



FOOD WASTE REDUCTION

TRENDS & KEY LEVERAGE POINTS FOR CANADIAN POLICY

Trevor Rous

Introduction

Just over two years have passed since the defeat of Private Member's Bill C-231 in the House of Commons, legislation proposing a national Food Waste Awareness Day as well as a comprehensive federal strategy addressed to avoidable food loss. It has been eight years since the publication of the most well-known report quantifying the cost (an estimated \$27-31 billion CDN annually) of food waste in Canada (Gooch et. al., 2010). The passage of time in these instances suggests that reducing food waste has yet to become a priority for Canadian public policy; this is surprising, because international organizations including the UN, FAO, EC, OECD, and various governments around the world have given the issue a high profile.

The global ambition to avoid food waste is driven by the recognition that when food is lost, all of the resources required to grow, process, package and transport it are wasted as well, including significant amounts of water and fossil fuel energy. What is more, analysts have shown that the environmental costs of carbon dioxide and methane emissions, landfilling, deforestation and biodiversity loss are rarely accounted for in estimates of the economic costs of food waste. There is growing interest in reducing food waste as a means of addressing climate change, and underlying this interest is the knowledge that understanding its causes can take us a long way toward evaluating the sustainability of Canadian diets. This paper examines the scale of food waste in Canada, some emerging trends, possible policy responses and their likely impacts based on the comparison of outcomes across jurisdictions.

Waste in Canadian Food Systems

The main function of food systems everywhere is to provide adequate nutrition for the population. The pressures associated with growth in overall population and purchasing power in the global South project to a 50-70% increase in worldwide food demand by 2050, and conceivably 100% in the next 40 years (Bond et. al., 2013). In contrast to the rising demand for food, however, a key paradox of the food systems in wealthier countries such as Canada is that food insecurity and food waste co-exist. On one hand, 1.7 million Canadian households (the equivalent of more than 4 million people) do not eat often or well enough to meet their nutritional needs (Dachner and Tarasuk, 2018). It is notable that food insecurity here results *not* from a lack of food, but from people's inability to pay for it.

On the other hand, the sustainability of Canadian food systems is significantly undermined by inefficiencies and wastage. By definition, food loss and waste (FLW) is comprised of all food and inedible parts of food that are removed from the food supply chain (including crops that are ploughed in or not harvested) and disposed of (i.e., incinerated or landfilled) or partially recovered (i.e., via composting, anaerobic digestion [AD], or used in bio-energy generation) [FUSION, n.d.].

Most estimates are that a 40 percent share of all food produced in Canada is lost or wasted, which provides evidence of the unsustainable use of resources such as farm land, energy, water and fuel. Waste happens at all points from field to fork, during (1) cultivation and harvesting; (2) transport and storage; (3) processing and manufacture; (4) distribution and commercial retailing; and (5) consumption by end-users including food service operations and private households. The largest contributor along the chain is the consumer, who wastes more than half of the food that ends up in Canadian landfills.

Some quantitative research has been conducted on the full scope of economic and environmental impacts of Canadian diets, but qualitative research into wasting behaviours at the household/ consumer level will prove equally important because it is there that factors to do with the regional specificity of food systems, waste management systems, and cultural norms related to food all coalesce. Given the complex nature of food waste, people's household routines such as planning, shopping, storing, cooking and managing leftovers each play a decisive role in the generation of avoidable waste.

Trends and Future Outlook

Four main trends are apparent in efforts to reduce food waste in Canada and elsewhere. Each represents a key leverage point for the future development of policy aimed at food waste reduction in Canada.

- *A shift in approach from addressing avoidable food loss as predominantly a waste management issue, to one of preventive policy.* Most Canadian municipalities have bylaws requiring that organic waste be diverted from local garbage disposal streams, though not all provide curbside pickup of source-separated organics (SSOs). Aerobic composting (AC) and anaerobic digestion (AD) provide options for partial waste recovery but the former has an estimable emissions profile and the latter can prove energy-intensive and costly. Policymakers in jurisdictions elsewhere have demonstrated how to effectively mobilize food industry and public awareness about how to prevent waste simply by not creating it.
- *Reducing food waste is discussed as inextricably linked to climate mitigation and emissions reduction targets.* There is little doubt that global food insecurity is growing in part because food systems are susceptible to various disturbances and interruptions, including the unpredictable weather patterns associated with climate change. In the context of this new reality, experts are building the principles of adjusting production and eliminating waste into the design of Paris-compliant food systems. According to Environment and Climate Change Canada, greenhouse gas (GHG) emissions from the Canadian agribusiness sector increased by 22 percent between 1990 and 2014, with the consequence that agricultural operations now account for roughly 10 percent of the country's total emissions. Intuitively it would seem that farming cannot be counted among Canada's worst 'climate culprits', the transportation and fossil fuel sectors, but it is fairly incontrovertible that the upward trend of emissions from industrial-scale agriculture needs to be reversed. Globally if we count the emissions linked to food processing, packaging and transportation to the current scale of high-intensity farming, the industrial food chain is actually responsible for somewhere between 44 and 57 percent of the world's GHG emissions (GRAIN, 2011). Analysts increasingly argue that reducing the over-production of food and avoiding waste provide ways of addressing climate challenges head-on.
- *Efforts at food waste reduction are being aligned with other global sustainability initiatives.* Policymakers have recognized that economic globalization has increased people's dependency on geographically distant food systems. At the same time, food advocacy organizations have persuasively shown that global food insecurity is increasing precisely due to the heightened interconnectedness and complexity of these industrialized supply chains. Nongovernmental organizations (NGOs) and nonprofits are promoting sustainable development by investing in agroecology (practices that mimic natural systems and so minimize resource loss) and relocalization in both the global North and South, which considered together use about 40 percent of the Earth's land surface for agriculture. Localized agroecology initiatives provide an alternative to industrial food systems by reducing pollution and chemical use, preserving active soils, increasing biodiversity, and protecting water. Preventing food waste is an important aspect of environmental conservancy because food that is ultimately lost or wasted along the industrial food supply chain puts unnecessary pressure on the world's climate, land and water resources. Accordingly, the UN's Sustainable Development Goal (SDG) 12 includes the declaration of Target 12.3, which aims to cut post-harvest losses and per capita consumer food waste in half in by 2030.
- *A focus is emerging on improved information management – leveraging technological innovation to help quantify FLW data and enable consumer responsibility.* To achieve objectives like SDG 12.3 will require detailed understanding of the drivers of waste generation at all points of the food supply chain on a country-by-country basis. Policymakers are increasingly aware that the analysis of 'big data' makes it possible to identify where avoidable food loss happens and measure its impacts on food cost inflation,



energy use and the environment. At the pre-consumer stages, regional logistics centers are using technologies like radio-frequency identification (RFID), cloud-based lifecycle assessment (LCA), satellite communications and digital footprinting applications to record and transmit the data required to minimize losses of fresh produce from the time it leaves the farm. Information on holding temperatures, humidity and respiration rates can be collected along the journey to market and used to devise the optimal distribution plans for end-point retail sites. Expected expiry time (EET) technologies update in real time and make freshness information accessible at the consumer level through devices like

smartphones. Bringing consumers online is essential for the success of information technologies in the area, because while the potential gains for overall supply chain efficiency are well-established at the pre-consumer stages, it will be necessary to focus future efforts on the consumer stage of waste generation. Digitalization enables supply chain managers to calculate potential FLW recovery rates, which are useful to translate into emissions and energy statistics when promoting awareness of the full environmental costs of waste to consumers, and many of the same platforms are used to meet traceability and sourcing sustainability standards for particular food products.

Policy recommendations

Food loss and wastage everywhere is affected by the impact of well-defined policies and regulations, and the presence or absence of these can account for some of the cross-national differences in approaches to food waste management and prevention strategies. The following are some prospective policy measures that could mitigate food waste generation in Canada, ordered according to their place along the food supply chain:

- *Establish time-framed food waste reduction targets.* By setting targets, senior levels of government assume a key role in the planning of food waste policy. By raising awareness of these targets among stakeholders, the government can facilitate multi-sectoral change and remain an active participant in the development and monitoring of federal as well as provincial and municipal waste reduction strategies, conceivably as part of a comprehensive national food policy. Correlation of food waste targets with environmental sustainability objectives can, for example, make it possible for food industry stakeholders to access climate financing for waste reduction initiatives.
- *Incentivize investment in agroecological solutions.* Most analysts would agree that Canadian agribusiness must substantially adjust its output and simultaneously reduce its negative environmental impact. Utilizing leverage points to address the relationship between food system productivity and

resource use may transcend the conventional scope of responsibility of Agriculture and Agri-food Canada, but all stakeholders in the agribusiness sector share an interest in promoting farming methods that prevent avoidable resource loss. Many researchers contend that agroecological practices are more efficient and less environmentally damaging because they maintain high species diversity, preserve biologically active soil, and promote natural pest control as well as nutrient recycling. Canadian agriculture should explore applications for agroecological practices such as using cover crops, composting, crop rotation, reduced tillage, organic pesticides and planting beneficial crops together when growing food.

- *Implement a combination of legal and non-compulsory measures to protect against post-harvest food loss.* In-line with the principle of gearing the intensity of farming operations to societal needs rather than to market projections, producers should be discouraged from disposing of edible food that does not adhere to market size and aesthetic standards. Food manufacturers should be recognized as key upstream GHG emitters during their processing and packaging operations, and as waste culprits when they produce incomprehensible date labels, excessive or non-resealable packaging, and sales strategies such as bulk



packages that may encourage overbuying. The retail sector – regional distribution centers and supermarkets – should be targeted for the implementation of measures for waste prevention, such as dispensing with the produce quality grading system because it can provoke wasting behaviours. Policymakers should direct manufacturers and retailers to streamline and optimize the expiry date labels for pre-packed food products, mandating the removal of sell-by date labels completely from some product groups, as well as extending the list of food products exempted from indicating a best-before date.

- *Promote awareness and demonstrate connectivity between policy objectives and consumer responsibility.* A comprehensive approach to food waste reduction prioritizes prevention, but in so doing must resist the tendency to put responsibility solely on more capable consumers. Most analysts agree that awareness-raising is the preferred policy option to stimulate preventive behaviours, and there is little doubt that more information on the shelf-life of food and better storage possibilities are favorable initiatives that engage the public to reconfigure their household food practices. Consumers may be unaware of the relationship between environmental problems and food wastage, or they may believe their impact to be minimized because of composting food waste or feeding surplus food to their pets (Graham-Rowe et al., 2014). However, larger regulatory frameworks and infrastructures, as well as technological innovations and financial incentives will be required to support the kinds of policy interventions that drive food waste prevention from a systemic perspective. Because food being wasted in households may already be provoked by upstream actors in a given food system, policymakers must be willing to implement the right mix of policy measures to foster cooperation with stakeholders along the entirety of the supply chain, and translate policy objectives into initiatives that support consumer efforts to adopt sustainable diets and minimize waste.
- *Base policy development on the accurate quantification of food waste at the post-consumer stage of the food supply chain.* Food waste management is of vital importance to effective municipal service provision, control of waste treatment and landfill costs, as well as to broader economic efficiency and environmental conservation goals. In order to address policy to the causal factors behind avoidable food loss, it is necessary to accurately measure the extent to which food is being disposed as part of the garbage streams of private households. Household-level composition audits of all three waste streams (garbage, recycling, and organics) can provide more detailed observations of the types of food waste produced in households, the amounts of food waste intentionally or mistakenly placed in the garbage and recycling streams, as well as the ratio of avoidable to unavoidable food waste in households. The recent development of a globally-applicable FLW accounting and reporting protocol by a multi-stakeholder partnership in Europe (World Resources Institute, 2016) has made direct measurement considerably easier and allows for cross-jurisdictional comparisons. Composition studies of food disposed across waste streams enables municipalities to optimize strategies for landfill diversion and eliminates much of the imprecision associated with waste estimates arrived at through household self-reporting.
- *Expand the availability of taxation credits, subsidies and value-added tax (VAT) exemptions on food donations.* Policy should support programming that provides tax credits and VAT exemptions to incentivize donors in the retail food and hospitality sectors to redistribute food surplus instead of discarding it. Canada still imposes VAT rates on donated food, where many other countries (including France, Germany and Italy) have conditionally dispensed with attaching VAT liability to food that corporations and institutions donate to food banks and charities (O'Connor et al., 2014). Subsidies provided to operators and/or users of workplace and school cafeterias can be implemented to shift meal provision outside of the home and reduce overbuying at the household level.



- *Progressive increases of landfill taxes, leading to bans on organic waste in landfills.* The ‘polluter pays’ approach is implemented on the assumption that if the real costs of natural resource use for food production (and disposal) are reflected in prices, actors along the supply chain will be more likely to avoid wasting behaviours. Public and private waste management operators must adopt targets for the progressive elimination of landfilling with biodegradable waste, and organic materials charges levied on end-users in the retail, wholesale and hospitality sectors should be increased over time. All

municipalities should implement weight- or volume-based ‘pay-as-you-throw’ programs that levy fees on the curbside pickup of organic waste from households, and implement appropriate restrictions and allowances for mixing food scraps, yard trimmings and pet waste as part of curbside SSO service. Organic waste disposal fees should be ushered in essentially as a surcharge levied on top of a landfill facility’s standard tipping fee for banned materials. These measures should culminate in across-the-board food waste bans from landfills and help to divert SSOs to composting and digestion facilities.

Likely Impacts Based on Outcomes

Different jurisdictions in Canada now face the challenge of defining targets and strategies to support the higher policy level of general legal frameworks – national acts, provincial and municipal laws – addressed to the challenge of food waste. To date, the policy and regulation options pursued have mainly been non-compulsory and voluntary initiatives, though this can be expected to change with the growing interest in mitigating food waste generation. Most significantly, a mix of voluntary initiatives and legislation can help to direct food waste prevention strategies, and for policies of this kind to be effective they need to be comprehensive and flexible enough to engage the widest possible range of food system stakeholders. What follows is a summative (though by no means exhaustive) inventory of impacts associated with the implementation of legally-binding FLW policies and non-compulsory programming in various international and Canadian jurisdictions. Evidence of the mitigation outcomes achieved in jurisdictions here and elsewhere, we believe can prove instructive for stakeholders seeking to reduce FLW at different stages along the Canadian food supply chain.

priority areas including charitable initiatives, environmental sustainability and FLW reduction strategies. The more than 300 FPCs in North America have been particularly effective in advocating for non-compulsory initiatives that encourage businesses in the agribusiness and retail food sectors to adopt waste reduction practices.

- At the planning stage of food systems in Canada and the US, the issue of waste has consistently been addressed through the mandates of local food policy councils (FPCs). Comprised of representatives from community and environmental groups, farmers, retailers, waste managers and consumers, these collaboratives bring stakeholders together with public health officials and academic researchers to inform policy and devise solutions in food system

- Food manufacturers and retailers around the world have cooperated with governments, manufacturers and research organizations to reduce avoidable FLW, as well as adjust portion and packaging sizes. In Britain the WRAP (‘Waste & Resources Action Programme’) charity administers its Food Waste Reduction Roadmap, a comprehensive reduction and prevention strategy addressed to food manufacturers, retailers and hospitality service companies. Supported by WRAP, governments across the United Kingdom have encouraged retailers to clarify the date-labelling system for packaged food, to clear consumers’ misunderstanding of the meaning and safety implications of ‘best before’ and ‘use by’ date labels. Since 2016, France has enforced a law banning supermarkets from throwing away surplus edible food prior to expiry of their ‘best before’ date.
- Legislation in France has also mandated retail sector donations to charitable organizations, and allowed commercial donors to deduct a fixed percentage (60%) of the value of those donations from their corporate income tax. Germany has implemented a similar incentive structure for money or food donated from supermarkets to combat food insecurity in



communities. Portugal has an elaborate tax deduction scheme that enables donors to subtract 140% of the value of the food at the time of donation, provided that the food is used for a social purpose (e.g. supplying food banks) and limited to 8/1000 of the donor's turnover (O'Connor et. al., 2014). Spain practices a slightly different arrangement, permitting 35 percent of the value of food donated by businesses to be claimed as corporate VAT credit.

- Volunteers in Canadian cities organize fruit and vegetable rescue programs, collecting surplus produce and sharing it with people in need through organizations like Not Far From the Tree in Toronto, Hidden Harvest Ottawa and FruitShare Manitoba. Social enterprise and other alternative funding models support initiatives of this sort. Making good use of food that would otherwise go to waste is the core idea, boosting efficiencies with food that is already in circulation as part of the supply chain.
- Many governmental authorities also implement compulsory regulations that enable businesses in the hospitality industry to reduce their generation of food waste. The government of Ireland, for example, has legislation requiring that businesses separate food waste for disposal using a specialized bin service for which subscribers are charged on a by-weight basis. What is more, the government's environmental protection agency promotes better food management practices among businesses through its 'Less Food Waste More Profit' program and awards its 'Green Hospitality Award' to actors in the hotel, restaurant and catering sectors who comply with optimal waste measurement techniques and meet or exceed reduction targets. Scotland has enacted similar legislation mandating the source-separation of organics from other recyclables in its commercial sectors as a means of diverting biodegradable waste from landfills. In Japan, the national Food Waste Recycling Law outlines the requirement for business operators with more than 100 tonnes of wasted food to report the exact amounts of organic waste sent for recycling into animal feed or fertilizer.
- There are multiple possible regulatory levers designed to reduce and prevent FLW at the household level. Most prominent among these are the information and awareness-raising campaigns that have been successfully implemented all over the world. The longest-running and best-known of these is WRAP's 'Love Food Hate Waste' campaign in Britain, which was founded in 2007 and has since targeted household food waste generation with benchmarked interventions. The 'Think/Eat/Save/Reduce your Foodprint' campaign in Europe was initiated in 2013 as a partnership between the United Nations Environment Program (UNEP) and the FAO, and has since been expanded to provide guidance for governments, businesses and consumers around the world on effective FLW prevention strategies (UNEP, n.d.). Other important waste awareness and reduction campaigns include 'ReFed' and 'Save the Food' in the US, 'ForMat' in Norway, 'Stop Food Waste' in Ireland, 'Empty Plate' in China, 'FoodWise' in Hong Kong, 'Antigaspi' in France, 'I Love Leftovers' in Australia, 'No Food Loss' in Japan, and 'Too Good for the Bin' in Germany.
- Evidence gathered from a number of studies indicates that a combination of legislative pathways, awareness campaigns and fiscal incentives can be addressed to food waste disposal as part of a comprehensive approach to solid waste management (SWM). This approach is based on the recognition that food waste is equally an issue of lost resource inputs and emissions outputs into the environment, because the cycle of the food supply chain sees organic waste return to the beginning via composting and landfills. The impact of policies successfully implemented in this area can be expected to help prevent further climate change. At present 18 EU member countries impose taxes on food waste sent to landfills, with waste-taxes levied at a cost of 50-70 Euro per tonne (Preifer et. al., 2016).
- SSO diversion from landfills is a priority in most Canadian cities, and local waste management bylaws usually require the source separation of garbage from recyclables and organic waste.



The trend towards the diversion of food waste from landfills can be expected to culminate in more bans on organic waste from municipal facilities. Current estimates are that roughly 1/5 of all the waste contained in municipal landfills consists of inedible and packaged food. Diversion of SSO waste to composting and anaerobic digestion facilities can help to mitigate environmental impacts by recapturing nutrients and energy, respectively, but such systems may be more expensive than landfilling for municipal authorities to establish and maintain. Metro Vancouver has had an organic waste disposal ban in place since 2015. After a 6 month awareness campaign, landfill operators began to levy a 50 percent surcharge above their normal tipping fee for each disposal load with over 25 percent organic composition (Johnston, 2016). The fines are applied to haulers in this kind of arrangement, who spread the cost of the penalty surcharges across the whole of their contracted customers. By 2016 the city was able to report an 8 percent drop in the organic composition of its garbage, as well as consecutive quarterly increases in organic materials diverted to AC and AD facilities (ibid). In a variation on this surcharge-based model, the province of Manitoba levies an across-the-board Waste Reduction and Recycling Support (WRARS) fee, collected by landfill owners on every metric ton of waste they accept. The revenue is reinvested through the Manitoba Composts program in diversion initiatives, as well as in incentive programs for private and municipal organic composting facilities. The program operators report an increase in interest on the parts of municipalities, private companies and social enterprises to offer green bin collection and organic materials recycling (ibid).

- Toronto's Long-Term Waste Management Strategy sets organic waste reduction targets for the coming 30-50 years and was implemented in 2016. In that same year, collection of the garbage stream from all residences, schools, City agencies and commercial sources totaled 158,962 tons of disposed waste, with more than 124,000 tons of that total traceable to households (Gorrie, 2017). A specific Food Waste

Reduction Strategy will be operated through 2026, partnering the city's SWM services department with various stakeholders to promote awareness of sustainable household food practices and advocate for community composting. At present, 90 percent of single-family households and 65 percent of the city's multi-family residential buildings now have access to green bin organic waste collection (ibid). Toronto's experience delivers evidence, however, of how the format of waste collection systems can affect waste composition and overall waste production rates. Diverting avoidable food waste from the city's green bin program has been identified as a priority for its educational and public communications activity, because it can reduce the ongoing need for heavy investment in new organic waste processing infrastructure.

- As part of its organics diversion programming, Toronto is pursuing energy recovery at its composting and digestion facilities. Where AC produces compost for market, AD provides large proportions of remaining solid waste (digestate) that can be used in fertilizer formulas, as well as comparatively smaller amounts of biogas. Notably, many environmental organizations are critical of the move to convert food waste into biogas on grounds of how inefficient the process is; biogenic waste water has a low heat value, which heavily influences an AD plant's required energy intensity. Despite such concerns, the digestate from the city's two AD facilities is currently being used in composting applications in Toronto and other municipalities, and upgrades to the AD facilities are aimed at enabling the conversion of upwards of 10 percent of their biogas output into biomethane, a renewable natural gas (RNG) source used for heat and electricity or as an alternative fuel (Gorrie, 2017).
- When exploring diversion options, some jurisdictions in the US and Europe have invested in waste incineration facilities; this offers only diminishing returns, however – where waste incineration is practiced but no incineration tax is imposed, recycling efforts tend to decrease because authorities are obliged to provide guaranteed waste



quantities to the incinerator operators. Evidence of inefficiencies of this kind has been sufficiently persuasive for Scotland, for example, to implement a ban on incinerating food waste.

- There are opportunities to implement carbon tax and carbon crediting programs targeting the SWM industry. Under either approach, changes in SWM will be driven by the price of GHG emissions reductions, whether set by policy (in the case of a carbon tax) or determined by the market (in the case of carbon credits). Conversely, GHG mitigation efforts may impact the cost, performance, and direction of the SWM methods pursued by service providers who pass along the costs associated with emissions mitigation to food waste producers. Policy-set carbon
- When climate change policy encourages organic waste diversion from landfills, as is the case in Alberta, the carbon offset system provides credits for stakeholders in other sectors of the economy to invest in composting projects in lieu of landfilling. Since diversion to composting and AD facilities leads to avoided GHG emissions and enhanced material recovery, both types of operation proffer opportunities for offsets in carbon trading markets.

Conclusion

There is considerable food waste occurring along the entirety of the Canadian food supply chain. Measuring the scale of these losses requires that there be systematic data available, based on reliable quantification methods and indicators that can be monitored over time. Awareness of how local food waste impacts on the wider economy and environment is growing due to concerns centered on food insecurity and the estimable emissions profile of the Canadian agribusiness sector. The economic costs of food waste are ultimately borne by the individual households, retailers and producers who overprovision and dispose of edible food, and the reduction of food waste around the globe has been identified as a necessary component of climate change mitigation initiatives. Despite the expanding scope of these concerns, in Canada there is currently no concerted effort to address the issue of food waste at a national level.

This paper has summarized some of the emerging trends in food waste reduction and prevention, possible policy responses and their likely impacts, to demonstrate how senior levels of government can monitor and act upon these leverage points to create efficient food systems with minimal food waste. Efficiency gains can only be realized by adjusting the production intensity of the agricultural and food manufacturing industries. In high-income Euro-American societies, food loss and waste has increased over time in relation to food availability, suggesting that addressing food insecurity by simply producing more food can actually increase waste, and undermine efforts aimed at achieving sustainable consumer diets.

Policies aimed at minimizing and preventing avoidable food loss cannot exclusively target the individual consumers who buy their food with the best of intentions. Rather, policymakers must consider the constellation of factors that influence wasting behaviours at the household stage of the supply chain, including people's food storage and cooking habits, the implications of a retail system that has the principle of overabundance built into its packaging and marketing practices, and the influence of municipal waste collection formats and diversion options on organic waste production. In this paper we have tried to persuade readers that a well-defined and inclusive mix of legislative instruments, awareness campaigns and financial incentives can significantly reduce food waste, which in the final analysis is a sustainability challenge. The federal government has recently committed to explore the possible elements of a national food policy for Canadians (Government of Canada, 2017), and we believe that any such policy must take the form of a comprehensive food sustainability framework. Since reducing food waste is essential to the future sustainability of our domestic food supply chain, it also must figure importantly in the development of a long-term and holistic vision for food systems that are both productive and resource-efficient.



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