresented, while Ontario was overrepresented. To increase the representation from public institutions (primarily schools), the research team reached out to Breakfast Club of Canada (BCC) to ask for their input into the survey. BCC's extensive knowledge and data regarding school nutrition programs across the country provided the insight required to assess the food needs of these programs from volume and value perspectives.

A limited number of survey responses was received from community organizations in the Northwest Territories (n=4), the Yukon (n=3) and Nunavut (n=2). While the response rate was still proportionally representative of the national population, due to the small number of responses from these regions, combined with some respondents not having indicated the value of their shortfall, the estimation of both current food usage and shortfall, and the overall level of need may have been underestimated. The large population of food insecure households that have been reported in these regions (PROOF-Food Insecurity Policy Research, 2018) reinforces the assumption that the estimated charitable and not-for-profit food needs of Canada's northern territories that are presented in this report are conservative.

Figure 3 1: Mapped Organizations by Province/Territory

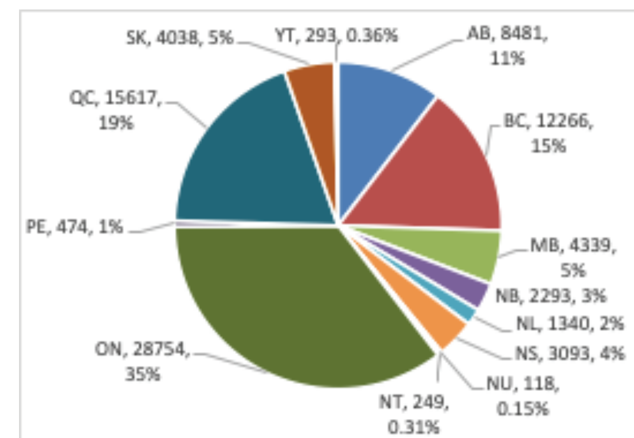


Figure 3 2: Survey Responses by Province/Territory

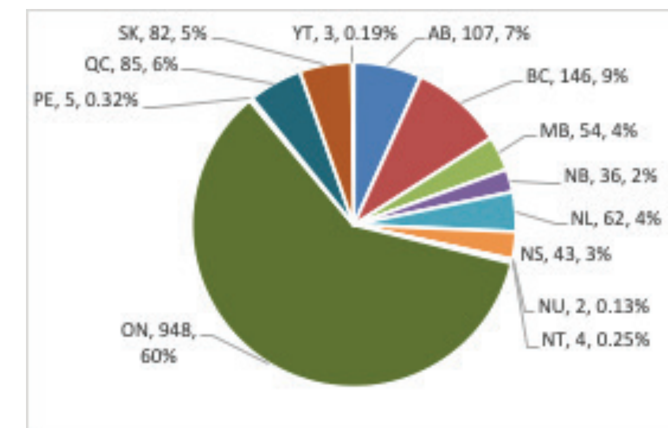


Figure 3 3: Mapped Organizations by Type

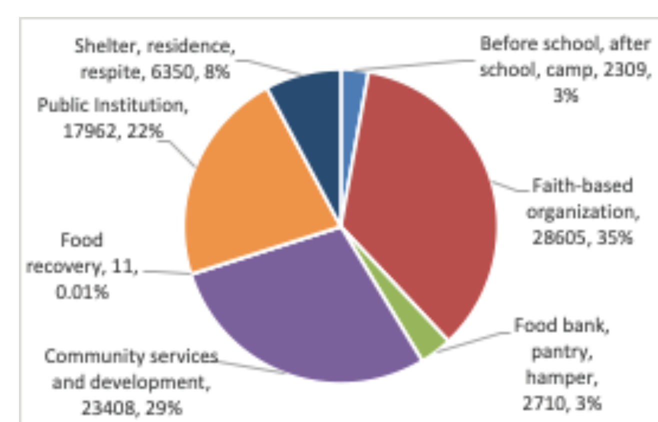
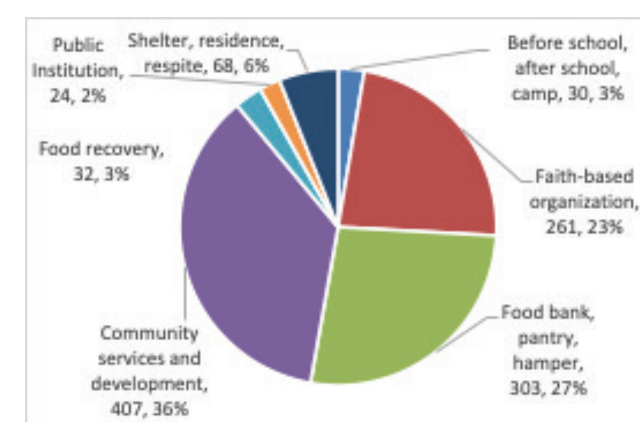


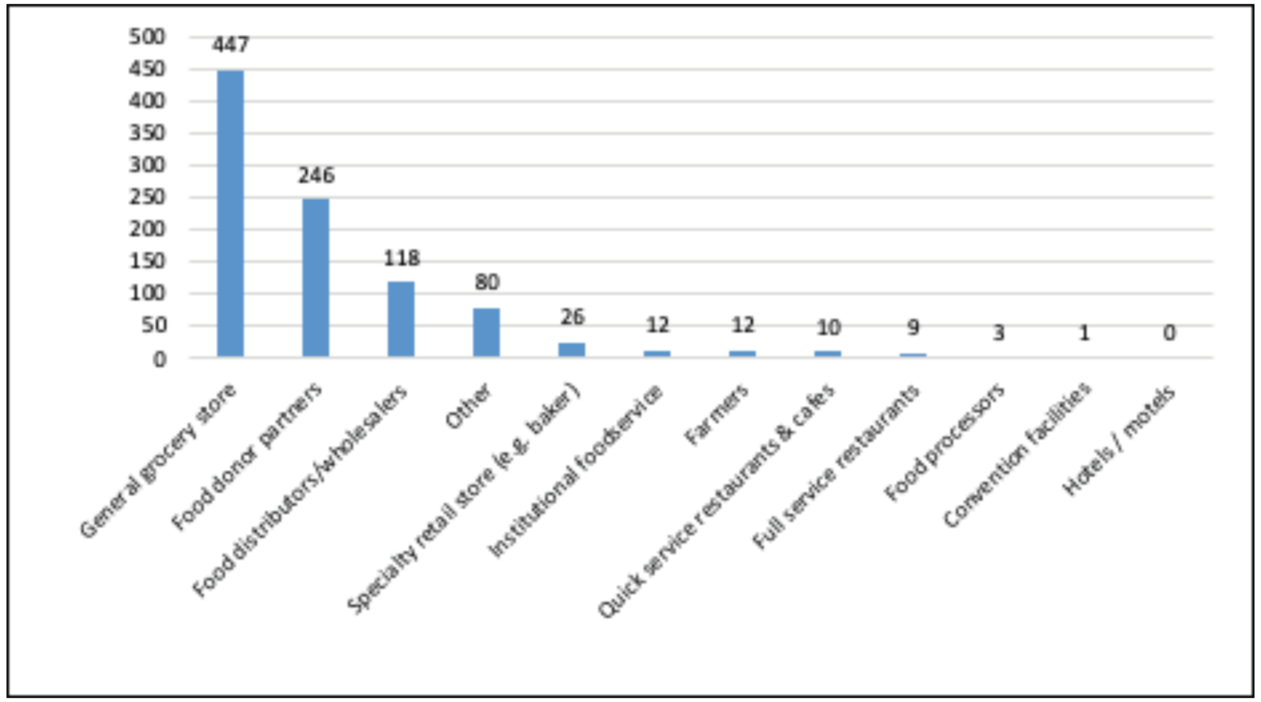
Figure 3 4: Survey Responses by Organization Type



3.2 SOURCE OF FOOD DONATIONS (2019)

Of the 1,299 survey respondents who use food as part of their programming, 964 identified their most important sources of food and information on food type, as can be seen in Figure 3-5 below. Overall, the most important sources of food for organizations reported in Canada are general grocery stores and food donor partners, such as organizations dedicated to food recovery/redistributions, and community food organizations that also distribute to their peers. The figure shows the count of respondents that reported each type of food source as their most important/primary source.

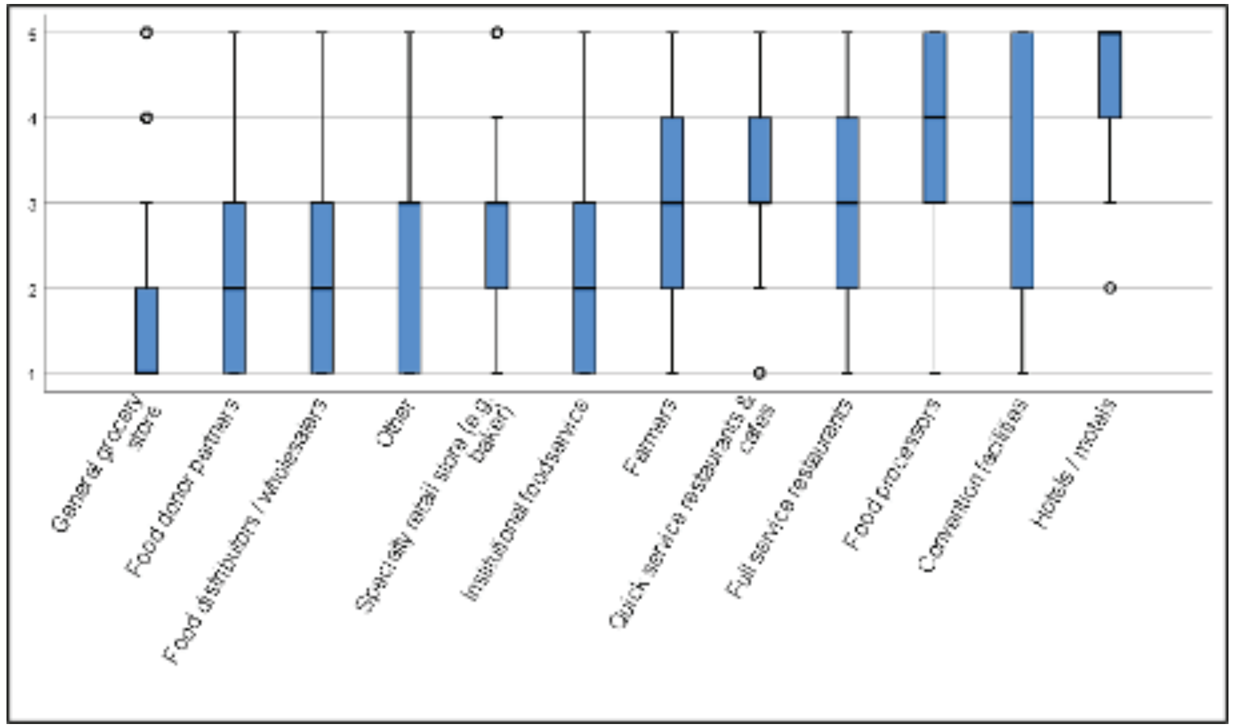
Figure 3 5: Primary Source of Food



Shown below in Figure 3-6 is the comparative importance of those same food sources. Respondents were asked to rank their most important sources of foods and beverages in order of the volumes they received from these sources, with "1" being most important and "5" the least important. The results presented below show that general grocery stores are the most important source of donated foods and beverages across the country.

Food donor partners (such as Second Harvest, who operates food recovery efforts including its Food Rescue App) are the second most important source of donated foods and beverages. These organizations are dedicated to food recovery/redistribution, and community food organizations which distribute excess food to their peers. Almost as important as food donors, in volume terms, are food distributors/wholesalers and institutional foodservice. The least important source of foods and beverages, on a volume basis, are hotels and motels. Food processors (which include packers and minimal processors of fresh produce) are the second least important source of foods and beverages on a volume basis. As in the case of Second Harvest, this may be due to food donor partners often acting as an intermediary between processors to the recipient of donated foods and beverages. The food currently collected by Second Harvest is, however, a tiny proportion of that which The Avoidable Crisis of Food Waste (2019) and Second Harvest's firsthand experience has shown to be available.

Figure 3 6: Most Important Sources of Foods and Beverages Based on Volume Received

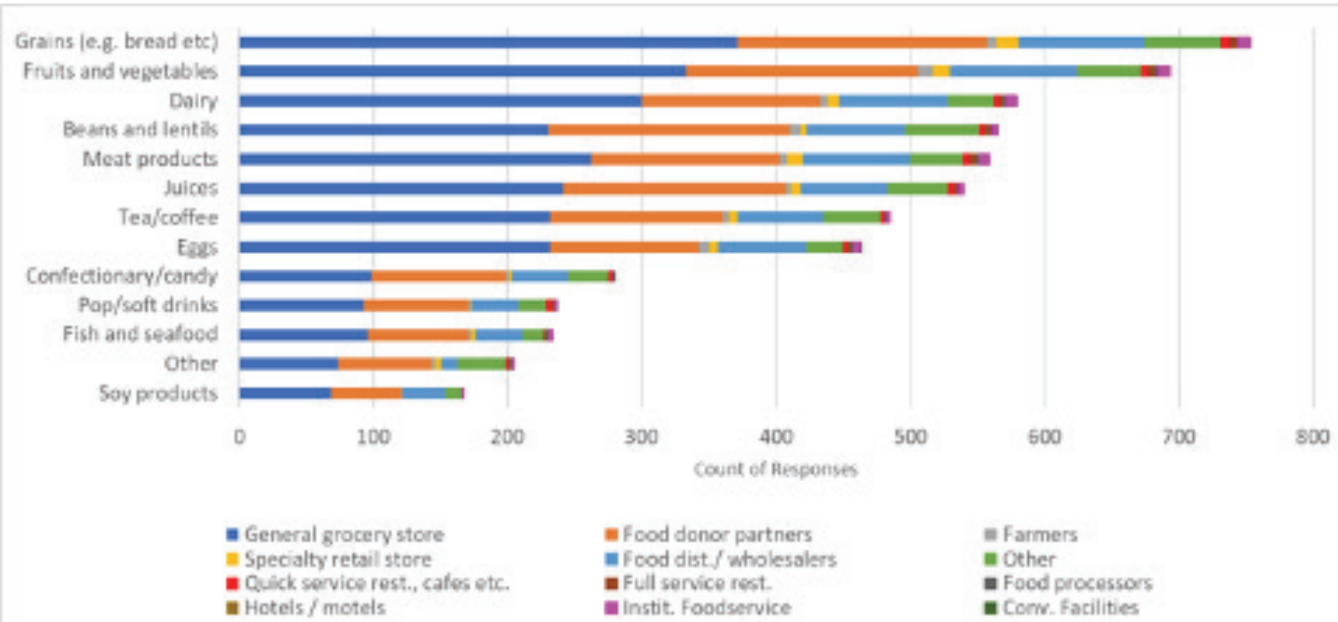


The above figure and subsequent box plots show the distribution of responses. The thick black line gives the median response — 50 percent of responses were above this point and 50 percent were below this point. The box gives the quartiles above and below the median (a quartile is 25% of the responses); therefore, this is the middle 50 percent of responses. The bars that extend outside of the box give the first and fourth quartile, while the dots indicate outliers in the data.

3.3 TYPE OF FOOD DONATED (2019)

Figure 3-7 below provides a count of the food types that organizations are receiving from their primary source. This does not imply quantity; it is just the types of food most commonly received from an organization's primary source. Organizations are mostly receiving grains from donors, such as bread, baked goods, pasta and rice; although a staple, this is not what is most needed by organizations. Prior studies (Gooch et al, 2019) identified that, in terms of food redistribution versus needs, bread is often an overly supplied item. During this research, individual community organizations indicated that the bread that they receive exceeds their needs on an almost daily basis. With no unmet needs for bread existing in their immediate area, excess typically goes to landfill.

Figure 3 7: Food Types Provided by Primary Source



3.4 REDISTRIBUTORS OF FOOD (2019)

Thirty-three percent of the 1,299 respondents who use food in their programs indicated that they redistribute food to other organizations. Not all those respondents identified as redistributors provided data on the quantity of food, beverages or meals that they redistribute. Further analysis of the data provided showed that each province/territory generally has a few large redistributors, along with several smaller organizations, which help each other out as needed and/or have the availability and capacity to do so. Results from prior studies (e.g. Nikkel et al, 2019), along with anecdotal responses, suggest that the relationships that exist between smaller redistributors and food recipients are often informal. Redistribution typically occurs when an organization has food that exceeds its needs, at which point it reaches out to known organizations to offer this excess. Transportation is then arranged. Not having established relationships and transportation arrangements in place interferes with the efficiency and effectiveness of these redistribution arrangements.

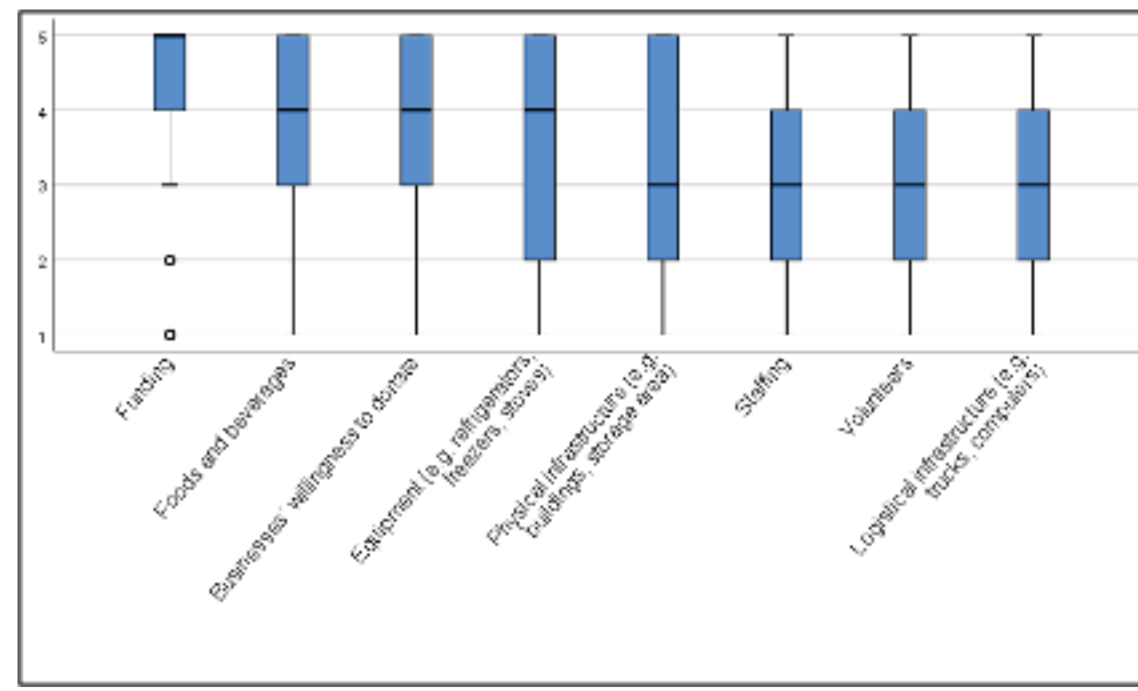
3.5 MEETING PROGRAM NEEDS (2019)

The 2019 survey asked respondents to identify whether they lacked the resources required to satisfy the needs of the vulnerable populations that they serve, and the extent to which any gaps in resources or capabilities impacted their organization's ability to meet client demands.

3.5.1 OVERALL RESOURCE NEED

Survey respondents rated, on a scale of 1 to 5 (1 = at ideal requirement, 5 = critical requirement shortage) the degree to which the increased availability of specific resources would enable them to better meet client or community demands that currently exceed their capability to provide. As can be seen in Figure 3-8, 75 percent of respondents ranked funding as a 4 or 5, indicating that it is the most important resource gap faced by organizations. The next greatest reported need is enough foods and beverages, and finding sufficient businesses willing to donate such. Seventy-five percent of respondents ranked these two factors as being between 3 and 5 in terms of their criticality for meeting clients' needs.

Figure 3 8: Ranking of Overall Resources Required to Meet Demands



Though the level of need is more organization specific than the first three resources gaps, equipment is the fourth most important resource gap experienced by organizations. This is because the specific equipment needs differ by organization. For example, some organizations do not have access to the transportation required to move items in bulk, especially if those items need to be refrigerated; other organizations do not have on-site refrigeration and/or food cooking and preparation equipment.

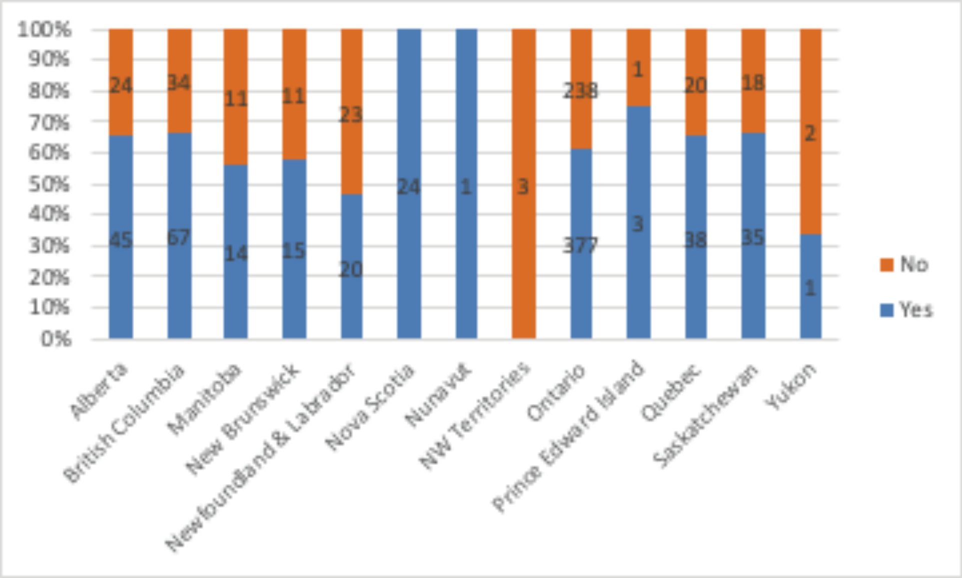
There was a wider range in the ranking of requirements for equipment, with 75 percent of respondents ranking between 2 and 5. Presumably, this and other less critical factors are largely outcomes caused by lack of funding. Lack of infrastructure is highly important to some respondents, although, with a median of 3, this is moderately important to most, compared to funding, access to foods and beverages, and businesses' willingness to donate. Lack of staffing, volunteers and access to logistical infrastructure are moderately important to all but a few respondents.

Two statistically significant differences in responses regarding resource gaps faced by organizations were identified when the data was analyzed in terms of their geographic location: 1) the need for physical infrastructure was significantly higher in British Columbia, and 2) the need for businesses willing to donate was significantly lower in Alberta. Other than these two instances, the median responses for all other resources did not differ significantly across the country.

3.5.2 FOOD AND BEVERAGE NEEDS

From a national perspective, in 2019, 62 percent of survey respondents stated they could meet their clients' food and beverage needs. The regions where fewer than 50 percent of organizations could meet their clients' needs for food were Newfoundland and Labrador, Northwest Territories and the Yukon. For contextual purposes, the total percentage and number of responses by province/territory are shown below in Figure 3-9.

Figure 3 9: Is Your Organization Able to Meet the Demand for Foods and Beverages? (By Province/ Territory) (n= 1025)

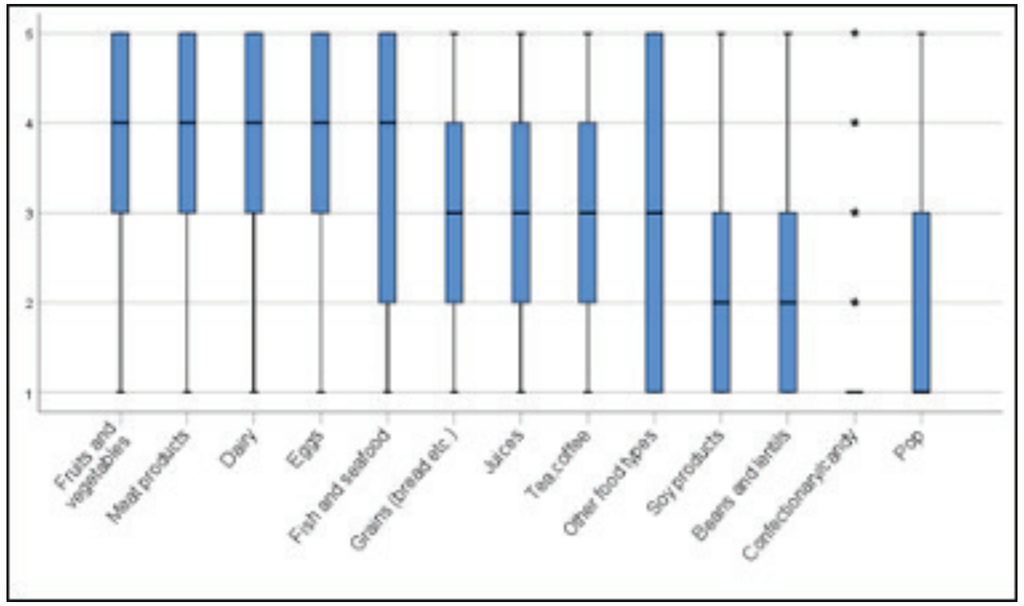


Of the 1,025 organizations respondents who in 2019 indicated whether they could meet demand for food, 877 respondents provided detailed data on foods and beverages, and volumes. These responses were used in the 2019 versus 2021 comparisons, which commence in Section 3.6.

3.5.3 FOOD TYPE NEEDS

Those organizations that are not able to meet the needs of their community were asked to rank the needs of specific types of food on a scale of 1 to 5 (1=minor shortage, 5=major shortage). The analysis of responses is presented as a box plot that forms Figure 3-10 below.

Figure 3 10: Comparative Importance of Gaps in Food Type (2019)



As can be seen, in 2019, considerable shortfalls were reported for fruits and vegetables, along with proteins, such as meat, dairy and eggs. These are items that are perishable and cannot be distributed without the existence of effective and efficient cold chains.

The lowest shortfall is for confectionary and pop items. As previously mentioned, grains (e.g. bread) are the food item most received by organizations; thus, not surprisingly, the reported need for grains is moderate and localized. This underscores findings identified by Nikkel et al (2019) where, due to ineffective redistribution capabilities, food shortages are often localized. Organizations located in one region may receive one category of donation that exceeds their need (e.g., hothouse tomatoes), while organizations located in a neighbouring region face shortages of those same foods.

3.6 COMPARATIVE ANALYSIS OF 2019 AND 2021 DATA

In Canada, the full impacts of the COVID-19 pandemic were first felt in March 2020. The following analysis uses this as the demarcation point for reporting pre and post the onset of the COVID-19 pandemic. The term "pre" refers to February 2020 and prior; the term "post" refers to March 2020 onwards.

Presented below in Tables 3-1 and 3-2 is a comparative synopsis of 1) the 877 responses to the 2019 survey from community organizations which stated that they furnish food to vulnerable populations, and which provided sufficient data on organization type, location, food usage, and shortfalls; and 2) the 942 survey responses received in 2021, which contained usable data on the same parameters. The information is presented in terms of organization type and geographic location.

Table 3 1: Organization Types

Organization Type	2019 (N=877)	2021 (N=942)
Before school, after school, camp	1%	3%
Community development	31%	31%
Faith-based organization	24%	17%
Food bank, pantry, hamper	35%	22%
Food recovery or redistribution	4%	4%
Public institution	2%	9%
Shelter, residence, respite	4%	13%

Table 3 2: Geographic Location

Province/Territory	2019 (N=877)	2021 (N=942)
Alberta	7%	8%
British Columbia	11%	13%
Manitoba	2%	10%
New Brunswick	3%	2%
Newfoundland and Labrador	4%	3%
Nova Scotia	2%	3%
North West Territories	0%	1%
Nunavut	0%	0%
Ontario	59%	37%
Prince Edward Island	0%	1%
Quebec	6%	14%
Saskatchewan	5%	7%
Yukon	0%	0%
Blank	0%	1%

In terms of organization type, as a proportion of total responses, in 2021, more responses were received from shelters/residences/respite organizations and public institutions (libraries, senior centres, schools); comparatively fewer responses were received from faith-based and food bank/pantry/hamper organizations. In terms of location as a proportion of total responses, in 2021, more responses were received from Quebec and Manitoba, and fewer responses were received from Ontario.

Of the total number of respondents to the 2021 survey, 785 provided comparative data on the number of clients to whom they provided food pre- and post-COVID-19, and 232 provided comparative data on pre- and post-demand for foods and beverages in volume or percentage terms. Due to not all respondents fully completing the surveys, and that the purpose of the 2021 surveys differed slightly, the number of responses presented in each analysis (n=x) do not equate to 100 percent of respondents.

It should be noted that differences between responses received in 2019 versus 2021 is partly a function of those organizations that remained open during the COVID-19 pandemic. The 2021 data is only provided by organizations that were operating in January and February of 2021.

3.6.1 CHANGES IN NUMBER OF PEOPLE SERVED AND PROGRAMS DELIVERED

Of the total 2021 respondents, 791 provided data on the number of people served pre- and post-COVID-19. The number of people being served by respondent organizations increased between 56 to 92 percent. As shown below in Table 3-3, subsequent analysis identified that the median number of people that they each served is 275. This is a 72 percent increase from the median of 160 clients served pre-COVID-19.

Table 3 3: Increase in People Served

	COMBINED (N= 791)
Total persons pre-COVID-19	5,373,820
Total persons during COVID-19	6,663,430
Median persons pre-COVID-19	160
Median persons during COVID-19	275
Percentage change of median	**72%**

The 2021 survey data illustrated the impact that the overall situation that resulted from the COVID-19 pandemic had on organizations' operations. Lockdowns and the limited availability of volunteers forced some organizations to curtail or redesign their programs. Kitchens which had once served clients on their premises transitioned to providing hampers and boxed meals to fewer individuals than they previously served. Many faith groups, such as churches, transitioned from distributing food to distributing food vouchers. Some schools transitioned from providing snacks to students to providing food for families.

The curtailing of church and in-school programs, along with the inability of kitchens to provide food to the communities that they previously served, placed added pressure on those organizations that were still able to serve the community. In response to this, as well as an overall increase in demand generally, approximately five percent of respondents to the 2021 surveys established food programs — within weeks they transitioned from distributing no food to providing food to hundreds of people. As shown below in Table 3-4, the organizations which experienced the greatest increase in demand for food (and therefore the comparative volume distributed) were those organizations categorized as community development. In the wake of an unprecedented increase in demand, more community development organizations became actively engaged in the provision of food post-COVID-19 than prior to the onset of COVID-19 in March 2020.

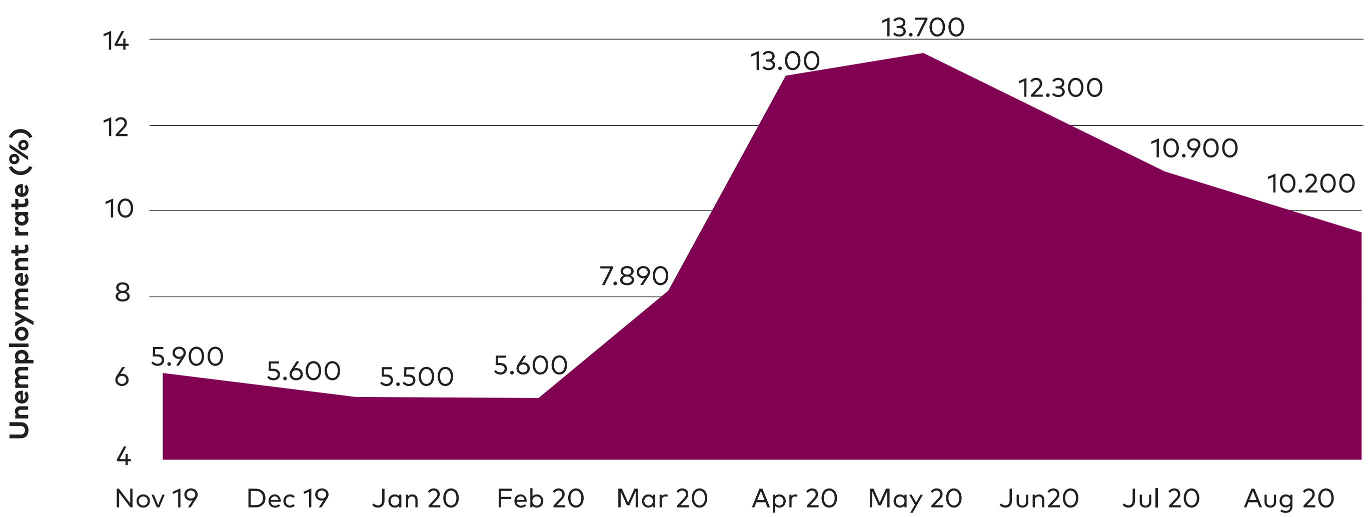
Table 3 4: Number of People Served: Pre- and Post-COVID-19

Organization Type	Pre-COVID-19	Post-COVID-19	Percentage Change
	Median # people served	Median # people served	
Before school, after school, camp	135	190	41%
Community development	155	335	116%
Faith-based organization	110	200	82%
Food bank, pantry, hamper	350	486	39%
Food recovery or redistribution	550	730	33%
Public institution	115	175	52%
Shelter, residence, respite	74	100	35%

As can be seen in the above table, the second highest increase in demand was experienced by faith-based organizations (+82%), followed by public institutions (+52%) and school associated programs (41%). Food banks, shelters/residence/respite organizations, and food recovery/redistribution organizations (+39%, 35% and +33%, respectively) were typically less impacted by the COVID-19 pandemic (in terms of the number of people served, and therefore the need to transition program design/delivery) in the wake of the demand that they experienced than community development organizations.

The factors that pre-empted the increase in demand experienced by community food organizations included a rise in unemployment and underemployment. Unemployment or underemployment naturally affects all household members — for every person unemployed or underemployed, another 1 to 3+ may become food insecure. As illustrated in Figure 3-11, according to the OECD (2020) and Statistics Canada (2020), in 2020, the number of unemployed people in Canada doubled between the first and second quarter of the year.

Figure 3 11: Canadian Unemployment



Source: Statistics Canada/CICE (2021)

This trend equates to over one million people becoming unemployed in less than three months (March to May 2020). The same amount of people may have found themselves underemployed. Based on 2021 survey data, it appears likely that charitable and not-for-profit organizations were providing food to 6.7 million or more people across Canada. This represents 18+ percent of the Canadian population.

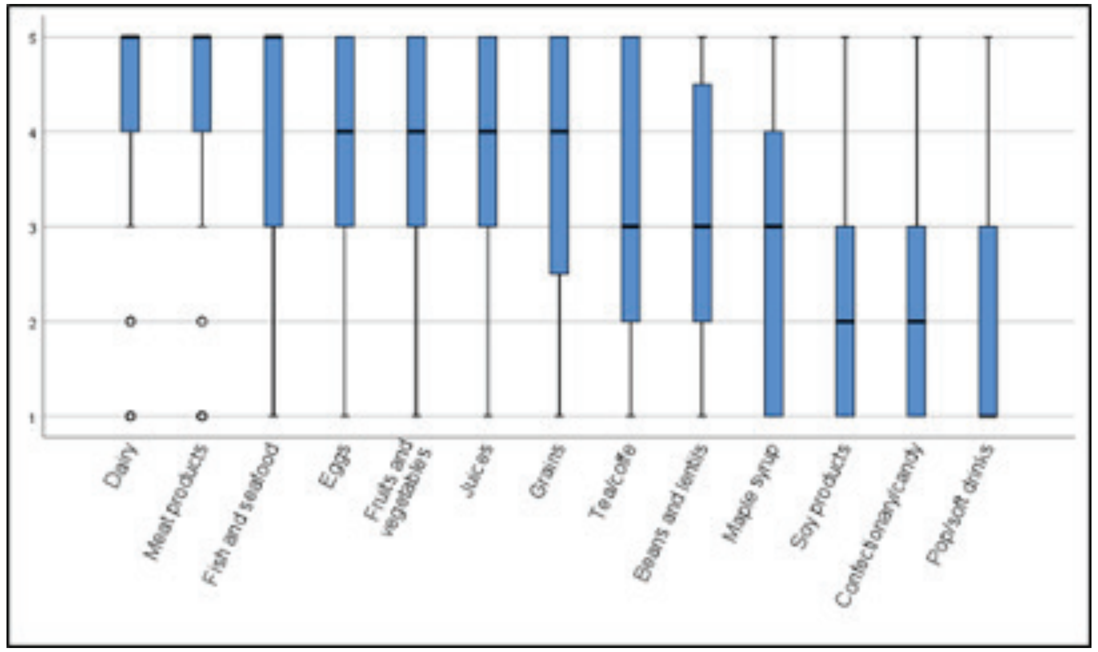
This scale of increased demand is supported by organizations reporting through other means, such as annual reports, that the number of people served in 2020 was close to double the number that they had served pre-COVID-19.

3.6.2 FOOD TYPE NEEDS: 2021

As with the 2019 survey, in 2021, organizations were asked whether they were able to meet client demands. Those organizations unable to meet demands were then asked to identify the gap between supply and demand by food types on a scale of 1 to 5 (1=minor shortage, 3=moderate shortage, 5=major shortage).

Out of 399 respondents to the February 2021 survey, 119 (30%) stated that they were unable to fully meet their clients' demands. The results of the 2021 survey regarding types of food in short supply are presented below in Figure 3-12. (Results from the 2019 survey were presented previously in Figure 3-10.) As explained more fully in Section 4.2.2, community organizations' ability to meet the significant increase in demand for foods and beverages that occurred following the onset of the COVID-19 pandemic was enabled by the unprecedented level of support that they received from private and public stakeholders across Canada.

Figure 3 12: Comparative Importance of Gaps in Food Type (2021)



As in the 2019 study, an examination of the 2021 survey results found that the greatest gaps between supply and demand are perishable products, those where there exists a need for cold chain infrastructure to optimize their shelf life and ensure their safe handling. In terms of specific products, compared to 2019, the relative need of proteins versus fresh produce had increased. This may have been due to reduced incomes negatively impacting individuals' ability to purchase protein products — including tinned meat and fish.

4. VALUE AND VOLUME OF FOOD NEED

Against a backdrop of 24.6 billion lbs (11.2 million tonnes) of potentially edible food being wasted annually in Canada (Gooch et al, 2019), the following sections describe the analysis that was completed to provide a defendable estimate of the amount (and value) of foods and beverages currently used by the 61,310 organizations that were identified in 2019 as using food in their programs. For reasons described in this section, separate demand and supply analysis was conducted for the 46,103 community organizations and the 15,207 schools identified in 2019. The section concludes by estimating the effects that the COVID-19 pandemic has had on the national volume and value of foods and beverages required in 2020/2021 to meet the increased demand described in the previous section.

The 2019 estimates were produced by analysing data captured by the online survey (food, beverages and meals reported by each type of organization) against data captured during the mapping exercise (organization type, number and location) to infer its implications across Canada. This data included whether organizations used food, and the volumes and values of food associated with their programing.

4.1 NATIONAL 2019 ESTIMATES

As described below in Section 4.1.1, the estimation of potential needs that existed in 2019 among the total 81,355 organizations identified by the mapping process began by identifying the percentage of organizational types that are most likely to be using food (or a proxy such as food vouchers) as part of their programming.

The analysis of survey data indicated that 35 percent of faith-based organizations and 29 percent of community development organizations do not use food in their programs. The resulting process of inference and extrapolation led to 61,310 organizations being identified as most likely using food as part of their current suite of programs. This number included 15,207 schools.

The analysis of survey data to infer the volume and value of the foods and beverages distributed by the 46,103 community organizations that are not schools form sections 4.1.2 and 4.1.3. As the data provided by Breakfast Club of Canada did not lend itself to the same method of analysis, a separate analysis was completed for schools and school nutrition programs. The results of this analysis form Section 4.4.

4.1.1 ADJUSTMENTS TO 2019 DATA

Table 4-1 below presents the total number of 2019 survey responses, by organization type, which provided sufficient data to inform the process of estimating the number of organizations across Canada that use food in their programming. As can be seen, of the total 81,355 organizations identified, minus the 15,207 schools, the adjusted number of organizations likely to use food as part of their programming is 46,103. Due to the nature of the data provided by Breakfast Clubs of Canada, the analysis of food used by school nutrition programs had to be conducted separately. As the category of public institutions includes organizations other than schools, it was assumed that these organizations would have a similar food usage to community organizations. Therefore, 29 percent of the remaining community and public institution organizations (once schools were discounted) were removed to provide a reasonable representation of total organizations that are likely to use food in their programing. In addition, 35 percent of faith-based organizations were also removed.

Table 4 1: Adjustment to Number of Organizations: 2019

	Survey responses	Do not use food		Mapped organizations	Do not use food/removed	Adjusted population
		#	%			
Faith-based	261	91	35%	28,605	9,973	18,632
Community	505	153	29%	32,067	9,275	22,792
Public institutions (e.g. Schools)	24			17,962	16,004[2]	1,958
Food banks	335	0	0	2,721	0	2,721
Org. type not given	452	No adjustment made as could not allocate to an organization type				
TOTAL	**1,577**			**81,355**		**46,103**

4.1.2 NUMBER OF TRANSACTIONS, 2019

Of total respondents, 918 indicated the number of people that each organization served per month. As the number of transactions occurring per month within each organization does not necessarily equate to the specific number of individuals served, an analysis was conducted to extrapolate survey responses across the 46,103 organizations noted above. This produced an estimate of the total number of food transactions occurring across Canada.

Precisely what is deemed by the term "transaction" differs by organization type and individuals served. For example: with shelters or kitchens, a transaction is a meal and/or in-between meal snacks; with food banks or community development organizations, a transaction is a selection of food items distributed. For some individuals, this transaction will be for themselves only; for others, it will be for their family.

The analysis of data suggested that, on average, individuals from vulnerable populations typically visit a community food organization twice a week. For each individual, this equates to eight transactions per month; that is, 96 transactions per year. Multiple factors will determine the actual number of occasions that an individual visits a community food organization. These factors include the number and type of accessible organizations in the individual's area, accessibility and level of food insecurity.

Table 4-2 provides the results of extrapolating the 803,232 monthly food transactions reported by 918 of the 2019 survey respondents across Canada. The underlying calculations took into consideration that not all organizations are focused on providing food to vulnerable populations for sustenance purposes. Many instead use food in their programming to incentive individuals' participation.

Table 4 2: Estimated Number of Transactions across Canada per Month and per Year: 2019

	TOTAL
Responses	918
Reported (per month)	803,232
Extrapolated (per month)	34,417,633
Extrapolated annual total	**413,011,595**

The analysis estimated that, in 2019, the 46,103 organizations identified as likely providing food to vulnerable populations performed 34.4 million transactions each month. This equates to a total of 413 million food transactions occurring annually between community food organizations and their clients.

4.1.3 FOOD AND BEVERAGE USE IN 2019

The same method of inference was used to estimate the amount of food used in 2019 by organizations across the country. Responses to three questions contained in the online survey fed into the process of analysis. These questions were:

a. How many pounds of food do you handle in a typical month?
b. How many pounds of beverages do you handle in a typical month?
c. How many meals do you serve in a typical month?

Second Harvest indicated that one meal equates to one pound of food. The analysis applied this weight and the three variables listed above to calculate the total pounds handled by each type of organization per month. As shown below in Table 4-3, a total of 884 respondents provided data on the quantity of food/beverage handled per month.

Table 4 3: Food Pounds Used by Organizations across Canada in 2019

	TOTAL
Total responses	884
Reported lbs (per month)	12,389,692
Estimated lbs (per month)	515,846,058
Estimated annual total lbs	**6,190,152,699**
Estimated annual total value	**$19,437,079,474**

As can be seen, the analysis estimated that, in 2019, organizations across Canada handled 6.19 billion lbs of food annually. Through a custom food cost calculator that uses food costs by category distributed across the average amount of each food category that is rescued, Second Harvest measures one pound of food as costing $3.14. Based on this, excluding schools, the value of food used by community food organizations in 2019 was estimated to be $19.4 billion.

4.2 COMPARATIVE ANALYSIS OF NATIONAL NEED AND SHORTFALLS: 2019 VS. 2021

The comparative analysis of changes in the volumes of food provided by charitable and not-for-profit organizations to vulnerable populations and shortfalls in supply versus demand began by comparing the 2019 and 2020 data. A one-way ANOVA statistical test was used to determine whether the average volume of food reported in 2019 by organizations providing food to vulnerable populations differed from the average volume of food reported by 2021 survey respondents in terms of their pre-COVID-19 operations. The analysis found that no statistically significant differences exist between the two sets of data. This means that robust inferences can be drawn by applying changes in demand and volumes reported by respondents in 2021 to the pre-COVID-19 data and conclusions drawn from its analysis.

4.2.1 CHANGES IN VOLUME HANDLED

Of total respondents to the 2021 surveys, 218 provided data on the volume of food handled pre-COVID-19, and 232 provided data on the volume of food handled post-COVID-19.

The estimation of the volume of foods and beverages required by all organizations across Canada that are engaged in providing food to vulnerable populations, and the subsequent gaps between supply and demand post the onset of COVID-19 in March 2020, followed a similar methodology completed in 2019 and described in Section 4.1.

The analysis of 2019 and 2021 data identified that the COVID-19 pandemic resulted in an approximate 61 percent increase in the volume of food provided to vulnerable populations. While this 61 percent increase in demand is significant, respondents mentioned that if not for federal programs, such as Canadian Emergency Relief Benefit (CERB), their organization would have experienced an even greater increase in demand.

As shown below in Table 4-4, a 61 percent increase in volume distributed equates to an estimated increase of 3.8 billion lbs in foods and beverages for organizations which provide same to vulnerable populations. It is estimated that the total volume of foods and beverages provided by community food organizations to vulnerable populations increased to slightly less than 10 million lbs.

Table 4 4: Increase in National Distribution of Foods and Beverages (lbs): 2019 vs. 2020/2021

	2019 (lbs)	**2021 (lbs)**	**Increased volume %**
Total lbs foods and beverages	6,190,152,699	9,989,983,955	61%

4.2.2 VOLUME AND VALUE OF SHORTFALL: 2019 VS. 2021

While the COVID-19 pandemic led to a significant increase in demand for food amongst a large vulnerable population than had existed prior to COVID-19, 70 percent of respondents to the February 2021 survey said that they were able to meet the increased demand that they experienced. This was due to unprecedented support that they received from public and private sources.

Data provided in 2021 by the 30 percent of respondents who were unable to meet their clients' needs was compared against data captured by the 2019 survey. The statistical analysis of these data sets enabled an estimate to be made of the national shortfall experienced by community food organizations providing food to vulnerable populations.

As shown in Table 4-5, based on the cost of food equating to $3.14/lb, prior to the COVID-19 pandemic the national funding shortfall was estimated to be $1 billion. This is the equivalent of 319 million lbs or 5.2 percent of the estimated food distributed by charitable and non-profit organizations (6.2 billion lbs). Since the onset of the COVID-19 pandemic in March 2020, the estimated national shortfall as of this report date is $508 million ($0.51 billion) or 162 million lbs. This is 1.6 percent of the estimated 10 billion lbs of food distributed by organizations.

Table 4 5: National Shortfall Experience by Community Food Organizations: 2019 vs. 2020/21

	Estimated annual food usage (billion lbs)	**Food value ($ billion)**	**Estimated national shortfall (million lbs)**	**Value of shortfall ($ million)**	**% Estimated shortfall of food distributed**
Pre-COVID-19 estimate	6.190	$19.6	319	$1,003	5.2%
Post-COVID-19 estimate	9.990	$31.4	162	$508.4	1.6%
Change increase (decrease)	**3.8**	**$11.8**	**(157)**	**($494.6)**	**-**

In summary, as indicated above, the volume of foods and beverages distributed nationally by food provision organizations post-COVID 19 was 3.8 billion lbs (61 percent) greater than pre-COVID-19 volumes. Simultaneously, compared to pre-COVID-19, the post-COVID-19 gap between total supply and demand reduced by 157 billion lbs (49 percent).

This increase in demand, though decrease in shortfall, resulted from a number of factors, including the following:

1) An unprecedented generosity exhibited by businesses and individuals across Canada;
2) The impact that government initiatives, such as the SFRP, had on community food organizations' ability to meet increased demands; and
3) The impact that the national rollout of the Second Harvest Food Rescue App had on assisting charitable and not-for-profit organizations to react to significant increases in demand.

The following statements made by respondents to the 2021 surveys convey these three factors:

> "It is only because of Agriculture Canada funds (received by Second Harvest) that we have been able to continue to meet the demand." (Faith Based, QC)
>
> "This need will not go away after COVID, and programs like this (Surplus Food Rescue Program and the Second Harvest Food Rescue App) are needed to continue to create relationships between those with access to excess food to those organizations that can use it to address food insecurity." (Community Development, NS)
>
> "When COVID hit, many of the organizations helping the vulnerable closed down, but thanks to... (SFRP and the Second Harvest Food Rescue App) ... we were able to remain open all year long, providing extra food to our community members who were left with few places to go to for help." (Faith Based Organization, MB)
>
> "We are only able to meet the demand for food due to receiving grants to purchase food. Without the grants, there is no way we would be able to accommodate the demand for food." (Food Bank, SK)
>
> "This is a great idea and great help for the community. Mahsi cho!" (Public Institution, NT)

"The demand has surged since COVID-19 started. We have been lucky enough to be supported by local individuals and various organizations to be able to meet the demand." (Food Bank, ON)

"We have seen a huge increase of clients coming through our doors. We have been able to meet the demands, however it has been very difficult. We use the resources we have." (Food Bank/ Hamper, BC)

"Our location & organization is a faith based organization. We are meeting the needs of those who come to us because we are blessed with a generous community who have been very gracious with monetary & food donations." (Faith Based, SK)

As illustrated by responses received from community food organizations across Canada, including some of those presented above, organizations are concerned that the circumstances that enabled them to largely meet the 61 percent increase in demand that they experienced following the onset of the COVID-19 pandemic in March 2020 will not be sustainable. Reduced financial support from private and public sources would limit community food organizations' ability to supplement donations of food and beverage products.

4.3 REGIONAL SCENARIOS

To provide a range in terms of how estimated regional needs and gaps in supply versus demand differ across the country for community food organizations, an analysis of data captured in 2019 and 2021 was conducted at the regional level. It should be noted that the results produced by the aggregated national and more granular regional analysis differ. This is due to a number of factors, including those listed below.

1) Those regional populations where per capita charitable and not-for-profit needs are highest represent a comparatively small percentage of the population when viewed from a national versus regional perspective.
2) The number of responses that contained quantitative data on clients' numbers, volumes handled, and ability to meet demand was insufficient to produce robust conclusions for all individual provinces and territories.
3) Differences in the usage and shortfalls reported by individual organizations impact the aggregated (national) analysis to a lesser degree than the granulated (provincial/territorial) analysis.
4) The results of analysing data pertaining to organizational type and the organization's likelihood to use food differed when completed at a national versus regional level.

For these reasons, the granular regional level reporting should be viewed as directional; it should not be considered as having produced substantive benchmarks that can be cross-tabulated across regions to produce definitive conclusions. The regions are divided as follows:

- Atlantic: Nova Scotia, Newfoundland and Labrador, New Brunswick, Prince Edward Island
- Quebec
- Ontario
- Prairies: Manitoba, Saskatchewan, Alberta
- British Columbia
- Territories: Yukon, Northwest Territories, Nunavut

4.3.1 NUMBER OF TRANSACTIONS & PEOPLE SERVED

As described in Section 4.1.2, numerous factors impact the number of transactions conducted by an organization. Not the least of these are organizations' type, size and location, population density, and the mobility of clients served. The results of the regional transactional analysis are presented below in Table 4-6.

Table 4 6: Change in Number of Transactions and People Served

Region	% of national population	Estimated # of transactions		Change in # of transactions	% Change in transactions	Estimated # of people served
		2019	2020/21			
Atlantic	6.4%	13,343,897	21,146,067	7,802,169	58%	203,328
Quebec	22.6%	110,531,328	208,549,676	98,018,348	89%	2,005,285
Ontario	38.8%	113,945,671	195,335,436	81,389,765	71%	1,878,225
Prairies	18.4%	101,552,745	169,254,576	67,701,830	67%	1,627,448
BC	13.5%	84,981,744	113,308,992	28,327,248	33%	1,089,510
Territories	0.3%	398,304	684,585	286,281	72%	6,5823
TOTAL	**100.0%**	**424,753,690**	**708,279,331**	**283,525,641**	**-**	**6,810,378**

As can be seen, the results indicate that, while Ontario's population represents the largest percentage of Canada's total population (38.8%), the largest increase of post-COVID-19 transactions occurred in Quebec (89%), compared to Ontario's increase of 71% (the third largest % increase). The Territories experienced the second largest percentage increase (72%), with the lowest increase in number of transactions occurring in British Columbia (33%).

The total number of people estimated to have typically been served by community food organizations following the onset of the COVID-19 pandemic in March 2020 is 6.8 million.

4.3.2 CHANGES IN SHORTFALL: VOLUME AND VALUE

Presented below in Table 4-7 is the estimated regional changes in the volume and value of shortfalls between supply and demand. Due to insufficient responses from the territories, it was not possible to estimate a defensible regional shortfall in that region.

As identified in the national analysis, while the onset of the COVID-19 pandemic in March 2020 resulted in a significant increase in the volume of foods and beverages distributed to vulnerable populations across Canada, with the exception of Quebec, unprecedented support shown by Canadian society (individuals, businesses, and governments) led to the shortfall that occurred in 2021 being less in volume and value terms than the shortfall reported by community food organizations in 2019.

Table 4 7: Regional Shortfalls – Volume and Value

Region	Unmet demands (shortfall) lbs		Shortfall as % of food distributed		Value of shortfall ($3.14/lb)		% Change increase (decrease)
	2019	2021	2019	2021	2019	2021	
Atlantic	13,989,194	5,330,547	4.4%	1.9%	$43,926,069	$16,737,916.17	(62%)
Quebec	37,615,530	80,287,729	1.7%	2.9%	$118,112,766	$252,103,469.64	113%
Ontario	121,870,016	75,224,815	10.2%	2.9%	$382,671,851	$236,205,918.99	(38%)
Prairies	64,428,463	20,383,816	3.0%	0.9%	$202,305,374	$64,005,182.09	(68%)
BC	75,426,603	28,649,078	3.7%	1.9%	$236,839,533	$89,958,106.27	(62%)
Territories	998,344	ND	17.0%	ND	$3,134,800	ND	-
Total	**314,328,150**	**209,875,985**	**4.0%**	**2.2%**	**$986,990,391**	**$659,010,593**	**(33%)**

Prior to the COVID-19 pandemic, the greatest shortfall as a percentage of food distributed was reported by community food organizations in the territories. While it is disappointing that insufficient data exists to estimate a post-COVID-19 scenario for this region, statements included in 2021 survey responses show that the community food organizations in the territories experienced a considerable increase in demand. The responses also indicate that this region benefited from an increased level of support.

The largest comparative reduction in pre- versus post-COVID-19 shortfall is estimated to have occurred in Ontario. Quebec is the only region where the estimated shortfall in 2021 is higher than that estimated in 2019 (as mentioned above). An important reason as to why Quebec is the only region estimated to have experienced a greater shortfall between supply and demand post-COVID-19 compared to pre-COVID-19 is that it experienced the highest increase in overall demand (89%) following the onset of the COVID-19 pandemic in March 2020.

The total estimated shortfall between supply and demand that results from the regional scenario analysis is 209.9 million lbs. At $3.14/lb, this equates to $659 million. These estimates are 30 percent higher than the national volume and value estimate of 162 million lbs and $508 million, respectively (as per Table 4-5).

4.4 SCHOOL NUTRITION PROGRAMS

The 2019 research identified that 15,207 schools exist across Canada. A comparative pre- and post-COVID-19 analysis was not possible due to the following: 1) schools represented only a handful of respondents to the 2021 surveys, 2) some schools transitioned from providing student nutrition programs (SNPs) to providing food to families, and 3) during 2020, many schools were closed for extended periods of time

.

Data provided in 2019 by Breakfast Club of Canada gave the number of students that would ideally be served by a universal SNP across the country. The scenario that guided the calculation of value and volume of this universal program are that each child would be given one or more snack/meal per day for 200 days (the typical length of the school year), at a cost of $3.14/lb.

The analysis shown below in Table 4-8 is based on all SNP needs being met. A potential shortfall does not therefore exist. As can be seen, the value of the 300 million lbs of food/beverage required to meet SNP needs equates to $943 million.

Table 4 8: School Nutrition Program Needs Value and Volume – by Province/Territory

Province/Territory	Value ($)	Volume (lbs)
Alberta	$110,755,964	35,272,600
British Columbia	$116,760,272	37,184,800
Manitoba	$54,812,468	17,456,200
New Brunswick	$22,303,420	7,103,000
Newfoundland & Labrador	$14,140,048	4,503,200
Nova Scotia	$36,920,120	11,758,000
Nunavut	$3,144,396	1,001,400
NW Territories	$1,821,828	580,200
Ontario	$379,942,512	121,000,800
Prince Edward Island	$3,751,672	1,194,800
Quebec	$148,606,780	47,327,000
Saskatchewan	$49,676,684	15,820,600
Yukon	$708,384	225,600
TOTAL	**$943,344,548**	**300,428,200**

4.5 SUMMARY OF VALUE AND VOLUME NEEDS PRE- AND POST-COVID-19

The analysis of survey data at the aggregated national and granular regional levels provided an estimate of community food organizations' food/beverage usage across the country prior to and since the COVID-19 pandemic occurring in March 2020. It also provided an estimate of shortfalls pre- and post-COVID-19, and therefore unmet demand.

The analysis of 2019 data estimated that across Canada, prior to COVID-19, there were 61,310 organizations that used food in their programing. This included 15,207 schools. As shown in Table 4-9 below, the national analysis of 2019 data estimated that these organizations' total annual needs equated to 6.81 billion lbs of foods and beverages. This includes the estimated shortfall of 319 million lbs that were experienced by charitable and non-profit organizations providing food to vulnerable populations.

Assuming that the shortfall of community food organizations is met, based on a cost of $3.14/lb, in 2019, the total value of the foods and beverages required to meet the needs of Canada's vulnerable populations is estimated to have been between $21.54 billion.

Table 4 9: Value and Volume of National Foods and Beverage Need

	2019		2021	
	Volume (lbs billion)	**Value ($ billion)**	**Volume (lbs billion)**	**Value ($ billion)**
Annual food usage	6.19	19.6	9.99	31.4
Annual food shortfall	0.32	0.99	0.16	0.51
SNP	0.30	0.94	0.30	0.94
Total need	**6.81**	**21.54**	**10.45**	**32.85**

As shown above, the national analysis of 2021 data estimated that following the onset of the COVID-19 pandemic, community food organizations' total annual needs increased to 10.45 billion lbs of foods and beverages. This includes 162 million lbs shortfall experienced by charitable and non-profit organizations providing food to vulnerable populations. Assuming that community food organizations' shortfall is met, based on a cost of $3.14/lb, the total value of the foods and beverages required to meet the needs of Canada's vulnerable populations – which had expanded as a result of the COVID-19 pandemic – is estimated to have increased to $32.85 billion.

As expressed previously, while demand for foods and beverages is considerably greater than that which existed prior to the COVID-19 pandemic, reported shortfalls have decreased. This is due to the unprecedented support that community food agencies received from the general public, governments and commercial businesses.

5. CONCLUSION

The purpose of the research conducted in 2019 was to aid the development of a national strategy for Second Harvest, which complements Canada's Food Policy. This was achieved by having identified organizations that could use recovered food as part of their programming, their level of need in terms of regional location and food type, and the extent of the gaps between supply and demand for food amongst vulnerable populations across Canada. The analysis of data gathered in late 2019 was completed less than a month prior to the COVID-19 pandemic occurring in March 2020.

The purpose of the 2021 research was to estimate changes in demand that occurred among vulnerable populations following the COVID-19 pandemic, and the impact that these changes had on 1) the volume and type of food handled by charitable and not-for-profit organizations actively engaged in providing food to vulnerable populations, and 2) gaps between supply and demand.

The rate at which food demand increased among vulnerable populations forced organizations to modify programs, while simultaneously handling increased volumes with a reduced complement of volunteers and abiding by COVID-19 regulations. These regulations included lockdowns, PPE requirements and social distancing requirements. Some organizations were forced to close; some organizations established food distribution programs; individuals started new organizations to help where they could; while others transitioned to distributing food vouchers in place of food.

Reasons why differences exist in the aggregated and granular estimations of supply and demand, and why granular regional analysis should be considered directional only, include:

1) A limited number of data sets per jurisdiction leads to increased variability in the median volumes reported by respondents from a given region.
2) The weight of different types of food vary quite markedly. In fresh produce, for example, an organization distributing potatoes will report a considerably higher weight than an organization distributing salads for the same number of meals to the same number of people.
3) Community food agencies appear able to provide more accurate data on the number of clients served than the volume of foods and beverages handled.

5.1 KEY TAKEAWAYS

Based on 2019 data (Nikkel et al, 2019), 24.6 billion lbs (11.2 million metric tonnes) of potentially avoidable food loss and waste occurs in Canada each year. Much of this is edible and could be redistributed to hunger relief organizations or other social service organizations that utilize food in their programming.

5.1.1 COMMUNITY FOOD ORGANIZATIONS

- Data gathered in the 2019 study identified 61,310 organizations across Canada that could use donated foods and beverages in the delivery of their programs. This included 15,207 schools.
- The 2021 study included only those organizations providing food to vulnerable populations and which were open during the COVID-19 pandemic.
  - While a number of community food organizations were forced to reduce or curtail operations in light of COVID-19 restrictions, other organizations created new food programs and/or expanded existing ones.
  - Five percent of 2021 respondents stated that in reaction to increased local demand they established food distribution programs. The most likely organizations to have made this transition are those categorized as community development.

5.1.2 FOOD AND BEVERAGE DEMAND

- Prior to COVID-19, the median number of people served by each organization providing foods and beverages to vulnerable populations was estimated to be 160 people.
  - In 2019, the total estimated national demand for foods and beverages amongst vulnerable populations across Canada was estimated to be between 6.81 billion lbs.
  - At $3.14/lb, the value of this demand equated to be $21.54 billion.

- Post the onset of COVID, the median number of people served by each community organization providing foods and beverages was estimated to be 275.
  - This represents a 72 percent increase, equating to 6.8 million people or 18 percent of the Canadian population.
  - In volume, the total post-COVID-19 national estimated demand for foods and beverages increased to 10.45 billion lbs.
  - At $3.14/lb, the value of this increased demand equates to $32.85 billion.

5.1.3 SOURCES OF FOODS AND BEVERAGES

- In 2019, general retail grocery stores were the most important donor. In volume terms, they represented the largest single source of donated foods and beverages.
- Food donor partners, including dedicated food recovery/redistributors, and organizations that donate excess food to their peers were identified as the second most important source of donated foods and beverages.
- While the 2021 research did not include a comparative evaluation of donor partners' importance, it is clear that responding organizations supplemented donated foods and beverages by using financial contributions from public initiatives, such as the Surplus Food Rescue Program (SFRP) and private sources, to procure foods and beverages from the Canadian food industry.
- The Second Harvest Food Rescue App assisted community food organizations to access foods and beverages both donated by businesses and acquired from vendors at wholesale prices.

5.1.4 DEMAND AND SUPPLY SHORTFALLS

- Prior to COVID-19, 38 percent of organizations that responded to the online survey stated that they had insufficient foods and beverages to meet their clients' needs. By food, the most significant shortfalls exist in fruits and vegetables, followed by meat products, dairy and eggs.
  - Based on respondent data, the national total shortfall between supply and demand was estimated to be 319 million lbs. This equates to 5.2 percent of foods and beverages distributed to vulnerable populations.
  - At $3.14/lb, the value of the shortfall estimated to exist in 2019 equated to $1 billion.

- In 2021, 30 percent of respondents to the February survey stated that they had insufficient foods and beverages to meet the needs that arose following the onset of the COVID-19 pandemic in March 2020. By food, the most significant shortfalls between supply and demand existed in dairy, meat products, fish and seafood, and eggs. The comparative importance of shortfalls in fruits and vegetables was unchanged.
  - Based on respondent data, while demand had increased significantly, the national shortfall between supply and demand is estimated to be 162 million lbs. This equates to 1.6 percent of the 10 billion lbs of foods and beverages distributed to vulnerable populations.
  - At $3.14/lb, the value of this estimated post-COVID-19 shortfall is $508 million.
  - Key reasons why the shortfall between overall supply and demand had decreased while demand had increased was due to the unprecedented support that community food organizations across Canada received from public and private sources.
  - The only region in which estimated shortfalls increased since the onset of the COVID-19 pandemic was Quebec. An important reason for this is that, in relation to its population and compared to other regions, Quebec had a relatively low level of unmet demand prior to COVID-19 and experienced a considerably greater increase in demand post-COVID-19.

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7. APPENDIX A: CRA REQUEST

The VCMI team requested information on currently registered charities for the most recent tax year available. At the time of the request, this was 2017. The information requested included the charity name, address, contact information, general information, and new/ongoing programs.

CRA gives all registered charities a designation code based on their operation and funding model. There are three designations: public foundations, private foundations, and charitable organizations. Charities from all of these designations were requested.

All charities are also given a category code, which falls under one of five sectors: 1) benefits to the community, 2) education, 3) health, 4) religion, and 5) welfare. The following is a list of the CRA sub-categories under each of these five sectors:

Benefits to the Community
- Community – charitable corporations
- Community – charitable trusts (other than service clubs and fraternal societies projects)
- Community organizations – not elsewhere classified
- Miscellaneous charitable organizations – not elsewhere classified
- Recreation, playgrounds, and vacation camps
- Service clubs and fraternal societies' charitable corporations
- Service clubs and fraternal societies' projects
- Temperance associations

Education
- Cultural activities and promotion of the arts
- Education – charitable corporations
- Education – charitable trusts
- Education – not elsewhere classified
- Support of schools and education

Health
- Health – charitable corporations
- Health – charitable trusts
- Health – not elsewhere classified
- Services other than hospitals

Religion – All the religion categories were included

Welfare
- Organizations providing care other than treatment
- Welfare – charitable corporations
- Welfare – charitable trusts
- Welfare organizations – not elsewhere classified

8. APPENDIX B

8.1 MAPPED ORGANIZATIONS BY TYPE AND PROVINCE/TERRITORY: 2019

Province/ Territory	Before school, after school, camp	Community services and development	Faith-based organization	Food bank, pantry, hamper	Food recovery, redistribution	Public institution (e.g., school, library)	Shelter, residence, respite	TOTAL
AB	254	2,110	3,160	219	1	2,120	617	8,481
BC	264	3,783	3,739	275	2	2,977	1,226	12,266
MB	232	1,101	1,526	102	0	1,130	248	4,339
NB	63	487	1,064	115	1	387	176	2,293
NL	20	323	643	75	0	207	72	1,340
NS	80	943	1,201	187	0	458	224	3,093
NU	1	45	11	13	0	45	3	118
NT	3	134	33	10	0	57	12	249
ON	688	7,429	11,688	1,034	2	5,973	1,940	28,754
PE	14	120	210	20	0	82	28	474
QC	509	5,792	3,521	557	3	3,691	1,544	15,617
SK	177	946	1,772	101	2	796	244	4,038
YT	4	195	37	2	0	39	16	293
TOTAL	**2,309**	**23,408**	**28,605**	**2,710**	**11**	**17,962**	**6,350**	**81,355**

8.2 SURVEY RESPONSES BY ORGANIZATION TYPE AND LOCATION: 2019

Province/ Territory	Before school, after school, camp	Community services and development	Faith-based organization	Food bank, pantry, hamper	Food recovery, re-distribution	Public institution (e.g., school, library)	Shelter, residence, respite	Org. type not given	TOTAL
AB	4	14	26	20	3	0	5	35	107
BC	1	45	18	35	6	1	3	37	146
MB	1	10	7	7	0	0	2	27	54
NB	1	5	5	16	1	0	1	7	36
NL	5	19	8	13	1	0	5	11	62
NS	1	9	9	9	0	1	3	11	43
NU		1		0	0	0	0	1	2
NT		2		0	1	0	1		4
ON	14	268	165	159	11	14	42	275	948
PE		0	1	2	0	0	1	1	5
QC	2	20	4	26	7	1	3	22	85
SK	1	12	17	16	2	7	2	25	82
YT		2	1	0	0	0	0		3
TOTAL	30	407	261	303	32	24	68	452	1,577

9. APPENDIX C: ASSISTING ORGANIZATIONS

The following organizations assisted in the research by circulating the 2019 survey amongst their members and networks. A number of these organizations also assisted in circulating the 2021 surveys.

- Breakfast Club of Canada
- Canadian Baptists of Ontario and Quebec
- Catholic Charities of the Archdiocese of Ontario
- Crossroads/100 Huntley Street
- Food Banks Canada
- Food Secure Canada
- FoodMesh
- Moisson Montréal
- Ontario 211
- REACH
- RescueFood.ca
- Salvation Army
- Saskatoon Foodbank and Learning Centre

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