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Sustainable Materials Management of Food in the APEC Region: A Review of Public Policies That Support Reducing Food Loss and Waste

APEC Agricultural Technical Cooperation Working Group

June 2022

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APEC Project: ATC 01 2021S - *APEC Workshop on Practices and Promotion of Sustainable Models of Agricultural Production and Resource Efficiency: Sustainable Materials Management*

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APEC#222-AT-01.1

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Key Terms & Acronyms

The following terms and acronyms are used in this document with the following meaning. Where applicable, the bibliographic reference on which the explanations are based is provided.

Key Terms

Food loss and waste (FLW): For this report, "food loss and waste" and the acronym FLW refer broadly to any food (and its associated inedible parts [e.g., bones, pits/stones]) that was not used, sold, or consumed.[1] When referring to the "reduction of FLW," this is used broadly as shorthand for actions that prevent FLW, reduce FLW, and/or repurpose FLW into valuable products.

Food recovery hierarchy: The United States Environmental Protection Agency's (EPA) Food Recovery Hierarchy prioritizes actions organizations can take to prevent and divert wasted food. Each tier of the Food Recovery Hierarchy focuses on different management strategies for FLW and communicates the general principle that it is most preferable from an environmental point of view to prevent FLW and least preferable to dispose of it. Various similar frameworks are in use globally, and also referred to as a "food and drink material hierarchy," or "food use hierarchy."

Food supply chain: The successive steps from the point of production of food to the consumer. It consists of the following stages: crop, livestock, aquaculture, fisheries production and harvest/slaughter/catch operations; post-harvest/slaughter/catch operations such as cleaning, grading, and sorting; storage; transportation; processing; wholesale and retail; and consumption at the household or food service provider level. In capture fisheries, the "production" step refers to the pre-catch phase.[2]

Food supply chain actors: The actors that are involved in the food supply chain, such as primary producers (farmers, fishers, herders, foresters), processors, distributors, wholesalers, retailers, food service providers, and consumers.[3]

Government: Includes parliamentarians and relevant governmental ministries and public institutions at various jurisdictional levels including sub-governmental bodies (e.g., state, municipal, or local levels).[4]

Inedible parts (by-products): In some sectors, inedible parts may also be referred to as by-products—or co-products—and considered a residual waste stream. As defined by the *Food Loss and Waste Accounting and Reporting Standard (FLW Standard),* inedible parts are components associated with a food that, in a particular food supply chain, are not intended to be consumed by humans. Examples of inedible parts associated with food could include bones, rinds, and pits/stones. What is considered inedible varies among users (e.g., chicken feet are consumed in some food supply chains but not others), changes over time, and is influenced by a range of variables including culture, socio-economic factors, availability, price, technological advances, international trade, and geography.

[1] While there has been consensus emerging around a definition of FLW for the purpose of the UN SDG 12.3 target (i.e., excluding animal feed, and bio-based materials/biochemical processing destinations: see Champions 12.3's *Guidance on Interpreting SDG 12.3*), this is not universal. The abbreviation "FLW" is used in this report broadly as shorthand for "food loss and waste" but without the intention of invoking the definition ascribed to it in other programs.
[2] *Voluntary Code of Conduct for Food Loss and Waste Reduction*
[3] *Voluntary Code of Conduct for Food Loss and Waste Reduction*
[4] Adapted from the *Voluntary Code of Conduct for Food Loss and Waste Reduction*

Public policy: Public policy generally consists of the set of actions—plans, laws, and behaviors—adopted by a government.[5] In this report, the term "policy" is intended to refer as shorthand to public policies.

Stakeholders: The different actors who operate in the food system and are directly or indirectly involved in FLW reduction including: governmental actors, food supply chain actors, the private sector, producer organizations, civil society organizations, consumers and consumer organizations, and academic and research institutions.[6]

[5] https://www.britannica.com/topic/governance/Public-policy
[6] *Voluntary Code of Conduct for Food Loss and Waste Reduction*

Acronyms

APEC	Asia-Pacific Economic Cooperation
ATCWG	APEC's Agricultural Technical Cooperation Working Group
AWE	Australia's Department of Agriculture, Water and the Environment
COVID-19	The disease caused by a new coronavirus called SARS-CoV-2; the World Health Organization first learned of this new virus on December 31, 2019
EPA	United States Environmental Protection Agency
FAO	Food and Agriculture Organization of the United Nations
FDA	United States Food and Drug Administration
FLW	Food loss and waste
IDB	Inter-American Development Bank
NRDC	Natural Resources Defense Council
PPFS	APEC's Policy Partnership on Food Security
SDG	United Nations' Sustainable Development Goal
UN	United Nations
USDA	United States Department of Agriculture

Background

Purpose of Report

Following the APEC Malaysia priorities of innovations and New Zealand's 2021 APEC Policy Priorities of Sustainability, the United States commissioned this report to provide a greater understanding of public policies that help reduce food loss and waste (FLW).

Reducing waste and enhancing resource use efficiency in the food chain from production to market are key elements to meet the challenge of expanding regional trade to address food security needs. FLW reduction has therefore become a strategic priority for many APEC member economies and aligns with the Sustainable Materials Management (SMM) approach that the United States and many other governments have adopted as a framework for managing materials in a more circular way.[7]

Governments have a unique role to play in addressing FLW. They can explore policy, legislative, and regulatory levers that support reducing FLW; quantify and monitor the amount of FLW; set priorities; support supply chains and sectors by fostering an environment of innovation and collaboration to reduce food waste; and educate businesses and households on ways to reduce FLW.

This report serves as a resource for APEC member economies to learn about:

- The types of public policies governments can use to promote the reduction of FLW,
- Best practices for developing and implementing these types of policies,
- Features of FLW reduction policies that represent best practices, and
- FLW reduction policies in place among APEC member economies (with an in-depth focus on Australia and the United States).

It builds on policy and implementation guidance offered by numerous organizations[8] and projects including APEC's Multi-Year Project (MYP), which was focused on strengthening partnership among public and private sectors of APEC economies in developing policy recommendations and solutions for reducing post-harvest losses and waste.

The goal of this report is to provide a sampling of existing FLW reduction policies across APEC member economies and give policymakers a sense for what to consider when developing and implementing their own. The particular policies a government adopts are ultimately based on a mix of factors including the nature of the economy's food system and its FLW hotspots. This report does not assess the effectiveness of particular policies but rather highlights examples of best practices to take into account.

It is important to note that given the high level of interest in FLW reduction, the state of public policies is evolving rapidly. This report draws on publicly available information available in the English-language through November 2021.

Linking Sustainable Materials Management (SMM) to FLW Reduction

SMM is defined as a systematic approach to using and reusing materials more productively over their entire life cycles.[9] An SMM approach aligns with the movement worldwide for governments and business to support a circular economy. The Ellen McArthur Foundation defines a circular economy as based on the

[7] *EPA Sustainable Materials Management Program Strategic Plan for Fiscal Years 2017 – 2022*
[8] A sampling includes the Food and Agriculture Organization of the United Nations (FAO), Harvard Law School Food Law and Policy Clinic, Inter-American Development Bank (IDB), Natural Resources Defense Council (NRDC), ReFED, World Resources Institute (WRI), WRAP, among others.
[9] https://www.epa.gov/smm/sustainable-materials-management-basics

principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.

When the United States Environmental Protection Agency (EPA) first published a road map to SMM in the United States,[10] it noted that "…how our society uses materials is fundamental to our economic and environmental future. Global competition for finite resources will intensify as world population and economies grow. More productive and less impactful use of materials helps our society remain economically competitive, contributes to our prosperity and protects the environment in a resource-constrained future." To address this ongoing trend, the EPA adopted SMM as a regulatory framework for materials management.

In the EPA's SMM Program for Fiscal Years 2017 to 2022, "Sustainable Food Management" (reducing food loss and waste) has been one of the three strategic priority areas. This systematic approach more fully recognizes the impacts of the food we waste and that reducing the amount of FLW represents a significant opportunity to save money, help people, and conserve resources. Looking ahead, EPA will be establishing a 10-year vision and strategic direction for the SMM Program—one that embraces and addresses zero waste/circularity, sustainable materials management, climate change, and environmental justice.

Summary of APEC's FLW Multi-Year Project

Given the significance of decreasing FLW in the APEC region, an APEC Multi-Year Project (MYP) was launched in 2014 to strengthen partnership among public and private sectors of APEC economies and to develop policy recommendations and solutions on reducing FLW. It was carried out by Chinese Taipei on behalf of APEC's Agricultural Technical Cooperation Working Group (ATCWG) and Policy Partnership on Food Security (PPFS).

In support of a 10 percent FLW reduction goal (stated in the *APEC Food Security Road Map Towards 2020*, or "Roadmap 2020" in brief), and towards the United Nation's Sustainable Development Goal (SDG) Target 12.3,[11], through 2019:

- Expert consultations, capacity building activities, and a High-Level Policy Dialogue were held
- A systematic approach was developed for quantifying the amount of FLW and examples from various sectors and food supply chain stages were highlighted
- Toolkits and best practices were shared for different stages of the food supply chain by commodity
- FLW surveys of member economies were undertaken in 2017 and 2018. These identified policies in place, the major barriers to achieving the 10 percent FLW reduction goal by 2020, financial costs and benefits of implementing FLW reduction measures, as well as the role of public-private partnership (PPP)
- An information platform was developed as a repository of information on the activities above and to promote knowledge sharing. The platform is titled the APEC Food Loss and Waste System (APEC-FLOWS in brief) and can be accessed at http://apec-flows.ntu.edu.tw/

Moreover, to better promote the minimization of FLW during the COVID-19 pandemic, Chinese Taipei conducted in 2021 a virtual "Workshop on Reducing Food Loss and Waste along the Food Value Chain in

[10] *Sustainable Materials Management - The Road Ahead 2009 – 2020*
[11] The SDG 12.3 target states: "By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" Guidance on interpretating SDG 12.3 was prepared by Champions 12.3 and is accessible at https://champions123.org/sites/default/files/2020-09/champions-12-3-guidance-on-interpreting-sdg-target-12-3.pdf

APEC During and Post COVID-19 Pandemic" on behalf of APEC's ATCWG and PPFS.[12] A pre-meeting survey was conducted to learn about how APEC economies have responded to the pandemic insofar as FLW is concerned, and how digital and information technologies could contribute to this effort. The three-day program covered supply chain dynamics, digital and e-commerce opportunities, best practices and innovative technologies, the APEC agenda on FLW beyond 2020, and recommendations of the SDG 12.3 FLW reduction target (stated in the APEC *Food Security Road Map Towards 2030*, New Zealand, 2021).[13]

[12] *Reducing Food Loss and Waste along the Food Value Chain in APEC during and Post COVID-19 Pandemic, 2021* (ATCWG/PPFS)

[13] For the FLW reduction goal, *The Food Security Road Map Towards 2030* (or "Roadmap 2030" in brief) states: "Provide capacity building and best practice sharing workshops to support member economies' individual and collective efforts to align with the UN Sustainable Development Goals 12.3 ('by 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses'), with specific indicators based on each economy's respective situation such as measured by the UN/FAO Food Waste Index (FWI) or other appropriate index." (https://www.apec.org/Meeting-Papers/Sectoral-Ministerial-Meetings/Food-Security/2021_food_security/Annex)

Executive Summary

Making the best possible use of food produced has become a strategic priority for many APEC member economies aiming to promote sustainable agricultural and food systems. Reducing the amount of food loss and waste (FLW) represents a significant economic opportunity, contributes to global food and nutrition security, and conserves resources. Doing so also supports the Sustainable Materials Management approach that the United States and many other governments have adopted to promote a more circular economy.

Governments have a unique role to play in addressing FLW and are increasingly making commitments to reduce it, often in line with the UN Sustainable Development Goal (SDG) Target 12.3.[14] Public policies are critical for setting goals and ambition, activating legislative or regulatory authority, launching programs that can be implemented separate from legislation, supporting collaboration, providing the information required for taking action, investing in research, and offering financial resources.

Policymakers can use a range of public policy levers (at various jurisdictional levels) to establish the incentives that are needed to prevent FLW from being generated, and when FLW does occur, to create the most value out of it. The levers and measures applied may provide economic incentives, be prescriptive or regulatory, or offer information that is needed for taking action.

Since FLW is connected to all parts of the food system, reducing it requires a mix of different types of policies and no single policy will alone be sufficient. Addressing why and where FLW is generated, requires coordination across all jurisdictional levels. Equally important is support and action at all stages of the food supply chain by the private sector, academic and research institutions, civil society organizations, and other stakeholders.

When developing policies to reduce FLW, governments will want to take into account their economy's own unique context and FLW hotspots, recognize possible tradeoffs among actions to reduce FLW, use a framework to provide direction on priorities, and not only develop FLW-specific policies but also consider modifications to the broader set of food system policies that contribute to the generation of FLW. Successful implementation of policies to reduce FLW requires collaboration among various governmental bodies and stakeholders within an economy, as well as ensuring adequate resources and funding are allocated.

This report analyzes eight types of FLW-reduction policies, which are relevant across geopolitical borders and classified as follows:

Guiding Frameworks

1. FLW reduction strategy and plans
2. FLW data and measurement
3. Multi-stakeholder collaboration (e.g., public-private partnership)

FLW Hotspot-Specific Policies

4. Food rescue and redistribution

[14] The SDG 12.3 target states: "By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses." Guidance on interpretating SDG Target 12.3 was prepared by Champions 12.3 and is accessible at https://champions123.org/sites/default/files/2020-09/champions-12-3-guidance-on-interpreting-sdg-target-12-3.pdf

5. Food product labels (in particular expiration dates)
6. Education and outreach to food supply chain actors and the public
7. Organic material management rules (e.g., valorizing by-products, bans, permitting)

Investments

8. Innovation (e.g., research and development, financial measures)

In addition to these eight types of policies, four other key areas to evaluate for their contribution to the generation of FLW—and potential to support reduction—are: agricultural and fisheries policies, commercial and trade practices, health and safety requirements, and infrastructure investments.

The features to include in a policy for successfully reducing FLW have been studied extensively by several organizations and best practices are available. Recommendations of features to consider for the eight types of FLW reduction policies are described in Chapter 3.

As the number of policies adopted to address FLW continues to expand at a rapid pace, this report provides in Chapter 4 a snapshot of policies currently in place among APEC member economies with a detailed overview of two member economies—Australia and the United States—that are taking a comprehensive approach to FLW reduction. Collectively, the best practices and examples of policies referenced in this report provide governments with a valuable foundation for evaluating how they can proceed to contribute towards a future where more of the food produced is used and the benefits of FLW reduction are realized.

Introduction

How to Use This Report

This report has been designed as a resource for member economies to reference in their development and implementation of public policies to reduce FLW. While intended to be read in order, the chapters can also be referenced independently.

Chapter 1 provides a summary of best practices recommended when developing and implementing public policies to reduce FLW. These apply broadly across economies.

Chapter 2 includes a summary of eight types of policies that are specifically focused on FLW reduction as well as an overview of policies related more broadly to the food system that also affect the generation of FLW.

Chapter 3 provides recommendations for features to include in policies specifically focused on FLW reduction.

Chapter 4 provides a stock taking among APEC member economies of existing economy-wide policies that are specifically focused on FLW reduction. It includes a more detailed look at Australia and the United States (which have taken a comprehensive approach to FLW reduction and post information about their policies online in the English language) as well as a sampling of policies in place by other APEC member economies.

The Annex provides a list of resources analyzed for this report that provide further details about policies APEC member economies and other governments have put in place to promote FLW reduction.

Methodology

This report was developed through desk-based research about the links between FLW and public policies in APEC economies as well as globally. The focus of this stock taking was at the broader economy-wide level, while acknowledging that other jurisdictional levels within an economy (e.g., state, municipal, or local bodies) also play a critical role in setting and implementing policies to reduce FLW.

About FLW

Reducing the amount of FLW generated is increasingly seen as an important and influential way of achieving a resilient and circular food system that contributes to global food and nutrition security. In the last decade, the urgency and scale of the FLW problem has become more evident. Research has highlighted the disconnect between needing to produce more food in a resource-constrained world for a growing population while at the same time discarding approximately one-third of current production.[15]

Using more of the food produced can provide significant economic, environmental, and social benefits. This includes helping to lower consumer expenses, generate cost savings for businesses, increasing incomes for farmers, reducing harmful greenhouse gas emissions, and providing additional meals to feed food-insecure people through increased food rescue. This important issue requires action across the food supply chain and therefore collaboration not only among governmental stakeholders, but also with all the other actors involved in food supply chains.

Specifically, for the APEC region, the *APEC Multi-Year Project Final Report* called out that: “as APEC economies mature and populations continue to grow, major challenges lie ahead in increasing access to food while ensuring a sustainable natural environment. Therefore, it is of vital importance to decrease post-

[15] FAO: https://www.fao.org/food-loss-and-food-waste/flw-data)

harvest losses and waste in APEC region, and enhance the food quality and safety, so as to contribute to food security in the Asia-Pacific region. To safeguard food security, APEC economies have established commitment to reducing the FLW amount in relevant APEC fora and Leader's Meetings in recent years."

Chapter 1. Best Practices in Developing and Implementing Public Policies to Reduce FLW

About This Chapter

Achieving a meaningful reduction in FLW will require a mix of different types of policies, tailored to the policy objectives desired from reducing FLW, governmental agencies involved, and what it will take to implement a policy. Governments can consider the full range of policy levers and legal instruments, which may provide economic or market-based incentives ("carrots"), be prescriptive or regulatory in nature (sometimes also referred to as "sticks"), or focus on providing information required for taking action ("sermons").[16]

This chapter provides a summary of best practices related to developing and implementing policies that are effective in promoting the reduction of FLW. These are relevant broadly across APEC economies.

Developing Effective Public Policies to Reduce FLW

When developing policies to reduce FLW, the best practices:

- Take into account the economy's context, including the nature of its economy, food and agricultural systems, and stakeholders affected,
- Recognize possible tradeoffs among policy objectives from reducing FLW and use a food material recovery framework to provide direction on priorities, and
- Integrate FLW reduction in food system policies that have an impact on its generation and develop FLW-specific policies.

Take into account the economy's context

The specific nature of the economy as well as status of food and agricultural systems will influence the types of policy instruments that will be successful in reducing FLW and where to prioritize action. Policy measures should therefore consider the local context.

Differences among the APEC member economies include what food is produced, the nature of production systems and value chains, and how food and agricultural systems have been —and will continue to be— shaped by the economy's demographics, level of urbanization, consumer preferences, nutritional needs, and climatic conditions. Other elements to also consider include the degree of an economy's food-import dependency, natural resource constraints, as well as relationships among stakeholders across the food supply chain. As data is gathered abut FLW, why it is generated, and where it goes, FLW hotspots for a particular economy and food supply chain can be identified to help prioritize areas for action.

As policy measures are developed, they should:

- Be targeted to address the underlying driver(s) that contribute to the generation of FLW[17]
- Be focused on meeting the operational needs of the intended beneficiaries
- Take into consideration in particular the needs of small-scale supply chain actors, producer organizations, indigenous peoples, and any vulnerable or marginalized groups
- Include consultative and participatory processes and build on traditional, popular and citizen knowledge (with consent of the knowledge holder, where relevant)

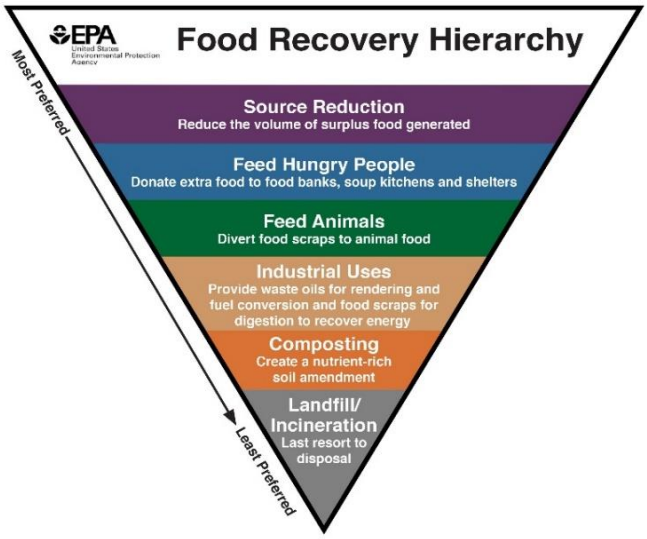
[16] *'Carrots, Sticks and Sermons' – sorting policy types*; September 28, 2017
[17] For additional details about the causes and underlying drivers of FLW, see *Reducing Food Loss and Waste: Setting a Global Action Agenda*.

Recognize possible tradeoffs among policy objectives from reducing FLW and use a prioritization framework

APEC member economies will have different objectives for reducing FLW (e.g., improving food security, reducing GHG emissions, optimizing the use of natural resources, enhancing incomes). When considering policies to reduce FLW, an overarching principle suggested by the FAO's *Voluntary Code of Conduct for Food Loss and Waste Reduction* is that actions should contribute to the SDGs, meaning they should be economically, socially, and environmentally sustainable and "meet present needs without compromising the ability of future generations to meet their own needs."

Given that various policy objectives may be achieved from reducing FLW, using a framework (e.g., the "Food Recovery Hierarchy" by the United States EPA; see Figure 1) to provide guiding principles can help clarify priorities and provide clear direction on preferred options.[18]

Figure 1. EPA Food Recovery Hierarchy



The inverted pyramid shown in the Food Recovery Hierarchy applies the "reduce, reuse, recycle" approach of Sustainable Materials Management to food and shows that:

1. Preventing surplus food from being generated in the first place should be the first priority,[19] and
2. Where prevention is not possible, the next priority should be rescuing and redistributing for human consumption any surplus food that is wholesome and safe to consume.[20]

[18] As an example, promoting donation of surplus food supports increases food security and is considered the preferred option for surplus but doing so may affect the amount of FLW subsequently available as feedstock for bioenergy.
[19] Prevention may be achieved through efficiencies and optimizing the use of food at all points of the food supply chain and is most preferable from an environmental point of view (see *From Farm to Kitchen: The Environmental Impacts of U.S. Food Waste*). Moreover, as noted by the U.S.-based non profit ReFED, "prevention-related action areas typically have the greatest financial … impact compared to the investment required."
[20] Food rescue may take place through various channels. It can include helping people in need through redistribution of surplus food by food banks or charities, food redistribution through apps or other means to avoid discard by commercial outlets, and the development of new food products (e.g., using upcycled ingredients). Repurposing and upcycling what may have previously become FLW (e.g., surplus food, by-product streams) into new food products, is specifically called out as an option in some food and drink material hierarchies

Where human consumption is not feasible, actions lower on the hierarchy point to options for how food leaving the human supply chain (as FLW), as well as inedible parts/by-products could be reused and/or recycled. This includes diverting surplus food to animal feed[21] or transforming it into non-food products. Material management treatment that provides the greatest possible valorization of the organic inputs and lowest environmental impact (e.g., limits toxic emissions into the atmosphere) is preferred.

Integrate FLW reduction in policies that have an impact on its generation and develop FLW-specific policies

There are a range of actions that lead to FLW being generated and as such it is important to consider the range of policies that can have an impact on reducing it. A number of policies that shape or regulate the food system overall have an impact on FLW. Therefore, mainstreaming FLW concerns in the wide range of food system policies is increasingly being considered by governments. Policies are also being put in place for the specific purpose of supporting the reduction of FLW.

Integrating actions that reduce FLW across food system policies and also developing specific FLW reduction policies promotes policy coherence and ensures that the appropriate framework is in place to minimize the generation of FLW.

While there are a wide range of issues related to food systems and they differ for each economy, the policies most directly linked to FLW are typically handled by agencies focused on the environment and natural resources; food, agriculture, and fisheries; waste management; and food safety. Other agencies and areas that likely affect the generation and reduction of FLW include: commerce/industry, disaster risk reduction and emergency response,[22] employment, energy, finance/treasury, health and safety,[23] nutrition, trade practices and standards,[24] rural development, and urban planning.

As FAO notes in the *Voluntary Code of Conduct for the Reduction of Food Loss and Waste,* it is also important to ensure policies align with relevant international and regional law and guidance to adequately ensure human dignity, non-discrimination, equity and justice, gender equality and equity, consultation and participation of those affected, a rule of law approach, transparency, accountability, cultural considerations, and ethical standards.

In particular, there should be alignment with:

- Existing obligations under domestic and international law, including those related to trade under the World Trade Organization (WTO)
- Voluntary commitments under applicable regional and international instruments
- Policies addressing climate change, including related to implementation of the domestically determined contribution (NDC) to the Paris Agreement[25]
- International frameworks like the Second International Conference on Nutrition (ICN2) Framework for Action; the United Nations Decade of Action on Nutrition; the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW); the Committee on World Food Security (CFS) Global Strategic Framework for Food Security and Nutrition; and the New Urban Agenda

[21] When diverted to animal feed, all safety and quality requirements must be met.
[22] Emergencies such as conflicts, pandemics and natural disasters can cause disruptions in the food system that can generate substantial levels of FLW. Governments could therefore in collaboration with others take measures to reduce FLW in the preparedness, response, recovery and rehabilitation phases of emergencies. FAO in the *Voluntary Code of Conduct for Food Loss and Waste Reduction* (Section 4.6.5) notes that measures taken should be in line with the Sendai Framework for Disaster Risk Reduction 2015–2030 (United Nations, 2015), and provides specific examples.
[23] This may be where issues regarding animal feed and potential contaminants are handled.
[24] This may include practices and standards related to cosmetic aspects, product liability, value-added tax, and unfair trading practices.
[25] https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

Implementing Effective Policies to Reduce FLW

When implementing policies to reduce FLW, it is important to:

- Coordinate among the various governmental bodies, and
- Ensure adequate resources and funding.

Coordinate across governmental bodies

The *APEC Survey Report on Feasible Solutions for Food Loss and Waste Reduction* (2018) called out the critical need for coordination across governmental bodies, stating: "Overall, we find that FLW is a multifaceted problem, which means that many agencies at the federal- and state-level must work together to achieve the designated reduction goal."

Best practices for implementing inter-agency governmental collaboration have been identified by the United States Government Accountability Office (GAO) in *Managing for Results: Key Considerations for Implementing Interagency Collaborative Mechanisms*. The five key elements are:

1. Agreeing on roles and responsibilities;
2. Developing mechanisms to monitor, evaluate, and report on results;
3. Clearly defining short- and long-term outcomes;
4. Identifying how leadership commitment will be sustained; and
5. Ensuring that the relevant stakeholders have been included in the collaborative effort.

For FLW reduction specifically, the roles and responsibilities that should be clearly defined are:

- Which agencies and levels of government can most successfully deliver the services and actions required to effectively reduce FLW. Since there are multiple jurisdictional levels within an economy, it is important to consider how each type of governmental stakeholder can play a role (see Box 1).
- The relevant governmental authorities that will coordinate efforts to reduce FLW. This includes identifying a governance structure that allows for all key stakeholders to be suitably represented, and which leads delivery of the strategy as well as the collaboration and innovation required to deliver on the FLW reduction targets. For some economies, the governance body may be a third-party independent entity that sits between the government, private sector, and other stakeholders.
- How implementation of the policies will be supported by actors from the private sector, civil society organizations, and others. Establishing a collaborative mechanism across the relevant governmental stakeholders and other key actors is important to reduce programmatic redundancies, leverage complementary activities, and also provide technical assistance and regulatory oversight to actors along the food supply chain.

Box 1. Example of Roles by Various Governmental Stakeholders in Australia
The following are roles for policymakers noted in *A Roadmap for Reducing Australia's Food Waste by Half by 2030.*

Australian Government

- Signatory to Sustainable Development Goals including SDG Target 12.3
- Responsible for national coordination and policy settings

States and Territories

- Environment Ministers have committed to the National Food Waste Strategy target of halving food waste by 2030
- State and Territories support business, community and industry to halve food waste through a range of initiatives including behavior education campaigns, research, infrastructure and other programs
- Responsible for state coordination and policy settings, including contributing to halving the amount of organic waste to landfill

Local Governments

- Front line in waste management
- Implementing programs to reduce organics to landfill
- Working with communities to reduce food waste

Industry Associations

- Important channel for messaging and feedback to test policy options and provide advocacy

Ensure adequate human capacity and financial resources

Effective implementation of policies requires ensuring that the agencies responsible for implementing them have sufficient capacity and resources. As the SDG Target 12.3 is focused on achieving a reduction in FLW by 2030, this necessitates developing an investment strategy to ensure that adequate long-term funding is in place. Additional capacity may be required where new activities such as measuring and tracking the amount of FLW against targets are implemented, or where enforcement of mandates is part of a government's FLW reduction strategy.

In Australia, for example, the government provided an initial funding commitment of over $1.3 million over 24 months to support a domestic body on food waste, a voluntary commitment program, and a economy-wide baseline. The Australian Government also is investing more than $10 million to support research directly related to reducing food waste in conjunction with industry.[26]

[26] *National Food Waste Strategy: Halving Australia's food waste by 2030*

Chapter 2. Types of Public Policies That Promote FLW Reduction

About This Chapter

Since the generation of FLW stems from a wide variety of underlying drivers tied to the many parts of the food system and wider economy, no single policy will alone be effective in reducing FLW. A mix of coordinated government policies and support is needed across the food system to address why and where FLW is generated across the inter-connected stages of the food supply chain.

This chapter separates the types of policies governments are using to address FLW—distinguishing between those that that are *specifically focused on FLW reduction*, and those related to the *broader food system* that also affect the generation of FLW.

Box 2. Types of Policies Promoting FLW Reduction (not exhaustive)

Guiding Frameworks

1. FLW reduction strategy and plans
2. FLW data and measurement
3. Multi-stakeholder collaboration (e.g., public-private partnership)

FLW Hotspot-Specific Policies

4. Food rescue and redistribution
5. Food product labels (in particular expiration dates)
6. Education and outreach to food supply chain actors and the public
7. Organic material management rules (e.g., valorizing by-products, bans, permitting)

Investments

8. Innovation (e.g., research and development, financial measures)

Policies Specifically Focused on FLW Reduction

Policies are increasingly being put in place by APEC member economies and others with the specific aim of reducing the generation of FLW.

This report analyzes eight types of FLW-reduction policies (Box 2), which are relevant across geopolitical borders. The policies collectively provide frameworks to guide action; address hotspot-specific issues with targeted mechanisms aimed at specific parts of the food recovery hierarchy or stages of the food supply chain; offer supportive investments, which provide incentives to adopt and deploy innovative practices and technologies that minimize the generation of FLW and improve its management.

Coordination among the various types of policies and levers is important to avoid the risk of unintended consequences occurring and of overlooking a key underlying driver of FLW. For example, education and outreach campaigns (policy 6) can be linked to policies that promote food rescue policies (policy 4) or clarify date labels on food (policy 5). Similarly, policies related to a government's FLW reduction strategy (policy 1) are closely intertwined with policies and programs to gather data (policy 2) and encourage collaboration across multiple stakeholders (policy 3).

These eight types of policies should also be considered in tandem with the broader set of policies that affect food systems. For example, FLW strategies and plans should be aligned with an economy's food system, waste management, and climate action plans. Also important to keep in mind is that investments in innovations to reduce FLW are also likely to generate other benefits governments are seeking to achieve—from economic development and reduced environmental impacts to nutritional gains.

Table 1 provides for each of the eight types of policies a description of the related components. This categorization was drawn from research published by several food loss and waste experts and is summarized in the Annex. Recommended features for each type of policy are provided in Chapter 3, and examples of polices currently in place by APEC member economies are in Chapter 4.

Table 1. About the Public Policies Promoting FLW Reduction

TYPE OF POLICY	WHAT THIS TYPE OF POLICY INCLUDES
1. FLW reduction strategy and plans	***Governmental FLW reduction strategy, plans, and frameworks to provide guidance, encourage action, and stimulate investments.*** Given FLW touches upon many policy areas, there is a need for it to be tackled strategically by governments and be well coordinated among key agencies. Strategies include clear definitions and targets for reducing FLW and a framework for encouraging prevention as well as improved management. FLW reduction strategies may be part of legal frameworks and in food systems plans, solid waste plans, and/or climate action plans (since discarding food can be a significant contributor to greenhouse gas emissions).
2. FLW data and measurement	***Quantification of FLW (ideally at all stages of the food supply chain) to identify the magnitude of FLW, where and why it is generated, and where it goes*.** Building the evidence base is an important foundation as it guides FLW reduction priorities, and allows for tracking progress in both the prevention of FLW as well as improved diversion and management.
3. Multi-stakeholder collaboration (e.g., public-private partnership)	***Coordination and collaboration among different levels of government as well as among the actors involved in food supply chains to address the systemic interconnected causes and drivers of FLW.*** A common form of collaboration are public private partnerships, which involves government, businesses, and other organizations working together to tackle FLW and the related supply chain challenges. Signatories act, measure their impact, and report outcomes and are in some economies referred to as "voluntary agreements" (VA).
4. Food rescue and redistribution	***Support for the donation, or resale, of surplus food focusing on****:* 1. ***Liability concerns***: Liability protections to address organizations' fear of being held liable for harm caused by donated food. 2*.* ***Economic incentives***: Mechanisms such as tax credits or deductions to provide an economic incentive and offset expenses associated with donating or rescuing surplus food (e.g., to harvest, package, store, and/or transport food that would otherwise be discarded). 3. ***Food safety***: Clear, science-based food safety regulations along with guidance on how they apply to food donation or resale to avoid confusion by relevant stakeholders (e.g., food rescue organizations, technology platforms, health inspectors). 4. ***Mandates***: Instruments such as bans, fines, obligations to partner with charities, and mandatory reporting to encourage redistribution of unsold food. 5. ***Capacity building of food rescue and redistribution entities***: In collaboration with other stakeholders, to support the development and management of entities such as food banks and redistribution organizations.
5. Food product labels (in particular expiration dates)	***Clarifying the role of dates on labels (e.g., "sell by," "best by," and "use by") for food products to increase consumption and donation of safe food****.*

	Expiration dates on food products typically reflect quality and taste rather than safety but are misunderstood by businesses, individuals, and regulators and therefore misinterpreted as indicators of when food is no longer safe to eat. Related policies include standardizing date labels, eliminating bans on the donation or sale of past-date foods, extending allowable use-by dates (e.g., for long life, shelf-stable products), and educating consumers about the meaning of date labels. Also related to food product labels are policies that provide information about the correct use and storage of food, and that promote the use of traceability systems.
6. Education and outreach to food supply chain actors and the public	***Education and outreach campaigns to individuals, communities, businesses, and other stakeholders to raise awareness, share best practices, and spur action on reducing FLW.*** This may include a coordinated, economy-wide behavior change campaign for individuals to avoid wasting food in and out of the home as well as campaigns at the sub-governmental level and targeted to businesses. It may include technical support directly to those involved in primary production, which may be undertaken through agricultural extension services, research organizations, academia, or other organizations. Messages may promote reducing FLW through procurement, handling, food preparation, and storage techniques, as well as better materials management. This may also include organizing or supporting domestic platforms, seminars, and training to enable the sharing of experiences and the transfer of technology—targeted to the relevant audiences where FLW generation is high. Education and outreach efforts may be combined with other policies targeted at hotspots, such as expiration dates on food labels.
7. Organic material management rules (e.g., valorizing by-products, bans, permitting)	***Legislation, regulation, and standards related to the management of food and inedible parts/by-products that exit the human supply chain.*** This includes policies about the: 1. ***Use of surplus food and by-products for novel foods and feeding animals****:* Includes rules about using by-products to develop new foods for human consumption, using food no longer intended for human consumption as animal feed, as well as the use of animal by-products in animal feed. 2. ***Amount of organic material that entities can dispose of***: Disposal bans and recycling laws encourage generators of FLW to explore more sustainable practices following the 'food recovery hierarchy' —prioritizing waste prevention, donation, composting, and anaerobic digestion instead of landfills or incinerators. 3. ***Development, permitting, and classification of organic material streams and processing facilities*** (e.g., for composting and anaerobic digestion)

8. Innovation (e.g., research and development, financial measures)	***Innovations in how to keep food in the human supply chain and improve the management of FLW that is generated***. Investments in innovation support the economic opportunity linked to FLW reduction, helping to generate jobs and stimulate economic development. They also increase the resilience of the food supply chain to demand shocks and disturbances, such as the COVID-19 pandemic. Increasing the feasibility, or reducing the cost, of better food management can be stimulated by: (a) Investments in research and development (R&D) promoting innovation and science-based solutions. This includes putting in place policies and institutions to support science and evidence-based innovation in among other areas: practices, products, technologies, infrastructure, services, social arrangements, institutional/organizational/policy processes. This may include providing funding as well as creating platforms to bring together relevant stakeholders who can jointly identify issues to be covered by R&D, and fostering partnerships that facilitate the development, commercialization, adaptation, transfer and adoption of innovations. (b) Targeted fiscal instruments, services, and risk mitigation mechanisms to help food supply chain actors finance the investments needed to reduce FLW and manage any associated risks. This may include low-interest loans or grants to organizations across the food supply chain; loan guarantees; blended finance, where public funds are used to catalyze investments by the private sector; agricultural insurance schemes; and technical assistance facilities that strengthen the creditworthiness of potential borrowers through targeted capacity development.

Food System Policies That Impact FLW

As mentioned in Chapter 1, there are a wide range of issues that affect the food supply chain and contribute to the generation of FLW. Below is an overview of four types of broader food system policies which governments could consider and evaluate to understand their role as part of the underlying drivers of FLW (and solutions to its reduction)—agricultural and fisheries policies, commercial and trade practices, health and safety requirements, and infrastructure investments.

Which of these or other policies are relevant to an economy depends on factors such as the nature of its food production systems, type of economy, degree of an economy's food-import dependency and nutritional needs, and relationships among stakeholders across the food supply chain. There is less quantitative data on the extent of FLW from these broader food system policies. However, as the quality of data on FLW improves, and more governments adopt comprehensive economy-wide FLW strategies, the impact and recommended solutions related to these policies will become more clear. This report does not analyze how APEC member economies have implemented these related policies to address FLW but provides a sampling of ideas to consider.

1. Agricultural and fisheries policies

Agricultural and fisheries policies that focus on increasing production, supporting incomes for primary producers, market regulation, and economic development have an impact on the generation of FLW. Adjusting the incentives that lead to overproduction and coordinating legislation between trading partners may address some of the factors that lead to significant amounts of food remaining uneaten. Where surplus food is generated, policies could help by, for example, providing information about the availability of surplus

product to those who are in a position to use or purchase it. In addition, policies could encourage the use of growing and fishing techniques that result in lower amounts of FLW (e.g., for fisheries this may involve evaluating the impact of rules related to discards and fishing methods).

2. Commercial and trade standards

There are a range of commercial and trading practices that may impact FLW. In addition to export and import regulations that affect the flow of food and FLW, this includes:

- *Controls and inspections for import-dependent supply chains*: Delays and breaks during handling and transportation may be reduced by aligning import controls and enforcement with other trading partners. For perishable products, adjusting customs and inspection practices may help reduce spoilage and provide for quicker delivery of product, thereby reducing FLW. This may include assessing whether the number of sites available for inspection of imported produce is sufficient, and how often the cold chain is disrupted (e.g., cargo needs to be opened).
- *Marketing standards*: Standards may be applied by member economies and by other actors in the food supply chain. Where the government is involved in setting cosmetic standards (e.g., based on appearance such as size, shape, or smoothness) and these policies lead to FLW, they could be examined and possibly adjusted. Governments can also play a role creating demand for, and access to, alternative markets (e.g., public school meal programs) for products that could be eaten but are considered unmarketable.
- *Unfair trading practices*: Distortions in the food supply chain can lead to overproduction and excess food that cannot be absorbed by the market. Tackling unfair trading practices can improve the resiliency of the food chain and contribute to greater sell-through among business partners. Governments could consider implementing policies to prevent unfair trading practices, which differ from good trading behavior and are unilaterally imposed by one trading partner on another (e.g., last-minute order cancellations, unilateral changes to contracts). WTO Agreements on Agriculture, NTBs, and Anti-Dumping are instrumental in the prevention of unfair trading practices. Specific elements to consider linked to FLW are identified and discussed by the European Commission in its *Directive on unfair trading practices in the agricultural and food supply chain.*

3. Health- and safety-related requirements

Legislation and policies that address health and safety also impact the generation of FLW, in particular where they mandate product destruction and where larger quantities of food are removed than strictly necessary (e.g., as a precaution to maintain consumer confidence). This includes regulations focused on product quality and contamination (e.g., of chemical residues, fungal toxins, micro-organisms, invasive pests), cooling and freezing rules for food of animal origin, and rules related to the authorization of novel foods and ingredients. Adjusting these requirements requires scientific evidence and may be a lengthy process. Governments could consider recalibrating the system for assessing and reassessing standards based on scientific insights and available technologies. This might include deploying more targeted tracking and tracing technologies—and adapting regulations—to reduce rejection to a smaller product or batch level.

4. Infrastructure investments

The generation of FLW is affected by the availability and quality of physical infrastructure and supporting services. In the World Bank's report*, Addressing Food Loss and Waste: A Global Problem with Local Solutions*, investment in roads and other transportation networks is recommended as a key investment to provide producers with greater, more reliable access to storage facilities, processors, and markets. Also highlighted as critical across the food supply chain are storage/cold storage, a reliable water supply including irrigation infrastructure, and reliable energy—with a priority on decentralized renewable options.

Many of the capital investments made to reduce FLW also provide other benefits; for example, an improvement in urban material management could also improve living conditions and reduce methane emissions associated with large, open landfills.

As noted in the FAO's *Voluntary Code of Conduct for Food Loss and Waste Reduction*, governments could also provide public sector support for fish landing sites; slaughterhouses; post-harvest handling and processing facilities, food storage systems, and wholesale and retail market facilities; ports of entry; strategic emergency food reserves linked to social protection program; and agro-industrial parks and special economic zones. The importance of on- and near-farm storage in particular is reinforced by the forthcoming Inter-American Development Bank's *Food Loss and Waste Country Progress Index* (a tool to track domestic progress on managing FLW), which includes as a sub indicator that earns a government possible points: "programs or incentives (e.g., subsidies, tax breaks) to improve on-farm or near-farm food storage."

Actions to reduce FLW also may require government investments in food safety and quality systems, ensuring that telecommunications, information and communications technology (ICT), and market information systems are adequate, and strengthening material management (and separation) infrastructure. This could, for example, include technology innovations to improve the flow of information (e.g., about weather, road, and traffic conditions, as well as pickup and delivery times) to optimize the harvest and movement of food. The important role for service industry sectors such as finance, logistics, and telecommunications to support FLW reduction links to the APEC Services Competitiveness Roadmap (2016-2025), which encourages innovative APEC-wide and individual economy solutions.

Governments could also support investments in institutions and services that play a role in generating and disseminating knowledge that can reduce FLW. This would include universities and technical education institutions that provide science–based education and training at different levels, organizations that undertake and foster research and development (R&D), innovation and technology transfer, as well as extension and other advisory services.

Since disruption in the food system (e.g., conflicts, pandemics, natural disasters) can generate substantial levels of FLW, in collaboration with others, governments could take measures in line with the Sendai Framework for Disaster Risk Reduction 2015–2030 (United Nations, 2015) to avoid FLW from being generated. From an infrastructure perspective, the *Voluntary Code of Conduct for Food Loss and Waste Reduction* suggests that could include:

- Increasing the resilience of, and protecting infrastructure and other productive assets,
- Setting up, stocking, and managing strategic emergency food reserves,
- Setting up information systems to detect and monitor threats to food supplies,
- Transforming food that cannot be redistributed into non-food resources, such as feed, energy and fertilizer.

Chapter 3. Features to Include in FLW Reduction Policies

About This Chapter

This chapter provides recommendations for features to include in each of the eight FLW reduction policies (described in Table 1):

1. FLW reduction strategy and plans
2. FLW data and measurement
3. Multi-stakeholder collaboration (e.g., public-private partnership)
4. Food rescue and redistribution
5. Food product labels (in particular expiration dates)
6. Education and outreach to food supply chain actors and the public
7. Organic material management rules (e.g., valorizing by-products, bans, permitting)
8. Innovation (e.g., research and development, financial measures)

In order to go directly to the recommendations for a particular policy, readers can click through on the list above. (As a tip: to return from a table back to this summary list, on a PC, use ALT + left arrow; on a Mac, use Command + left arrow.)

Best Practices for Policies Promoting FLW Reduction

The best practices provided in the following pages draw from recommendations by numerous sources including, but not limited, to:

- *Changing the Rules of the Game: Impact and Feasibility of Policy and Regulatory Measures on the Prevention and Reduction of Food Waste*
- *Food Loss and Waste Country Progress Index* and the companion guide - *A Playbook for Reducing Food Loss and Waste for Latin America & the Caribbean* (forthcoming)
- *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions*
- The Global Donation Policy Atlas
- *Reducing Food Loss and Waste: Setting a Global Action Agenda*
- *Summary of Activities, Findings and Recommendations from the APEC High Level Policy Dialogue on Enhancing Public and Private Partnership to Reduce Food Losses and Waste for a Sustainable APEC Food System*
- *Tackling Food Waste in Cities: A Policy and Program Toolkit*
- *Voluntary Code of Conduct for Food Loss and Waste Reduction*

Several multi-stakeholder efforts have been launched recently to provide platforms where policymakers can learn about and share best practices. This includes the Champions 12.3 Assembly, in which several APEC member economies participate (e.g., Australia, Chile, The United States, Viet Nam). For Latin America and Caribbean economies, #SinDesperdicio is a forum where governments and other stakeholders can also share lessons learned and collaborate on solutions.

1. FLW reduction strategy and plans

What This Type of Policy Includes*: Governmental FLW reduction strategy, plans, and frameworks to provide guidance, encourage action, and stimulate investments.*

Best Practice Considerations: A forward-looking and effective governmental strategy and action plan should be supported politically, backed by adequate financial and human resources, and have a designated agency or other entity accountable for execution of the strategy. FAO in the *Voluntary Code of Conduct for Food Loss and Waste Reduction* also encourages governments to use a process that is inclusive, participatory, gender sensitive, implementable, cost effective, and sustainable.

Components of the strategy should be based on an assessment of the levels and drivers of FLW and include:

- A definition of FLW and baseline against which to monitor FLW reduction (see additional details in the 'data and measurement' section)
- Time-bound targets, ideally aligned with SDG Target 12.3[27]
- A vision and roadmap for achieving the targets, which addresses the underlying drivers of FLW and identifies hotspot priorities (e.g., by commodities, by sectors)
- Milestones for tracking progress
- Monitoring and evaluation systems to assess the impact and outcomes of interventions to reduce FLW
- A mechanism to update the implementation plan to remain current

The World Bank has developed a model (Food Smart Country Diagnostic) that serves as an economy-level diagnostic to identify priority commodities, hot spots with high rates of FLW, and stages of intervention for reducing FLW. The model developed could be used for an initial analysis, as was done for APEC member economy Viet Nam—as well as Guatemala, Nigeria and Rwanda.

Many governments link their FLW reduction strategies with plans related to food systems, solid waste management, and climate action. When doing so, governments may consider the assessment the Natural Resources Defense Council (NRDC)—a civil society organization with deep expertise on FLW reduction—used in the United States for determining what makes for a strong, moderate, or weak FLW reduction policy.[28] NRDC's assessment is as follows:

(1) For *FOOD SYSTEMS* plans, goals, and targets in the context of the United States, NRDC notes that at the state level, a:

  - Strong policy includes a comprehensive statewide plan with a set of clear goals and targets that also incorporates FLW reduction.
  - Moderate policy features regional food systems plans or a state plan in which one of the following is true: there is limited support to achieve goals, there is a failure to coordinate with other regional plans, or there is little to no consideration of FLW reduction.
  - Weak policy is a regional food systems plan that does not have broader state support and does not address FLW reduction.

[27] Achieving SDG Target 12.3 also enables governments to support other SDG goals, such as improved food security and nutrition, sustainable production, reduction of greenhouse gas emissions, the conservation of natural resources, and economic growth (see Figure 2.2 in *Reducing Food Loss and Waste: Setting a Global Action Agenda*).

[28] *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions*

In addition, NRDC notes that statewide food systems plans in which goals and targets are given the support of state infrastructure likely have a much broader impact than regional or local food systems plans.

(2) For *SOLID WASTE MANAGEMENT* plans, goals, and targets in the context of the United States, NRDC notes that a:

- Strong policy features a current solid waste management plan, zero waste plan, or organics management plan that addresses FLW reduction and offers a strategy for reducing waste.
- Moderate policy highlights FLW as a diversion opportunity but has limitations or is out of date.
- Weak policy has plans that are more than a decade out of date and do not acknowledge the role of FLW reduction in diversion strategies.

(3) Carbon reduction targets can be leveraged to justify and drive FLW reduction activities. For *CLIMATE ACTION* plans, goals, and targets in the context of the United States, NRDC notes that a:

- Strong policy will incorporate a plan to reduce FLW and will identify action steps for specific departments to carry out the work outlined in the plan.
- Moderate policy features a plan that outlines climate action goals, along with supporting legislation or specific departments that have been tasked with action steps.
- Weak policy for a climate action goal is set by executive order with no legislative framework or enacted with limited legislative action and no framework to achieve goals.

In addition, for economies assessed against the forthcoming Inter-American Development Bank's *Food Loss and Waste Country Progress Index*, it is important to note that an indicator which counts as progress is including FLW reduction in the economy's Nationally Determined Contribution (NDC) to the Paris Agreement.

The following four additional best practices are also important to consider when selecting the priority set of FLW reduction solutions, according to *Resources for Implementing the National Food Waste Strategy* by Food Innovation Australia Limited (FIAL):

- Co-design with industry,
- Seek the best return on investment (ROI),
- Take a food systems perspective, and
- Create initiatives to realize multiple benefits for supply chain partners and collaborators.

Additional Resource:

- *Reducing Food Loss and Waste: Ten Interventions to Scale Impact* provides additional detail on developing and implementing governmental strategies for reducing FLW.

Links to Relevant Sample Policies:

In Chapter 4 are a series of tables summarizing what the economies analyzed for this document have in place as a policy measure (as of November 2021). In order to go directly to those tables, readers can click here. For each type of policy reviewed, the first table is always for Australia, the second for the United States, and the third for a sampling of other APEC economies. (As a tip: to return from a table back to this page, on a PC, use ALT + left arrow; on a Mac, use Command + left arrow.)

2. FLW data and measurement

What This Type of Policy Includes*: Quantification of FLW (ideally at all stages of the food supply chain) to identify the magnitude of FLW, where and why it is generated, and where it goes.*

Best Practice Considerations: Policies and programs that assess, measure, and monitor FLW provide a strong foundation for an effective economy-wide FLW reduction strategy and selection of the most relevant interventions. It is recommended that governments:

- Quantify the amount of FLW as well as direct causes and underlying drivers. This is most effective when undertaken in collaboration with the private sector, producer organizations, academic and research institutions, and other stakeholders. The evidence base can be collected through surveys or other assessments (ideally at regular intervals), and can then be used to develop targeted interventions for different sectors, commodities, and/or geographic regions.
- Ensure the systems used to collect and analyze the data gathered on FLW are adequate to support the planning for, and monitoring of, FLW reduction.
- Consider developing common approaches to data collection, compilation, and reporting to promote consistency across FLW data. This may include providing financial incentives for activities and/or technology that supports FLW measurement (e.g., to track volume and cost of FLW, to identify causes and drivers, to simultaneously encourage operational and behavioral changes in business).
- Consider expressing the magnitude of FLW in alternative units of measurement to describe and convey its scale and relevance (e.g., in terms of environmental impacts, nutritional content, financial implications). Appendix D of the *FLW Standard* provides additional related guidance on doing and *From Farm to Kitchen: The Environmental Impacts of U.S. Food Waste* offers this analysis for the United States.
- For measuring FLW in support of the SDG 12.3 target, use the guidance and recommended methodologies for calculating SDG indicator 12.3.1.a (also referred to as the Food Loss Index) and 12.3.1.b (also referred to as the Food Waste Index). The *Voluntary Code for Food Loss and Waste Reduction* provides additional suggestions in Sections 4.4.3, 4.4.4, and 4.4.6.
- Incorporate information on the amount and value of FLW in relevant domestic accounting frameworks such as Food Balance Sheets and agricultural gross domestic product (GDP) accounts.

It is important to note that even if estimates on the amount of FLW are lacking, governments can nonetheless still actively be taking steps to reduce FLW.

Additional Resources:

- The *FLW Standard* provides a common language and set of accounting and reporting requirements to encourage transparency and consistency in an FLW inventory.
- The forthcoming *Food Loss and Waste Country Progress Index* by the Inter-American Development Bank provides an objective assessment of the degree to which a economy is taking steps toward reducing its FLW in alignment with SDG Target 12.3. The companion guide, *A Playbook for Reducing Food Loss and Waste for Latin America & the Caribbean* includes an overview of several approaches available for economies to measure their governmental-level FLW.
- *A Food Loss and Waste Quantification Handbook for APEC Economies* provides a review of FLW definitions, measurement approaches, and APEC case studies to support APEC member economies in developing their own systematic quantification methods for estimating FLW.
- *Reducing Food Loss and Waste: Setting a Global Action Agenda* provides a comprehensive global summary of the direct causes and underlying drivers of FLW.

Links to Relevant Sample Policies:

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3. Multi-stakeholder collaboration (e.g., public-private partnerships)

What This Type of Policy Includes*: Coordination and collaboration among different levels of government as well as among the actors involved in food supply chains to address the systemic interconnected causes and drivers of FLW.*

Best Practice Considerations: Governments could promote and support the success of multi-stakeholder collaborations. This may include facilitating their creation or strengthening existing bodies. Mechanism for collaboration vary and may include:

- Partnerships with the private sector and civil society (whether through commodity, sector, location-specific, or industry associations). These partnerships may be focused on promoting coordination and information flow along the chain to reduce FLW; disseminating knowledge; strengthening the capacities of their members to understand and meet market requirements and apply practices that minimize FLW; helping members make the investments needed to reduce FLW; facilitating market linkages; and investigating improvements to their cold chains, dry chains, and other supply networks.
- Coordination between the various jurisdictional bodies in an economy (e.g., federal, state, and local) as well as across economies.
- Platforms that facilitate awareness-raising, advocacy and the sharing of experiences, knowledge and information.
- Structured public-private partnerships (PPPs), e.g., voluntary agreements, with the private sector and other relevant stakeholders that include concrete commitments which contribute to governmental FLW reduction targets. Successful PPPs to tackle FLW include several common elements: building commitment across the food industry (e.g., producers, manufacturers, distributors, retailers, and food service establishments) and other stakeholders (e.g., NGOs, academia, research organizations); showcasing efforts; and connecting stakeholders to stimulate further efforts throughout the food supply chain.

Additional Resources:

Several reports provide recommendations for developing successful PPPs.

- *APEC Survey Report on Feasible Solutions for Food Loss and Waste Reduction (2018)* reaffirms the importance of PPPs in FLW reduction activities, outlines what APEC member economies consider the key indicators of successful public-private partnership projects, highlights the strengths and weaknesses of these partnerships in FLW reduction activities, and suggest directions for improvement.
- *Building Partnerships, Driving Change: A Voluntary Approach to Cutting Food Waste* lays out five steps for setting up a voluntary agreement: initiation and set up; ambitions, goals, and targets; governance and funding; establishing actions; measurement and evaluation.
- *Halving Food Loss and Waste in the EU by 2030: The Major Steps Needed to Accelerate Progress* builds on *Building Partnerships, Driving Change* with a summary of challenges, solutions, and approaches to consider in setting up voluntary agreements successful at reducing FLW.

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4. Food rescue and redistribution

What This Type of Policy Includes*: Support for the donation, or resale, of surplus food focusing on liability concerns, economic incentives, food safety, mandates, and capacity building of food rescue and redistribution entities.*

Best Practice Considerations: It is important to consider the obstacles limiting the donation, or resale, of surplus food—in particular concerns by potential donors or others around liability and food safety—and take action to remove these obstacles where feasible. Governments could put in place supportive financial incentives and consider whether mandates would promote the donation and redistribution of surplus food.

1. Liability concerns

In order to promote food donation to food banks or similar organizations, legislation can provide liability protection for both food donors and food rescue organizations (e.g., the United States' federal Bill Emerson Good Samaritan Food Donation Act). Developing liability protections at other jurisdictional levels as well (e.g., states, territories) can strengthen economy-wide policies as it further reduces liability risks for those participating in food rescue. Governments could consider the assessment the NRDC and ReFED used in the United States for determining among states what makes for a strong, moderate, or weak liability protection policy.[29] A:

- Strong policy is significantly more protective than the federal act, and applies to donations directly to needy individuals as well as donations that are supplied to the final consumer for a small or nominal fee.
- Moderate policy covers donations directly to needy individuals, or covers donations that are eventually supplied for a small fee, or are otherwise slightly more expansive than the federal-level protections.
- Weak policy provides protections that are no broader than federal-level ones.

A comprehensive set of recommendations to strengthen liability protection policy frameworks for food donation globally is laid out in *Promoting Food Donation: Liability Protection Law and Policy,* an issue brief developed as part of The Global Food Donation Policy Atlas project.[30] This brief also includes a summary assessment of liability protection laws in participating countries.

2. Food safety guidance

Food safety regulations may not directly address food donation specifically and can be difficult to navigate by food donors and health inspectors. Policies should therefore explicitly state what foods can be donated, promote uniformity among sub-governmental regulations that apply to donated foods, provide clear guidance on food safety for food donation to support potential food donors, and encourage training for local health inspectors on safe food donation.

3. Economic incentives for food rescue

Governments could put in place fiscal measures and instruments to promote the donation or further sale of un-marketable surplus food, including food that is near its expiration date but still safe for consumption. This includes removing fiscal barriers and strategically leveraging tax law to motivate potential donors and

[29] ReFED (a non-profit organization committed to reducing U.S. food waste) collaborated with the Harvard Law School Food Law and Policy Clinic to develop the online U.S. Food Waste Policy Finder. The Policy Finder tool provides an overview of current federal and state policies related to FLW and highlights best-practice legislation addressing several issues including an overview of liability protection policies. This tool built off the assessment in NRDC's publication *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions* and includes some updates on recommended best practices.

[30] The Global Food Donation Policy Atlas is a partnership between the Harvard Law School Food Law and Policy Clinic and The Global FoodBanking Network. It provides a comparative analysis on food donation laws and policies across participating countries (which includes six APEC economies: Canada, Chile, Mexico, Peru, Singapore, and the United States), along with economy-specific policy recommendations for strengthening food recovery efforts. It will continue to be updated with additional participating countries and valuable analysis.

food redistribution entities. The benefits of doing so includes not only reducing the amount of wasted food but also supporting the agricultural economy and food producers, strengthening ties between local businesses and consumers, and improving the healthy options available to residents who use emergency food outlets. NRDC recommends that the best policies are ones where tax deductions or credits fully offset the costs associated with food donation, including transportation.[31] A comprehensive set of recommendations to strengthen tax policy frameworks relevant to food donation is provided in *Promoting Food Donation: Tax Law and Policy,* an issue brief developed as part of The Global Food Donation Policy Atlas.

4. Mandates

Some governments have put in place policies that include requirements to donate unsold food products, and other mandates such as prohibiting the practice of bleaching surplus food to prevent "dumpster divers" from taking food from store bins. A summary fact sheet on the relevant French and Italian policies is available through ZeroWasteEurope. An example at the sub-governmental level is an organics recycling law in the state of California in the United States (SB 1383), which targets that by 2025 not less than 20 percent of currently disposed edible food is recovered for human consumption.

While mandates may encourage food donation, such laws should also consider whether redistribution operations possess the infrastructure (e.g., transport, storage, and logistical capacity) to adequately handle the increased food supply.

5. Capacity building of food rescue and redistribution entities

Where food banking capacity is underdeveloped, governments can develop and promote guidance on best practices for their development and operation. This may include structuring contracts, food safety standards, traceability practices, and client outreach.

Additional Resources:

- *Don't Waste, Donate: Enhancing Food Donations through Federal Policy*

Links to Relevant Sample Policies:

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[31] Additional recommendations related to economic incentives are in NRDC's *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions* and ReFED's U.S. Food Waste Policy Finder.

5. Food product labels (in particular expiration dates)

What This Type of Policy Includes*: Clarifying the role of dates on labels (e.g., "sell by," "best by," and "use by") for food products to increase consumption and donation of safe food.*

Best Practice Considerations: How countries regulate product liability and the information provided on date labels varies. For example, in the United States, there is no federal system regulating the use of date labels on foods. Instead, each state individually decides whether and how to regulate them. Manufacturers often have broad discretion over how the dates on foods are selected. To help consumers—and others—better understand the use and meaning of food product dating, USDA's Food Safety and Inspection Service (FSIS) has issued a *Fact Sheet on Food Product Dating.* In addition to providing information, the fact sheet also includes a recommendation encouraging food manufacturers and retailers that apply product dating to use the "Best if Used By" phrase to convey quality dates.

Implementing a standardized dual date label policy (one safety-based; the other quality-based) can reduce consumer confusion and therefore FLW. The forthcoming report by Champions 12.3, *Changing Behaviour to Help More People Waste Less Food: A Playbook,* suggests such a policy require a standard *safety*-based date for foods that will pose a health hazard after a specific date and a standard *quality*-based date label for all other foods. Ideally, this policy change would be accompanied by a consumer education campaign to clarify the meaning of these labels and help consumers make informed decisions. The FAO's *Codex Alimentarius* Commission, which sets international food standards with an eye towards food safety and quality, provided in 2018 an update to the *General Standards for Labelling of Prepackaged Foods* recognizing this type of dual labelling system as the best practice for all countries.[32]

When evaluating state-level policies in the United States, NRDC and ReFED use the following to distinguish between a strong, moderate, and negative policy:[33]

- A strong policy requires that the state maintains a standardized mandatory date labeling policy that clearly differentiates between quality-based versus safety-based labels and is in alignment with federal guidance. In addition, the state does not prohibit or limit the sale or donation of food after its label date; and the state has issued clear permission to donate after the quality-based date.
- A moderate policy requires date labels for certain foods, but does not prohibit or limit the sale or donation of food after its label date.
- A detrimental policy requires date labels for certain foods and prohibits or limits the sale or donation of food after its label date.

Other improvements to product labels that a government may consider to reduce FLW are:

- Supporting smart sensor technology for flexible expiration date labelling.
- Policies that help improve the clarity of regulations and liability for food producers of re-labelling expired products.
- Promoting transparency about how best-by date are determined by producers, where expiry dates are set as a precaution rather than the date until which the product actually lasts.
- Campaigns on expiration dates aimed at the public.

Additional Resource:

- *Promoting Food Donation: Date Labeling Law and Policy* (from The Global Food Donation Policy Atlas)

[32] *Peru Legal Guide: Food Donation Law and Policy* from The Global Food Donation Policy Atlas
[33] *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions* (NRDC); U.S. Food Waste Policy Finder (ReFED)

Links to Relevant Sample Policies:

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6. Education and outreach to food supply chain actors and the public

What This Type of Policy Includes*: Education and outreach campaigns to individuals, communities, businesses, and other stakeholders to raise awareness, share best practices, and spur action on reducing FLW.*

Best Practice Considerations: Education and outreach is a common policy used by governments and other actors to address FLW. Governments can develop their own campaigns or provide organizations with support and funding. In order to have an impact, campaigns require a coordinated effort (e.g., among federal agencies, in conjunction with public, private, or non-profit partners) to raise awareness, and motivate action. Moreover, since awareness itself does not necessarily translate into FLW reduction, approaches that shift behavior and social norms should also be considered. A number of these are laid out in *Reducing Food Loss and Waste: Setting a Global Action Agenda* and the forthcoming *Changing Behaviour to Help More People Waste Less Food: A Playbook*.

Education and training for food supply chain actors should be science-based and equip them with the technical, business management, and entrepreneurial skills required to reduce FLW. Successful capacity building with members of the food supply chain should be context-specific, address any accessibility constraints faced by particular stakeholders, and promote the sharing of experiences and transfer of technology across the entire food supply chain. This may be delivered through public outlets such as extension and other advisory services; dedicated academic or industry programs on FLW; integration of FLW modules into the curriculum of institutions that address issues related to food systems; or field schools and vocational training centers. For primary producers in particular, the Food Smart Country Diagnostic by the World Bank highlighted as important the need for investment in farmer cooperatives and farmer education to disseminate improved production and handling/storage techniques.

When reaching out to the public, the FAO's *Voluntary Code of Conduct for Food Loss and Waste Reduction* suggests the following to make the wasting of food unacceptable*:*

- Awareness-raising and education campaigns based on science geared to the youth level
- Harnessing the power of different media
- Harnessing formal and informal education channels, paying particular attention to younger members of the population
- Information sharing at the community level (including through local communities, cultural associations, indigenous peoples and religious communities)
- Multi-stakeholder platforms and communities of practice dealing with FLW
- Economy-wide food-based dietary guidelines
- On-package information (ensuring that such information does not interfere with the clarity of mandatory labelling)
- Point-of-sale information, including direct communication from salespeople to consumers

A recent report by the United Nations Environment Programme, *Reducing Consumer Food Waste Using Green and Digital Technologies,* provides an analysis of the causes of consumer food waste and recommends a multi-faceted approach to reduce it—through behavioral change, technological solutions, and public and private initiatives. It presents a number of "green and digital technologies" that could be used to reduce consumer food waste.

Messaging should be tailored by the target audience. For example, for people using food recovery and redistribution programs, outreach should be responsive to concerns about the origin of the food, stigmas, or cultural issues.

Observing the International Day of Awareness of Food Loss and Waste in a way that aligns with domestic priorities may also be an opportunity to collaborate with many relevant stakeholders.

Additional Resource:

- *REFRESH Policy Brief: Reducing consumer food waste* includes a summary of policy instruments that exist to influence consumer food waste, and recommends other relevant documents such as the guidance provided to European Union and domestic policy makers in *Policies against consumer food waste: Policy options for behaviour change including public campaigns*

Links to Relevant Sample Policies:

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7. Organic material management rules (e.g., by-product valorization, bans, permitting)

What This Type of Policy Includes*: Legislation, regulation, and standards related to the management of food and inedible parts/by-products that exit the human supply chain. This includes policies about the: use of surplus food and by-products for novel foods and feeding animals; amount of organic material that entities can dispose of; and development, permitting, and classification of organic material streams and processing facilities.*

Best Practice Considerations: Governments could put in place the following measures and instruments to promote FLW reduction and more circular management practices by businesses and the public.

1. Use of surplus food and by-products for novel foods and feeding animals

Governments could consider incentives and policies that enable the safe use of surplus food and by-products as ingredients for new food products, or for feeding animals. This may include a detailed review of regulatory barriers to using food industry by-products.

Specifically, when using for animal feed food no longer intended for human consumption, governments could facilitate the development of consistent rules and provide guidelines on their application by relevant authorities and actors in the food supply chain. The scope should be clearly described. For example, guidelines by the European Commission cover products derived from food production (supplied by food producers), and food placed on the market packaged or unpackaged (supplied by food wholesalers and retailers) but exclude catering waste or leftovers.

It may also be necessary to coordinate and interpret legislation, regulations, and standards related to animal feed across multiple governmental bodies (e.g., waste and health/safety) and across economies as well as sub-governmental jurisdictions. The NRDC and ReFED note that for the United States, a strong state-level policy for diversion to animal feed would not restrict feeding food scraps to animals beyond what is required in federal regulations; may also offer education and guidance on relevant laws and regulations, and/or encourage collaboration with local farms. [34]

2. Amount of organic material that entities can dispose of

Policies that dictate how much entities can dispose (typically in landfills or incinerators) may include pay-as-you-throw systems, bans on disposing food in landfills, and legal provisions for the collection of FLW separate from non-food waste. When evaluating state-level policies in the United States, NRDC and ReFED consider that a:[35]

- Strong policy applies to all commercial generators (and possibly individuals at the household level) and is actively enforced.
- Moderate policy is similarly enforced but imposed only on select commercial generators, with few exemptions.
- Weak policy is one that has been enacted but lacks guidance and/or provides several exemptions from the law's applicability, such as exemptions based on distance from a processing facility or the cost of processing.

3. Development, permitting, and classification of organic material streams and processing facilities

[34] Under U.S. federal law, food scraps can generally be fed to animals, so long as food scraps with animal derived by-products are heat-treated by a licensed facility before being fed to swine; food scraps containing animal-derived by-products may not be fed to ruminants. Additional details are in *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions* (NRDC) and the U.S. Food Waste Policy Finder (ReFED).

[35] *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions* (NRDC); U.S. Food Waste Policy Finder (ReFED)

Policymakers should help organic waste processing facilities navigate the permitting process and streamline the development and permitting of them. Permits vary by locality but are typically related to land use and compliance with environmental laws. Policies should also be in sync with current best practices for organics processing, which includes ensuring that the siting process takes into account environmental justice and equity concerns. A resource recommended by NRDC for effectively involving the affected community is *Model Guidelines for Public Participation* produced by the National Environmental Justice Advisory Council.

Based on an evaluation of state-and local-level policies in the United States, NRDC recommends that:[36]

- A strong policy includes a regulatory tier for source-separated organics (SSO) and provides opportunities for market development. Further, a strong policy minimizes barriers to entry, is aligned with best management practices for composting SSO, and offers a separate permitting process for anaerobic digestion of SSO.
- A moderate policy similarly offers a dedicated regulatory tier for SSO and considerations for market development, but it may have the same composting requirements for SSO as for mixed solid waste, may negatively impact economic viability by limiting the quantity or site acreage, or may include vague language for handling SSO through anaerobic digestion.
- A weak policy still includes a regulatory tier for SSO, but two of the drawbacks noted above (e.g., limitations on site acreage) are present.
- No policy would be a locale with no processing tier for SSO, no acknowledgement of anaerobic digestion of SSO, and no exemption tier for small quantities of SSO.

With respect to developing markets for outputs from recycled organics, governments could consider mechanisms such as procurement or bidding mandates that require developers to use compost products or recycled organic materials in their projects.

It may also be appropriate to adjust how material streams are defined to ensure what is classified as "waste" does not hinder the ability to transport FLW or utilize byproducts of FLW management such as digestate.

Additional Resources:

- *Bans and Beyond: Designing and Implementing Organic Waste Bans and Mandatory Organics Recycling Laws*
- *Leftovers for Livestock: A Legal Guide for Using Excess Food as Animal Feed*
- *Tackling Food Waste in Cities: A Policy and Program Toolkit*

Links to Relevant Sample Policies:

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[36] *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions*

8. Innovation (e.g., research and development, financial measures)

What This Type of Policy Includes*: Innovations in how to keep food in the human supply chain and improve the management of FLW that is generated. This can be stimulated by investments in research and development, and targeted fiscal instruments, services, and risk mitigation mechanisms to help food supply chain actors fund the investments needed to reduce FLW and manage any associated risks.*

Best Practice Considerations: Governments could encourage and provide investments along with targeted fiscal instruments, services, and risk mitigation mechanisms to stimulate innovation in technologies and practices that reduce FLW. This includes supporting new and emerging research and development (R&D) as well as the uptake of proven practices that reduce FLW. There are many opportunities for investment—from infrastructure and technology development, to support for behavior change campaigns and implementation of programs. Academic and research institutions as well as the private sector are important partners in these types of policies.

Among APEC member economies, the *Summary of Activities, Findings and Recommendations from the APEC High Level Policy Dialogue (HLPD) on Enhancing Public and Private Partnership to Reduce Food Losses and Waste for a Sustainable APEC Food System* noted in particular opportunities for innovation in:

- Technological aspects such as temperature and water-content control systems, quality control systems, packing and storage improvements, transportation improvements, and other technologies for climate change adaptation to further reduce production and post-harvest losses of agricultural products.
- Non-technological aspects such as on-farm procedure improvements and across the supply chain, improvements in areas such as temperature controls and cold chain handling procedures.

As noted in FAO's *Voluntary Code of Conduct for Food Loss and Waste Reduction*, innovation can be fostered by:

- Supporting knowledge exchange and training to facilitate adoption and transfer,
- Offering research grants for developing innovative practices and technologies, and
- Ensuring an adequate institutional and regulatory framework (e.g., institutions to enforce intellectual property rights).

As one example, governments could finance a mapping of food surplus and by-product streams to identify how much is produced and where, supporting the opportunity to identify innovative ways these streams might be better valorized. This research could further be supported by the private sector and academia through matching funds and in-kind contributions. Alongside pilots to demonstrate the feasibility of valorization options, governmental support might help commercialize the new technologies/processes while regulatory bodies take steps to ensure appropriate governance. This investment allows for a pathway to be created in which private sector investment subsequently develops the projects to scale commercially.

As financial instruments, services, and related mechanisms are provided, policymakers should take into consideration the operational needs of intended beneficiaries. For example, when targeting primary producers, relevant economic incentives might include agricultural insurance programs that provide a financial buffer against external shocks, and low-interest financing to purchase, implement, or scale machinery, equipment, or other technologies. Specific options that lower the cost of adopting postharvest technologies could include measures such as zero-tax rates, subsidies for their purchase, or incentives for local manufacturers of such technologies. A range of investable solutions to postharvest loss (many of which benefit smallholders) is provided in Table 6.1 of *Reducing Food Loss and Waste: Setting a Global Action Agenda*.

When developing grants and incentive programs, the NRDC recommends having a sustainable funding model, being explicitly aimed at FLW reduction, ensuring opportunities are advertised and easily accessible, and offering free technical assistance in an effort to lower the barriers to FLW reduction.[37]

Additional Resources:

- *Addressing Food Loss and Waste: A Global Problem with Local Solutions* (see Chapter VII, Financing)
- *Reducing Consumer Food Waste Using Green and Digital Technologies*

Links to Relevant Sample Policies:

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[37] *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions*

Chapter 4. Policy Stock Taking

About This Chapter

A number of APEC member economies reported in a 2018 survey by ATCWG and PPFS that they had either a policy or strategic plans at the economy level. [38] The 13 member economies responding so were Australia; Chile; People's Republic of China; Hong Kong, China; Japan; Malaysia; New Zealand; Peru; the Philippines; Singapore; Chinese Taipei; the United States; and Viet Nam. Of these member economies, 10 mentioned having set targets along with plans. The other three member economies (New Zealand; Peru; and Chinese Taipei) noted they have numerous policies for reducing FLW but at the time did not have a specific target at the economy level.

This chapter provides a stock taking of existing public policies specifically focused on FLW reduction among APEC member economies. It is organized by the eight types of policies described in Chapter 2. A more detailed summary is included for Australia and the United States, which have taken a comprehensive approach to FLW reduction and post online in the English language information about their policies. For other member economies, a sampling of policies is also included.

Actions by Sub-governmental Bodies

While the focus of this stock taking is at the broader economy-wide level, other jurisdictional levels within an economy play a critical role in setting policies and driving implementation of steps to reduce FLW.

In Australia for example, as noted in Box 1, states and territories take the lead on consumer awareness and education campaigns[39] as well as investment in infrastructure to keep FLW out of landfills. Some also provide funding and resources for communities, businesses, and others.

Local governments in Australia, which operate within the legislative framework of states and territories, are also critical and organize waste collection for households and businesses. The Australian government's website[40] highlights the following as a sampling of local actions being taken to reduce FLW:

- Community information sessions and demonstrations on storing food and composting at home
- Grants and rebates for households to purchase compost bins and worm farms
- Pilot programs for restaurants and cafes to assess their food waste practices and reduce the amount of food they send to landfill
- Supporting local businesses to source FLW, in order to turn it into valuable products like compost and fertilizer

As another example, in Canada, the National Zero Waste Council (NZWC) is an initiative of Metro Vancouver (a regional federation of 21 municipalities, one Electoral Area and one Treaty First Nation). While not a federal agency, it brings together governments, businesses and non-government organizations across Canada to advance waste prevention and the transition to a circular economy. Its focus on FLW and networking efforts have motivated action across Canada and stimulated engagement by actors throughout the food chain. In 2018, NZWC published an economy-wide framework for action (*A Food Loss and Waste Strategy for Canada*); leads with other partners a domestic, consumer-facing food waste reduction campaign (Love Food Hate Waste Canada); and continues to drive economy-wide action on FLW.

In Australia and the United States, the following resources provide additional insights about policies and initiatives at the sub-governmental level:

[38] *APEC Survey Report on Feasible Solutions for Food Loss and Waste Reduction* (2018); see Table 3
[39] Consumer campaigns have been occurring in New South Wales, Victoria, and Brisbane through the delivery of the WRAP Love Food Hate Waste Program as reported in the *Fight Food Waste Cooperative Research Centre Strategic Plan (2018 – 2028).*
[40] https://www.awe.gov.au/environment/protection/waste/publications/food-waste-factsheet

- In Australia, a self-reported stock-take across states and territories of existing food waste reduction initiatives and investment in each was compiled in 2019 (summary in *Resources for Implementing the National Food Waste Strategy*; Figure 13). Several online resources also summarize policies in place at the non-federal level:
    - The Australian Local Food System Policy Database is a searchable collection of policies from New South Wales (NSW) and Victorian local governments that relate to healthy, sustainable, and equitable food systems (search under topic: Food loss and waste).
    - The Victorian Government released in 2020 *Recycling Victoria: A new economy to move Victoria towards a circular economy* to help deliver on the economy-wide target of halving Australia's FLW. Its *Path to Half* report published in 2021 explains the true cost of food waste, and examines solutions from across the globe and their potential to reduce FLW and its impacts in Victoria.
- In the United States:
    - EPA provides online a summary of state-level programs by EPA Region (see "Wasted Food Programs and Resources Across the United States").
    - NRDC compiled and assessed policies for 12 states in three regions (Great Lakes, Mid-Atlantic, Southeast) in *Food Waste Policy Gap Analysis and Inventory*.
    - ReFED's U.S. Food Waste Policy Finder database provides a map and summary of state and local policies related to FLW (alongside federal policies).

Policies in Place Among APEC Economies

For each of the eight types of FLW-reduction policies (presented in Chapter 2) there is in the following pages a set of three tables highlighting policies in place *at the economy-wide level*, respectively, for:

- Australia
- The United States
- Other APEC member economies (a sampling)

It is important to note that for six APEC economies (Canada, Chile, Mexico, Peru, Singapore, and the United States), a thorough stock-taking and analysis of food donation law and policies is available on The Global Food Donation Policy Atlas. The Atlas was launched in 2021 by the Harvard Law School Food Law and Policy Clinic in partnership with the Global FoodBanking Network and will continue to be updated with additional participating countries and valuable analysis.

The Atlas provides detailed information about each of these economies through three types of documents: legal guides, recommendations, and executive summaries. To read about whether developers of the Atlas consider an economy's polices strong, moderate, or limited, click through on their interactive map for the particular economy. The policies analyzed in the Atlas relate to some of the eight types of policies evaluated in this report, in particular:

- FLW reduction strategy and plans
- Food rescue and redistribution (specifically: food safety, liability protection, tax incentives, tax barriers)
- Food product labels (specifically: date labeling)
- Organic material management rules (specifically: donation requirements or FLW penalties)
- Innovation (specifically: government grants and incentives)

The following series of tables show what the economies analyzed for this document have in place as a policy measure (as of November 2021). In order to go directly to the table for a particular policy, readers can click through on the list below. (As a tip: to return from a table back to this summary list, on a PC, use ALT + left arrow; on a Mac, use Command + left arrow.)

1. FLW reduction strategy and plans
2. FLW data and measurement
3. Multi-stakeholder collaboration (e.g., public-private partnership)
4. Food rescue and redistribution
5. Food product labels (in particular expiration dates)
6. Education and outreach to food supply chain actors and the public
7. Organic material management rules (e.g., valorizing by-products, bans, permitting)
8. Innovation (e.g., research and development, financial measures)

Of note: in the following pages, terms other than FLW may be used to describe an economy's particular definition of FLW and its preferred phrasing. For example, Australia uses "food waste" as a broad and inclusive term while the United States also refers to "wasted food" and "food loss."

This document does not include policies currently under consideration. However, for the United States, a summary of proposed federal FLW policies is available at ReFED's online U.S. Food Waste Policy Finder and through the foodwasteactionplan.org website.

FLW reduction strategy and plans

AUSTRALIA

Organizational Lead	Policy Measures in Place
Department of Agriculture, Water and the Environment (AWE)	Australia has set a goal to halve its food waste by 2030, aligning with the UN's SDG Target 12.3 and extending across all value chain sectors, including primary production. Its strategy and plan of actions to be undertaken to reduce food waste are laid out in the: • *National Food Waste Strategy* (framework launched in 2017), • *National Waste Policy Action Pla*n (released in 2019 alongside *National Food Waste Baseline* to set targets and implement the *2018 National Waste Policy*), • *National Food Waste Roadmap* (published in 2020), and • *National Food Waste Strategy Feasibility Study* (published in 2021).
Independent coordinating agency: **Food Innovation Australia Limited (FIAL) (through 2020)** **Stop Food Waste Australia (beginning 2021)**	Early in implementation of the strategy, the Federal government appointed an organization that was independent of government to be a central point for coordination and facilitation of activities (Food Innovation Australia Limited [FIAL]). In 2020, FIAL produced *Resources for Implementing the National Food Waste Strategy* as an initial Australian compilation of relevant information that will contribute to the expanding knowledge bank developed going forward by the Fight Food Waste Cooperative Research Centre (FFW CRC); additional details about the FFW CRC are included in the table about innovation. In 2021, Stop Food Waste Australia commenced operations as a new entity to deliver the *National Food Waste Strategy* and contribute to delivery of the *National Waste Policy Action Plan*. The AWE invested $4 million in seed funding over 3.5 years through a partnership arrangement. Members of Stop Food Waste represent a cross-section of stakeholders including subnational authorities, industry associations, and civil society organizations. This entity will also implement Australia's voluntary commitment (the Australian Food Pact) to support businesses halving their food waste; additional details about the Food Pact are included in the table about multi-stakeholder collaboration policies. In 2021, FIAL published *National Food Waste Strategy Feasibility Study, Final Report 2021* to assess whether it is feasible to halve Australia's food waste by 2030. It analyzed this question by updating the National Food Waste Baseline, identifying hotspots, as well as testing and costing various scenarios. Included are useful recommendations for the Federal Government as well as State and Local Governments.

FLW reduction strategy and plans

UNITED STATES

Organizational Lead	Policy Measures in Place
Joint among: **United States Environmental Protection Agency (EPA)** **United States Food and Drug Administration (FDA)** **United States Department of Agriculture (USDA)**	In September 2015, the USDA and EPA announced the U.S. 2030 Food Loss and Waste Reduction goal to cut food loss and waste in half by the year 2030. In support of this goal, • In 2018, the USDA, EPA, and FDA launched the Winning on Reducing Food Waste Initiative and distributed in 2019 *The Winning on Reducing Food Waste Federal Interagency Strategy*. The Fiscal Year (FY) 2019-2020 Federal Interagency Strategy prioritized six areas of action. An annual inventory of efforts in support of these six areas is developed by USDA, EPA and FDA, in conjunction with public, private and nonprofit partners (see: *Inventory by Interagency Strategy Priority Area (May 2020 – April 2021*). • A federal Interagency Working Group on Reducing Food Waste includes core staff that share, initiate, plan, and coordinate food loss and waste activities. • In 2021, it was announced that interpretation of the domestic FLW reduction goal for 2030 is now aligned with the UN SDG Target 12.3.
EPA	EPA's *Sustainable Materials Management Program Strategic Plan for Fiscal Years 2017 – 2022* outlines specific activities as a sampling of potential efforts under each strategic priority area. EPA hosts the "Food Recovery Hierarchy" framework, which prioritizes actions organizations can take to prevent and divert wasted food. Each tier of the hierarchy focuses on different management strategies for wasted food—the top levels are the best ways to prevent and divert wasted food because they create the most benefits for the environment, society and the economy.
USDA	USDA Economist went on 6-month detail to EPA to assist with municipal solid waste estimation, including food waste estimation, among other related work. USDA hired a Food Loss and Waste Liaison to enhance interagency coordination (supported by 2018 Farm Bill).

FLW reduction strategy and plans

SAMPLING OF OTHER APEC ECONOMIES

Economy	Policy Measures in Place
Canada	Canada is committed to SDG Target 12.3. Several provinces and municipalities have strategies and plans focused on reducing FLW; however, these are not economy-wide. Under the *Strategy on Short-lived Climate Pollutants*, Canada committed to consult on strategies to reduce avoidable food waste in Canada, which will help to reduce methane emissions from Canadian landfills. A summary of activities throughout Canada by a range of stakeholders is provided in: *Taking Stock of Food Loss and Waste Reduction in Canada*.
Chile	Chile's National Organic Waste Strategy was launched in March 2021 and is part of Chile's latest Nationally Determined Contributions (NDC). For additional details see The Global Food Donation Policy Atlas.
People's Republic of China	Chapter Nine of the 13th Five-Year Plan for Grain Industry Development titled "Promote FLW reduction" launched in October 2016. *Excerpt from: "APEC Survey Report on Feasible Solutions for Food Loss and Waste Reduction: 2018"* In 2014, a Chinese circular was issued by the General Office f the Communist Party of China Central Committee and the General Office of the State Council focused on various FLW reduction efforts. *Excerpt from: "Food Losses and Waste in the Context of Sustainable Food Systems: A Report by the High Level Panel of Experts on Food Security and Nutrition (2014)"*
Hong Kong, China	A Food Waste & Yard Waste Plan for Hong Kong 2014-2022 was launched by the Environment Bureau of Hong Kong Special Administrative Region Government. *Excerpt from: "APEC Survey Report on Feasible Solutions for Food Loss and Waste Reduction: 2018"*
Japan	In May 2019, the Diet, Japan's parliament, enacted the Act on Promoting Food Loss Reduction. The Food Loss Act, which took effect on October 1, 2019, was part of the government's plans for taking measures to reduce household food waste in response to SDG Target 12.3. Japan previously enacted the 2001 Food Recycling Act (Act No. 116 of 2000, amended by Act No. 83 of 2007), which promotes reducing and recycling food wastes into fertilizer and feed. One of provisions of the Act obligates businesses that generate large amounts of food waste to take measures to reduce and recycle the waste and report their food waste situation to the government periodically. *Excerpt from: https://www.loc.gov/item/global-legal-monitor/2019-10-09/japan-diet-passes-new-act-aimed-at-reducing-food-loss*
Malaysia	Reduction of postharvest losses in rice is in 3rd Agricultural Policy and 11th Malaysian Plan; The reduction of the FLW Policy is part of the 3rd Action Plan for Nutrition in Malaysia 2016-2025 and Nutrition Research Priorities. *Excerpt from: "APEC Survey Report on Feasible Solutions for Food Loss and Waste Reduction: 2018"*
Peru	In July 2019 the Peruvian government adopted Law 30988, a law to promote the reduction and prevention of food loss and waste (*Ley que Promueve la Reducción y Prevención de Pérdidas y Desperdicios de Alimentos*). For additional details see The Global Food Donation Policy Atlas. In 2021, Peru launched a project called *Organic waste management in Peru: "Accelerating progress towards a circular and carbon-neutral waste sector* to accelerate organic waste treatment projects and landfill gas capture by improving regulation and developing a domestic organic waste strategy. This would also help accomplish Peru's Nationally Determined Contribution (NDC), which prioritized methane mitigation from waste.

Philippines	Senate Bill 357 or the Zero Food Waste Act, targeting zero food waste. *Excerpt from: "APEC Survey Report on Feasible Solutions for Food Loss and Waste Reduction: 2018"*
Singapore	The Government of Singapore has elevated the reduction of food loss and waste as a domestic priority under the Zero Waste Masterplan 2019, Resource Sustainability Act and the "Towards Zero Waste" campaign.
Thailand	National Solid Waste Management Master Plan 2016- 2021 Related Plans and Policies: • Sustainable Consumption and Production Plan 2017-2038 • Greenhouse Gas Reduction Action Plan for Municipal Waste Sector 2021-2030 (Strategy 2) • National Food Management Strategic Plan (II) 2018-2037 • Sub-Committee on Food Waste Reduction *Excerpt from: Presentation slides – "Thai Strategy on Food Waste," International Workshop on Food Loss and Waste Prevention targeting the Southeast and East Asian Region, 18 October 2019 by Anuda Tawatsin (Pollution Control Department, Ministry of Natural Resources and Environment, Thailand)*

FLW data and measurement

AUSTRALIA

Organizational Lead	Policy Measures in Place
Department of Agriculture, Water and the Environment (AWE)	Australia's *National Food Waste Baseline* was announced in 2019 and represents the first detailed quantification of food waste in Australia at the domestic scale and across the full food supply and consumption chain—from primary production through to consumption and disposal or recovery. It was was updated and improved as part of the *National Food Waste Strategy Feasibility Study* in 2021.
The Commonwealth Scientific and Industrial Research Organisation (CSIRO)	*Mapping of Australian fruit and vegetable losses pre-retail* outlines and estimates the volumes and origins of fruit and vegetable losses occurring on-farm, in packing houses, and during processing at both regional and state levels. It is based on a domestic food loss survey undertaken for 2017- 2018.

FLW data and measurement

UNITED STATES

Organizational Lead	Policy Measures in Place
United States Environmental Protection Agency (EPA)	EPA began analyzing data on waste and materials recycling more than two decades ago and each year releases *Advancing Sustainable Materials Management: Facts and Figures*. This report includes an estimate of the amount of food going to landfills and combustion with energy recovery from three sectors: residences, commercial establishments (e.g., grocery stores and restaurants), and institutional sources (e.g., school cafeterias). The industrial sector has not been included however since it is outside the scope of municipal solid waste (MSW). In 2020, EPA revised its wasted food measurement methodology, expanding the scope to include the industrial sector, additional generators of FLW among commercial and institutional sources, and six additional management pathways. The first set of estimates that utilize the enhanced measurement methodology are provided in the *2018 Wasted Food Report*. A companion document: *Wasted Food Measurement Methodology Scoping Memo* offers details on the methodologies and studies used. EPA developed a Waste Reduction Model (WARM) to help solid waste planners and organizations track and voluntarily report greenhouse gas (GHG) emissions reductions, energy savings and economic impacts from six different waste management practices—source reduction, recycling, anaerobic digestion, combustion, composting and landfilling. Food waste is included among the 60 material types that can be analyzed. In 2021, EPA published *From Farm to Kitchen: The Environmental Impacts of U.S. Food Waste*, which assesses the environmental footprint of food loss and waste in the U.S. and the environmental benefits that can be achieved by reducing it. It focuses on the link of FLW to agricultural land use, water use, application of pesticides and fertilizers, energy use, and greenhouse gas emissions. Further supporting data and measurement, EPA provides a wide variety of assessment tools including the *Excess Food Opportunities Map* (an interactive map with facility-specific information about potential generators and recipients of excess food, including estimates of excess food by generator type), *Food Waste Assessment Guidebook*, *Toolkit for Reducing Wasted Food & Packaging, A Guide to Conducting Student Food Waste Audits: A Resource for Schools*, simple “Paper Tracking Waste Logs,” and specifically for measuring how much food households waste, guidance through the *Food: Too Good to Waste* toolkit.
United States Department of Agriculture (USDA)	USDA’s Economic Research Service (ERS) calculates and maintains the U.S. Food Availability data system, including the Loss Adjusted Food Availability (LAFA) data series. These data support the widely cited report: *The Estimated Amount, Value, and Calories of Postharvest Food Losses at the Retail and Consumer Levels in the United States*. USDA continues to update and refine these measurements and analyses. In addition, ERS conducts research into the drivers and amount of food loss and waste at the farm level (see table on innovation for additional details).

SAMPLING OF OTHER APEC ECONOMIES

Economy	Policy Measures in Place
Chile	A methodology for quantification of fruit and vegetable losses was published for the Ministry of Agriculture, Chile (Odepa) by FAO: *Measurement and management of fruit and vegetable losses in the production stage at the national level in Chile*.
Japan	Japan's Ministry of the Environment in April 2021 disclosed the estimated amount of Japan's food loss and waste generated in fiscal year 2018. *Excerpt from: https://www.env.go.jp/en/headline/2515.html*

Multi-stakeholder collaboration (e.g., public-private partnership)

AUSTRALIA

Organizational Lead	Policy Measures in Place
Stop Food Waste Australia	Supported by the Australian Government Department of Agriculture, Water and the Environment, and representing multiple stakeholders, the Stop Food Waste Australia partnership is tasked with: • Implementing the Australian Food Pact, which was launched in October 2021. The Australian Food Pact is a voluntary agreement that brings together industry and organizations in a pre-competitive collaboration from across the food chain to identify solutions that reduce food waste and increase productivity. • Developing new, and implementing existing, sector action plans to identify and deliver sector-specific projects to reduce food waste. • Driving collaboration among the food supply chain and governments, including through an online platform that will include case studies, news, and a curated communications hub.

Multi-stakeholder collaboration (e.g., public-private partnership)

UNITED STATES

Organizational Lead	Policy Measures in Place
Joint among: **United States Environmental Protection Agency (EPA)** **United States Food and Drug Administration (FDA)** **United States Department of Agriculture (USDA)**	In 2019, part of the Federal Interagency Collaboration to reduce food loss and waste included signing a formal agreement with: • ReFED (a non-profit organization committed to reducing U.S. food waste) to leverage resources, evaluate the technical implementation of food waste reduction strategies, and advance domestic collaboration and coordination on solutions adoption. • The Food Waste Reduction Alliance (FWRA) to formalize industry education and outreach efforts. FWRA was founded by three trade associations to represent the food manufacturing, retail, and restaurant / food service sectors.
EPA/USDA	The U.S. Food Loss and Waste 2030 Champions are businesses and organizations from across the food chain that have made a public commitment to reduce food loss and waste in their own operations in the United States by 50 percent by 2030.
EPA	In 2020, EPA invited state, local, tribal and territorial governments, as well as respective government organizations, to sign a pledge to work toward addressing food loss and waste in the United States. From 2011 to 2021, EPA hosted the Food Recovery Challenge as a voluntary incentive program in which organizations and businesses set data-driven goals, implemented targeted strategies to reduce wasted food in their operations, and reported results to compete for annual recognition from EPA. This program is no longer accepting new members but new opportunities will develop as EPA evolves its Sustainable Materials Management partnership efforts. Under the Commission for Environmental Cooperation (CEC), the United States, Canada, and Mexico are working together to address food loss and waste in North America and have produced: *Characterization and Management of Food Loss and Waste in North America*, *Why and How to Measure Food Loss and Waste*, and a *Food Matters Action Kit*.

Multi-stakeholder collaboration (e.g., public-private partnership)

SAMPLING OF OTHER APEC ECONOMIES

Economy	Policy Measures in Place
Canada & Mexico	Canada, Mexico, and the United States are working together under the Commission for Environmental Cooperation (CEC) to address food loss and waste in North America. Results from this work include: • *Characterization and Management of Food Loss and Waste in North America* • *Why and How to Measure Food Loss and Waste* • *Food Matters Action Kit* *Excerpt from: https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/food-loss-waste.html*
Canada	In February 2019, experts from industry, government and the not-for-profit sectors shared ideas and discussed opportunities for measuring and reducing food loss and waste across the food supply chain (see details in summary report for the workshop). *Excerpt from: https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/food-loss-waste.html*
Chile	In 2017, the FAO together with the Office of Agrarian Studies and Policies (Odepa), the Agricultural Research Institute (INIA), the Chilean Agency for Food Quality and Safety (Achipia), the Food Network corporation, the University of Santiago de Chile and the Sustainable Value Chains organization, formed the National Committee for the Prevention and Reduction of Food Loss and Waste (CN-PDA). • The objectives of the Committee during its operation were: to facilitate and coordinate strategies with public and private actors in order to prevent and reduce food losses and waste (PDA); provide an effective framework for the development of laws, public policies and actions in relation to FLW; promote research and teaching, and carry out dissemination campaigns to raise consumer awareness and sensitize the population. • CN-PDA published a Handbook on FLW in 2018 (Manual de Pérdidas y Desperdicios de Alimentos). • As of September 20, 2020, the National Committee became a Ministerial Advisory Commission called «National Commission for the Prevention and Reduction of Food Loss and Waste," through Decree 17 of the Ministry of Agriculture. *Excerpt from: https://www.odepa.gob.cl/temas-transversales/agricultura-sustentable/perdida-y-desperdicio-de-alimentos* Reciclo Orgánicos (a collaboration between the governments of Canada and Chile within the framework of the Environmental Cooperation Agreement) is engaging the private sector, development banks, and financiers to accelerate implementation of Chile's National Organic Waste Strategy.
Mexico	In 2021, Mexico launched a multi-stakeholder voluntary agreement (Pacto por la Comida) with the goal to reduce food loss and waste in Mexico by 50% by 2030 through greater process efficiency along the entire production chain, as well as collaboration from farmers to consumers.
Singapore	Singapore's National Environment Agency (NEA) has set up an Industry Steering Committee – Circular Economy (Food) with representatives from government agencies, industry associations and research institutions. This Steering Committee explores the conversion of food waste into high-value products contributing back to the food supply chain which strengthens the resilience and sustainability of Singapore's food system. To raise awareness on food waste valorization, industry awareness briefings are organized to bring companies and solution providers together to share technological solutions and recycling options. An inaugural Food Resource Valorization Award ceremony is also held, with 11 companies being recognized for their exemplary efforts in adopting valorization solutions.

	Ref: https://www.nea.gov.sg/our-services/waste-management/3r-programmes-and-resources/food-waste-management/food-waste-valorisation

Food rescue and redistribution

AUSTRALIA

Organizational Lead	Policy Measures in Place
Department of Agriculture, Water and the Environment (AWE) **Fight Food Waste Cooperative Research Centre (FFW CRC)**	Increasing food rescue and relief is a key element of Australia's *National Food Waste Roadmap*. Currently, Australia allows taxpayers to claim certain deductions for certain donations made to food relief organizations, and other similar organizations. In 2020, KPMG developed a report in collaboration with FFW CRC and Foodbank Australia that identifies potential options for reform: *A National Food Waste Tax Incentive: Boosting Food Relief Through Australia's Tax System*. As noted in the *National Food Waste Strategy Feasibility Study, Final Report 2021,* a *Food Rescue Sector Action Plan* would lay the groundwork for scaling up food rescue in Australia. The *Feasibility Study* notes that a key intervention would include improving tax incentives for donations of food and other essential services to food rescue charities. The *Food Rescue Sector Action Plan* is now being implemented through a Steering Committee involving Stop Food Waste Australia and the four major Australian food rescue organizations: Foodbank, Secondbite, OzHarvest and FareShare.

Food rescue and redistribution

UNITED STATES

Organizational Lead	Policy Measures in Place
United States Environmental Protection Agency (EPA)	EPA developed the interactive *Excess Food Opportunities Map*, which displays for the United States the location of potential sources of excess food in a region and potential non-landfill recipients, such as food banks (as well as composting and anaerobic digestion facilities). It provides information about state and/or EPA regional wasted food prevention (and diversion efforts) on a webpage titled "Wasted Food Programs and Resources Across the United States."
United States Department of Agriculture (USDA)	USDA guidance clarifying liability protection and best practice includes: • *Calling All Food Sector Businesses: Donate Excess Food With the Bill Emerson Good Samaritan Food Donation Act*, and *Frequently Asked Questions About the Bill Emerson Good Samaritan Food Donation Act*. • Implementation guidance on the use of "share tables" in schools. • A toolkit for developing a successful gleaning program (i.e., collecting—usually through volunteers—unharvested crops for distribution to people in need). USDA's Agricultural Research Service also funded development of the National Gleaning Project, a database on economy-wide and state-level laws related to gleaning. It sponsors programs like gleaning surplus produce from USDA's research farms, and through the Animal and Plant Health Inspection Service's Wildlife Services runs programs that donate food from culled animals. USDA also provides links to external resources on its website at: https://www.usda.gov/foodlossandwaste/donating
Legislation	The *Bill Emerson Good Samaritan Act* provides liability protections for business donors; 42 U.S. Code § 1791 provides more information. The *2018 Farm Bill* has several provisions related to food redistribution. As summarized in a blog by NRDC, this includes: expanded efforts for states to support *donation of agricultural commodities; clarification of liability protections* for food donors and provisions enabling some entities to donate food directly to individuals in need (such as restaurants that would like to provide food directly to the homeless); and *funding for a new milk donation* program.[41] The *Internal Revenue Code 170(e)(3*) of 2011 provides enhanced tax deductions to businesses to encourage donations of fit and wholesome food to qualified nonprofit organizations. In 2015, the U.S. Congress passed the *Protecting Americans from Tax Hikes (PATH) Act*, making permanent and extending the enhanced tax deductions to all types of businesses. The *U.S. Federal Food Donation Act of 2008* specifies procurement contract language that encourages federal agencies and contractors to donate excess wholesome food to eligible nonprofit organizations to feed food-insecure people.

[41] https://www.nrdc.org/experts/joanne-berkenkamp/food-waste-reduction-scores-big-farm-bill

Food rescue and redistribution

SAMPLING OF OTHER APEC ECONOMIES

Economy	Policy Measures in Place
Canada	Canada's domestic law allows individual donors to claim a tax credit of 15 percent up to the first $200 of total donations and for corporate donors to claim a deduction for the donation's fair market value. However, to claim this benefit donors must first count the value of the food in their taxes so the benefit is zeroed out. Many donors find that claiming these benefits is not possible. *Excerpt from: The Global Food Donation Policy Atlas*
Chile	Chile's 2020 tax reform indicates that the voluntary destruction of unmarketable food that is still suitable for human consumption may be subject to a 40 percent single tax penalty. However, details concerning the application, implementation, and enforcement of this penalty require further clarification. *Excerpt from: The Global Food Donation Policy Atlas*
Mexico	Mexico currently offers limited domestic liability protection for food donors. The General Health Law protects food donors by shifting exclusive responsibility to intermediary food recovery organizations. It also imposes penalties for those that knowingly or negligently authorize the distribution of food that is unsafe for human consumption. Some states have also adopted liability protections for food donation. Mexico provides domestic tax deductions to corporate and individual taxpayers that offer food for donation, provided it is still suitable for human consumption. Donors agree that the general deduction, which allows donors to claim up to 7 percent of the donor's taxable income or profit, and an additional monthly deduction, do not always cover the full cost of donation. *Excerpt from: The Global Food Donation Policy Atlas*
New Zealand	The New Zealand Ministry for Social Development is investing $32 million over two years to provide support for foodbanks, food rescue and other community organizations who are distributing food to people and 57hanau experiencing food insecurity (see its Food Secure Communities program). In addition to funding local community food providers, the program also helped to establish three domestic partner organizations.
Peru	Peru's Food Donation Law includes a donation requirement on food storage facilities and supermarkets (though the law is still not enforced, pending final implementing regulations). Both the Food Safety Act and the General Health Law establish a minimum food safety standard that extends to food that is distributed or offered free of charge. The regulation of the Food Safety Act explicitly references food donation but does not detail the specific food safety standards that apply to donated food. The Food Donation Law limits the liability of food donors and food recovery organizations, imposing criminal or civil liability only if there is proof of gross negligence or fraud associated with the donated food. Pursuant to the Food Donation Law, corporate donors may claim up to 10 percent of their net income, with the deduction not to exceed 1.5 percent of the total value of net food sales made by the donor during the fiscal year. The Food Donation Law also provides for additional benefits to help promote donation, including in states of emergency. Even so, most donors and food recovery organizations report that it is cheaper to throw away food than to donate it. The existing tax scheme does not create a barrier to food donation as a result of the VAT (known as the *Impuesto General a las Ventas*, or IGV in Peru) or other tax requirements. Food is subject to the standard 16 percent IGV rate pursuant to the General Sales Tax and Selective Consumption Tax Law. However, the Food Donation Law allows food donors to reclaim the IGV credit on food donations made free of charge to tax-exempt organizations that are registered as donation-receiving entities. *Excerpt from: The Global Food Donation Policy Atlas*

Singapore	Singapore's *Sale of Food Act* establishes food safety standards in Singapore but appears to exclude donated food from its requirements. However, the National Environment Agency (NEA) issued robust guidance in 2016 on food safety for food donations in Singapore, detailing clear instructions on handling donated food. There are food safety guidelines for organizations involved in food preparation and distribution activities for charitable causes in 2021. Singapore is currently proposing a Good Samaritan Donation Bill to protect businesses donating food from being sued or prosecuted if a recipient gets food poisoning. *Ref: The Straits Times, 27 Dec 2021*

Food product labels (in particular expiration dates)

AUSTRALIA

Organizational Lead	Policy Measures in Place
Department of Agriculture, Water and the Environment (AWE)	The *National Food Waste Strategy Feasibility Study, Final Report 2021* notes that a more uniform and therefore understandable date labelling system to communicate information to consumers is an important intervention. However, the responsibility for improved date labeling as well as policies to extend allowable use by dates (e.g., for long life, shelf stable products) would likely be led by the private sector.
Food Standards Australia & New Zealand (FSANZ)	The existing Australian date labelling system is mainly governed by the *Food Standards Australia New Zealand Act 1991* (the FSANZ Act) and the *Australia New Zealand Food Standards Code – Standard 1.2.5*. According to this legislation, most food sold in Australia can be categorized with a “use by” or “best before” date; other commonly used date labels in Australia are “packed on,” “baked on,” and “baked before.” A paper with recommendations for improvements (*Reforming Food Date Codes)* was prepared for Foodbank Australia by the professional and community engagement (PACE) program at Macquarie University.

Food product labels (in particular expiration dates)

UNITED STATES

Organizational Lead	Policy Measures in Place
United States Food and Drug Administration (FDA) **United States Department of Agriculture (USDA)**	In the United, States, there is no federal law regulating date labels on food products other than infant formula and no restrictions on sale or donation of food past the date. While the U.S. Congress has given general authority to the FDA and the USDA to protect consumers from deceptive or misleading food labeling, neither the FDA nor the USDA have used this authority to regulate date labels. For additional details see *United States Legal Guide: Food Donation Law and Policy*. USDA and FDA both recommend that food manufacturers and retailers use the “Best if Used By” phrase on products if a date label is meant to indicate quality. USDA’s Food Safety and Inspection Service (FSIS) has issued a *Fact Sheet on Food Product Dating* with answers to commonly asked questions. FDA has produced a consumer-oriented videos about date labels: *Confused by Date Labels on Packaged Foods?*

Food product labels (in particular expiration dates)

SAMPLING OF OTHER APEC ECONOMIES

Economy	Policy Measures in Place
Chile	Chile's Food Sanitary Regulation (RSA) requires manufacturers to affix an "expiration date" and permits the use of a quality-based "minimum duration date" to prepackaged food items. Opportunities exist to better differentiate between quality-based and safety-based labels and to clarify this date labeling scheme in the context of food donation. *Excerpt from: The Global Food Donation Policy Atlas*
Mexico	Mexico has enacted domestic date labeling standards, which require manufacturers of prepackaged foods to select from either a safety-based label, referred to as the "expiration date," or a quality-based label, referred to as the "preferred consumption date." The law does not address whether food may be donated after the preferred consumption date has passed. *Excerpt from: The Global Food Donation Policy Atlas*
Peru	Peru's date labels are standardized under Technical Rule 209.038, which requires all perishable foods to feature an "expiration date." The regulatory definition does not define this date as a safety-based label or offer an alternative quality-based label for manufacturers to choose. *Excerpt from: The Global Food Donation Policy Atlas*
Singapore	Singapore's date labeling regime requires manufacturers to choose between four date labels: "use by," "sell by," "expiry date," or "best before." The law does not clearly define these labels as quality-based or safety-based or expressly permit the donation of food after the quality-based date. *Excerpt from: The Global Food Donation Policy Atlas*

Education and outreach to food supply chain actors and the public

AUSTRALIA

Organizational Lead	Policy Measures in Place
Fight Food Waste Cooperative Research Centre (FFW CRC)	Education and outreach at the economy level are led by the Fight Food Waste Cooperative Research Centre (FFW CRC). For Consumers: Various reports have been produced (e.g., *Global best practice for designing interventions to reduce household food waste, Australian household food waste: A summary of behaviours, attitudes, perceived and actual food waste, Profiles of Australian households for food waste reduction interventions)* and along with other research studies in progress (e.g., the *WWW (What, Where and Why) of Household Food Waste Behaviour*) will support future domestic food waste consumer behavior change programs led by government and industry. For Businesses: The *Australian Industry Food Waste Training Needs Analysis* was released in 2020 and makes recommendations for developing training and education programs as well as supporting resources for Australia's food industry to gain skills to reduce, transform, and engage with food waste in their businesses. It includes the detailed findings of a desktop audit to identify where food waste related training and education programs exist (and where they don't), focused on the needs of Australia's food industry especially those in the primary production and food manufacturing sectors. FFW CRC will use the Industry Connection Hub for industry participants and the wider industry in general to pass on information that allows the implementation of new knowledge, technologies, methods or processes. Additional details are provided in the *FFW CRC Annual Report 2020/2021* (under the Engage Program).

Education and outreach to food supply chain actors and the public

UNITED STATES

Organizational Lead	Policy Measures in Place
United States Environmental Protection Agency (EPA) **United States Food and Drug Administration (FDA)** **United States Department of Agriculture (USDA)**	<u>For Consumers:</u> EPA material on "Reducing Wasted Food at Home" includes: • *Benefits of Reducing Wasted Food* • *Ways to Reduce Wasted Food: Planning Tips, Storage Tips, Prep Tips, Thriftiness Tips* • *Toolkit for Your Home and Your Community -- Food: Too Good to Waste* • *If You Can't Reduce Wasted Food, Divert It From Landfills* FDA material related to food safety and date labels includes: • *How to Cut Food Waste and Maintain Food Safety* • *Tips to Reduce Food Waste* • *Confused by Date Labels on Packaged Foods?* • *Food Waste Animated Videos* • *Are You Storing Food Safely?* USDA material for consumers includes: • *Easy Steps to Prevent Food Waste* (infographic) • *USDA Tips to Reduce Food Waste at Home* (video) • *Plan Ahead to Reduce Food Waste* (video) • *Serve Smart to Reduce Food Waste* (video) • *Download the FoodKeeper App* • *Cool Quickly and Freeze the Excess* • *Love Your Leftovers* By the Commission for Environmental Cooperation (CEC) with the U.S. (EPA), Canada (ECCC) and Mexico (SEMARNAT): • *Food Matters Action Kit* (for ages 5 - 25) <u>For a Broad Audience:</u> • "Sustainable Materials Management Web Academy" webinars cover key issues, successful projects and a variety of best management practices • Targeted "Food Loss Prevention Options" tip sheets are available for K-12 schools, food manufacturers, restaurants, universities and grocery stores <u>For Local Communities:</u> *The Managing and Transforming Waste Streams Tool* by EPA provides an extensive set of best practices in the form of ordinances, policies, programs, contracts, outreach and technical assistance, and infrastructure

	development, that can be explored to develop a food waste program tailored to a community's needs and capabilities. On the tool's website browse by topic: "food waste programs." <u>For Schools:</u> USDA offers a number of resources for reducing food waste at K–12 schools on its website. This includes strategies to help students consume what they take, and material for teachers and nutrition professional to educate students on the impacts of wasted food. Also available are materials for school foodservice professionals that provide "offer versus serve" guidance, which can reduce FLW and total meal costs. <u>For Businesses:</u> EPA provides various resources online including *Anaerobic Digestion Facilities Processing Food Waste in the United States: Survey Results.* USDA's website on FLW provides a webpage for businesses and one for farmers that summarizes USDA's resources and links to others. <u>For Faith-based Communities:</u> EPA developed a *Food Stewards Toolkit*. <u>For Federal Facilities Operating Food Service Venues:</u> • *Composting: One Way to Win on Reducing Food Waste* (video) • October 2019 Presentation at the Federal Environmental Symposium on "Federal Food Initiatives and Efforts" • *Food Service Guidelines for Federal Facilities* (co-authored by several government agencies)

Education and outreach to food supply chain actors and the public

SAMPLING OF OTHER APEC ECONOMIES

Economy	Policy Measures in Place
Canada & Mexico	The Commission for Environmental Cooperation (CEC) collaboration among Canada, Mexico, and the United States published a *Food Matters Action Kit* that contains informative resources and hands-on, creative activities to inspire North American youth to prevent food waste at home, at school and in their communities.
Chile	Reciclo Orgánicos (a collaboration between the governments of Canada and Chile within the framework of the Environmental Cooperation Agreement) contributed to the development of several public education resources. This included a manual on home composting and on composting for mayors and municipalities, as well as teacher presentations for schools. In addition, it has facilitated dozens of webinars, raising community awareness of the linkages between waste management and climate change.
People's Republic of China	Following the launch of the clean plate initiative, the National People's Congress (NPC) drafted and passed an Anti-Food Waste Law that went into effect on April 29, 2021. The law includes stricter management controls to reduce food waste from farm to fork with provisions aimed at curbing food waste at official activities, schools, restaurants, food processing operations, food retailers, and the larger grain and agriculture industry. *Excerpt from: "China Makes Moves to Reduce Food Waste" USDA FAS-China*
Malaysia	Malaysia set up in 2016 the MYSaveFood program. It advocates for FLW reduction through a domestic communication campaign targeted to individuals across the economy, including ministry employees, households, and in schools. *Excerpt from: https://www.fao.org/save-food/news-and-multimedia/news/news-details/en/c/1093062/*
New Zealand	New Zealand's Ministry for Primary Industries (MPI) administers the Food Act 2014 and has developed advice on reducing food waste at home and tips for businesses.
Singapore	Singapore's National Environment Agency (NEA) launched a food waste reduction program in 2015 to encourage the adoption of smart food purchase, storage and preparation habits that help consumers save money while reducing food wastage at source. The outreach program features educational materials publicized on both print and social media platforms (e.g., newspapers, television, websites) and community-led initiatives, which included an educational skit. Singapore's National Environment Agency (NEA) launched the third Say YES to Waste less (SYTWL) campaign in 2021, with a focus on encouraging the public to lead a sustainable lifestyle by reducing the use of disposables and food wastage. 169 partners came on board, comprising corporates, social enterprises, interest groups, non-governmental organisations (NGOs), and Community Development Councils (CDCs). Covering close to 3,000 premises, the partners committed to various actions to reduce the use of disposables and/or food wastage. *More information may be found from: http://cgs.gov.sg/sayyes*

Organic material management rules (e.g., valorizing by-products, bans, permitting)

AUSTRALIA

Organizational Lead	Policy Measures in Place
Department of Agriculture, Water and the Environment (AWE)	Three reports provide guidance on key issues related to recycling organics: 1. *Review of Regulations and Standards for Recycled Organics in Australia* (2021) identifies key issues in organics recycling and provides recommendations for a sustainable organics recycling industry in Australia. 2. *Australian Organics Recycling Industry Capacity and Capability Assessment* (2020-2021) modelled the impacts of the Australian organic recycling industry under various organics recycling rates (70 – 95 percent). It was an independent and robust assessment to provide the foundation for further development of the Australian organics recycling industry. 3. *Opportunities to increase organic waste recovery* (2020) provides an analysis of: • Current organics recovery rates, • National waste policy targets and what they would mean for organics generation and recovery, and • Opportunities for improved recovery and potential future recovery rates based on global efforts and best practice

Organic material management rules (e.g., valorizing by-products, bans, permitting)

UNITED STATES

Organizational Lead	Policy Measures in Place
United States Environmental Protection Agency (EPA)	The NRDC's *Food Waste Policy Gap Analysis and Inventory: MidAtlantic, Southeast, and Great Lakes Regions* report describes the evolution of permitting for organics processing infrastructure, stating that in the 1980s EPA "promulgated regulations codified at 40 CFR 503 that established pathogen and vector attraction reduction requirements and pollutant limits for biosolids recycling, including composting." Currently the business of composting is regulated by both state and local officials and EPA provides various resources about composting on its webpage "Reducing the Impact of Wasted Food by Feeding the Soil and Composting." With respect to permitting specifically, the US Composting Council (an independent body) has developed a Model Compost Rule Template for states to update their compost permitting regulations. EPA collects and reports on data about the processing capacity of anaerobic digestion facilities, total food and non-food waste processed, and other relevant details through the *Anaerobic Digestion Facilities Processing Food Waste in the United States: Survey Results.* It, along with USDA, also supports organics material management through research and funding programs (see table on innovation).
United States Food and Drug Administration (FDA)	FDA regulates substances intended for use in human food or animal feed in the United States. As it relates to using food industry by-products for animal feed, the ReFED U.S. Food Waste Policy Finder database provides the following summary: "under federal law, food scraps can generally be fed to animals, so long as food scraps with animal derived by-products are heat-treated by a licensed facility before being fed to swine; and food scraps containing animal-derived by-products are not fed to ruminants. The federal regulations function as a floor, and most state regulations go beyond them." FDA resources include guidance such as *At A Glance: Safely Distributing Unused Human Food For Use as Animal Food*.
The Global Food Donation Policy Atlas; **ReFED U.S. Food Waste Policy Finder**	There are currently no federal organic waste bans. However, details about the many state and local governments that have enacted organic waste bans or waste diversion laws are available in the *United States Legal Guide: Food Donation Law and Policy* (downloadable from The Global Food Donation Policy Atlas) as well as through ReFED's U.S. Food Waste Policy Finder database.

Organic material management rules (e.g., valorizing by-products, bans, permitting)

SAMPLING OF OTHER APEC ECONOMIES

Economy	Policy Measures in Place
Canada	EREF-Canada's July 2021 report, *State of the Practice of Organic Waste Management and Collection in Canada*, reviews for all 10 provinces and three territories: organic waste policies and approval/permitting regimes; organic waste diversion program availability across the economy; the number of organic waste processing facilities, their capacities, and tons processed; and targets or goals.
Republic of Korea	The Republic of Korea began banning food in landfill as far back as 2005 and in 2013 the government introduced compulsory food waste recycling using special biodegradable bags. *Excerpt from: https://www.weforum.org/agenda/2019/04/south-korea-recycling-food-waste/*
Singapore	Under Singapore's Resource Sustainability Act (RSA), large food waste generators will be required to segregate their food waste for treatment. *Excerpt from: https://www.nea.gov.sg/programmes-grants/grants-and-awards/call-to-reduce-food-waste-disposal-from-commercial-premises-and-enhance-recycling*
Chinese Taipei	Joint efforts among the central governing authorities in Chinese Taipei have put in place mandatory measures related to disposing of FLW and also to incentivize the conversion of FLW into value-added resources. See details in: *Turning Food Waste into Value-Added Resources: Current Status and Regulatory Promotion in Taiwan.*

Innovation (e.g., research and development, financial measures)

AUSTRALIA

Organizational Lead	Policy Measures in Place
Fight Food Waste Cooperative Research Centre (FFW CRC), with funding by the Australian Government Department of Industry, Innovation and Science CRC Program	In 2018 Fight Food Waste Cooperative Research Centre (FFW CRC) was launched with $30 million in grant funding to work with research and industry partners over a 10-year period. Match funding included $33 million in cash and $57 million in in-kind funding raised by the 60 participants. This CRC is organized around three research and development programs which support a number of FLW reduction policies including improved food rescue and redistribution, and consumer education and outreach. Program 1 is focused on "reducing supply chain losses," which includes mapping root causes of FLW and investigating methods to increase food donation. Program 2 addresses "transforming waste resources," which includes identifying valuable products from waste streams, toolkits for feedstock combinations, and an assessment of alternative policy options. Program 3 is focused on "education and behavioral change" and includes educating industry professionals and developing household and business behavior change instruments.
Department of Agriculture, Water and the Environment (AWE)	The Australian Government is investing $67 million to establish a Food Waste for Healthy Soils Fund. Together with co-contributions from participating state and territory governments as well as industry, the Fund will leverage over $170 million of investment to build new—and improve existing—organic waste recycling infrastructure to put organic waste to productive use on agricultural soils. Of the $67 million, $57 million supports new and improved organic waste recycling infrastructure to divert food organic and garden organic (FOGO) waste from landfill. Supporting elements will receive $10 million to ensure the quality, consistency, and safety of recycled organics products for use on agricultural soils. This includes: • Reducing contamination through education initiatives, • Encouraging uptake while increasing knowledge and awareness of compost benefits, • Updating Australia's compost standards (AS4454-2012 Compost, Mulches and Soil Conditioners) to ensure compost products are top-grade, safe, consistent, and can be used in a range of agricultural settings, and • Updating government procurement guidelines to stimulate market for high quality compost. This fund complements existing projects by the Australian Government, including the Recycling Modernisation Fund, the Manufacturing Modernisation Initiative, and Stop Food Waste Australia.

Innovation (e.g., research and development, financial measures)

UNITED STATES

Organizational Lead	Policy Measures in Place
11 federal agencies (including EPA/USDA)	The Small Business Innovation Research (SBIR) Program helps develop innovative technologies that protect human health and the environment, including projects that address preventing food waste.
United States Environmental Protection Agency (EPA)	EPA has undertaken research across the food recovery hierarchy to support food waste reduction and improve its management. A sampling of its research includes: • Reports on emerging issues in food waste management: *Emerging Issues in Food Waste Management: Persistent Chemical Contaminants, Emerging Issues in Food Waste Management: Plastic Contamination*, and *Emerging Issues in Food Waste Management: Commercial Pre-Processing Technologies* • Learning from demonstration studies to reduce food waste in military kitchens, and an organic waste diversion feasibility study • Research evaluating de-packaging technologies, and processed food waste from kitchen digester use and the downstream impacts/benefits • Tools and reports about issues related to various food waste management options—from anaerobic digestion systems to landfills • *From Farm to Kitchen: The Environmental Impacts of U.S. Food Waste*
United States Agency for International Development (USAID)	The Feed the Future Initiative (the United States Government's global hunger and food security initiative) announced in September 2021 a commitment of $60 million over five years in new research awards that will contribute critical solutions to reduce food loss and waste. This a further extension of USAID's prior support for funding innovation that supports FLW reduction. As an example, in 2014, USAID provided a $5 million grant over five years to Purdue University for the Feed the Future Innovation Lab for Food Processing and Post-Harvest Handling; with another grant awarded in 2019 to extend the work for another three years. As another example, it has funded for over 10 years a Feed the Future Innovation Lab focused on horticulture innovation led by UC Davis, which has developed innovative solutions to improve handling of produce after harvest, and create market linkages.
United States Department of Agriculture (USDA)	USDA's Agricultural Marketing Service (AMS) compiles and provides a webpage with information on "Grants, Loans, and Other Support" from across multiple USDA agencies. AMS itself also offers funding opportunities that support FLW reduction such as developing product markets and improving supply chains. Other USDA offices that support innovations, which can reduce FLW include: • Agricultural Research Service (ARS): Includes research on new technologies for reducing spoilage of fresh foods and the development of new products from waste materials at food processing facilities (conducted primarily within ARS's National Program on Product Quality and New Uses). ARS research is also focused on preventing crop loss due to disease (e.g., plum pox resistant fruit trees; blight resistant chestnut). • Rural Development: Offers the Value Added Producer Grant (VAPG) program, which helps agricultural producers enter into value-added activities related to processing or marketing. It also offers a Food Supply Chain Guaranteed Loan Program, which could be used for adding refrigerated storage in the supply chain, as well as a BioPreferred Program, which may be applicable to repurposing FLW into valuable non-food products. USDA's *Funding for Food*

	Waste Reduction Projects highlights ideas about how rural development loan and grant programs could address food loss and waste reduction, reuse and composting techniques. • Farm Service Agency: Offers the Farm Storage Facility Loan Program (FSFL), which provides low-interest financing to help producers build or upgrade storage facilities. On-farm storage can help reduce post-harvest loss by giving farmers effective, safe, accessible storage. • National Institute of Food and Agriculture (NIFA): Invests in agricultural research projects with a food loss and waste focus and funds the Agriculture and Food Research Initiative (AFRI) competitive grants program. • Office of Urban Agriculture and Innovative Production: Offers Community Compost and Food Waste Reduction funding to assist local and municipal governments with projects that develop and test strategies for planning and implementing municipal compost plans and food waste reduction plans. USDA's Economic Research Service (ERS) published research on the *Economic Drivers of Food Loss at the Farm and Pre-Retail Sectors: A Look at the Produce Supply Chain in the United States*, which also explores potential opportunities to reduce food loss and improve grower income. It summarizes funding related to FLW reduction at: https://www.usda.gov/foodlossandwaste/funding

Innovation (e.g., research and development, financial measures)

SAMPLING OF OTHER APEC ECONOMIES

Economy	Policy Measures in Place
Canada	Canada recently launched a "Food Waste Reduction Challenge" as part of Food Policy for Canada to fund innovative food waste reduction proposals from farm to plate. In support of FLW management goals set in 2020, the Government's Environment and Climate Change Canada (ECCC) department published research for local governments on approaches for processing organic waste in a *Technical Document on Municipal Solid Waste Organics Processing*. The Canadian government has also invested in waste management infrastructure through the Low Carbon Economy Fund and the Investing in Canada Infrastructure Program. *Excerpt from: https://www.waste360.com/food-waste/canadas-fight-food-waste*
Chile	The Reciclo Orgánicos Programme has helped get funding for waste management projects into the hands of municipalities faster. For example, the program funded waste project initiation activities such as technical assistance for detailed engineering, and a simple funding application blueprint. These helped cut the time for receiving funding down to a few years for some projects.
New Zealand	The New Zealand government financially supports a Waste Minimisation Fund to fund local government projects that encourage the reuse, recovery, and recycling of materials. This has been used for FLW reduction projects (e.g., to support Kai Ika, a project that redistributes conventionally wasted parts of fish—like fish heads—to communities that use them). *Excerpt from: https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/reducing-food-waste/*
Peru	The Law Against Food Loss and Waste recognizes government financial support for food loss and waste reduction activities. Regulations further task the government with promoting participation in grant competitions to fund relevant projects. The specific grant and funding opportunities, however, are not identified. *Excerpt from: The Global Food Donation Policy Atlas*
Singapore	Singapore's 3R Fund is a co-funding scheme to broadly encourage waste reduction through the implementation of waste minimization and recycling projects. In early 2021, the National Environment Agency (NEA) and Enterprise Singapore (ESG) jointly launched a *Call to reduce food waste disposal from commercial premises and enhance recycling*, as part of the National Innovation Challenges (NIC). Singapore's policy measures include the Closing the Resource Loop (CTRL) Funding Initiative (FI) administered by the National Environment Agency (NEA) and support research and development into sustainable circular solutions that aligns with the Singapore Green Plan 2030 and the Zero Waste Masterplan. One broad track under CTRL FI is on sustainable resource recovery solutions from food waste generated from industrial and commercial premises such as large hotels and malls, large industrial developments housing food manufacturers, food caterers, etc. *Ref: https://www.nea.gov.sg/programmes-grants/grants-and-awards/closing-the-resource-loop-initiative*

Annex 1. Resources

This Annex includes some of the resources used in developing this report. This list is limited to resources publicly available in the English-language as of November 2021 and is presented in alphabetical order.

Interactive websites

- *APEC Project on Food Loss and Waste System (APEC-FLOWS):* a public platform to share resources and best practices, and publicize results of expert consultations and other capacity-building activities attended by APEC member economy representatives
- *European Union (EU) Food Loss and Waste Prevention Hub: summarizes what each EU Member State is doing to prevent and reduce food losses and food waste*
- *The Global Donation Policy Atlas:* a partnership between the Harvard Law School Food Law and Policy Clinic and The Global FoodBanking Network. The Atlas includes a comparative analysis on FLW-related laws and policies across participating countries, along with economy-specific policy recommendations for strengthening food recovery efforts. Six APEC member economies were profiled as of November 2021 (Canada, Chile, Mexico, Peru, Singapore, and the United States) and others are likely to be added.
- *Sub-governmental FLW policies (for Australia and the United States):* Chapter 4 provides a list of websites with summary information about sub-governmental policies and initiatives.
- *U.S. Food Waste Policy Finder*: a tool developed by ReFED (a non-profit organization committed to reducing U.S. food waste) in collaboration with the Harvard Law School Food Law and Policy Clinic. The Policy Finder provides an overview of current federal and state policies related to FLW and highlights best-practice legislation addressing several topics. This tool built off the assessment in NRDC's publication *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions* and includes some updates on recommended best practices.

General resources

- *Addressing Food Loss and Waste: A Global Problem with Local Solutions*: 2020 (World Bank Group)
- *Changing the Rules of the game: Impact and Feasibility of Policy and Regulatory Measures on the Prevention and Reduction of Food Waste*: 2020 (Wageningen University)
- *The Food Loss and Waste Accounting and Reporting Standard (FLW Standard)*: 2016 (FLW Protocol)
- *The Food Loss and Waste Country Progress Index*, and companion guide: *A Playbook for Reducing Food Loss and Waste for Latin America & the Caribbean*: forthcoming (IDB)
- *Food Losses and Waste in the Context of Sustainable Food Systems: A Report by the High-Level Panel of Experts on Food Security and Nutrition*: 2014 (Committee on World Food Security, High Level Panel of Experts)
- *Food Loss and Waste Sector Guidelines—Greece*: 2019 (European Bank for Reconstruction and Development)
- *Food Waste Policy Gap Analysis and Inventory - MidAtlantic, Southeast, and Great Lakes Regions*: 2021 (NRDC)
- *Halving Food Loss and Waste in the EU by 2030: the Major Steps Needed to Accelerate Progress*: 2020 (WWF / WRAP)
- *Managing for Results: Key Considerations for Implementing Interagency Collaborative Mechanisms*: 2012 (United States Government Accountability Office)

- *Reducing Food Loss and Waste: Setting a Global Action Agenda*: 2019 (World Resources Institute) and companion: *Reducing Food Loss and Waste: Ten Interventions to Scale Impact*: 2019 (World Resources Institute)
- *Tackling Food Waste in Cities: A Policy and Program Toolkit*: 2019 (NRDC)
- *Voluntary Code of Conduct for Food Loss and Waste Reduction*: 2020 (FAO)

Resources focused on particular types of FLW reduction policies

- *Bans and Beyond: Designing and Implementing Organic Waste Bans and Mandatory Organics Recycling Laws*: 2019 (Harvard Food Law and Policy Clinic; the Center for EcoTechnology)
- *Changing Behaviour to Help More People Waste Less Food: A Playbook*: forthcoming (Champions 12.3)
- *Don't Waste, Donate: Enhancing Food Donations through Federal Policy*: 2017 (Harvard Food Law and Policy Clinic and NRDC)
- *Leftovers for Livestock: A Legal Guide for Using Excess Food as Animal Feed*: 2016 (Harvard Food Law and Policy Clinic; Food Recovery Project at the University of Arkansas)
- *Promoting Food Donation: Date Labeling Law and Policy*: 2021 (Harvard Food Law and Policy Clinic; The Global FoodBanking Network)
- *Promoting Food Donation: Liability Protection Law and Policy*: 2021 (Harvard Food Law and Policy Clinic; The Global FoodBanking Network)
- *Promoting Food Donation: Tax Law and Policy*: 2021 (Harvard Food Law and Policy Clinic; The Global FoodBanking Network)
- *Reducing Consumer Food Waste Using Green and Digital Technologies*: 2021 (UNEP DTU Partnership and United Nations Environment Programme)

Summary of FLW related reports produced by APEC's ATCWG and PPFS

- *APEC Survey Report on Food loss and Waste Reduction Policy (Version 1)*: 2017 (ATCWG / PPFS)
- *APEC Survey Report on Feasible Solutions for Food Loss and Waste Reduction*: 2018 (ATCWG / PPFS)
- *Summary of Activities, Findings and Recommendations from the APEC High Level Policy Dialogue (HLPD) on Enhancing Public and Private Partnership to Reduce Food Losses and Waste for a Sustainable APEC Food System*: 2018 (ATCWG / PPFS)
- *A Food Loss and Waste Quantification Handbook for APEC Economies*: 2019 (ATCWG / PPFS)
- *Reducing Food Loss and Waste Along the Food Value Chain in APEC During and Post COVID-19 Pandemic*: 2021 (ATCWG / PPFS)