

CHAMPIONS 12.3

SDG TARGET 12.3 ON FOOD LOSS AND WASTE: 2021 PROGRESS REPORT

An annual update on behalf of Champions 12.3

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



EXECUTIVE SUMMARY

Highlights

- New estimates suggest that the global amount of food that is lost or wasted from the farm to the fork is higher than previously calculated.
- This increase can be attributed to new findings that on-farm losses and consumer-level waste are more prevalent than suggested by past studies.
- Sustainable Development Goal (SDG) Target 12.3 aims to halve global food waste at the retail and consumer levels and reduce food losses, including postharvest losses, along supply chains by 2030.
- Although COVID-19 has slowed efforts to reduce food loss and waste, many developments in food loss and waste reduction have taken place over the past 12 months at all stages of the food supply chain.
- Political attention on reducing food loss and waste appears to be growing, as evidenced by the 2021 Group of Seven (G7) ministers' communiqué endorsing the Target-Measure-Act approach as well as by the prominent role of food loss and waste in the United Nations Food Systems Summit.
- Nonetheless, with just nine years to go, the world overall is woefully behind where it needs to be if it is to achieve SDG 12.3 by 2030.
- To address this shortcoming, many more governments and businesses need to aggressively pursue the Target-Measure-Act approach to reduce food waste: set a reduction **target** aligned with SDG 12.3, **measure** food loss and waste to identify hot spots and monitor progress, and **act** boldly to reduce food loss and waste.

ABOUT THIS PUBLICATION

SDG Target 12.3 on Food Loss and Waste: 2021 Progress Report is the sixth in an annual series of publications providing an assessment of the world's progress toward achieving Sustainable Development Goal (SDG) Target 12.3. SDG 12.3 aims to "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." Prepared on behalf of Champions 12.3, this publication seeks to inform decision-makers in government, business, academia, and civil society about recent advances and what remaining steps need to be addressed if the world is to achieve the target. The *2016-2020 Progress Reports* can be found at <https://www.champions123.org>.

AUTHORS

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Summary

According to the latest available data, about 8 percent of all food produced in the world is lost on the farm, 14 percent is lost between the farm gate and the retail sector, and 17 percent of the world's food is wasted at retail, food service providers, and in households, resulting in significant impacts on human livelihoods and well-being, the global economy, and the environment. Over the past two years, the COVID-19 pandemic has exacerbated food loss and waste by continually disrupting the human food supply chain.

In September 2015, the United Nations General Assembly adopted a set of 17 SDGs, with SDG 12 seeking to “ensure sustainable consumption and production patterns.” The third target under this goal (SDG 12.3) calls for halving per capita global food waste at the retail and consumer levels and reducing food losses along production and supply chains (including postharvest losses) by 2030.

Many governments, companies, and intergovernmental organizations have advanced food loss and waste reduction efforts over the past year. The World Bank has published a groundbreaking series of food loss studies in developing countries, and WWF and the United Nations Environment Programme have shed new light on food loss and waste levels at both ends of the food supply chain. The Chinese government has passed an expansive set of regulations relating to consumer food waste. And companies continue to find innovative ways to address food loss and waste in a manner that is beneficial on financial, social, and environmental scales.

More needs to be done. More governments need to act at scale within their countries to address food loss and waste through levers such as national measurement strategies, public-private partnerships, and innovative policies. And more companies need to adopt the Target-Measure-Act approach and begin engaging their upstream suppliers to do the same.

There are only nine years left to achieve SDG 12.3. It is essential that all governments, companies, farmers, and individuals deepen their commitment to reducing food loss and waste and accelerate their efforts. Time is running out to deliver a more sustainable food system—for people and the planet.

THE CHALLENGE

According to the latest available data, about 8 percent of all food produced in the world is lost on the farm, 14 percent is lost between the farm gate and the retail sector, and 17 percent is wasted at the retail, food service, and household stages of the food supply chain (FAO 2018; UNEP 2021; WWF-UK 2021). This huge level of inefficiency has significant impacts.

Consider food security. In some areas, food loss is most common during either production or handling and storage. This can affect the ability of farmers to make a good living and, at times, feed their families. In other places, food waste near the end of the food supply chain can affect household nutrition and spending. Regardless of where the food loss and waste occur, in a world where nearly 1 in 10 people is undernourished (FAO 2018), it is a travesty that more than 2 billion tons of food each year never gets consumed (WWF-UK 2021). Moreover, as demand for food production rises to meet a growing population, now more than ever the world needs to make the most of what is already grown.

Consider the economic costs. Food loss and waste results in more than US\$1 trillion in economic losses globally per year (Scialabba 2015; WWF-UK 2021). Investing in food loss and waste reduction efforts therefore can reap significant economic benefits. For example, one study found that food-related businesses such as canteens, hotels, and restaurants can experience up to a 14-fold return on their investment in food waste reduction programs (Hanson and Mitchell 2017).

Consider the environment. The production of food that is ultimately lost or wasted requires a land area greater than that of China (FAO 2013). Moreover, food loss and waste generates about 8–10 percent of global greenhouse gas emissions annually (IPCC 2020). To put this in perspective, if food loss and waste were a country, it would be the third-largest greenhouse gas emitter on the planet—surpassed only by China and the United States. In fact, reducing food loss and waste by half would avoid 1.5 gigatons of carbon dioxide equivalent emissions per year by 2050, an amount greater than the current energy-related and industry-related emissions of Japan (Searchinger et al. 2019).

In light of these impacts, reducing food loss and waste can generate a triple win. It can help feed more people. It can increase savings for farmers, businesses, and households. And it can reduce the food system's pressure on the environment.

A HISTORIC OPPORTUNITY

In September 2015, a historic window of opportunity opened to elevate the issue of food loss and waste reduction on the global agenda. At the United Nations General Assembly, countries of the world formally adopted a set of 17 Sustainable Development Goals (SDGs) as part of the 2030 Agenda for Sustainable Development: global goals to end poverty and hunger, protect the planet, and ensure prosperity for all populations and generations (UN 2017). SDG 12 seeks to “ensure sustainable consumption and production patterns.” The third target under this goal (SDG 12.3) calls for halving per capita global food waste at the retail and consumer levels and reducing food losses along production and supply chains (including postharvest losses) by 2030. Many countries and initiatives, including Champions 12.3, are interpreting this target to mean that all food loss and waste across the food supply chain should be reduced by 50 percent.

This ambitious yet achievable target has the potential to embed the reduction of food loss and waste firmly in public and private sector strategies around the world for the first time. Moreover, national action on food loss and waste can help countries meet their commitments to the Paris Agreement on climate change. It is truly a global target; solutions may differ between developed and developing countries, but every country, company, and individual has a role to play.

A ROAD MAP TO ASSESS PROGRESS

In the 2017 edition of this progress report (Lipinski et al. 2017), the authors introduced a “road map” of milestones (grouped into three-year segments) based on Champions 12.3’s “Target-Measure-Act” approach (Box 1). This road map is designed to track global progress by governments and businesses toward achieving SDG 12.3 and assesses where progress is sufficient or insufficient relative to Target-Measure-Act. The next set of milestones concludes at the end of 2021, so the 2022 progress report will provide a new assessment of global progress toward achieving SDG 12.3 by both companies and countries.

MAJOR DEVELOPMENTS SINCE SEPTEMBER 2020

Over the past 12 months (essentially the sixth year since the announcement of the SDGs), to what degree has the world made progress toward achieving SDG 12.3? This report addresses this question by profiling six major developments that represent the diversity of efforts occurring across the food supply chain to reduce food loss and waste and achieve a 50 percent reduction. Although not an exhaustive representation of global action on food loss and waste reduction, these examples highlight the range of activities occurring among governments, companies, and international organizations. The authors identified these developments through a literature review and consultation with experts, based on what developments may have the highest potential impact (Box 2).

BOX 1. Why Target-Measure-Act?

The Target-Measure-Act approach to reducing food loss and waste is based on the simple steps wherein a country or company sets a food loss and waste reduction target, measures its food loss and waste, and acts to reduce the hot spots of food loss and waste.

- **Target.** Targets set ambition, and ambition motivates action. Therefore, as a first step toward reducing food loss and waste, governments and companies should set reduction targets aligned with Sustainable Development Goal (SDG) 12.3.
- **Measure.** The adage “What gets measured gets managed” holds true for food loss and waste as well. Quantifying food loss and waste within borders, operations, or food supply chains can help decision-makers better understand how much, where, and why food is being lost or wasted. This information is the foundation for developing and prioritizing reduction strategies. In addition, measurement is necessary if entities are to know whether they are on track to meet SDG 12.3; they need to quantify a base-year amount of food loss and waste and monitor change over time.
- **Act.** Setting targets and measuring food loss and waste are important. But what ultimately matters is action. Therefore, governments and companies need to follow through on implementation. Flanagan et al. (2019) provide recommendations on several actions that actors in the food supply chain, from farmers to consumers, can take to reduce food loss and waste.

BOX 2. Data Sources for This Report

Examples of progress to date were found through a literature review and internet searches in the English language. Sources included reports by governments, nongovernmental organizations, and businesses as well as media and journal articles. Examples of progress also were gathered by requesting information from a group of over 100 associates who support members of Champions 12.3 and Friends of Champions 12.3 coalitions.

Since restricting searches to the English language may have affected the geographic spread of examples, specific effort was made to gather input from experts working in non-English-speaking countries. Likewise, special effort was made to gather input from low- and middle-income countries because these regions tend to be underrepresented in data uncovered by the literature review. Despite all these efforts, the examples highlighted in this report are not exhaustive. The developments profiled as being among the most significant within the previous year were a result of this research.

These are the six developments profiled in this year's report (in no particular order):

- The creation of the World Bank's Food Smart Country Diagnostic, which assesses hot spots where losses occur along the value chain and is groundbreaking for further understanding food loss and facilitating action
- The publication of two new major studies that provide insight into food loss at the farm level and food waste at the retail and consumer levels; these last two stages of the food supply chain had not been thoroughly evaluated in the past
- The adoption of a new anti-food waste law by the Chinese government, the world's most populous country, which could have a significant impact on reducing consumer food waste
- A number of actions by the private sector on food loss and waste prevention and reduction, both from large food businesses and innovative new start-ups
- The ongoing effects of COVID-19, which continue to demonstrate weaknesses within the food system
- The rising profile of food loss and waste on the international agenda, as evidenced by the United Nations Food System Summit and the Group of Seven (G7) ministers' communiqué regarding food loss and waste

Development 1: The World Bank's Food Smart Country Diagnostic

Starting in 2020, the World Bank's program on food loss and waste reduction began developing Food Smart Country Diagnostics for several countries. These diagnostics focus on the hot spots of food loss and waste within a country and apply a "Global Framework" model to identify what interventions at which stage of the food supply chain might be most effective

in reducing food loss and waste.¹ Recognizing that policies addressing food loss and waste are interlinked with other issues and that there are therefore trade-offs, each diagnostic also assesses how an intervention may affect five key policy priorities: farmer welfare, food security, trade/imports, natural resources stress, and greenhouse gas emissions. The development of these diagnostics is significant because they provide new insight into the specific drivers of food loss and waste in a country while also identifying the most important points in the food supply chain for investment and interventions.

As of September 2021, the World Bank has published four diagnostics, addressing food loss and waste in Guatemala, Nigeria, Rwanda, and Vietnam. As summarized below, these diagnostics show how interventions need to vary across countries to best address local circumstances and challenges while meeting the needs of the relevant population.

Guatemala

The World Bank diagnostic for Guatemala focuses on three crops: maize, beans, and tomatoes (World Bank 2020a).

- Maize is Guatemala's main staple crop. For maize, the study found that interventions at the production level (where losses are higher than at any other point in the food supply chain) would have the most significant positive impacts across nearly all of the key policy priorities assessed by the diagnostic.
- Beans are a key protein source within Guatemala. Similarly to maize, the greatest benefits from loss reduction for beans are realized at the production level. Investment at this stage has large benefits in food loss reduction as well as in farmer welfare.

- Tomatoes are a net export crop in Guatemala; thus, they are a major source of income for many smallholders. For tomatoes, the greatest benefits to farmer welfare occur when investments are made at the production and handling stages of the food supply chain due to the potential for increased exports. However, the greatest food security impacts are realized by interventions in the processing, retail, and consumer stages due to the resultant reduction in at-home consumption prices.

Nigeria

The World Bank diagnostic for Nigeria focuses on three commodities: maize, tomatoes, and catfish (World Bank 2020b).

- As with Guatemala, maize is the primary staple crop in Nigeria. The diagnostic finds that maize losses are most significant at the handling stage, where a 50 percent reduction in losses would result in positive or neutral outcomes across all of the policy priorities considered by the model.
- Tomatoes are the most commonly used vegetable in the Nigerian diet, and Nigeria is the second-largest producer of tomatoes in Africa. The diagnostic finds that the greatest benefits would be realized with interventions at the handling and processing stages of the food supply chain, where losses are highest.
- Catfish, the major fish species cultivated in Nigeria, is a popular source of protein within the country. Nonetheless, Nigeria is a net importer of catfish. Although positive impacts result across all policy priorities from interventions at any stage of the food supply chain, interventions at the retail level are the most significant, especially on farmer welfare and food security.

Rwanda

The World Bank diagnostic for Rwanda focuses on three commodities: maize, rice, and tomatoes (World Bank 2020c).

- Rwanda's government has identified maize as a priority crop due to the positive effects of maize production on gross domestic product and food security. The Global Framework finds that reducing maize losses at the farmer level has the highest benefits across policy areas, especially in import reduction.
- Rice, highly important for food security in Rwanda, is also most positively affected by food loss reductions at the production level.
- Tomatoes are growing in demand as incomes rise, but their shelf life is low due to a lack of cold storage. Because of this

shortened shelf life, the most significant positive impacts are associated with interventions at the handling and retail stages of the food supply chain, where cooling technologies are most needed.

Vietnam

The World Bank diagnostic for Vietnam focuses on two commodities: rice and catfish (World Bank 2020d).

- Vietnam is the world's fifth-largest rice producer, but rice production is also a major source of greenhouse gas emissions globally. The diagnostic reports that the largest improvements across most policy priorities result from interventions at the handling, retail, and consumer levels.
- Vietnam produces 50 percent of the world's catfish, all of which comes from the Mekong Delta region. The greatest benefits across policy priorities are realized from interventions at the production stages, and the greatest overall food loss and waste reduction results from investments at the production, processing, and consumer stages of the food supply chain.

Recommendations

Across the four countries studied, a few interventions were commonly identified despite each country's differing circumstances and priority crops:

- The implementation of early-warning systems and increased climate information for farmers, to help better adapt to unexpected climatic shifts that result in losses, was highlighted in three of the countries (Nigeria, Rwanda, and Vietnam).
- Investment in farmer cooperatives and farmer education was highlighted as especially important, primarily to disseminate improved production and handling/storage techniques.
- Investment in roads and transportation infrastructure was recommended as a key investment to provide farmers with greater, more reliable access to storage facilities, processors, and markets.
- Improved urban waste management was also highlighted for improving living conditions and reducing methane emissions associated with large, open landfills.

Going forward, these recommendations can be used to guide further investment and target new funding. The World Bank has launched several bonds targeted at reducing food loss and waste, issuing the equivalent of almost \$3 billion in Sustainable Development Bonds for investors that address food loss and waste (World Bank 2021).

BOX 3. The Food Loss Index

Developed by the Food and Agriculture Organization of the United Nations (FAO), the Food Loss Index estimates food losses occurring within a country from farm gate up to, but not including, food retail. The estimate for a country is based, at a minimum, on annual data about losses for 10 key food commodities produced in that country. In the absence of new directly measured data, the Food Loss Index makes use of a model that provides loss estimates based on existing data and factors from the scientific literature and can be updated annually based on nationally collected data. Although it provides a general overview of country-level loss, these estimates can be less accurate than directly measuring losses. For this reason, the FAO has developed methodological and technical guidance on how a country can directly measure food loss data.

Development 2: New Global Measurements on Food Loss and Waste Suggest It is Occurring at a Larger Scale

Although many smaller-scale studies on food loss and waste have been published over the years, the 2011 publication *Global Food Losses and Food Waste* by the Food and Agriculture Organization of the United Nations (FAO) was the only globally comprehensive assessment for many years. Three studies within the past two years have shed new light on the scale of the food loss and waste challenge, expanding upon the FAO's findings from 2011. Two years ago, the FAO issued the Food Loss Index (FAO 2018), which covers food losses from the farm gate until the retail stage of the food supply chain (Box 3). The index was profiled in detail in the [2020 Progress Report](#) (Lipinski 2020). This landmark study was followed by two studies over the past year that provided additional insights on other stages of the food supply chain: one on farm losses, developed by WWF and Tesco, and the other focused on the retail stage onward, developed by the United Nations Environment Programme (UNEP).

In 2021, WWF and Tesco partnered to publish *Driven to Waste: The Global Impact of Food Loss and Waste on Farms*, a study of on-farm and postharvest losses. This study found that 8.3 percent of food is lost or wasted at the harvest stage of the food supply chain, and an additional 7 percent of food is lost or wasted during farm-stage postharvest activities, representing 1.2 billion tons of food. These findings provide a higher figure than commonly quoted food loss and waste figures to date, which have often excluded the on-farm and harvest stage. This amount of loss and waste represents approximately \$370 million of food, 2.2 gigatons of carbon dioxide equivalent greenhouse gas emissions, and 4.4 million square kilometers of land, or an area larger than the size of India (WWF-UK 2021).

Also in 2021, UNEP published the [Food Waste Index](#) (UNEP 2021), a complementary index to the Food Loss Index. Devel-

oped by UNEP and partners, the Food Waste Index estimates food waste occurring from the retail stage of the food supply chain through the household consumption stage. Although the two indexes use different methodologies and cannot yet be combined into a single figure that spans across the food supply chain,² the Food Loss Index shows a 14 percent rate of global food loss between the farm gate and processing stages of the food supply chain, and the Food Waste Index shows a 17 percent rate of global food loss from the retail level onward.

The initial findings of the Food Waste Index reveal several key lessons about global food loss and waste:

- Current food waste data are gathered rarely and inconsistently. The report found that just 17 countries have gathered high-quality data on food waste in at least one of the retail, food service, and household sectors. To address this and guide countries in gathering more comprehensive and consistent data, the report outlines a three-level methodology designed to help countries model their food waste, directly measure food waste, and then develop a food waste prevention and reduction strategy.
- Data gaps are most prevalent in lower-income countries. Minimal household-level data were available in low-income countries (as classified by the World Bank). Likewise, both low- and middle-income countries lack sufficient data on the retail and food service sectors.
- Existing data suggests that food waste is more prevalent across all countries than previous estimates have suggested. Most frequently cited food loss and waste reports to date (see FAO 2011; Lipinski et al. 2013) have suggested that whereas food loss is more prevalent in lower-income countries, food waste occurs more frequently in higher-income countries. However, the authors of the Food Waste Index have found that, based on available data, household-level food waste is relatively consistent across income levels

TABLE 1. Average Food Waste in the Household, Food Service, and Retail Sectors

Income group	Average food waste (kg/capita/year)		
	Household	Food service	Retail
Higher-income countries	79	26	13
Upper-middle-income countries	76	Insufficient data	
Lower-middle-income countries	91	Insufficient data	
Low-income countries	Insufficient data		

Source: UNEP 2021.

Note: The averages given are medium- and high-confidence estimates for countries.

(Table 1). This implies that rather than focusing food waste reduction efforts solely in high-income countries, these efforts should be pursued in all countries.

Development 3: The Chinese Food Waste Law

In April 2021, China’s Standing Committee of the National People’s Congress enacted a wide-ranging law aimed at reducing food waste at the food service and consumer levels. The law follows the reinvention in 2020 of a “Clean Your Plate” campaign aimed at discouraging overconsumption and food waste during the COVID-19 pandemic (Huang and Qin 2020).

In China, it is common to order more food than is necessary for a banquet or event as a show of courtesy to guests. This can lead to excessive amounts of waste, which this new law aims to reduce. These are some of the law’s provisions (Caiyu 2021; Kawate 2021):

- Fines of up to 10,000 yuan (approximately \$1,550) for catering companies and other food service providers who encourage consumers to order excessive amounts of food
- Fines of up to 50,000 yuan (approximately \$7,700) for catering companies and other food service providers who waste large amounts of food
- Fines of up to 100,000 yuan (approximately \$15,400) for broadcasters and online streaming personalities who distribute videos depicting binge eating or competitive eating
- An allowance for restaurants and caterers to charge an extra fee to consumers who leave excessive amounts of food uneaten
- A mandate for offices, schools, and food delivery companies to take steps to reduce waste within their operations
- A requirement for supermarkets to sell food approaching expiration at a discount and in bulk

Since these regulations were just adopted in April 2021, the effect on the market is not yet clear. However, this law follows a series of provisions adopted by local governments in Beijing, Hangzhou, and Tianjin, which have achieved reductions by enacting similar policies at the municipal level (Caiyu 2021; Kawate 2021). Under the text of the law, however, it is unclear how the term food waste (and particularly excessive food waste) is defined. Additionally, no significant fines have been publicly reported since enactment of the law, which makes it unclear if or how the government will enforce the law.

The law represents a clear statement from the government, however, about the importance of reducing food waste at the food service and household levels. This law also suggests that President Xi Jinping may continue to focus attention on the topic of consumer food waste, and the Chinese International Chamber of Commerce has held several events on the topic of food waste within China. But with definitions and enforcement mechanisms still unclear at the time of this report’s publication, it is difficult to assess yet whether the law will make a significant impact on the amount of food waste in China.

Development 4: Private Sector Efforts to Reduce Food Loss and Waste

As in previous years, many companies are undertaking innovative actions to reduce food loss and waste within their operations and throughout their entire supply chains. One example is the spread of public-private partnerships, an innovation highlighted in the 2020 Progress Report as an effective means of reducing food loss and waste in the United Kingdom and the Netherlands (Lipinski 2020). New public-private partnerships focused on food loss and waste in Australia, Indonesia, and Mexico either have been launched or are being launched in the coming year.

Companies also are taking actions within their own supply chains to reduce food loss and waste. Nearly 200 companies participating in the 10x20x30 initiative publicly committed to a 50 percent reduction of food loss and waste within their supply chain, began measuring their food loss and waste, and started taking action to achieve that goal as well. More than 50 new food businesses committed to the United Kingdom's Food Waste Reduction Roadmap in 2020, with more than 85 percent of those businesses implementing the Target-Measure-Act approach (WRAP 2021a). Additionally, the Consumer Goods Forum's Food Waste Coalition, a group of companies committed to accelerating action toward SDG 12.3, also added six new members and now comprises 23 of the world's largest food companies (CGF 2021).

Beyond their own boundaries, companies are also taking action to reduce food loss and waste at the consumer level. For example, Hellmann's (a Unilever brand) aired an advertisement during the 2021 Super Bowl addressing consumer food waste, and it also conducted a five-week behavioral study with 1,000 Canadian families to test messaging around reducing household food waste. Participants were asked to commit to one "use-up day" a week, where they would create a meal entirely from food they already had on hand (Askew 2021). At the end of the study, participants reported a one-third average reduction in household food waste as compared to the start of the study.

Innovative start-ups focused on directly addressing food loss and waste also have increased over the past years. Companies such as Mori and Apeel have developed protective layers for foods that help to prevent spoilage and keep them fresher for longer. Other companies, such as Wasteless and Spoiler Alert, make use of artificial intelligence to help companies monitor and sell food that might otherwise go to waste. And companies such as LeanPath and Winnow help food service companies and restaurants measure and reduce kitchen waste. Although not a comprehensive list of companies involved in food loss and waste reduction, this subset is representative of an ever-growing group of companies that are demonstrating the profitability of tackling food loss and waste via innovative means.

Development 5: The Ongoing Effects of COVID-19

As was the case in 2020, COVID-19 continues to have wide-ranging impacts on the global food system throughout the food supply chain, primarily at the beginning and end of the food supply chain.³

The production and distribution stages were greatly affected by the pandemic's travel restrictions and labor shortages, which disrupted operations and access to markets, particularly for smallholder farmers. Additionally, many smallholder farmers have found themselves unable to sell as much of their product due to their reliance on concentrated distribution points that either closed or operated at a limited capacity during the height of the pandemic (FAO et al. 2021). In Latin America, one study found that transportation of food was the most affected stage of the value chain, also due to road closures and limited access to distribution centers (FAO and ECLAC 2020).

These temporary shortcomings could have longer-term effects because smallholders find themselves with lower income and reduced access to production inputs. Larger-scale producers were also affected; many sold directly to restaurants and food service providers that were closed or operating at a greatly reduced capacity, leading to increased loss at the production level (Ellison and Kalaitzandonakes 2020).

However, at the manufacturing level, some companies took steps to address the potential losses faced by farmers. For example, Danone, one of the world's largest food companies, launched limited-edition products under Danone and Two Good brands in France and in the US during the past year. Danone also invested in start-up companies such as Hungry Harvest in the United States which aim to reduce on-farm food loss and waste by selling products directly to consumers.⁴

At the retail level, some studies suggest that COVID-19 has had a positive effect on increasing donations to food banks and other food redistribution organizations. Most significantly, new data from WRAP finds that the greatest increase in food donations on record in the United Kingdom occurred during the pandemic, with an increased donation amount equivalent to 68 million meals (Parry and Harris 2021). More specifically, approximately one-third of this increase can be attributed to disruptions related to COVID-19, and about half is due to grants from the United Kingdom's Department for Environment, Food & Rural Affairs.

At the household level, the impacts of COVID-19 are mixed and ultimately unclear. For instance, initial findings from the United Kingdom during the first lockdown period found that household food waste decreased by 34 percent, although this trend began to reverse as restrictions were eased (WRAP 2020), and more recently returned to pre-pandemic levels (WRAP 2021b). A subsequent survey of households from 23 countries found that 43 percent of respondents reported an increase in household food waste during lockdown, whereas just

15 percent reported a decrease (Filho et al. 2021). In addition, the Danish think tank ONE\THIRD found that 66 percent of Danish consumers reported not changing their habits around food shopping, cooking, or food waste during the pandemic (ONE\THIRD 2021).

The pandemic also has led to increased amounts of nonorganic waste due to increased reliance on delivery and takeaway meals. For example, Taiwanese officials reported a 50 percent increase in single-use waste between January and May 2021 (during a COVID-19 outbreak in the country) as compared to 2020 (Hamacher 2021).

Development 6: Food Loss and Waste on the Global Agenda

In September 2021, the first-ever United Nations Food Systems Summit took place. As a part of the UN Decade of Action to achieve the SDGs, the summit focused on how the food system needs to be transformed for a healthier, more sustainable future. The summit convened key players to bring about positive change to the world's food systems. Stakeholders included representatives from science, business, policy, health care, and academia, as well as farmers, indigenous people, youth organizations, consumer groups, and environmental activists.

The summit aimed to raise awareness, elevate discussion, and serve as a global call to action to produce measurable outcomes that enable achievement of the SDGs as well as a system of evaluation and review to assess progress and refine strategies over time. As a part of the summit, nearly 60 Solution Clusters, each devoted to a specific aspect of the food system, developed actionable agendas and recommendations for that specific segment of the food system.

The most relevant of these for food loss and waste is the “**Food Is Never Waste**” Solution Cluster. This Solution Cluster focuses on the following (Food Is Never Waste Working Group 2021):

- Increasing the amount of measurement of food loss and waste occurring globally
- Supporting government action on food loss and waste via national action plans
- Boosting investment in food loss and waste reduction
- Ensuring that on-farm and fishery losses are included in food loss and waste reduction efforts
- Changing social norms to make food loss and waste less socially acceptable

- Creating a global policy framework to ensure that food is not sent to landfills or incinerators when leaving the human food supply chain

For the summit to have a lasting impact on the food system, the dialogues must lead to a clear path of action for member states, addressing food loss and waste as well as other food-related policy priorities. Reducing food loss and waste is an essential foundation for establishing sustainable food systems and requires the active engagement of all actors, such as those demonstrated by the EU Code of Conduct on Responsible Food Business and Marketing Practices (European Commission 2021).⁵

In another significant example of the prominence of food loss and waste on the global agenda, the G7 ministers' communiqué focused on climate and environment specifically emphasized the importance of achieving SDG 12.3 (G7 Climate and Environment 2021). The communiqué endorsed the Target-Measure-Act approach and committed to measuring food loss and waste according to the Food Loss and Waste Accounting and Reporting Standard, as developed by the Food Loss and Waste Protocol (FLW Protocol 2016). The communiqué also highlighted the need for greater efficiency within the food supply chain and the need for more attention to consumer-level food waste.

IN CLOSING

With just nine years left to achieve the SDGs, there are numerous areas in which countries and companies still seem to be falling short from the ambitious 50 percent reduction goal by 2030. Key infrastructure is lacking in many regions, and most countries have yet to gather the data necessary to develop food loss and waste reduction strategies. Additionally, smallholders, businesses, and households continue to be affected by the COVID-19 pandemic, which has essentially set back progress by two years. Consumer food waste also seems to be an increasingly large part of the food loss and waste puzzle.

Despite these shortcomings, it is still possible to achieve SDG 12.3. Countries and companies continue to strengthen their efforts on food loss and waste and have realized the benefits of doing so via monetary savings, improved food redistribution efforts, and reduced environmental impact. There is more momentum than ever to make significant reductions in food loss and waste. To get there, however, it is essential that all governments, companies, farmers, and individuals deepen their commitment to reducing food loss and waste and accelerate their efforts. Time is running out to deliver a more sustainable food system—for people and the planet.

ENDNOTES

1. The Global Framework is described in detail in a Technical Annex in each diagnostic, such as in the [Guatemala Food Smart Country Diagnostic \(World Bank 2020a\)](#).
2. The FAO and UNEP are currently working jointly to harmonize the statistics gathered by each index and produce a single figure for the entire food supply chain, which will allow for greater comparison and harmonization across existing data sets.
3. Although key developments related to COVID-19 are summarized here, the FAO has developed the "Big Data Tool" to track the effect of COVID-19 on food value chains. This tool summarizes cases of food insecurity, food price changes, and media coverage around food and COVID-19. To learn more about the Big Data Tool, see the FAO Data Lab, <http://www.fao.org/datalab/website/web/covid19>.
4. Danone, Integrated Annual Report, 2020. <https://integrated-annual-report-2020.danone.com/cause/promote-circular-economy/>.
5. The [EU Code of Conduct on Responsible Food Business and Marketing Practices](#) includes concrete commitments by food manufacturers, food service operators, and retailers to prevent and reduce food loss and waste at the consumer level, within internal operations, and across value chains. This key deliverable of the EU Farm to Fork Strategy entered into force in July 2021.

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