

CHAMPIONS 12.3

SDG TARGET 12.3 ON FOOD LOSS AND WASTE: 2020 PROGRESS REPORT

An annual update on behalf of Champions 12.3

12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



EXECUTIVE SUMMARY

Highlights

- One-third of all food is lost or wasted between the farm and the fork, and the COVID-19 pandemic is complicating this challenge throughout the food value chain.
- 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.
- The United Kingdom is the first country to get more than halfway toward meeting this target, having reduced its national post-farm gate food loss and waste levels by 27 percent from 2007 to 2018—suggesting that achieving the target is possible and even profitable.
- Several companies such as Tesco (Central Europe), Campbell, and Arla Foods have achieved food loss and waste reductions of more than 25 percent—suggesting that achieving the target is possible for companies, too.
- With just 10 years to go, the world overall is woefully behind where it needs to be if it is to achieve SDG Target 12.3 by 2030.
- 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 to monitor progress, and **act** boldly to reduce food loss and waste.

Summary

Approximately one-third by weight of all food produced in the world is lost or wasted, resulting in significant impacts on human livelihoods and well-being, the global economy, and the environment. Over the past year, the COVID-19 pandemic has exacerbated the urgency of addressing food loss and waste at scale as food systems have struggled to respond

ABOUT THIS PUBLICATION

SDG Target 12.3 on Food Loss and Waste: 2020 Progress Report is the fifth 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 *2016–2019 Progress Reports* can be found at <https://www.champions123.org>.

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to unforeseen shifts in demand, shortages of labor, and falling disposable incomes. The pandemic has also provided some possible lessons for how to address consumer in-home waste, as some countries have reported decreased household food waste during lockdown.

In September 2015, the United Nations General Assembly adopted a set of 17 Sustainable Development Goals (SDGs). SDG 12 seeks to “ensure sustainable consumption and production patterns.” The third target under this goal (Target 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.

To what degree has the world made progress toward achieving SDG 12.3? This fifth annual progress report assesses advances by governments and companies over the past 12 months (October 2019–September 2020) relative to a three-step approach for reducing food loss and waste: 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 to identify hot spots, and takes action to reduce the hot spots of food loss and waste.

The Target-Measure-Act approach is working for both governments and companies. The United Kingdom, for example, has reduced food loss and waste by 27 percent since measurement began in 2007, making it the first country to surpass the halfway mark toward the SDG target. This has been achieved through activities such as public-private partnerships, comprehensive consumer behavior change campaigns, and innovative policy shifts. Companies like Campbell, Arla Foods, and Tesco (among others) have also achieved reductions greater than 25 percent within the past five years by following the Target-Measure-Act approach within their operations.

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 business partners and suppliers to do the same.

There are only 10 years left to meet SDG Target 12.3 and cut food loss and waste in half. These bright spots of success by government and businesses will need to become

increasingly common if the world is to meet this ambitious target. With the SDG deadline looming in 2030, there’s no more time (or food) to waste.

THE CHALLENGE

According to the Food and Agriculture Organization of the United Nations (FAO), approximately one-third of all food produced in the world is lost or wasted (FAO 2011). This huge level of inefficiency has significant impacts.

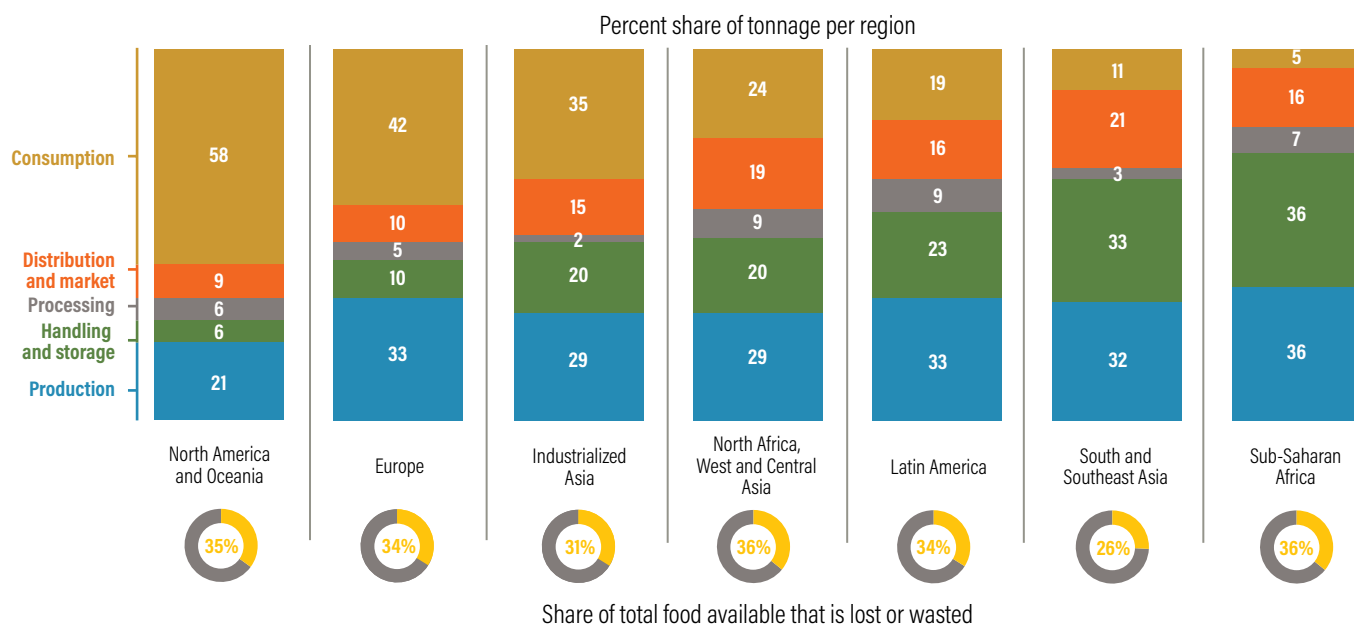
Consider food security.¹ In some areas, food losses near the farm are predominant (Figure 1) and can affect the ability of farmers to make a viable living and, at times, feed their families. In other places, including Europe and North America, food wasted near the end of the supply chain can affect household nutrition and spending. Regardless of where the food loss and waste occurs, in a world where one in nine people are undernourished, the fact that more than 1 billion tons of food never gets consumed is a travesty (FAO et al. 2018). And as the demand for food rises to meet the needs of a growing population, the world needs now more than ever to make the most of what is already grown.

Consider the economic costs. Food loss and waste resulted in roughly US\$940 billion in economic losses globally per year in 2012 (FAO 2015). Investing in food loss and waste reduction efforts can therefore reap significant economic benefits. For example, one study of more than 1,700 sites across 700 businesses found that 99 percent of those sites had a positive return on their investment in food loss and waste reduction, while half had at least a 14-fold return on investment (Hanson and Mitchell 2017).

Consider the environment. Food that is harvested but ultimately lost or wasted consumes about one-quarter of all water used by agriculture each year (Kummu et al. 2012). Food loss and waste requires land area greater than the size of China to be grown each year (FAO 2013). And it generates about 8 percent of global greenhouse gas emissions annually (FAO 2015). 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.

The urgency of the food loss and waste challenge recently has been exacerbated by the COVID-19 pandemic, which has exposed some important weaknesses in the food supply chain. Although few official quantitative data are yet available, major newspaper headlines suggest the nature and scale of the pan-

FIGURE 1. Distribution of Food Loss and Waste by Region and Stage in the Food Supply Chain, 2007



Note: Values displayed are of food loss and waste as a percentage of food supply, defined here as the sum of the "Food" and "Processing" columns of the FAO Food Balance Sheet.
Source: WRI analysis based on FAO 2011.

demical's impact on food loss and waste across the value chain. On the farm in some countries, for example, farmers plowed ripe vegetables back into the soil, culled livestock, and dumped milk as markets for these products disappeared due to restaurant closures and border disruptions (Corkery and Yaffe-Bellany 2020). Farmers in China have had to cull livestock due to restrictions on the sales of chicken and ducks (Fan et al., forthcoming). At processing facilities, risk of losses goes up as COVID-19 spreads among employees at meat packing plants (CDC 2020, Mazzei 2020). At food redistribution centers, COVID-19 led to a decline in volunteer labor (which typically consists of older people), hindering efforts to redistribute food for human consumption that might otherwise go to waste. Yet at the same time, employers have furloughed or let go of staff due to the pandemic-induced recession, thereby increasing the number of those in need (Rothwell 2020). Conversely, the pandemic has also provided some possible lessons for how to address consumer in-home waste, as some countries have reported decreased household food waste during lockdown. As governments and businesses address the challenges brought on by COVID-19, there is the potential for long-term benefits if some of these weaknesses in food supply chains are addressed.

A HISTORIC OPPORTUNITY

Considering these impacts, reducing food loss and waste can be a triple win (Flanagan et al. 2019). It can help feed more people. It can save money for farmers, companies, and households. And it can reduce the food system's environmental impacts.

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 (UN) 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). The 12th SDG seeks to "ensure sustainable consumption and production patterns." The third target under this goal (Target 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; although solutions may differ between developed and developing nations, every country, company, and individual has a role to play.

PROGRESS SINCE SEPTEMBER 2019

Over the past 12 months (essentially the fifth 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 evaluating progress relative to a three-step approach advocated by Champions 12.3 for reducing food loss and waste: Target-Measure-Act (Box 1). The authors collected data through a literature review and consultation with experts (Box 2).

PROGRESS BY GOVERNMENTS

Target

With the adoption of the SDGs in 2015, all nations implicitly agreed to SDG 12.3. But because the SDGs have a total of 169 targets, adoption of the SDGs en masse does not necessarily mean that food loss and waste reduction will garner sufficient government attention and focus. This focus is indicated by explicitly articulated national or subnational food loss and waste reduction targets made by governments and aligned with SDG 12.3. Figure 2 shows countries or regional blocs that have such targets (either voluntary or mandatory) in place that the authors could identify, including those that set specific targets before the advent of the SDGs in September 2015. As of September 2020, countries and regional blocs representing approximately 50 percent of the world's population have set specific targets in line with SDG 12.3.

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 takes action to reduce the hot spots of food loss and waste. More specifically:

- **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 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 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.

Target-Measure-Act is being used widely and successfully by governments and companies that are working to reduce food loss and waste. Examples include the United Kingdom and many major food businesses (e.g., IKEA, Kellogg Company, Nestlé, Olam, Sodexo, Tesco and its 27 own-brand suppliers, and Walmart). Moreover, Target-Measure-Act is now the approach being pursued by additional countries and political blocs (e.g., the European Union's strategy for fulfilling SDG 12.3 essentially follows this approach) and by members of the Consumer Goods Forum and the Global Agribusiness Alliance.

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 that represent the individuals who are members of the Champions 12.3 and Friends of Champions 12.3 coalitions, as well as by searching data held in the Food Waste Atlas. 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, since 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 countries and companies profiled as being among the furthest along in halving their food loss and waste were a result of this research. To the best of our knowledge and based on publicly available data, these countries and companies are among the furthest along (and perhaps *the* furthest along) in making progress toward SDG 12.3.

Measure

Government action to achieve SDG 12.3 requires quantification at that geographic scale. A few governments have been early movers in measuring national-level food loss and waste. These include the United Kingdom, the United States, and Japan (Figure 3). Additionally, members of the European Union will be required to monitor their food waste from 2020 onward using an agreed-upon methodology, with the first results expected by mid-2022 (European Commission 2019). Public reporting is crucial for identifying hot spots for action and tracking progress against SDG 12.3.

Metrics are being developed by UN agencies to assist governments with monitoring progress toward SDG 12.3. For instance, the FAO led the development of a Food Loss Index that estimates food losses occurring within a country from farm gate up to but not including the retail level. The estimate for a country is based at a minimum on data about losses among 10 key food commodities produced in that country. The first Food Loss Index national figures were published in October 2019, showing a 14 percent rate of food loss between the farm gate and processing stages of the food supply chain (FAO 2019).

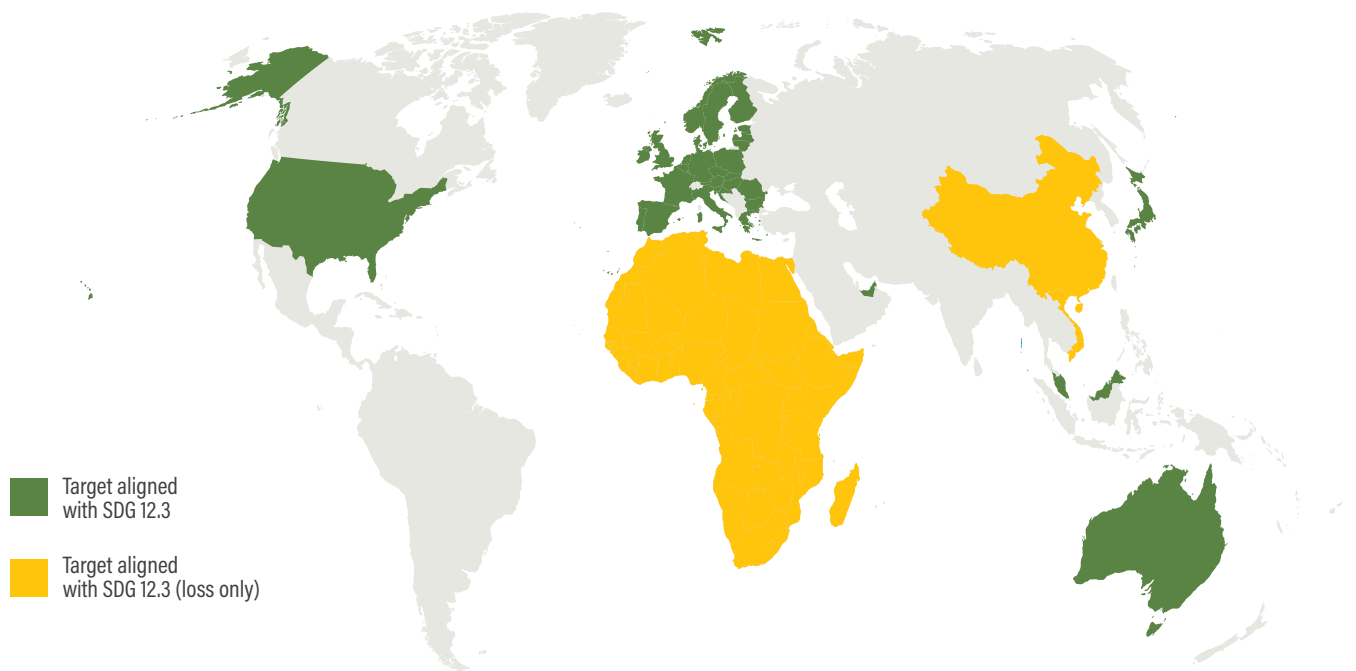
In complementary fashion, the United Nations Environment Programme has been leading the development of a Food Waste Index. This index will be used by governments to estimate food waste within their country from their manufacturing, retail, hospitality, food service, and consumer sectors. The index was approved as an official UN indicator for SDG 12.3 in late 2019.

Act

Information about country progress (or lack thereof) toward SDG 12.3 over the past 12 months is scarce, particularly given the COVID-19 pandemic. There have been a few examples of progress, however:

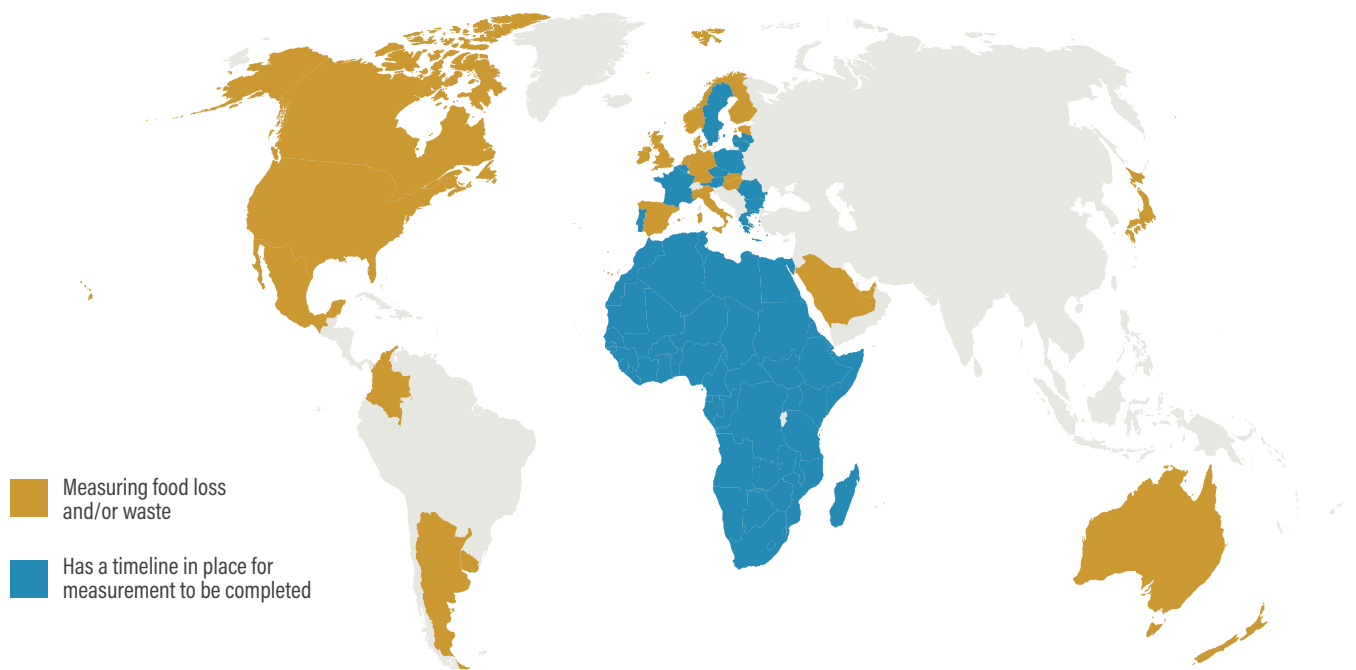
- The EU Platform on Food Losses and Food Waste (2019) adopted recommendations for action in food waste prevention in December 2019. These address each stage of the food supply chain, including food redistribution, as well as horizontal or cross-cutting recommendations that are common across various stages of the food value chain.
- Representatives of the Chinese government have stated that ongoing efforts are taking place to strengthen legislation to help reduce food loss and waste (Yang 2020). The government also reinvigorated a Clean Plate Campaign to discourage overconsumption and food waste amid concerns over food security during the COVID-19 pandemic (Huang and Qin 2020).
- The government of Denmark is launching a National Food Waste Day on September 29, during which a voluntary agreement with approximately 20 of Denmark's leading companies to reduce food loss and waste by 50 percent will be announced. The Danish think tank ONE\THIRD, founded in 2019 to achieve the goals of SDG Target 12.3, will be responsible for implementing the agreement.

FIGURE 2. National and Regional Governments with Food Loss and/or Waste Reduction Targets Aligned with SDG Target 12.3, as of September 2020



Source: WRI analysis.

FIGURE 3. National and Regional Governments Measuring Food Loss and/or Waste, as of September 2020



Source: WRI analysis.

Looking more broadly beyond the past 12 months, there is little evidence that many countries have taken sufficient action to make measurable progress toward achieving SDG 12.3. In part, this is because few countries have yet completed at least two cycles of measurement. But even allowing for this, there is not much evidence of systemic country-level action, suggesting that there are additional barriers to such action. However, the United Kingdom and the Netherlands are two exemplary cases of countries that have been measuring and achieving results, indicating that reducing food loss and waste by 50 percent by 2030 may be feasible.

United Kingdom

The United Kingdom achieved a 27 percent reduction in post-farm gate food loss and waste per capita by 2018 relative to its base-year measurement from 2007 (WRAP 2020d).² This reduction is for food (excluding associated inedible parts) from the farm gate to the consumer's plate. Thus, the United Kingdom is the first country in the world, with data to prove it, to be more than halfway to the SDG 12.3 target of a 50 percent reduction by 2030.

The United Kingdom has pursued numerous activities that appear to have contributed to this large reduction:

- *Set a target.* The country adopted the SDG 12.3 target as its own, stimulating ambition.
- *Conduct periodic measurement.* The United Kingdom was the first country in the world to publish periodic quantifications of national food loss and waste. The government formed and tasked a research organization, the Waste and Resources Action Programme (WRAP), to lead on food waste measurement. Quantifications have been completed and publicized for the years 2007, 2012, 2015, and 2018.
- *Launch a public-private partnership.* The Courtauld Commitment is a voluntary commitment by leading companies in the country's food supply chains to reduce food waste in their own operations and supply chains. With support from WRAP, the companies measure their food loss and waste levels, identify solutions, pursue implementation, and report on progress (WRAP 2020c). Local authorities are also involved in the commitment, learning how best to work with the private sector to reduce food loss and waste.
- *Provide clear direction and guidance.* The UK Food Waste Reduction Roadmap and associated resources provide support to all large food businesses in implementing Target-Measure-Act. To date, over half of relevant UK businesses have committed to the roadmap.

- *Launch a public behavior change campaign.* In 2007, WRAP launched the Love Food Hate Waste campaign, which raised the public's attention to the issue of food loss and waste and provided advice on how households could minimize it. The campaign still continues.
- *Leverage innovation in food promotion, labeling, and design.* Manufacturers and retailers implemented changes in food packaging design and labeling to make it easier for people to buy what they need and make use of what they buy. Examples include removing unnecessary or confusing date labels, providing consumer tips on best practice food storage and freezing, and using smaller packages so that less food is exposed (and thus susceptible to spoilage) once opened (WRAP 2019).
- *Engage households, even during the pandemic.* UK citizens appeared to have reduced food waste in households by up to 34 percent during the lockdown imposed in response to the COVID-19 crisis (WRAP 2020a). This reduction is due to a range of in-home behavior changes, including more planning before shopping, better in-home food management, and more creative use of leftovers. However, as restrictions have eased, reported food waste is beginning to rise again (WRAP 2020b). This suggests a possible return to pre-lockdown behaviors, although campaigns aimed to solidify the positive behavior changes have been launched.

The Netherlands

As of 2019, the Netherlands has achieved a reduction in household food waste from 48.0 kilograms (kg) per capita to 34.3 kg per capita since 2010, a 29 percent reduction at the consumption stage of the food value chain. The country has taken numerous actions to achieve this:

- *Conduct measurement.* Wageningen University & Research (WUR) has been quantifying consumer food waste since 2009 and repeating the process every three years (WUR 2018). Detailed insights have also been gathered and published for food loss and waste within retail, providing sector-specific insights (WUR 2020).
- *Launch a public-private partnership.* In 2018, the country launched Samen Tegen Voedselverspilling (Food Waste Free United), which in 2020 involved over 100 public, research, and private sector institutions active across the full food supply chain. The partnership functions as an ecosystem and has started implementing efforts to reduce food waste at retail stores and restaurants, increase food redistribution efforts, and reduce in-home food waste.

- *Engage consumers.* The country has launched campaigns to improve consumer understanding of food date labels and has started a national Food Waste-Free Week. During this week, over 1 million practical tools, such as measuring cups for pasta and rice, will be distributed to help consumers waste less at home (van Dooren et al. 2020).

PROGRESS BY COMPANIES

Target

The private sector continues to adopt targets aligned with SDG 12.3. Initiatives such as the Consumer Goods Forum’s Coalition of Action on Food Waste and the UK Food Waste Reduction Roadmap, profiled in the 2017 and 2018 progress reports, demonstrate that many of the world’s leading food companies across the food supply chain already have an explicit food loss and/or food waste target.

One major development on target setting came in September 2020 from the participants of the 10x20x30 initiative. The 10x20x30 initiative brings together 12 (increased from an initial 10) of the world’s biggest food retailers and providers, each of which engages with 20 of their priority suppliers to aim to halve rates of food loss and waste by 2030. In September 2020, approximately 200 suppliers participating in the initiative publicly committed to match the SDG 12.3 target within their operations.³

Measure

More than 100 leading companies are now conducting food loss and waste measurement within their operations, and many report that information publicly in annual reports and in databases such as the Food Waste Atlas. The biggest development in measurement in 2020 came again from the participants in the 10x20x30 initiative, who have begun measuring food loss and waste within their operations and will begin reporting publicly in September 2021 if not doing so already. As is the case with governments, public reporting is a key step for companies to identify food loss and waste hot spots within their value chains and to track progress toward achieving SDG 12.3 over time.

Act

A number of companies have publicly reported data indicating that they have made progress toward reducing their rates of food loss and waste. A handful are now more than halfway toward meeting the SDG 12.3 target, which indicates that meet-

ing a 50 percent reduction is possible. The following profiles three of them, representing various stages of the food supply chain: retail, manufacturing, and production.⁴

Tesco (Central Europe)

Tesco Central Europe, which includes Tesco stores in the Czech Republic, Hungary, Poland, and Slovakia, has reduced food loss and waste (as a percentage of food sales by weight) within its operations by 58 percent since 2016 (Tesco 2020). The company has taken common steps across these stores:

- *Set a target.* Tesco early on committed to achieving SDG 12.3 across all its divisions, including its Central European operations.
- *Measure.* Tesco began publishing company-wide food loss and waste inventories for its UK operations in 2013 and has carried this practice forward in its regional divisions. Central European operations started measuring and reporting in 2016. Tesco Central Europe has also shared its measurement methodology with local government authorities in the region to help efforts to establish country-level baselines.
- *Reduce level of unsold surplus food in its own operations.* Tesco Central Europe reduced its unsold surplus food by one-third from 2016 to 2019, leading to a reduction of 20,000 tons of unsold surplus food. This was achieved through operational improvements, which included reducing unproductive selling space and simplifying product ranges to reduce the number of slow-selling lines. These changes helped Tesco Central Europe more accurately match supply and demand through its store forecasting and ordering systems.
- *Redistribute food to keep it in the human food supply chain.* Tesco Central Europe’s reductions have been achieved in large part through a partnership with national food banks, which has now been instituted in 89 percent of Tesco Central Europe stores. As a result of this partnership, more than 12,000 tons of surplus food were donated to local charities from Tesco Central Europe stores in 2019.
- *Divert food that would otherwise go to waste to animal feed.* When food is not fit for consumption by humans, it can be diverted to animal feed to prevent it from being lost or wasted. Tesco Central Europe increased the amount being diverted to animal feed by more than 8,000 tons from 2016 to 2019, which helps recover energy from food that would otherwise be lost or wasted.

Campbell Soup Company

Campbell, one of the largest food-processing companies headquartered in the United States, has achieved a 36 percent reduction in food loss and waste just since 2017 (Campbell 2020). This reduction has occurred across all of Campbell's North American facilities. Campbell employed numerous strategies to achieve this reduction:

- *Set a target.* Campbell adopted a goal of reducing food loss and waste within its operations by 50 percent by 2030, in line with SDG 12.3.
- *Measure.* Campbell measures its food loss and waste annually and reports that number publicly in its annual sustainability report.
- *Repurpose “wasted” food to make new items.* Food that would otherwise be lost or wasted can be repurposed into new products. For example, in one Campbell subsidiary, bread that would have otherwise gone to waste is sold to another company to make bread crumbs. Besides avoiding food loss and waste, this turns a line item from an expense (organic waste that needs to be disposed of) to a source of revenue.
- *Divert food loss and waste to high-value destinations.* At Campbell factories, scraps and discards created during the manufacturing process that would have otherwise gone to waste are diverted to animal feed, keeping that food-based energy in the human food supply chain. And in facilities that produce potato chips, waste food oil is recycled into biofuels.

Arla Foods

Arla Foods (2020), the largest dairy producer in Scandinavia, reported a 27 percent reduction in food loss and waste in 2019 compared to a 2015 base year. This progress is attributable to a number of interlinked efforts:

- *Set a target.* In 2018, Arla committed to reducing food loss and waste within its operations by 50 percent by 2030, in line with SDG 12.3.
- *Measure.* Arla developed a base-year inventory of its food loss and waste within its operations for the year 2015 and has produced food waste inventories annually. The company publicly reports these inventories and shares its progress in reducing its operational food loss and waste.

- *Use a waste reduction team.* Arla established teams to identify food loss and waste hot spots in transport/logistics and in dairy operations, determine the best reduction approaches, and then share these practices across sites and countries for scale up.
- *Sell near-expiry products at discount.* Arla has created an innovative online marketplace for its retailer customers where products that are nearing expiration are sold for a discount.

THE SDG 12.3 ROADMAP

Previous editions of this progress report have contained a section devoted to tracking global progress by governments and businesses toward achieving SDG 12.3, measured against a “roadmap” of milestones based on the Target-Measure-Act approach. Largely due to the COVID-19 pandemic, accurate data on “what is new” relative to the 2019 report are scarce. Accordingly, there is no new assessment in this installment of the progress report.⁵ The authors anticipate the return of the assessment in the 2021 edition of the report.

IN CLOSING

The COVID-19 crisis has reminded the world of the urgency and importance of reducing food loss and waste. Recent progress by a few countries and a handful of companies demonstrates that achieving a 50 percent reduction is possible. These examples should give everyone hope that big reductions can be achieved.

At the same time, however, everyone should feel a sense of urgency. Double-digit reductions in the rates of food loss and waste still can only be claimed by a few actors. There are only 10 more years before SDG 12.3 is due. There's not much more time (or food) to waste.

ENDNOTES

1. "Food security" is defined by the United Nations as a state in which all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life.
2. This reduction addresses food only and excludes associated inedible parts. With associated inedible parts included, the United Kingdom has achieved a 21 percent reduction.
3. The full list of suppliers can be found at <https://www.champions123.org>.
4. The Champions 12.3 publication "Guidance on Interpreting Sustainable Development Goal Target 12.3" recommends a scope that includes all food loss and waste destinations except animal feed and bio-based materials/ biochemical processing. All three of the featured companies here have adopted this scope. The full publication can be found here: <https://champions123.org/wp-content/uploads/2017/10/champions-12-3-guidance-on-interpreting-sdg-target-12-3.pdf>.
5. The full previous assessment can be found at <https://champions123.org/2019-progress-report/>.

REFERENCES

- Arla Foods. 2020. "Minimising Food Waste." <https://www.arla.com/sustainability/minimising-food-waste/>. Accessed July 9.
- Campbell. 2020. *2020 Corporate Sustainability Report: Rooted in Real Food*. Camden, NJ: Campbell Soup Company. https://www.campbellcsr.com/_pdfs/2020_Campbells_CRR.pdf.
- CDC (Centers for Disease Control and Prevention). 2020. "Update: COVID-19 among Workers in Meat and Poultry Processing Facilities—United States—April–May 2020," July 10. <https://www.cdc.gov/mmwr/volumes/69/wr/mm6927e2.htm>.
- Corkery, M., and D. Yaffe-Bellany. 2020. "We Had to Do Something': Trying to Prevent Massive Food Waste." *New York Times*, May 4, B1.
- EU Platform on Food Losses and Food Waste. 2019. *Recommendations for Action in Food Waste Prevention*. N.p.: EU Platform on Food Losses and Food Waste. https://ec.europa.eu/food/sites/food/files/safety/docs/fs_eu-actions_action_platform_key-recs_en.pdf?wtclear=laco.
- European Commission. 2019. "Press Release—Preventing Food Waste, Promoting Circular Economy: Commission Adopts Common Methodology to Measure Food Waste across the EU," May 6. http://europa.eu/rapid/press-release_IP-19-2391_en.htm.
- Fan, S., W. Si, and Y. Zhang. Forthcoming. "How to Prevent a Global Food and Nutrition Security Crisis under COVID-19?" *Chinese Agricultural Economic Review*.
- FAO (Food and Agriculture Organization of the United Nations). 2011. *Global Food Losses and Food Waste—Extent, Causes and Prevention*. Rome: FAO.
- FAO. 2013. *Food Wastage Footprint: Impacts on Natural Resources*. Rome: FAO.
- FAO. 2015. *Food Wastage Footprint and Climate Change*. Rome: FAO.
- FAO. 2019. *The State of Food and Agriculture: Moving Forward on Food Loss and Waste Reduction*. Rome: FAO.

- FAO, International Fund for Agricultural Development, United Nations Children's Fund, World Food Programme, and World Health Organization. 2018. *The State of Food Security and Nutrition in the World, 2018: Building Climate Resilience for Food Security and Nutrition*. Rome: FAO.
- Flanagan, K., K. Robertson, and C. Hanson. 2019. *Reducing Food Loss and Waste: Setting a Global Action Agenda*. Washington, DC: World Resources Institute. https://wriorg.s3.amazonaws.com/s3fs-public/reducing-food-loss-waste-globalaction-agenda_0.pdf.
- Hanson, C., and P. Mitchell. 2017. *The Business Case for Reducing Food Loss and Waste*. Washington, DC: Champions 12.3.
- Huang, B., and A. Qin. 2020. "Xi Declares War on Food Waste, and China Races to Tighten Its Belt." *New York Times*, August 21. <https://www.nytimes.com/2020/08/21/world/asia/china-food-waste-xi.html>.
- Kummu, M., H. de Moel, M. Porkka, S. Siebert, O. Varis, and P.J. Ward. 2012. "Lost Food, Wasted Resources: Global Food Supply Chain Losses and Their Impacts on Freshwater, Cropland, and Fertiliser Use." *Science of the Total Environment* 438: 477–89.
- Mazzei, P. 2020. "Florida's Coronavirus Spike Is Ravaging Migrant Farmworkers." *New York Times*, June 18. <https://www.nytimes.com/2020/06/18/us/florida-coronavirus-immokalee-farmworkers.html>.
- Rothwell, J. 2020. "The Effects of COVID-19 on International Labor Markets: An Update." Brookings Institution. <https://www.brookings.edu/research/the-effects-of-covid-19-on-international-labor-markets-an-update/>. Accessed August 8.
- Tesco. 2020. "Central European Food Waste Data 2019/20." <https://www.tescopl.com/sustainability/performance/data-tables/food-waste-data/central-european-food-waste-data/>. Accessed June 1.
- UN (United Nations). 2017. "Sustainable Development Goals." <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>.
- van Dooren, C., F. Mensink, K. Everstijn, and M. Schrijnen. 2020. "Development and Evaluation of the Eetmaatje Measuring Cup for Rice and Pasta as an Intervention to Reduce Food Waste." *Frontiers in Nutrition* 6: 197.
- WRAP (Waste and Resources Action Programme). 2019. "Retail Survey 2019," November 5. <https://wrap.org.uk/content/retail-survey-2019>.
- WRAP. 2020a. "Citizens and Food during Lockdown," May 5. <https://wrap.org.uk/content/citizens-and-food-covid-19-lockdown>.
- WRAP. 2020b. "Citizens and Food Waste as Lockdown Eases," July 29. <https://wrap.org.uk/content/citizens-and-food-waste-lockdown-eases>.
- WRAP. 2020c. "Courtauld Commitment 2025 Milestone Progress Report," January 24. <https://wrap.org.uk/content/courtauld-commitment-2025-milestone-progress-report>.
- WRAP. 2020d. *UK Progress against Courtauld 2025 Targets and UN Sustainable Development Goal 12.3*. Banbury, UK: WRAP. <https://wrap.org.uk/content/uk-progress-against-courtauld-2025-targets-and-un-sustainable-development-goal-123>.
- WUR (Wageningen University & Research). 2018. "Update Data 2018 Monitor Voedselverspilling." <https://www.wur.nl/nl/Onderzoek-Resultaten/Onderzoeksprojecten-LNV/Expertisegebieden/kennisonline/Update-data-2018-Monitor-Voedselverspilling.htm>. Accessed August 5, 2020.
- WUR. 2020. "Dutch Supermarkets Provide Insight into Food Waste," March 12. <https://www.wur.nl/en/Research-Results/Research-Institutes/food-biobased-research/show-fbr/Dutch-supermarkets-provide-insights-into-food-waste.htm>.
- Yang, X. 2020. "China Launches Anti-Food Waste Campaign amid Global Food Crisis," August 14. CGTN. <https://news.cgtn.com/news/2020-08-14/China-launches-anti-food-waste-campaign-amid-global-food-crisis-SWG8GnkA4E/index.html>.

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