“Scaling Up, Scaling Out, and Scaling Deep”: Opportunities for Integrating Local Food into a Universal School Food Program in British Columbia, Canada

by

Nuzreth Hafsa Salihue

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Declaration of Committee

Name:	**Nuzreth Hafsa Salihue**
Degree:	**Master of Resource Management (Planning)**
Title:	**"Scaling Up, Scaling Out, and Scaling Deep": Opportunities for Integrating Local Food into a Universal School Food Program in British Columbia, Canada**
Committee:	**Chair:** Heather Kee MRM Candidate, Resource and Environmental Management
	Tammara Soma Supervisor Assistant Professor, Resource and Environmental Management
	Rebekah Mahaffey Committee Member Social Planner City of Burnaby

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Abstract

School food programs (SFPs) in K-12 schools in British Columbia (B.C.) provide many benefits to students, including food literacy education, procuring local foods, and connecting with growers and harvesters in their community. Not all students have access to SFPs, so the benefits of such programs are not equitably distributed across the province. Governments must address gaps in the school food supply chain to enable more students to access SFPs. These include policy gaps, lack of food infrastructure and dedicated funding, and lack of support for local food providers and the local economy. This research draws from two cross-sectoral workshops with stakeholders in the food supply chain and the school food environment in B.C. The findings from this research informed recommendations for systems change by scaling up impact through policy and governance, scaling out impact through investment in the local food economy and infrastructure, and scaling deep through education and place-based cultural practices. This study has implications for the proposed pan-Canadian school food policy and expanding SFPs in B.C.

Keywords: school food; institutional procurement; food infrastructure; farm to school, food system resiliency; food policy

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Table of Contents

Declaration of Committee ii
Ethics Statement iii
Abstract iv
Acknowledgements v
Table of Contents vi
List of Tables viii
List of Figures ix
List of Acronyms x

Chapter 1. Introduction 1

Chapter 2. 4
2.1. Food Systems Planning 4
2.1.1. Planning and Local Food 5
2.2. Institutional Food Procurement 7
2.2.1. Local Food Procurement 8
2.3. School Food programs and Farm to School 12
2.3.1. School Food programs and Poverty 12
2.3.2. Farm to School 13
Farm to School B.C. 16

Chapter 3. 17
3.1. Research Context: The B.C. School Food Environment and Food Procurement 17
3.2. Provincial Programs and Policy Responses in British Columbia 19
3.2.1. Funding Support for Local Food-to-School Programs in B.C. 21
B.C. Agriculture in the Classroom 21
3.3. Cross-Sectoral Workshop Approach 22
3.3.1. Workshop 1: Problem and Solution Tree Analysis 25
3.3.2. Workshop 2: Motivation Opportunity Ability Framework 27
3.4. Data Analysis 28
3.5. Limitations 28

Chapter 4. 30
4.1. Workshop 1: Problem & Solution Tree Analysis 30
4.1.1. School Food Policies do not Support Healthy Local Food 30
4.1.2. Complex Food Infrastructure and Logistics 32
4.1.3. Funding School Food Programs 34
4.2. Workshop 2: Motivation, Opportunity, and Ability Framework 36
4.2.1. Motivations 37
4.2.2. Opportunities 37
4.2.3. Abilities 38
4.2.4. Aggregator Model 39

Chapter 5. 41
5.1. Scaling Up and Out: Impacting Local Food Procurement Through Laws and Policy 42
5.1.1. Policies to Support Local Food Procurement in SFPs 42
5.2. Scaling Out: Opportunities for Funding, Infrastructure, and Networks to Support Local Food in Schools 43
5.2.1. Sustainable & Structured Funding Models 43
5.2.2. The Infrastructure of the Middle 45
5.3. Scaling Deep: Opportunities for Food Literacy Education to Impact Values and Culture 47

Chapter 6. 49
6.1. Recommendations 49
6.1.1. Establish legislation that sets out clear goals, roles, and responsibilities for implementing, monitoring, and evaluating the impact of scaling up local food procurement in SFPs. 49
6.1.2. Provide stable, sustainable, and non-competitive funding for SFPs. Consider cost-sharing between federal and provincial governments and direct funding to local authorities for program implementation. 50
6.1.3. Invest in the local food economy and infrastructure to scale out local food procurement. 50
6.1.4. Create platforms for collaboration and information sharing and include food literacy in school curricula. 51
6.2. Conclusion 51

References 54

Appendix A. 71

Appendix B. 72

Appendix C. 73

List of Tables

Table 1. Summary of research activities and participants 24

List of Figures

Figure 1. Generic Institutional Food Supply Chain.....8
Figure 2. Elements of Farm to School programs 14
Figure 3. Summary of stakeholders that participated in this study. 25
Figure 4. Summary of stakeholders that participated in workshop 1. 26
Figure 5. Summary of Stakeholders that participated in workshop 2. 27
Figure 6. A summary of responses to the motivation, opportunity, and ability segments in workshop 2.....38
Figure 7. Generic aggregator model in a school food supply chain.....40
Figure 8. Strategies for scaling systems change. 41

List of Acronyms

BCSFVNP	B.C. School Fruit and Vegetable Nutritional Program
BCAITC	B.C. Agriculture in the Classroom
CSA	Community Supported Agriculture
F2S	Farm to School
F2SBC	Farm to School British Columbia
IFP	Institutional Food Procurement
PHABC	Public Health Association of B.C.
SFPs	School Food Programs
SFU	Simon Fraser University

Chapter 1.

Introduction

Canada signed and ratified the Convention on the Rights of the Child in 1991, which states that all children have the right to healthy food (UNICEF Canada, n.d.). Still, as of this writing, it is the only G7 country that does not have a national school food program (SFP)(Food Secure Canada, n.d.). A survey conducted by Statistics Canada in May 2020 showed that food insecurity in households with children was higher (19.2%) than in households without children (12.2%) (Statistics Canada, 2020). This higher incidence of food insecure homes with children shows the need to consider SFPs as an essential service to increasing food security (Elliott & Black, 2020). In addition to increasing household food security, SFPs improve student's readiness to learn (Taylor et al., 2020), can contribute to reducing the risk of chronic diseases in children (Welker et al., 2016), and can improve eating habits (Colley et al., 2021). Therefore, it is crucial to recognize that childhood nutrition is foundational for creating healthy adults and has long-term implications on health care costs and their participation in society.

SFPs offered through the Farm to School (F2S) initiatives consider economic, social, and environmental benefits in addition to feeding students. This paper considers the term F2S broadly and interchangeably with other local food to school models that may be unique to each community. Other local food to school models include those where local food does not necessarily originate from farms and could consist of seafood, game, and other 'wild' foods (Farm to Cafeteria Canada, 2023). These F2S programs can be educational and procure local food for school consumption. Princen (2010, p. 82) states, "that condition of "man apart from nature", of alienation from the natural world, of distancing, is what drives overharvesting, overconsumption…" It is this "distancing" referred to by Princen (2010) that the F2S programs attempt to address by connecting students to their food and its origins. Studies have shown that F2S type programs have increased students' fruit and vegetable consumption, improved their knowledge about how and where their food is grown, and benefited the local economy (Becot et al., 2017;

Bontrager Yoder et al., 2014; Jones et al., 2015; Kelly & Swensson, 2017; Morris & Zidenberg-Cherr, 2002). F2S programs may also help improve food system resiliency by shortening the food supply chain, making it less vulnerable to global disruptions (Clapp & Moseley, 2020).

This research focuses on SFPs in British Columbia (B.C.), focusing on local food procurement and F2S programs. Farm to School British Columbia (F2SBC) is a Public Health Association of B.C program.This organization aims to provide children access to nutritious, locally harvested food, promote food literacy, and support B.C. growers by providing them with an alternative market for their products (PHABC, 2021b). Currently, only a fraction of schools in B.C. have access to F2SBC programs because of the many barriers associated with scaling program implementation (Downs et al., 2012; Powell & Wittman, 2018). These challenges include a lack of school budget, seasonal limits of local foods, growing season not aligning with the school year, and the lack of food infrastructure in schools (Powell & Wittman, 2018).

Local food production in B.C. is threatened because the agri-food sector focuses on exporting B.C food while food for local consumption is imported. Additionally, there is development pressure on agricultural land and the lack of sufficient infrastructure and capacity to scale up the local food supply (Agriculture and Agri-Food Canada, 2018; Hansen et al., 2020). These limits to local food supply have led to many F2S programs in B.C. focusing on food literacy and school gardens instead of food procurement. However, there are research gaps concerning the opportunities, challenges, and solutions to scaling local food procurement for SFPs. This study aims to address this gap specifically within the context of urban and rural schools in B.C.

This research conducted cross-sectoral workshops to address the subject of local food procurement. Cross-sectoral workshops can be collaborative and valuable in identifying the root causes of problems and developing equitable solutions by including diverse viewpoints, knowledge, and power in problem-solving(Soma et al., 2020). This study's cross-sectoral workshops brought together stakeholders working in the school food environment and supply chain. The stakeholders shared their perspectives on the barriers, opportunities, and solutions for scaling local food procurement in SFPs. This

study recommends how urban and rural schools in B.C. can scale local food procurement.

This study addresses the following research objectives:

1. To explore the challenges and opportunities of scaling local food procurement in SFPs from the perspectives of stakeholders in the school food environment

2. To develop recommendations for scaling the integration of local food in SFPs in urban and rural schools in B.C.

The following chapter (Chapter 2) of this paper consists of a literature review covering the topics of food systems planning, institutional food procurement, SFPs and F2S programs. Chapter 3 describes the research context and methodology for this study. Chapter 4 then presents the study's research findings. Chapter 5 follows with a discussion of the results, and Chapter 6 presents recommendations and concludes the paper. This study will contribute to a better understanding of the school food supply chain and its associated infrastructure, including the key barriers facing local food procurement scaling and potential solutions. This study also offers insights into the role of local food when implementing a pan-Canadian school food program.

Chapter 2.

Literature Review

2.1. Food Systems Planning

There is a growing awareness of the importance of food in shaping healthy communities and an interest among planners to be more involved in food systems planning (Hansen et al., 2021; Pothukuchi, 2009; Soma & Wakefield, 2011). Numerous advocacy and social justice movements against the global, industrial, and corporate-led food system have called for greater attention to communities underserved by the market (Pothukuchi, 2009). More recently, the COVID-19 pandemic drew attention to many food system issues in Canada and increased the urgency to create more resilient and equitable food systems and communities (HLPE, 2020). The pandemic has also inspired planners across various sectors to advocate for the needs of the food insecure and identify ways to make the food supply chain resilient to future disruption (Raja, 2020). This area of work in the planning field is called food systems planning. Food systems planning can be described as:

> (…) a set of interconnected, forward-thinking activities that strengthen a community's food system through the creation and implementation of plans and policies. Food systems planning processes involve the development and implementation of policies to influence and shape how food is produced, processed, distributed, consumed, and disposed of. These policies provide direction and guidance on how to address the opportunities and challenges faced by the community's food system...(Growing Food Connections, 2022).

There are many food systems planning activities and many roles that planners can play in strengthening a community's food system (Soma & Wakefield, 2011). Land use planners can use growth management strategies to preserve farmland, transportation planners can plan transit routes connecting low-income neighbourhoods to supermarkets, and economic development planners can support the revitalization of main streets with family food retail businesses and attract food processing businesses to industrial zones (American Planning Association, 2007). Environmental planners can

advise growers about how they can prevent adverse impacts on the health of their watersheds (American Planning Association, 2007). Planners can collect and analyze local or regional food system data to help establish baselines to structure community food systems plans (Pothukuchi & Kaufman, 2000). Research can also help garner media attention and attract funding for community food systems work. Planners can advocate for revised local land use plans and regulations to promote local food, for example, by removing regulatory barriers to urban agriculture (Campbell, 2004). Planners can also facilitate the development of local food policy councils and encourage food democracy by collaborating with other governments and non-governmental agencies in developing local food policies (Campbell, 2004; Pothukuchi & Kaufman, 2000).

2.1.1. Planning and Local Food

Another aspect of food system planning is farmland preservation. Protecting agricultural land in and around urban communities is essential for food system resiliency and the local economy. The rising development pressure in urban areas continues to threaten the remaining agricultural land and the capacity of cities to obtain fresh and local food (American Planning Association, 2007). Additionally, the farming demographic continues to age close to retirement, the cost of farmland continues to rise, and the lack of affordable housing for farm workers motivates farmers to build housing on agricultural land or sell their land (American Planning Association, 2007; B.C. Ministry of Agriculture, 2019). Planners can support local, sustainable food systems by implementing land conservation measures such as enforcing an urban containment boundary in zoning and official community plans (American Planning Association, 2007).

Perhaps the most powerful and commonly used tool a planner wields is their ability to re-zone land at the parcel, neighbourhood, or city scale (Cohen, 2018). Although some planners attempt to use the zoning powers to improve local food systems, they do not always meet the intended goals. Some zoning changes to improve other municipal plans (transportation, housing, etc.) could unintentionally affect local food systems. Such consequences include Up-zoning and the increase in land value leading to an influx of higher-income residents and existing food retailers being priced

out and forced to leave, also known as food gentrification (Cohen, 2018). Another consequence is the displacement of food production (urban agriculture), food processing, and distribution infrastructure with the changes in zoning and land use designations (Cohen, 2018). The risk of food displacement through zoning changes suggests a need to include ‘no net losses’ of local food assets when re-zoning, ensuring that food retail capacity increases with a per capita increase in density and having food in the re-zoning impact assessment process. Planners also need to keep track of community food assets to ensure the access to healthy and affordable food does not decrease over time (Cohen, 2018).

Planners can play a role in developing food infrastructure that supports local food processing and distribution capacity, the local economy, and shorter (more resilient) supply chains. Community food infrastructure can include food business incubator facilities, community kitchens, and food aggregators, food storage and distribution hubs (American Planning Association, 2007). This infrastructure has been partially lost in today's global trading era favouring large-scale, consolidated firms and trade agreements. But as the COVID-19 pandemic demonstrated, the lack of small-scale, regional manufacturing and processing infrastructure contributed to a lack of system resilience and uncertainty (MacRae, 2022). Locating food infrastructure near agricultural land can help shorten the food supply chain, reduce GHG emissions from transportation, and help reduce food waste through processing and storage (Baker, 2018).

This research builds on food justice and food systems planning work to advocate for incorporating local food in developing a universal SFP in British Columbia within the context of a pan-Canadian SFP. SFPs in Canada are currently delivered in many ways and often target hunger prevention. However, there is an opportunity to expand local food programs by providing a universal SFP. At present, integrated F2S programs in SFPs operates on a small scale and primarily have focused on food literacy and school gardens with less attention on local food procurement for schools (Powell & Wittman, 2018). This research attempts to address this gap in local food procurement and identify opportunities to scale up the procurement of local foods in SFPs in B.C. The following section expands on institutional food procurement and its potential impacts on the food system.

2.2. Institutional Food Procurement

Institutional Food Procurement (IFP) is the process by which institutions purchase food for their own or public use. The purchased foods are usually served in public office cafeterias, SFPs, hospitals, and prisons (de Schutter et al., 2022; FAO, 2018). Institutions have a two-fold role in the food system, 1) as a significant purchaser of goods and services and 2) in developing regulations and policies around food procurement (PolicyLink, 2015).

In the last few years, IFP has gained prominence over consumer-focused campaigns to increase environmentally or socially responsible food purchasing. Many recognize that the campaigns focused on consumers, urging them to ‘buy local’ or ‘buy sustainable’, is insufficient to change food systems(Lo & Delwiche, 2016). Sonnino (2010) argues that for local branding to work, communities must have a high level of territorial and symbolic connection for local foods to gain a competitive advantage. Furthermore, (Feagan, 2007) highlights that places without a culture of ‘terroir’ (place-based food culture) are much less likely to benefit from local branding. IFP policies, on the other hand, can leverage the large-scale buying power of public institutions and have been an increasingly popular tool for supporting local and sustainable food systems (Barlett, 2011).

For local food to reach institutions, there needs to be infrastructure that can support aggregation, processing, distribution, and an IFP mechanism, as shown in Figure 1. This middle infrastructure will be revisited as an essential component of the success of IFPs throughout this study.

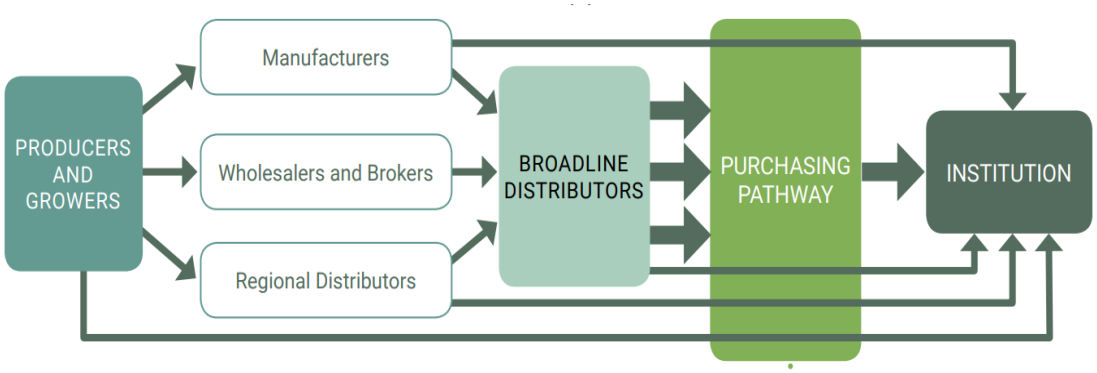

Figure 1. Generic Institutional Food Supply Chain
Extracted from Reynolds & Hunter, 2017

2.2.1. Local Food Procurement

While there is significant interest in IFP to favour local food production and consumption, there is still considerable ambiguity and contradiction in the 'local food' concept. There are many ways to define what food is considered 'local' (Church, 2014; Wormsbecker, 2007). In B.C., for example, the Feed B.C. program represents B.C. food as "A final product produced and/or processed within British Columbia. B.C. produced Raw food product is grown, caught, harvested, or raised in British Columbia". Defining what is local for processed foods is more challenging because it can be challenging to track the source of the ingredients in processed foods.

In B.C., processed food is defined as:

> "Final product undergoes one of the following activities performed in a commercial food and/or beverage manufacturing facility located in B.C., for sales and distribution:
>
> 1) General physical alterations: grinding beef, milling wheat, crushing tomatoes, shredding cheese, chopping cucumbers, etc., and/or,

2) Extending shelf life: freezing, canning, drying, pickling, smoking, fermenting, etc., and/or,

3) Combining ingredients to make a new product: baking muffins, making pizza, blending juice, mixing salad greens, etc. What is not considered as food processing include cleaning, washing, bagging, packaging and/or wrapping, unless combined with one of the three activities above." (Feed B.C., n.d.).

Additionally, these processed foods need to be "processed and packaged in the province with 51% or more of the direct cost of producing the product in its final form (direct labour, raw materials, processing, and packaging) originating in British Columbia" (British Columbia Local Food Act, 2015). In contrast to B.C.'s definition of what is considered B.C. processed, the province of Ontario requires that their processed food products "must be made in Ontario from a majority of Ontario ingredients. More than 80% of the total direct costs of production must return to Ontario." (Foodland Ontario, 2022).

Regardless of how 'local food' is defined, advocating for increased local food procurement could lead to 'The local trap'. 'The local trap' refers to the concept that food advocates and researchers assume something inherently good about local food compared to larger scales. Local food is considered ecologically sustainable and socially just, more nutritious, of higher quality, and fresher than products from a national or global scale food system (Born & Purcell, 2006). However, Born and Purcell (2006) argue that there is nothing inherent about any scale of the food supply chain and that the outcomes of a food system "depend on the actors and agendas that are empowered by the particular social relations in a given food system" (Born & Purcell, 2006). There is no reason to assume that distant fair-trade producers are less ecologically sustainable and socially just than local farmers.

While most IFP policies are designed for low cost and high efficiency due to budget constraints (Feenstra et al., 2011), institutional procurement of local food can challenge the focus on economics to favour a more sustainable and equitable food

system. While social policies include health, nutrition, and food safety, environmental policies include agroecological and organic food production practices (Guerra et al., 2017; Stefani et al., 2017). IFP contracts that require food to be 'local' create a structured demand within the local economy, targeting specific groups (i.e., local growers) to participate in a more stable market that is easier and less costly to access (Sumberg & Sabates-Wheeler, 2011).

The principles of institutional food procurement can provide solutions to address rural development, sustainable farming practices, and nutrition in schools (Borsatto et al., 2020; Schneider et al., 2016; Sonnino, 2010). For example, with regards to IFP in Canada, Food Secure Canada's report titled *Purchasing Power: 10 Lessons On Getting More Local, Sustainable, And Delicious Food In Schools, Hospitals And Campuses* and Policy Link's *Equitable Development Toolkit: Local Food Procurement* identify how local food procurement can be implemented to achieve the equitable improvement of local and regional food systems (PolicyLink, 2015; Reynolds & Hunter, 2017). Canadian examples of IFPs aimed at environmental and social goals include the Le Réseau des cafétérias communautaires in New Brunswick (Farm to Cafeteria Canada, 2014), the Haida Gwaii Local Food to Schools program (Farm to Cafeteria Canada, 2019), and the Nanâtohk Mîciwin (Universal School Foods Strategy) in Alberta (Farm to Cafeteria Canada, 2022). International examples of IFPs include the National School Feeding Program (Programa Nacional de Alimentação Escolar – PNAE) in Brazil (Guerra et al., 2017), the National School Lunch Program in Japan (Coalition for Healthy School Food, 2022a), and the Los Angeles Good Food Purchasing Policy (Los Angeles Food Policy Council, 2022).

2.2.2 Trade Agreement Restrictions & How to Avoid Them

Many trade agreements could restrict a province's ability to regulate food procurement. These include the General Agreement on Tariffs and Trade (GATT), The Agreement on Government Procurement (AGP), The North American Free Trade Agreement (NAFTA), The Agreement on Internal Trade (AIT), The Canada and European Union Comprehensive Economic and Trade Agreement (CETA), and the Trans-Pacific Partnership (TPP) (Bell-Pasht, 2013). These agreements focus on

procurement liberalization based on three main criteria 1) to ensure that there is no preferential treatment for local goods or services, 2) to undertake a procurement process that is transparent and fair, and 3) to award contracts to bidders that meet all specified criteria for the best value.

Based on a review conducted by the Canadian Environmental Law Association, there are ways by which local food procurement policies can be designed to increase local food procurement without violating trade agreements (Bell-Pasht, 2013). Including technical specifications (as defined in the trade agreements) that favour locally produced food, such as seasonality, freshness, and organic certifications, is one way to avoid triggering trade restrictions (Bell-Pasht, 2013). Designing local food procurement policies exempt from trade agreements, such as creating contracts to fall under monetary thresholds, can also avoid trade restrictions. Developing contracts to support non-profit procurement deals with the public sector and focusing on the needs of the Municipalities, Academic Institutions, Schools, and Hospitals (MASH sector), which tend to have higher monetary thresholds, can also avoid trade restrictions (Bell-Pasht, 2013).

The City of Thunder Bay in Ontario is a leader in local and value-based food procurement. The City has a budget of 3 million to spend on food for the City's three long-term care homes, as well as daycare facilities, community centres, arenas and stadiums (Nourish, n.d.). Examples of policy tools adopted by the City of Thunder Bay include 'forward buying' which is "an agreement to buy a certain amount of food in advance for an agreed-upon price" (Nourish, n.d.). Additionally, the City's Corporate Credit Card Policy allows staff to make purchases of up to $10,000 each month and includes regular food purchases for client meals (Megens et al., 2014). Chefs, supervisors, and storekeepers can place these food orders. The City has also included diversity and inclusion criteria in policies such as Requests for Proposals and procurement contracts. It can now serve wild fish harvested from an indigenous supplier in their long-term care homes (Nourish, n.d.).

2.3. School Food programs and Farm to School

According to the World Food Program, 388 million children in at least 161 countries worldwide have access to free or subsidized school meals (Coalition for Healthy School Food, 2018). Some examples include the United States, the United Kingdom, Brazil, Italy, France, Germany, and Japan.

2.3.1. School Food programs and Poverty

Until recently, the rise of SFPs in Canada has played out within the realm of poverty response. In 2015, children made up almost a quarter of low-income persons in Canada, and the incidence of living in a low-income household remained higher (17%) for children compared to adults (13.4%) (Statistics Canada, 2016). It is known that dietary adequacy and nutritional health are related to household income (Bureau of Nutritional Sciences, 1981; Campbell & Horton, 1991; Maxwell & Simkins, 1985; Myres & Kroetsch, 1978; Shah et al., 1987). Families living at or below the poverty line are often unable to purchase foods that meet the nutritional needs of children (Miller et al., 1985; Nova Scotia Nutrition Council, 1988; Travers, 1996). Nutritionally disadvantaged children are known to have higher rates of absenteeism and higher learning impairment, as well as poor health problems such as anaemia, weight loss, colds, and infections (Fierman et al., 1993; Maxwell & Simkins, 1985; J. Miller & Korenman, 1994; Shah et al., 1987; Skolnick, 1995; Wehler et al., 1992). Acknowledging these impacts of food insecurity on Children's health led to a social movement in the 1990s for provinces in Canada to take responsibility for feeding in schools (Raine et al., 2003). Unlike in the US, where SFPs are federally legislated and supported, SFPs in Canada are primarily run by volunteer efforts to feed 'hungry children' through a 'charitable model'. Raine et al. (2003) define this model as a 'poverty mitigating' service that relies on volunteers to distribute donated foods to self-identified needy recipients without addressing the root causes of poverty (Raine et al., 2003). Furthermore, charitable models also struggle with stigmatization and inconsistent service delivery (Raine et al., 2003).

In response to the rising cost of food, the growing need for equity, sustainable meal programming, and the need to prevent chronic diseases in children, the new vision

for a Canadian school meal program is universality. Universality is crucial because it preserves the dignity of all students and creates a social environment that encourages the introduction of unfamiliar foods (Kristjansson et al., 2007). Children benefit from universal school meal program by gaining access to healthy foods, improving learning outcomes, increasing food literacy, providing family support, and contributing to food security while also promoting local foods that can develop the local economy (Becot et al., 2017; Hernandez et al., 2018; Nutrition Connections, 2021).

2.3.2. Farm to School

Farm-to-school (F2S) programs utilize the power of institutional purchasing to support agricultural development and other social and environmental goals (Buckley et al., 2013; Conner et al., 2014). In its broadest form, F2S programs attempt to increase food literacy along with the promotion of local food purchased by schools (Bateman et al., 2014; Bontrager Yoder et al., 2014; Conner et al., 2011; Izumi et al., 2010a; Joshi et al., 2008; Lyson, 2016). F2S programs shorten the food supply chain through direct purchasing from producers without the involvement of food system actors such as packers, processors, and distributors. Additionally, scholars argue that F2S programs provide more stable markets for local agricultural products, particularly from small – medium scale farmers (Bagdonis et al., 2008; Conner et al., 2008; Izumi et al., 2010b).

Figure 2 shows the three core elements in F2S programs. The organization called Farm to Cafeteria Canada describes these elements as 1) Healthy, Local Food in Schools, 2) Hands-On Learning, and 3) School and Community Connectedness (Farm to Cafeteria Canada, n.d.).

Figure 2. Elements of Farm to School programs
Extracted from Farm to Cafeteria Canada, 2023

Many F2S initiatives have positively impacted eating habits and nutrition in school-aged children, mitigating the effects of poor diets (Bagdonis et al., 2008; Berkenkamp, 2006; Keeley, 2005; Kloppenberg et al., 2008). An evaluation of a summer F2S program in Wyoming reported that 53% of students had tried a new vegetable while the program was operational (Triant & Ryan, 2005). Another evaluation of student participants in an Edible Schoolyard Project in Berkeley, California, found that students gained a greater understanding of garden cycles, ecosystems, and sustainable agriculture than their peers without an F2S program (Murphy, 2003). In Los Angeles, students, parents, and teachers that participated in produce tastings and nutrition education sessions through the F2S program, increased participation in the lunch program, reduced their daily calorie intake by 200 calories a day and reduced their fat intake by 11 grams a day (Kalb, 2007).

F2S programs also provide an opportunity for experiential learning and nutrition education. Long global food supply chains create a 'distancing effect', leading to many children being unaware of how and where food is produced and the variety of healthy food options available (Morris & Zidenberg-Cherr, 2002; Princen, 2010). Children are more susceptible to consuming 'junk foods' advertised to them because they lack awareness and have limited access to healthy foods (Kloppenberg et al., 2008). Poor eating habits and the lack of nutrition education are considered to have led to what is now known as a health crisis in North America that we are experiencing today (Story et al., 2002). F2S programs expose children to nutritious food and provide education on food production, which helps address this disconnection to food (Bagdonis et al., 2008; Joshi et al., 2008; Kloppenberg et al., 2008).

In 2021, the USDA awarded US$200 million to purchase local foods for distribution through the F2S programs nationwide (National Farm to School Network, 2021). However, although there are claims that F2S programs increase market opportunities for small-scale growers, there is little evidence to support this (Christensen et al., 2019). Both Joshi et al. (2008) and (Christensen et al., 2019) found that a farm's direct sales to F2S programs made up a modest about 13% of all farm sales. F2S producers often rely on intermediaries (food hubs, aggregators, distributors, food manufacturers, and local businesses) to supply food to schools. For example, in Georgia, producers sold an average of $110, 407 to schools, where 45% was sold directly to the school, and 55% went through intermediaries (Christensen et al., 2019). Christensen et al. (2017) found that schools that purchase local food from traditional distributors (supermarkets, wholesalers) are likely to have higher, on average, expenditures per student compared to schools that buy local food directly from farmers and 'non-traditional' distributors. Identifying producers engaged in F2S programs and quantifying the supply and demand for local foods in SFPs is challenging because intermediaries facilitate these types of sales(Christensen et al., 2019).

F2S programs create opportunities for farmers to build social capital and strengthen community connections. Social capital is the "capacity to foster trusting relationships, social cohesion, and safety" (Kennedy, 2011). This social capital has declined since the rise of urbanization, the distancing from rural regions, and the decline

in small-scale family farms (Machum, 2005). Farmers build relationships by connecting directly with schools and students that consume their products. Knowing the consumers of their food also instills a moral obligation for farmers to provide safe food than if their customers were anonymous (Irvine, 2003). A study conducted on the F2S program in Bello Horizonte also showed that the more significant interaction between the farming community and the school community helped reduce the stigma associated with the farming profession and change community perceptions (Mendonça & Rocha, 2015).

Farm to School B.C.

The Public Health Association of British Columbia (PHABC) administers the Farm to School B.C. (F2SBC) program. PHABC is a not-for-profit organization funded by the Ministry of Health and other partners that promotes health, well-being, and social equity (PHABC, 2021b). Currently, only a fraction of B.C. schools have access to such programs because of many barriers associated with their implementation (Downs et al., 2012; Powell & Wittman, 2018). The F2SBC program supports school food programming, connects schools with local food producers, including Indigenous traditional food harvesters, and engages in various educational and food literacy initiatives. F2SBC focuses on providing students access to nutritious, locally produced seasonal foods, which also supports the goals of the B.C. Ministry of Agriculture's *Buy B.C., Grow B.C.,* and *Feed B.C.* initiatives. PHABC also partners with Lower Mainland United Way to work toward a regional food hub model (PHABC, 2021a).

Chapter 3.

Methodology

3.1. Research Context: The B.C. School Food Environment and Food Procurement

This research is centered within the policy contexts of Canada and British Columbia (B.C.). This province has no cohesive school food program, but all schools must follow the 2022 *B.C. School Food Guidelines* (B.C. Ministry of Education and Training, n.d.). The recently updated food guidelines were introduced to increase schools' fresh fruit and vegetable consumption. This update replaces the *Guidelines for Food and Beverage Sales in B.C. Schools* (introduced in 2013).

The 2013 guidelines set minimum nutrition standards for foods and beverages sold to students as mandated policy for schools (B.C. Ministry of Education and Training, n.d.). Although implementing the guidelines is the responsibility of the various school districts, Holmes (2019) identified numerous challenges in procuring foods to meet the 2013 requirements. These challenges include affordability, low availability of compliant foods, lack of food service providers that can supply compliant foods, insufficient resources to source compliant foods, and lack of access to compliant foods in rural, remote, and northern parts of the province (Holmes, 2019). The challenges schools experienced with implementing the 2013 guidelines indicate that the new 2022 guidelines might face similar challenges unless the province takes a multi-dimensional approach to increase fresh and nutritious food consumption in schools.

In early 2020, the ministries of Agriculture and Food, Education and Child Care, and Health care co-sponsored a B.C. Stats survey of the Kindergarten to Grade 12 school food environment in school districts across the province. This survey aimed to gather information to support further research and policy development for implementing a universal school food program (B.C. Stats, 2020). Approximately 1/3 of schools in the

province responded to the survey (N=503). Highlights from this survey are summarized below.

- Approximately one in ten schools do not provide meal or snack programs, while over half of the schools in the province give either breakfast, lunch, or snacks daily (B.C. Stats, 2020).

- Schools that provide meals or snacks may have centralized food procurement through school districts for cafeteria services, while other schools rely on the Parent Advisory Council (PAC) or school staff to source meals or snacks. PAC members and school staff primarily source meals or snacks for SFPs from grocery stores, restaurants, or fast-food outlets (B.C. Stats, 2020).

- A large proportion of respondents (80.1%) have the infrastructure on-site to prepare or sell food to students, as stated that they have access to full kitchens (i.e., stove, oven, fridge, sink, counter space). In comparison, 2.6% of schools do not have the infrastructure on-site to prepare or sell food to students.

- Most respondents (95.8%) sell food and beverages at their schools through the cafeteria, canteen, vending machines, meal and snack programs, or fundraisers.

- Nearly half (51.9%) of respondent schools receive CommunityLINK funds (even though all school Districts receive the funds), 45.3% receive funding from community food programs, and 41.2% get funds from PAC or other fundraisers.

- Schools expressed challenges in applying for grants to fund food programs.

The F2S programs run by the non-profit sector also face similar challenges associated with implementing meal and snack programs in B.C. Funding and capacity limitations for F2S programs operating in B.C. have led to these programs not being accessible to all schools. Furthermore, these F2S programs focus primarily on salad bars featuring locally grown produce but have now shifted towards school gardens and food literacy models. Food literacy programming has been called the “low-hanging fruit” of F2S programs in B.C. and is easier to achieve than local food procurement (Powell &

Wittman, 2018, p 201). School staff attribute the lower emphasis of F2S programs on food procurement to the gaps in the school food supply chain that limit the ability to source local foods (Powell & Wittman, 2018). Programs and policies introduced by the province of B.C. to address local food procurement by public institutions are summarized below.

3.2. Provincial Programs and Policy Responses in British Columbia

In B.C., *The British Columbia Local Food Act, 2015 (BILL M 222 – 2015)* sets the definition for local food and the conditions under which local food is produced and distributed (British Columbia Local Food Act, 2015, 2015). As stated in its explanatory note, the purpose of this Act is "to determine recommendations and targets on increasing local food production, processing, distribution, marketing plus increased public sector organization procurement of B.C. grown and produced foods". Section 4. of this *Act* required the Ministry of Agriculture to create B.C. Local Food and Agriculture Strategy (British Columbia Local Food Act, 2015).

This *Act* resulted in the creation of the 2015-2020 *B.C. Agrifood and Seafood Strategic Growth Plan* which set the goal of increasing within-province purchases of B.C. products by $2.3 billion (or 43%) by 2020 and proposed the action to "encourage the development and adoption of buy local policies for food retail, food services, and public sector institutions" (BCMA, 2015, p 32). In response to this plan, the provincial government has created several programs and policies which directly address the barriers facing farm-school partnerships in British Columbia. The province has increased funding and investment to help build agricultural capacity through the 'B.C. Food Hub Network' of processing infrastructure. The Province has created the 'Feed B.C.' procurement policies focusing on local foods within public institutions. The Ministry of Health and Education has recently completed the B.C. School Food Guidelines to promote the use of fresh fruits and vegetables. Many of these initiatives seek to encourage B.C. agriculture and develop a new market for small-medium scale food

providers. However, most of these initiatives are in their infancy, and their effectiveness is yet to be determined.

The ‘Feed B.C.’ initiative focuses on increasing the consumption of B.C. agricultural products within the province. Feed B.C. has partnerships with hospitals, residential care facilities, and public post-secondary institutions across the province. The program provides minimum goals and standards to support B.C. food procurement in institutions, including Feed B.C. definitions, targets, and tracking methodology for B.C. foods. The Province expects partners to procure at least 30% of their food expenditures on B.C. food (Feed B.C., n.d.). Some institutions partnered with Feed B.C. have received funding to support its implementation through increased capacity building, such sd hiring a project facilitator, procurement specialist services, and a food-processing specialist (Ministry of Agriculture and Food, 2019).

The B.C. Food Hub Network supports the Minister of Agriculture and Food’s Mandate Letter Commitment to “expand the *Grow B.C., Feed B.C., and Buy B.C.* programs to encourage greater food security and local business growth”(B.C. Ministry of Agriculture Food and Fisheries, n.d.). This network comprises regional food processing and innovation ‘hubs’ designed to support small-medium enterprises with commercial food processing space, equipment, expertise, and resources to support business development and growth.

Food Hubs are currently operating or under development in twelve communities across B.C. and take the form of shared-use processing facilities. The food industry may refer to these shared-use processing facilities as commissary kitchens, incubator kitchens, and food incubators. Multiple food and beverage businesses can access these facilities, and their models vary by jurisdiction and regional needs. Examples of B.C. Food Hub Network Shared-Use Processing Facilities include Commissary Connect in Vancouver, the Plenty & Grace Food Hub & Innovation Centre in Surrey, the Fraser Valley Food Hub in Abbotsford (launched in 2021), Sprout Kitchen in Quesnel (established in 2021), Cowichan Valley Food Hub in Cowichan Valley (launched in 2021), and the Capital Region Food Hub in Victoria (launched in 2021) (B.C. Ministry of Agriculture, n.d.).

These Food Hubs allow small-medium scale food providers and food-related non-profits to expand their businesses and access new markets such as SFPs. Food Hubs can play multiple roles in facilitating the increase of local food supply to meet the demand by public institutions. One such function is to operate as a food aggregator that amalgamates food from multiple local producers and provides buyers with a central local food source. In a news release by the B.C Ministry of Agriculture, Derrick Pawlowski, the executive director of Cow-op, a non-profit farmer and food processor co-operative, stated:

> "…I imagine it as a center for collective action that will lead to a more robust and resilient local food system. Our farmer-owned and operated co-operative, Cow-op.ca, hopes to use the hub to help us expand our marketing, aggregation, and distribution services to create more opportunities for local farmers" (B.C. Ministry of Agriculture, 2021, para. 6).

These recent programs demonstrate the provincial government's interest in building better local marketing partnerships with public institutions.

3.2.1. Funding Support for Local Food-to-School Programs in B.C.

B.C. Agriculture in the Classroom

The province supports various local food distribution initiatives for SFPs. The B.C. Agriculture in the Classroom (BCAITC) Foundation operate the B.C. School Fruit and Vegetable Nutritional Program" (BCSFVNP) and "Take a Bite of B.C." are two programs aimed at distributing local food to schools. The Farm to School B.C. (F2SBC) program provides small grants to support farm-to-school educational programs. Both the BCAITC Foundation and F2SBC are non-governmental organizations funded by the Ministry of Health to advance policy objectives of the Ministries of Education, Health, and Agriculture.

The BCSFVNP provides students with B.C.-grown fruit and vegetable snacks (i.e., apples, plums, mini cucumbers, tomatoes, and mini peppers), allowing them to sample B.C.-grown and harvested produce. B.C. Dairy products are also incorporated into the program and supplied to grades K-5. In 2021, the program reached 1,383 K – 12

schools, covering over 90% of public and First Nations schools throughout B.C. (BCAITC Foundation, 2022). The BCSFVNP + Milk receives financial support from the Ministry of Health, the Provincial Health Services Authority and the First Nations Health Authority. The program receives administrative support from the Ministry of Agriculture and Education.

"Take a Bite of B.C." is another program run by the B.C. agriculture in the classroom foundation, together with the B.C. Culinary Arts Specialist Association, and B.C. agricultural commodity groups and producers. This program brings fresh, locally grown products to secondary schools with Culinary Arts programs. Students participating in this program learn to create healthy dishes with local, fresh ingredients for their student population and learn about the farm-to-table food supply chain (BCAITC Foundation, 2022).

Although these programs are great examples of local food-to-school programs, they are limited in providing regular nutritional benefits to all students. The BCSFVNP only delivers produce to schools 12 times a year, and the "Take a Bite of B.C." only gets deliveries five times yearly. Furthermore, the BCAITC Foundation receives most of its funding from the province and needs resources to leverage donations continuously to ensure the continuous delivery of some of its programs (BCAITC Foundation, 2022). The programs offered by the foundation are reliant on substantial support from various producer organizations such as the B.C. Dairy Association and major retailers and distributors such as Save-on-Foods and Saputo may have corporate interests in marketing their products to schools (BCAITC Foundation, 2022; Powell & Wittman, 2018).

3.3. Cross-Sectoral Workshop Approach

This research secured ethics approval from the SFU Research Ethics Board as part of the "Digging into the Farm to School Movement: Assessing the Environmental and Social Impacts of Connecting Learners and Growers through Food Literacy and Sustainable Local Food Procurement" project. It uses qualitative research methods to collect data about social and environmental aspects, barriers, and opportunities to

scaling local food procurement in SFPs in urban and rural schools. This research project used cross-sectoral workshops to understand SFPs from a system and stakeholder perspective. All research activities, including the workshops, took place during the COVID-19 pandemic and were conducted virtually.

Following the social innovation workshop model by Westley and Antadze (2010), this study used cross-sectoral workshops to address the topic of F2S programming. This multi-stakeholder collaborative approach is instrumental in identifying the root causes of 'wicked problems' and including diverse viewpoints, knowledge, and power in problem-solving (Soma et al., 2020). This approach is also helpful because integrating local food in SFPs is challenging with many stakeholders involved, including educators, farmers, Indigenous traditional food providers (in the case of the Indigenous hubs), not-for-profit organizations, and relevant policymakers.

This study used cross-sectoral workshops to engage with the many stakeholders involved in the school food supply chain and outside it. Participants in the workshops included representation from K-12 public schools and universities, public health, and non-profits working with schools in B.C. Participants joined from across the province to share their experience with implementing SFPs and to discuss potential solutions. The workshops addressed the local food procurement gap in SFPs programming in urban and rural schools.

This study hypothesized that the province's urban, rural, and remote schools might have different challenges concerning implementing SFPs programs. Therefore, separating the two segments (Urban Vs Rural & Remote) provided adequate attention to their discussions. Table 1 shows a breakdown of research activities and participants. Total participation for workshop 1 was 31, and for workshop two, it was 26.

Research Activity	Session	Dates	Participant #s
Workshop 1	Urban	February 3, 2022	17
	Rural & Remote	February 16, 2022	14
Workshop 2	Urban	April 28, 2022	14
	Rural & Remote	April 26, 2022	12

Table 1. Summary of research activities and participants

Participants were selected by the food systems lab and PHABC's professional connections and by input from stakeholders (who identified others). A total of 45 unique stakeholders participated in one or more workshops to share their experience with SFPs and F2S programs in urban, rural, and remote regions in B.C. Figure 3 shows the composition of the participants. Participants were identified by their primary sector even though they may have lived experience in other fields. The majority of participants were from the non-profit sector, which indicates the prominent role they play in the present school food supply chain.

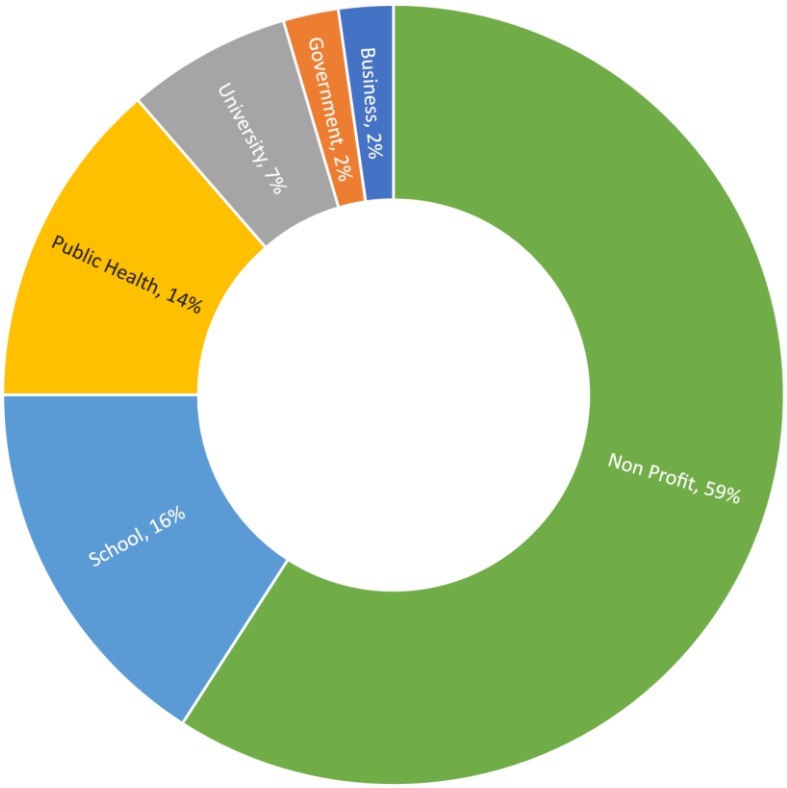

Figure 3. Summary of stakeholders that participated in this study.

3.3.1. Workshop 1: Problem and Solution Tree Analysis

The first workshop probed at the root causes, consequences, solutions, and desired outcomes, as seen by stakeholders. Participants worked through the problem and solution tree analysis in three breakout rooms based on themes (Policy, Infrastructure and Logistics, and Funding). Participants considered personal experience and societal implications of scaling local food procurement in SFPs. A note taker was present in each breakout room and made notes on a Miro Board, an online visual collaboration platform. Figure 4 shows a summary of participants in workshop one.

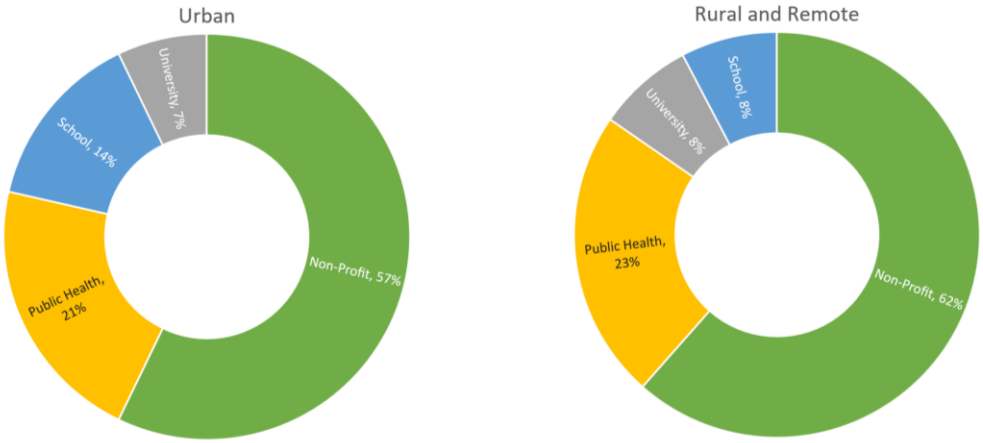

Figure 4. Summary of stakeholders that participated in workshop 1.

The convening questions for workshop 1 included the following:

1) What are the challenges and opportunities of implementing local food procurement in SFPs from the perspectives of various stakeholders across the school food supply chain?

2) What school food policies can minimize the barriers to expanding local food procurement and SFPs across the province?

3.3.2. Workshop 2: Motivation Opportunity Ability Framework

The second workshop incorporated the Motivation Opportunity Ability (MOA) framework (MacInnis et al., 1991; MacInnis & Jaworski, 1989) and discussed an "aggregator" design as a potential solution. The MOA framework requires certain conditions for behavioural change to occur. These conditions include that the behaviour supports the user's interest (motivation), the user has options available to help the behaviour (opportunity), and has the skills and competencies to perform the behaviours (ability) (de Jonge et al., 2014; van Geffen et al., 2020). Scholars have adopted this framework to understand pro-environmental behaviours (Olander & Thøgersen, 1995) and select interventions for public health and social issues (Rothschild, 1999). Scholars have also used this framework to understand sustainable consumer behaviours (Baumhof et al., 2018; de Jonge et al., 2014; Thøgersen, 2009; Zhu, 2016) and food waste (Soma et al., 2021; van Geffen et al., 2020; von Kameke & Fischer, 2018). Figure 5 shows a summary of participants in workshop two.

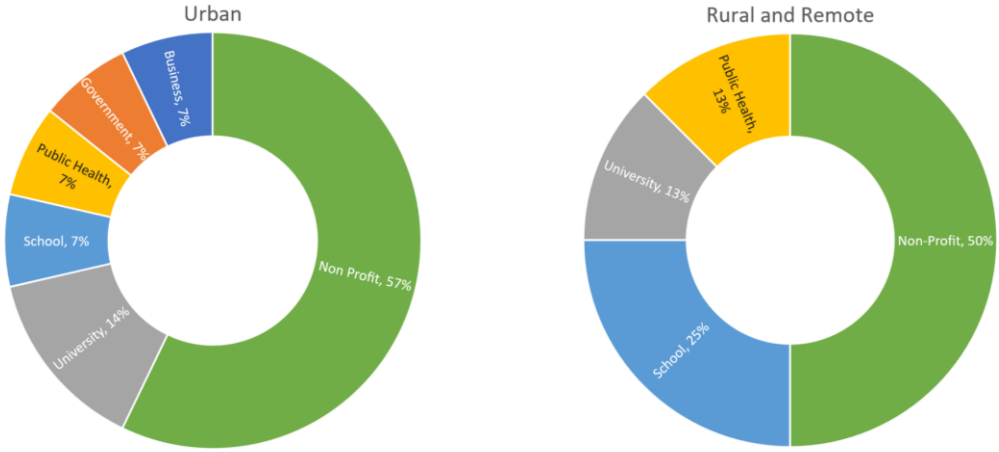

Figure 5. Summary of Stakeholders that participated in workshop 2.

Listed below are the discussion questions posed during workshop two:

1. What would the local food be used for in schools (specific classes/for school meals)?

2. What existing infrastructure could be used to support local food procurement?

3. Which sector (school district/local government/non-profit/private) should take on the role of an ‘aggregator’?

4. At what scale should the aggregator operate (school district/regional/other)?

3.4. Data Analysis

Outputs from the workshops were participant discussions under the main themes in workshops one and two. The study used the NVivo 12 software to code workshop transcripts and compile responses in each breakout group. Notes from workshops, including the Miro boards and recordings of the workshops, were re-visited to ensure accuracy.

3.5. Limitations

This research had some limitations, primarily related to conducting the cross-sectoral workshops during the COVID-19 pandemic and the need to shift seminars to an online platform rather than in-person. Despite efforts to engage participants from a wide range of sectors and lived experience for this study, the workshops lacked representation from students, food processors/distributors, elected officials, and federal and provincial Ministry staff. Some participants from other sectors had lived experiences as growers or harvesters and contributed their perspectives. There was only one stakeholder who operated an Indigenous SFP in the workshops. Furthermore, this case study focused only on gathering stakeholder input through workshops and did not include key informant interviews as a follow-up because of sufficient baseline literature to help frame the themes of the main workshops.

The cross-sectoral workshops aimed to build trust and encourage meaningful participation, deep engagement with complex problems, and development solutions. Conducting the cross-sectoral workshops online had advantages, such as diversifying the participants' geographical base and numerous challenges with this method. Both the online workshops were restricted in time and duration for discussions (1.5-2 hours)

which does not allow sufficient time to explore complex topics. Furthermore, participants were limited in their ability to network or engage with each other, which helped build trust and openness to sharing ideas in the workshops (Westley & an, 2015). One study on virtual cross-sectoral workshops highlighted several other challenges experienced in this project, including online recruitment, online facilitation, and workshop evaluations (Li et al., 2023).

Chapter 4.

Findings

This chapter summarizes the key findings from the cross-sectoral workshops. The results for each workshop fulfil the study's first objective to explore the challenges and opportunities of integrating local food in SFPs from stakeholders' perspectives in the school food environment. These findings inform the recommendations in Chapter 6.

4.1. Workshop 1: Problem & Solution Tree Analysis

The stakeholders participated in a problem and solution tree analysis in workshop one. Both the urban, rural & remote school workshop participants discussed the causes & consequences of the issues along with the solutions and the desired outcomes relating to three themes: policy, infrastructure and logistics, and funding. The perspectives shared on these three themes provide a robust understanding of the current state of SFPs and the school food supply chain. Additionally, across the themes, participants grappled with questions relating to the culture around food, the need for human resources, and agricultural support. These themes are discussed below.

4.1.1. School Food Policies do not Support Healthy Local Food

The federal and provincial governments, school districts, and individual schools in B.C. create school food policies. Participants discussed the topic of school food policies with various considerations in mind. One of the issues raised was that the Ministry of Education Area Standards policy which is a government policy that determines the maximum space allocation for all new and replacement schools, did not include language on food infrastructure. This lack of food infrastructure as a building requirement is a critical gap related to the lack of food infrastructure in schools to prepare and store food for food programs. This gap will be discussed further in the infrastructure and logistics section. Another issue was the restrictions for purchasing food from large food producers and distributors with no requirement for local food

procurement. Participants noted that a consequence of this requirement is that school food purchases only benefit large corporations that could supply food in large quantities at lower prices than local growers/harvesters, leaving less investment in the local economy.

> "…If there was to be some sort of policy around a certain percentage to procure locally that would be one way to help. When it's a contract that goes through the school district, it's their decision, and cost is always a deciding factor. Cheaper is preferred" (Public Health Representative PH5 - Urban Workshop 1)

Other root causes for the lack of a coherent school food policy identified include the lack of understanding connection between food and education and the culture influencing policy, considering feeding children as a parental responsibility and SFPs as a poverty response and devaluing the farming profession. One public health representative addressed the devaluing of the farming profession "it is one of the least paying jobs in the whole world, and there are no policies to support farmers… you know, it should be on the scale of a doctor or lawyer" (Public Health Representative PH4 – Rural & Remote Workshop 1). Furthermore, food in western capitalism is commodified instead of a human right. Students are not exposed to place-based, culturally appropriate food and therefore see no connection to cultural identity through food. Schools also dedicate very little time to meals, which undermines the social component of food consumption.

Multiple stakeholders also spoke about the reliance on volunteers and champions that advocate for and lead SFPs. When dedicated staff are not assigned to lead food programs, one participant said, "..labour is then put on the shoulders of volunteers doing this sort of thing off the side of their desk" (Non-profit Representative – Rural & Remote Workshop 1). A stakeholder from the public health sector echoed this sentiment concerning the consequence of relying on champions to lead programs:

> "…When champions retire the work that's being done can disappear completely. [Example of two champions retiring in the same year] and "poof" all that work fell away. Very close at that point in time to implementing policy. If there's no policy, there's no backup – when that champion is gone there's no support anymore and its gone" (Public Health Representative PH3 – Urban Workshop 1)

In the absence of champions or volunteers, one stakeholder spoke on the importance of institutionalizing policies and procedures to reduce the reliance on volunteers and champions and guarantee the long-term sustainability of programs:

> "…something that is challenging is because when there's a school champion, like a teacher who is invested, lots can get done, and that's amazing. But the challenge is.. school districts, often have competing priorities. And so..making those procurement policies in place at the higher levels to make that the standard so that it's not up to invested individuals to be making changes" (Non-profit Representative NP8 - Rural & Remote Workshop 1)

Participants stated the components needed to integrate local food into a universal SFP include a provincial, local food procurement working group, dedicated staff to lead SFPs and financial incentives for schools to cover the additional cost of purchasing local food. Participants also stated that establishing a minimum local food procurement requirement in school food purchasing contracts and expanding the Feed B.C. initiative to include public schools can assist with implementation.

Participants desired outcomes of these policies included a universal SFP, a thriving local economy, support for local food providers, and increased food literacy among teachers and students. Appendix A shows some points recorded during the workshop's problem and solution tree analysis.

4.1.2. Complex Food Infrastructure and Logistics

Participants identified gaps in the school food supply chain, including a lack of food infrastructure for food preparation, storage, and distribution in the community and schools in B.C. These gaps were among the most significant barriers to integrating local food into SFPs. One cause for this challenge included the local growing season not aligning with the school year. Food providers must harvest local food, process it (clean/cut/dry/smoke/can), and store it for use in schools during the school year. Stakeholders mentioned that many schools nor food providers have the space to prepare or store food for SFPs. Therefore, schools rely on external organizations or contractors to supply partially processed local food, which could cost more than buying whole local food in season and processing them at schools. Concerning limited local

food availability, stakeholders mentioned that not all schools have connections with farmers who can supply food in the quantities needed for regular SFPs. Participants noted the desire to build relationships with farmers who can provide local food at wholesale prices. However, they also stated that they often could not make those relationships or know where to look for them.

Some consequences of the lack of local food availability include a high dependency on imported foods, greater vulnerability to high food prices and supply chain disruptions, and a lack of place-based food culture. A participant highlighted that it is the lack of local food infrastructure that is impacting the availability of local food:

> "…We don't have infrastructure for that food to be available in grocery stores seven days a week. We don't have a good sense of seasonality of food because the industrial food system provides us with pretty much everything year-round, so some people don't even have a sense of when our strawberries actually are in season or what happened to the lettuce? How come there's no lettuce now at the farmers market?" – (University Representative U2– Urban Workshop 1)

Stakeholders also discussed how some schools do not have funding to hire cooks to prepare food, and not all staff know what local food is or how to prepare meals with local food, so it is important to consider food literacy training for staff who are leading SFPs.

Stakeholders identified unique infrastructure and logistical challenges in rural and remote regions of B.C. Schools in rural and remote areas are further apart from each other and from town centres, which creates the need for food to be transported long distances. One participant explained these geographic challenges they face:

> "… one thing that I know is a really big issue for rural areas is delivering…but like in our district, and I think this is the issue in all rural areas is like, the schools are really far from the city center. So you know, you could have to drive an hour. So if you were preparing hot food, you know, in town, to deliver it and keep its temperature and all that stuff. And do it in a way that's economically feasible is, is a real challenge for outlying schools. And if they don't have their own kitchen in place at the school, that makes it even more challenging" – (Non-profit Representative NP24 – Rural & Remote Workshop 1)

Additionally, local food production is limited in rural areas due to shorter growing seasons and limited farming activity. Farmers also experience challenges accessing the institutional markets because they lack the resources to build those relationships. A participant highlighted an opportunity to expand the local growing capacity could be having access to a stable market through school food procurement:

> "… as a farmer, one of my big challenges was actually marketing, it's one thing to grow food, but then to also have to access the market, the waste that ends up happening at farmer's markets, the effort that goes into CSAs. And so without the schools being a market, and if that was designed to be a market that was really accessible to farmers, um, that could help increase supply and without that market that could actually cause a further decrease in our local food supply." - (Non-profit Representative NP24 – Rural & Remote Workshop 1)

Some of the solutions raised in the workshops were about identifying existing infrastructure and distribution channels (farm/food hubs, food aggregators, food banks, food pantries, etc.) that can support the integration of local food in SFPs. Participants noted that there are programs such as Community Supported Agriculture (CSA), websites that facilitate orders from local farmers, and aggregators that group products from multiple farms to meet demand from schools. In some cases, this aggregation and distribution infrastructure already exists in communities and needs assistance to expand capacity, in other cases, this infrastructure needs initiation as described by one stakeholder:

> "...not everywhere has these kind of warehouses or collective spaces where farmers are coming together as a distribution hub. And so perhaps there needs to be infrastructure, either that is championed by a school district or by a collection of farmers that allows for that kind of amalgamation of food across different farmers" – (Non-profit/Farmer/Teacher NP26 – Urban Workshop 1)

A summary of the findings from the infrastructure and logistics workshop groups is shown in Appendix B.

4.1.3. Funding School Food Programs

The primary barrier identified in this workshop was the lack of dedicated funding for SFPs because it challenges the sustainability and delivery of these programs. The

shared concern of stakeholders was that in the absence of dedicated funding for SFPs, other priorities at the provincial and school district levels might compete over limited resources. The lack of government leadership to operate SFPs has resulted in the teachers or school staff taking over program implementation despite their lack of training or capacity to run programs. This lack of government leadership also results in the non-profit sector that depends on inconsistent grants and lacks staff resources to run programs on a limited scale.

Stakeholders from the non-profit sector that deliver many of the F2S programs identified the major challenge to the sustainability and scalability of their programs is their funding model. All non-profits rely on government and private grants for staffing and the operation of their programs. Stakeholders mentioned that the limited grant opportunities have led to many non-profits competing with each other. Consequently, the organizations with the least resources to apply for grants (who may have the greatest need) end up losing out. A participant from the non-profit sector highlighted the problem associated with the grant-dependent funding model:

> "…we talk about programming and the things that we do, but at times, we're also like chasing funders, always trying to cut red tape and work through bureaucracy, and that eats up so much time, right? Literally I'll love it if you could just do the work that we are all passionate about, instead of trying to chase funders, and trying to and worrying about, you know, how we're going to feed the employees, at the end of the day, would it be great if we were able to just do what it is that we needed to do. And sometimes it's because of those things that take up so much time administratively, that I think it does also hurt our impacts as well to a certain degree" – (Non-profit Representative NP21 - Urban Workshop 1)

Stakeholders attributed the root cause of the lack of funding to the under-valued service offered by the non-profit sector that delivers SFPs. These stakeholders argue that governments need to recognize the social and economic return on investing in SFPs programs.

One stakeholder framed the primary solution to scaling SFPs as "consistent core funding and ownership by the Ministry instead of ownership by non-profits" – (Non-profit Representative NP12, Urban Workshop 1). Solutions discussed included the funding for

SFPs to be cost-shared between the vertical levels of government and increased transparency on the total cost of operating SFPs (staff, food, supplies). Furthermore, stakeholders were concerned about the price of local food being higher than imported foods and therefore suggested that governments subsidize schools to purchase local food.

The stakeholders also discussed alternative funding models for non-profits to reduce the reliance on uncertain grants. One suggestion was to enable investments and growth of funds, similar to social enterprising. Other suggestions included the government exploring private sector social financing for "companies to actually invest in the government to finance these things that bring the social return on investment" – Non-profit Representative NP1, Urban Workshop 1). Participants also discussed the possibility of greater collaboration between non-profits to reduce competition over limited grants. Appendix C shows these findings as recorded in the workshop.

Throughout the workshops, there was a recurring theme of the lack of food culture leading to the regulation, funding, and infrastructure to support local food systems. This theme is explored more in the discussion and recommendations sections. One stakeholder shared their insights on how culture impacts action:

> "...When we see farms as valuable things in our province, we're also going to make policy that reflects that value. So, when we devalue farms, we don't we don't invest in in policy and structures to support them. But when we value them, then we will create regulation and support for these spaces" – (Non-profit Representative NP7, Urban Workshop 1)

4.2. Workshop 2: Motivation, Opportunity, and Ability Framework

The second workshop incorporated the Motivation Opportunity Ability (MOA) framework and discussed the design of an "aggregator" as a potential solution. Discussions from this workshop are summarized below.

4.2.1. Motivations

The question posed to stakeholders in this segment was, “What might motivate you to increase or support the increase in the procurement of local food at schools?”. The biggest motivation for stakeholders to increase local food procurement for schools is the benefits it would bring to children regarding nutrition, health and wellbeing, and learning opportunities. Stakeholders are also motivated by the opportunities it could bring to local food producers, providing them with an alternative product market and building relationships with schools. One stakeholder mentioned that “farmers are just motivated to sell their product no matter what” – (Public Health Representative PH4, Rural & Remote Workshop 2). Another motivation discussed is reducing reliance on the global food supply chain because of its vulnerability to climate change disruption seen in the November 2021 flooding in B.C. and price increases (Charlebois, 2021).

Some participants based their motivations on context. Stakeholders shared that the cost of food is a motivator if the price of local food is not higher than imported items. One teacher in the group also highlighted that convenience is essential to motivate teachers to participate in SFPs. This teacher mentioned that they would need “something that is easily distributed and not requiring the teacher to have to do the work...especially in the elementary space” – (School Representative S4, Urban Workshop 2). Along with convenience, another motivation shared is a paid staff position that could be in charge of food procurement.

4.2.2. Opportunities

In this part of the workshop, stakeholders responded to the question, “What types of opportunities do you have or would like to have to increase/ support the procurement of local food at schools?”. One of the opportunities highlighted was the presence of champions within some schools, parents, and volunteers who support SFPs. However, another participant reminded the group about the challenge with schools that do not have these champions and those children not having access to SFPs. Other opportunities identified include using schools in the summer for food processing, high school kitchen spaces after hours for food preparation and distribution, and growing

towers to produce food. Stakeholders also discussed the opportunities they would like to expand local food procurement. These included food storage infrastructure (like aggregators), human resources to connect farmers/local food with schools, paid employees to manage programs, teacher support, and training.

4.2.3. Abilities

Finally, in the third part of the workshop, stakeholders were asked to respond to the question, “What abilities do you have or do you think you need, to increase procurement of local food at schools?”. Participants mentioned the need for training for chefs in schools on procuring and cooking with local food and training teachers to deliver food literacy programming through toolkits and presentations at pro-D days. Identifying ways to connect schools with local food providers was also suggested as helpful for schools. Figure 6 summarises responses to the motivation, opportunity, and ability segments.

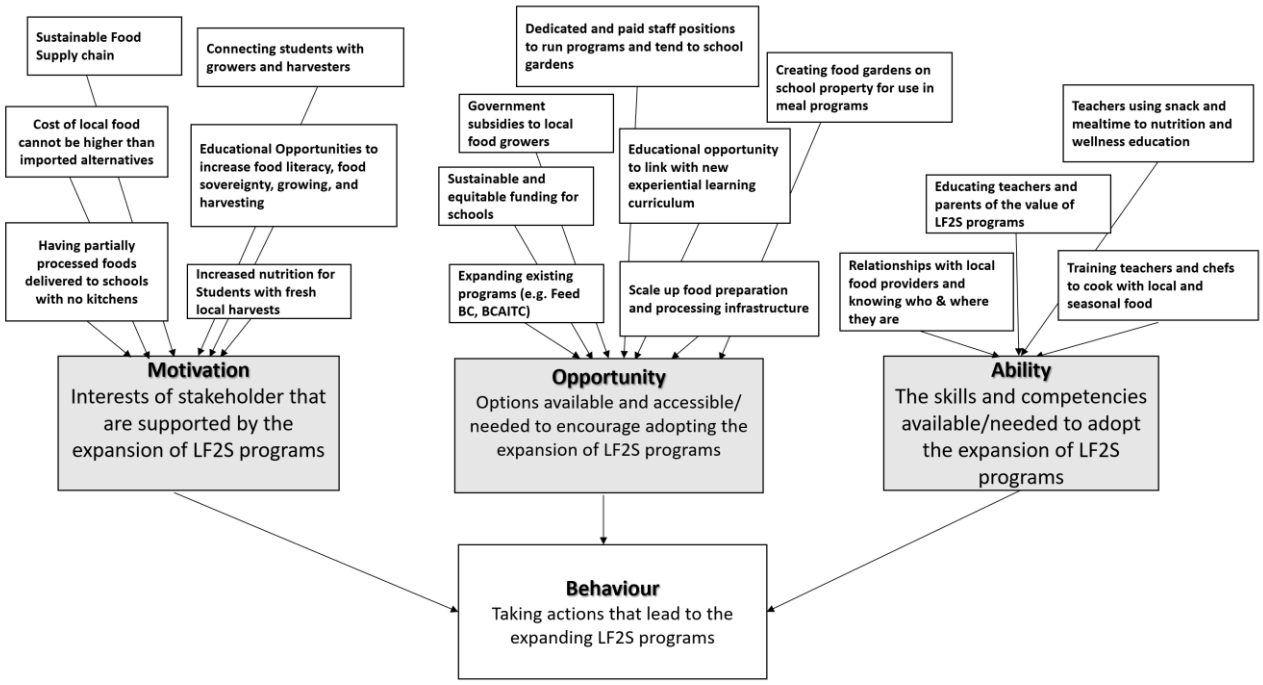

Figure 6. A summary of responses to the motivation, opportunity, and ability segments in workshop 2.

4.2.4. Aggregator Model

In response to the barriers discussed in workshop 1, the research group proposed the ‘aggregator model’ (Figure 7) as a potential solution to scaling up local food procurement by schools. Integrating aggregator info into the school food supply chain can allow small-medium scale growers to pool their harvests and meet the school's needs. These needs include volume, partial processing, packaging, storing food for use during the school year, and delivering food to schools when needed.

Stakeholders also discussed the ability to expand existing aggregators and distribution programs. A university representative shared an example of an existing aggregator:

> “there are organizations that are already putting in the time have the relationships, the one that comes came to mind… is the B.C. Agriculture in the Classroom Foundation. And so, they're aggregators and disseminators, of food. So really, let's build on the strengths of what's already out there.” – (University Representative U1 – Rural & Remote Workshop 2)

Another stakeholder highlighted the benefit an aggregator could provide to local food producers by stating that a “food aggregator hub or district cooperative kind of would really benefit in trying to reduce the amount of work it takes for the local producers to be able to get their food into the schools. And yeah, to make it easier for schools to purchase local foods.” – (Non-profit Representative NP22 – Rural & Remote Workshop 2)

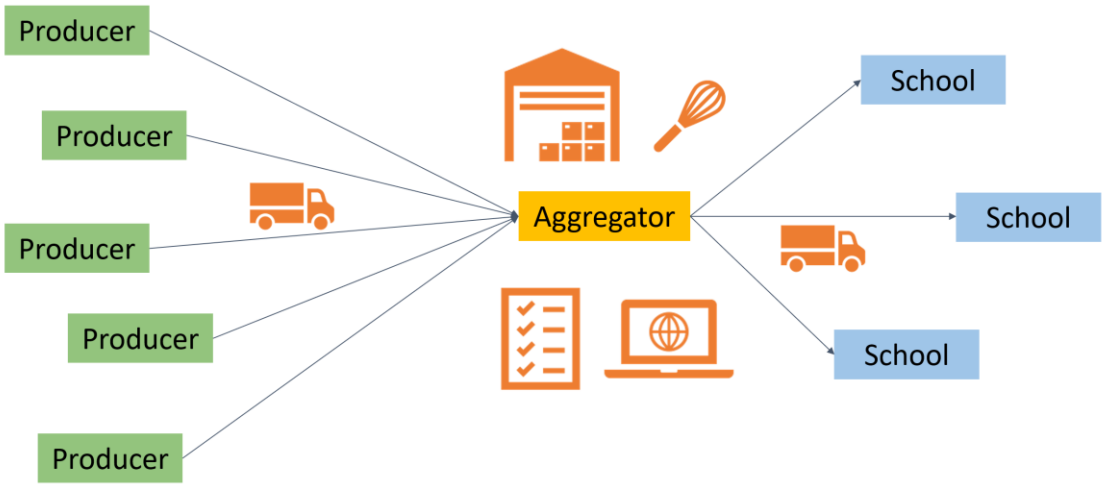

Figure 7. Generic aggregator model in a school food supply chain.

Aggregators offer a potential solution to some of the barriers discussed in the first workshop, including the seasonal variations in local food availability, small-medium producers not being able to supply large quantities, the excess cost of local food, and varying aesthetics (size, shape, and quality). Aggregators are a missing piece of infrastructure that would improve the current system and seek to connect schools and local food providers better.

Chapter 5.

Discussion

In this study, we explored the challenges and opportunities to scale the integration of local food into SFPs from stakeholders' perspectives in the school food environment in British Columbia, Canada. The findings of this study support conclusions in the literature identifying the gaps in the local food supply chain. These include policy gaps, lack of food infrastructure and dedicated funding, and lack of support for local food providers and the local economy that act as barriers to scaling local food procurement for SFPs (MacRae, 2022; Stahlbrand, 2016; Wormsbecker, 2007). This discussion is presented through the concept of scaling up, out, and deep, introduced by Riddell & Moore (2015) to describe the strategies needed to accelerate impact and scale innovative solutions to problems in complex systems. The complex system in the context of this study is the school food supply chain and school food environment. Figure 8 describes these three strategies for change.

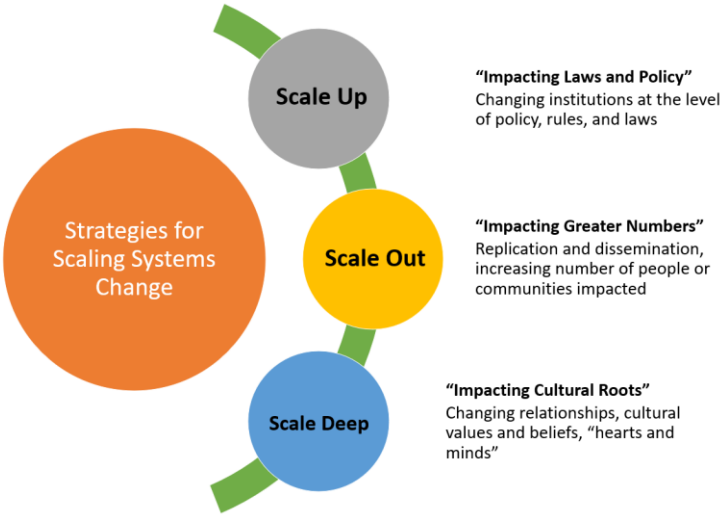

Figure 8. Strategies for scaling systems change.
Adopted from Riddell & Moor (2015)

5.1. Scaling Up and Out: Impacting Local Food Procurement Through Laws and Policy

5.1.1. Policies to Support Local Food Procurement in SFPs

The study's findings highlighted the need for government leadership to implement a universal SFP in British Columbia, Canada. Participants in this study attributed the lack of government action on a universal SFP to the underlying culture of feeding children as a parent's responsibility, a lack of understanding of the societal value of connecting food and education, and commodified food instead of being viewed as an essential human right.

This study also identified key attributes of SFPs that successfully integrated local food, consistent with findings in the literature. This study highlighted the need for the universal application of SFPs and F2S programs to benefit all students. This finding is consistent with the literature adding that the universal SFPs help reduces stigma and promotes healthy eating habits (Nutrition Connections, 2021; Taylor et al., 2020). This study found that there needs to be a connection between education and SFPs. Literature also supports linking food education in school curricula (Butcher et al., 2021; Cotton et al., 2020; Vamos et al., 2021). Our study found that local food providers can benefit from accessing institutional procurement contracts and that IFP policies that create a structured market demand for local food (by setting a minimum requirement for local food) can improve the local economy. This finding is consistent with the literature (Becot et al., 2017; Sumberg & Sabates-Wheeler, 2011). Additionally, literature shows that policies supporting income supplements for small-medium scale growers participating in SFPs can support rural economic development (Kelly & Swensson, 2017; Schneider et al., 2016).

Regarding governance structure, case studies from other national SPFs point to federal and state/provincial jurisdictions providing legislative and monetary support for SFPs. At the same time, local and regional authorities plan, implement, and monitor SFPs. Such governance structures include the School Lunch Act and School Education Act in Japan (Coalition for Healthy School Food, 2022a) and the School Feeding Law in

Brazil (Rocha, 2009). Furthermore, this study found that school districts, first nations governments, and schools need the flexibility to operate SFPs based on local context, values, and needs.

5.2. Scaling Out: Opportunities for Funding, Infrastructure, and Networks to Support Local Food in Schools

5.2.1. Sustainable & Structured Funding Models

This study found a need for dedicated and sustainable funding to cover the cost of food, labour, and infrastructure related to local food procurement and SFPs. Stakeholders from the non-profit sector that deliver SFPs and F2S programs shared many challenges associated with the present competitive grant-dependent funding model.

This study found that requirements for local food in IFP contracts are a solution to meeting the limits of the local food supply. Examples from the United States National School Lunch Program (NSLP) show that incentives may help increase the amount of local food in their program. The US Department of Agriculture primarily funds the NSLP and transfers funding to local authorities for program implementation. Some states opt to provide local authorities with a local food procurement incentive/subsidy to support local and value-based food procurement, as seen in the case of the Good Food Procurement Program in Los Angeles (Coalition for Healthy School Food, 2022b).

The federal government of Brazil wanted to harness school purchasing power in favour of small-medium food providers and to support agroecological farming practices. Brazil did not achieve its ambitious goals and is revising its national SFP policies. Their government required 30% of funding allocated to local authorities to be spent on local food from small-medium family farms (Rocha, 2009). However, (Guerra et al., 2017) show that this funding model for local food is not achieving its goal of changing agricultural practices. This goal was not reached because switching to organic practices costs more for farmers, and the funding allocated for local food did not discriminate

between local and agroecological farm products, leading to organic farmers making fewer sales/revenue through marketing to schools (Guerra et al., 2017).

The cost of local or other value-based food is context-dependent. Stakeholders in this study raised concerns about restrictive government funding requirements that force IFPs to opt for the cheapest food that meets the minimum dietary guidelines. This study found that funding models, similar to policies, should allow for flexible spending on SFPs based on local context, values, and needs. Stakeholders in this study were concerned about local food costing more than imported food, but literature has shown that local food can be as expensive or cheaper than imported foods (Charlebois et al., 2022; Noseworthy et al., 2011). Sometimes, local food isn't available and costs more than imported foods in urban areas (Mendonça & Rocha, 2015). Local foods with lower production costs (i.e. grass-fed cattle) could be cheaper in rural and remote regions in B.C., as was noticed in an SFP in Alberta (Alberta Food Matters, 2020).

Additionally, local food infrastructure for food processing and distribution affects the cost of food (Reynolds & Hunter, 2017). The lack of food infrastructure leaves schools without food preparation and storage spaces for buying and storing food in a season which can reduce food costs, relying on higher prices for processed and ready-to-consume meals (Reynolds & Hunter, 2017). The literature points to programs that are not meeting their goal of rural development through F2S programs because funding is tied to enrollment, leaving rural schools with less funding for SFPs. Funding should consider food supply chain challenges and the potential for higher food costs in rural areas (Guerra et al., 2017).

Governments often rely on cost-sharing to reduce the burden on public funds, commonly practiced across Canada (Ruetz, 2022). Literature shows that cost-sharing SFP models that operate on a tiered system, with some families paying for the program while others don't, are complex and might have unintended consequences for students. The federal government gauged the public interest in this cost-sharing model through a recent national survey. However, experts studying this system in the US National School Lunch Program advise Canada to avoid the means test/income test for program eligibility because federally set income eligibility thresholds are not adjusted for the

geographic differences in the cost of living (U.S Government Accountability Office, 2014). This miscalculation leads to many children who face poverty not gaining access to free meals (Coalition for Healthy School Food, 2022b). Advocates in the US have been calling for a Universal Free School Meal program since 1946 because they claim that “the three-tier system has proven inaccurate, inequitable, burdensome, inefficient, inhospitable, exclusionary, stigmatizing, and deterrent” (Coalition for Healthy School Food, 2022b). Furthermore, when businesses, philanthropic organizations, and other corporate interest groups share costs for SFPs, it is imperative to set conditions on what they can fund to prevent corporate interference with public policy (Baker et al., 2017; Field & Gauld, 2011).

5.2.2. The Infrastructure of the Middle

This study found that there is low availability of local food to meet the demand from SFPs, and literature suggests that the reason is the lack of infrastructure to support local food supply chains (MacRae, 2022). Stahlbrand (2016) identifies the infrastructure needed to facilitate the integration of local food in SFPs as the “Infrastructure of the middle”. This “infrastructure of the middle refers to the resources, facilities, and networks that create a critical mass, enabling alternative food producers to meet the needs of high-volume, high-profile food service clients, especially public sector institutions” (Stahlbrand, 2016, p. 33). This infrastructure can benefit schools that lack food preparation space or the staff capacity to source and procure local food and small and medium-scale food producers that need creative ways to meet institutional demand for local food.

Food aggregators are one type of infrastructure that can support local food providers' and schools' access to local foods. Food aggregation can take the form of primary aggregators, which combine products from multiple sources and sells to buyers, value-added food aggregation (food processing, storage, and product development), or distribution, marketing, and sales aggregation (NRSB.C., 2020). Sixty active food aggregation initiatives across B.C. are concentrated mainly in the lower mainland (NRSB.C., 2020). These aggregators can be owned and operated by co-ops, non-profits, for-profits, academic institutions, and governments such as the Leduc processing

centre in Alberta (Government of Alberta, n.d.). This study also identified opportunities to expand the scope of two existing food aggregators, Cow-op and BCAITC to supply local food to schools.

Examples from other SFPs utilize this infrastructure of the middle to support SFPs. In Japan, 'school lunch centres' were created to support the national school lunch program across regions by preparing meals and catering to schools that do not have kitchens. These centres act as value-added food aggregators (Coalition for Healthy School Food, 2022a). In Quebec and some cities in B.C., the Breakfast Club of Canada partners with food banks and food hubs, which already have food storage and distribution infrastructure to supply food to schools. Utilizing food bank infrastructure in this manner expands the scope of their function to more than a poverty response organization (personal communication, November 14, 2022). The Breakfast Club of Canada's partnership with the Okanagan Community Food Bank is a local example of this model in practice (Breakfast Club of Canada, 2018).

In addition to built infrastructure, such as warehouses for food aggregation and trucks for distribution, the middle infrastructure also includes tools to support schools in coordinating food procurement (Stahlbrand, 2016). Findings from the MOA framework used in workshop two indicated that schools are motivated to integrate more local food into SFPs because of their numerous benefits for students and local food providers. Still, schools need to improve their ability to procure more local food for consumption in schools, and stakeholders identified the need for greater connection with local food providers. An opportunity for schools with limited staff capacity to manage SFPs is to partner with group purchasing organizations that can manage food purchasing contracts and make connections with local food providers. An example of one such group purchasing organization is MEALSource. This non-profit facilitated group food purchasing for the Student Nutrition Program in Ontario (Region of Waterloo Public Health and Emergency Services, 2018).

Literature supports that collaboration and connections are essential in scaling and replicating solutions to complex problems (Kuhl & Sharp, 2019; Pan-Canadian Joint Consortium for School Health., 2010; Riddell & Moore, 2015). Stakeholders in this study

called for greater collaboration and connections within the school food supply chain. This study found that increased connections are needed between the federal government, provincial ministries of Education, Agriculture, and Health, and school districts to develop policies to support SFPs. Stakeholders also requested increased connections between organizations implementing school food programs to share knowledge, troubleshoot, and reduce funding competition. The cross-sectoral workshops in the study brought 45 stakeholders together to help reinforce the need to fill the policy, infrastructure, and funding gaps in the school food supply chain.

5.3. Scaling Deep: Opportunities for Food Literacy Education to Impact Values and Culture

The culture around SFPs and local food producers may have contributed to low interest and investment in SFPs and F2S programs. This study found that the culture around food in Canada is based on the commodification of food in the food system, that farmers are not considered essential workers, and that feeding children are seen as a parent's responsibility regardless of their means. This study also found that a consequence of the lack of investment in SFPs is the over-reliance on champions. In the context of institutions, literature establishes the importance of embedding program goals into institutional culture and procedures to avoid situations such as "champion drift" (Reynolds & Hunter, 2017). Additionally, education is vital in shaping values and practising place-based food culture. This study found that schools can use mealtimes to increase food literacy if teachers receive training and resources for program delivery. Case studies point to many examples where SFPs have incorporated place-based traditions and culture, such as *Shokuiku*, the Japanese food education curriculum taught in conjunction with school mealtime (Coalition for Healthy School Food, 2022a).

Schools can celebrate the diverse Indigenous and immigrant cultures in B.C. by serving culturally appropriate food in SFPs. However, this study found that the foods currently available in schools are not culturally relevant nor place-based and thus disconnect students from their cultural identities. The literature concludes that integrating local food into SFPs can support Indigenous food sovereignty, and this study supports this conclusion (Alberta Food Matters, 2020; McEachern et al., 2022).

Participating in SFPs can be a source of shame if the programs are offered to low-income students who qualify for them (Fleischhacker & Campbell, 2020). Literature shows that many families experience shame at schools for not paying for school meals and having school meal debt (Lou, 2020; Thebault, 2019). Case studies highlight the importance of establishing a culture of equality and no stigma through a universal SFP that all school staff, teachers, and principals participate in and eat with the students (Alberta Food Matters, 2020; Coalition for Healthy School Food, 2022a).

Chapter 6.

Recommendations and Conclusion

6.1. Recommendations

While integrating local food into SFPs has proven to have many economic, social, and environmental benefits, the barriers identified in this study are currently preventing the expansion of these programs across the province. The following recommendations suggest integrating local food into a universal SFP in B.C.

6.1.1. Establish legislation that sets out clear goals, roles, and responsibilities for implementing, monitoring, and evaluating the impact of scaling up local food procurement in SFPs.

This study recommends that provincial and federal governments adopt legislation to support the implementation of universal SFPs. Creating new legislation for SFPs provides an opportunity to sets targets, outline roles and responsibilities, and include a minimum requirement for local food in school food purchasing contracts. Allowing local authorities the flexibility to implement SFPs can enable programs to adapt to the local context based on their local food production capacity and by consulting with local food providers. Additionally, this study recommends updating policies such as the Area Standards policy to include kitchen space for cooking and storing fresh food to overcome the provincial policy barrier to creating school food infrastructure. Furthermore, governments should consider developing a framework for monitoring (indicators) and evaluating programs to track progress on implementation.

6.1.2. Provide stable, sustainable, and non-competitive funding for SFPs. Consider cost-sharing between federal and provincial governments and direct funding to local authorities for program implementation.

This study recommends that the federal and provincial governments provide dedicated funding for SFPs. This funding should cover the cost of food, staff, and infrastructure to support programs and remove the reliance on volunteers, donations, or fundraising initiatives. Renewing the budget for SFPs annually and removing competition for funding is critical to ensure equitable and sustainable programs. Furthermore, the funding should allow local authorities the flexibility to purchase food based on local needs. Funding models should also support local and value-based food procurement through incentives or supplements. The government should evaluate the local food system to identify if the funding meets the intended goals.

6.1.3. Invest in the local food economy and infrastructure to scale out local food procurement.

This study recommends that the government support the local food economy, including small-medium growers and harvesters. The government can achieve this by providing income supplements to local food providers participating in SFPs, investing in infrastructure to increase local food production, processing, and storage capacity, and expanding local food distribution channels. An opportunity identified in this study is that the school food supply chain can benefit from expanding existing programs such as the BCAITC, Feed B.C., a network of Food Hubs (aggregators, incubators, and distribution channels), and food banks. Furthermore, this study recommends that schools have the skills and resources to facilitate food procurement and connect with local food providers. This study also suggests including staff training and group food purchasing organizations in implementing SFPs to support schools that lack resources to coordinate food procurement.

6.1.4. Create platforms for collaboration and information sharing and include food literacy in school curricula.

This study recommends creating new networks for stakeholder engagement and information sharing or expanding existing networks to facilitate cross-sectoral partnerships within the school food supply chain. Networking opportunities for groups implementing SFPs provide a platform to share lessons learned and best practices across the province. Increasing transparency on the actual cost of implementing SPFs (labour, infrastructure, food) in various school districts can hold federal and provincial governments accountable for funding commitments.

This study also recommends that the B.C. education curricula include food literacy education. Linking SFPs with education curricula to increase food literacy, establish place-based food culture, and build connections with local food providers has the potential to create long-term change in the food system. Responses to the MOA framework identified the need for increased skills and training in food literacy, local food procurement, and cooking with seasonal ingredients. Therefore, this study recommends that school districts provide teacher training in food literacy, food literacy, and a land-based learning curriculum along with SFPs. Additionally, establishing school policies for serving and consuming meals can help reduce the stigma associated with SFPs. These policies can emphasize the need for the universality of meals, for staff to eat with students, practice food gratitude before and after meals, and reduce food waste. This study also recommends that SFPs provide culturally appropriate and seasonal foods to support local food systems and celebrate cultural diversity and identities.

6.2. Conclusion

The federal government's commitment to launching a universal cost-shared SFP has created a policy window for scaling local food procurement in schools across B.C. Including local food in SFPs has the potential to impact the long-term health, well-being, and futures of all school-aged children in a culturally appropriate and non-stigmatized manner. Schools in B.C. can leverage their purchasing power to support food sovereignty and the local economy and shape local food systems as they have across

the world. However, the policymakers must address the critical gaps in the school food environment and local food supply chain to ensure equitable and sustainable SFPs. This study addressed the following research objectives: 1) To explore the challenges and opportunities of scaling local food procurement in SFPs from the perspectives of stakeholders in the school food environment; 2) To develop recommendations for scaling the integration of local food in SFPs in urban and rural schools in B.C.

Two cross-sectoral workshops with participants in the B.C. school food supply chain were conducted to meet the first objective. Participants in these workshops identified the lack of government leadership in policy, funding, and food literacy education to support schools. Participants also identified opportunities for scaling the integration of local food procurement in SFPs. These opportunities included creating new legislation to support SFPs, supporting small-medium food providers, expanding existing food infrastructure (such as food aggregators) and providing dedicated funding in place of competitive grants for SFPs.

Finally, by applying the scaling up, out, and deep framework by Riddel and Moore (2015), this study integrated participant insights to scale local food procurement in a universal SFP. This framework illustrated pathways to scale innovative solutions in complex systems and was used to identify recommendations outlined in Chapter 6.1. The recommendations to scale up include requiring local food procurement in SFP policies and establishing legislation for implementing, monitoring and evaluating SFPs. Providing funding dedicated to SFPs and distributing funding to local authorities in a non-competitive manner is vital for the sustainability of SFPs. Additionally, government investment in the built infrastructure and social capital is essential for scaling out SFPs to reach more schools. These investments can include income supplements for small-medium scale local food providers participating in SFPs and funding food infrastructure (food aggregators, food hubs, distribution networks) to increase local food availability. School districts can consider partnering with group purchasing organizations to support local food procurement can be a solution when staff resources are limited. Social capital among stakeholders in the school food supply chain can be strengthened through networks to share knowledge and troubleshoot problems. Scaling deep can be achieved by connecting SFPs with education curricula to increase food literacy, establish place-

based food culture, reduce stigma, recognize and value local food and its origins, and connect with local food providers.

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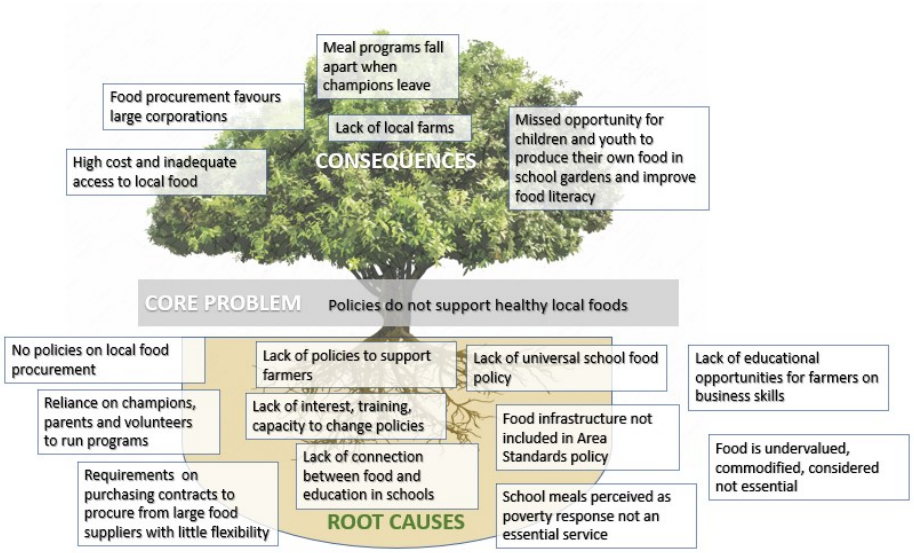
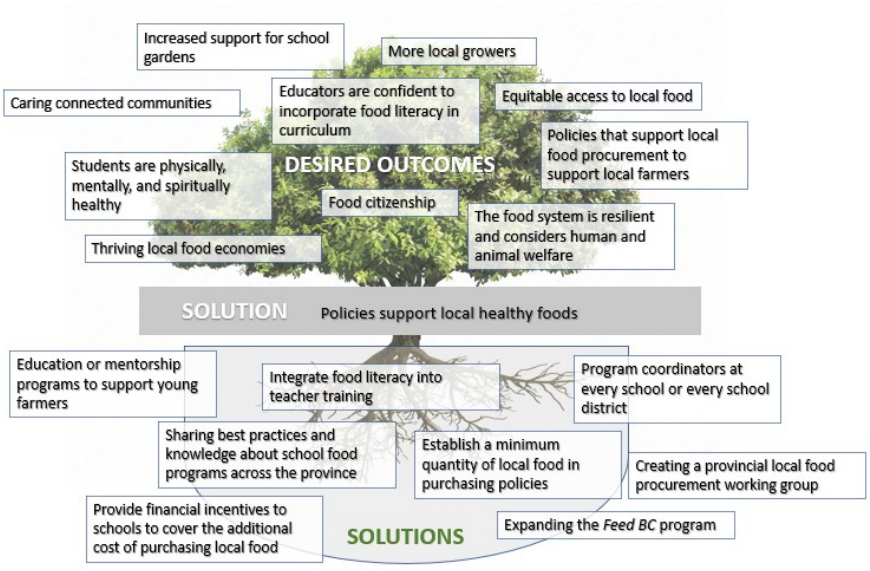
Appendix A.

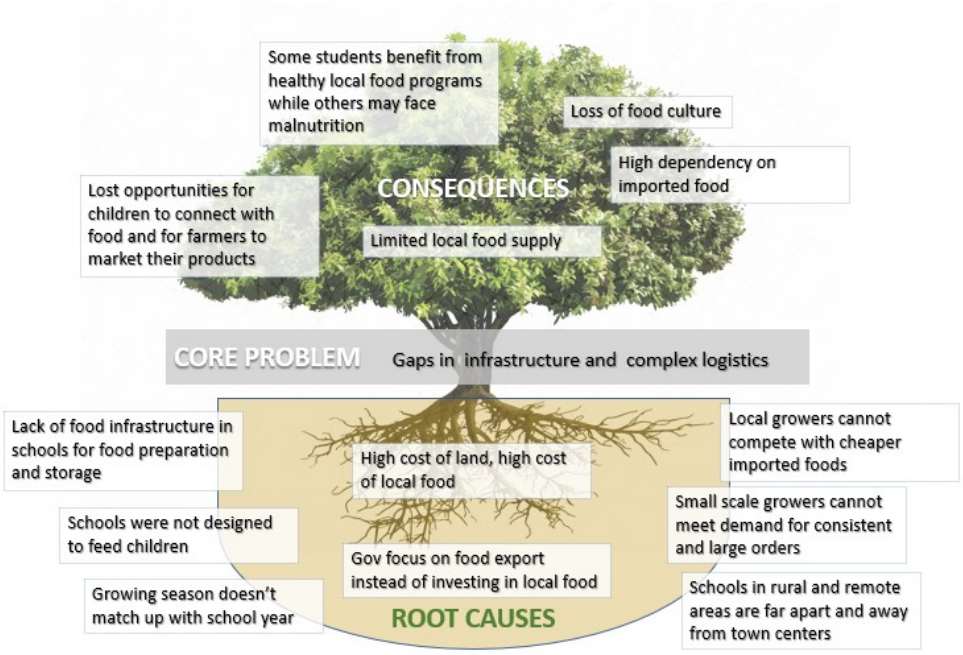
Stakeholder notes on school and local food policy as captured in workshop 1 problem and solution tree analysis.

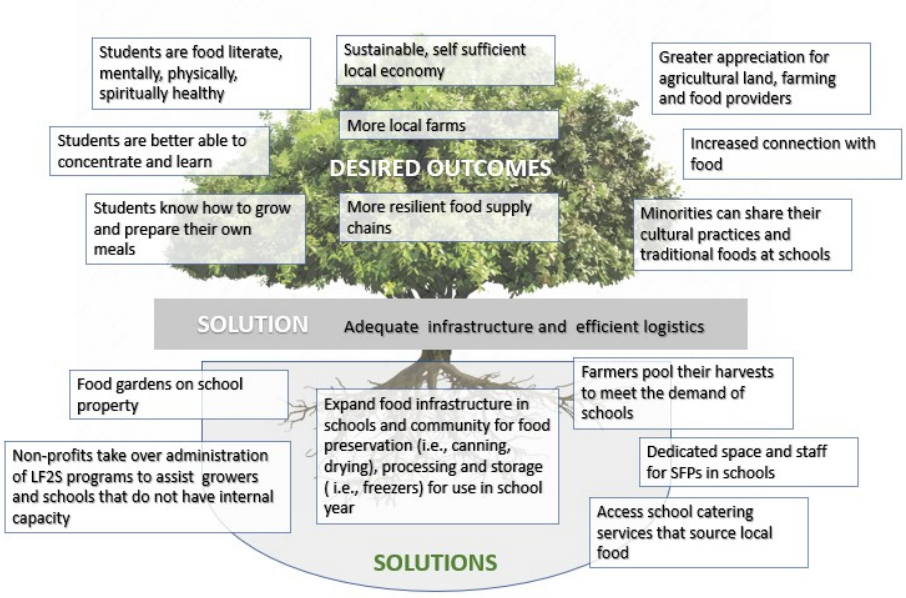




Appendix B.

Stakeholder notes on infrastructure and logistics as captured in workshop 1 problem and solution tree analysis.





Appendix C.

Stakeholder notes on infrastructure and logistics as captured in workshop 1 problem and solution tree analysis.