

CHAMPIONS 12.3

SDG TARGET 12.3 ON FOOD LOSS AND WASTE: 2017 PROGRESS REPORT

An annual update on behalf of Champions 12.3

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



EXECUTIVE SUMMARY

In September 2015, the United Nations General Assembly adopted a set of 17 Sustainable Development Goals (SDGs) as part of the 2030 Agenda for Sustainable Development. 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 Target 12.3? This second annual progress report assesses advances by governments and companies over the past 12 months relative to a three-step approach for reducing food loss and waste: target, measure, and act.

Targets set ambition, and ambition motivates action. Therefore, a first step toward reducing food loss and waste is for governments and companies to set specific reduction targets aligned with SDG Target 12.3. One landmark highlight of the past 12 months is the Global Agri-business Alliance’s Food and Agricultural Product Loss Resolution, under which members will reduce their rate of food loss by 50 percent by 2030. The Global Agri-business Alliance is a global coalition of leading agricultural companies, including growers, producers, primary processors, and more. This resolution complements the Food Waste Resolution announced by The Consumer Goods Forum in 2015.

What gets measured gets managed. 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. Such data also is the foundation for prioritizing reduction strategies and for monitoring progress. One highlight of the past 12 months is that a number of companies in the food sector—including Ahold Delhaize, ConAgra Brands, Danone, Kellogg Company, Nestlé, Pick n Pay, Sainsbury’s, and Tesco—are not just measuring but also publicly reporting their food loss and waste inventories, thereby pioneering best practices for the private sector.

ABOUT THIS PUBLICATION

SDG Target 12.3 on Food Loss and Waste: 2017 Progress Report is the second in an annual series of publications providing an assessment of the world’s progress toward achieving Sustainable Development Goal (SDG) Target 12.3. SDG Target 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 Progress Report* can be found at <http://www.champions123.org>.

AUTHORS

This publication was prepared by **Brian Lipinski**, **Austin Clowes**, **Liz Goodwin**, and **Craig Hanson** of the World Resources Institute and by **Richard Swannell** and **Peter Mitchell** of WRAP.

The authors thank Champions 12.3 and their associates for reviewing and providing helpful input on draft versions of this publication (see Acknowledgments).

What ultimately matters is action. Reducing food loss and waste is everyone’s responsibility. Exactly what needs to be done varies around the world, and achieving SDG Target 12.3 will require big acts by big players, as well as millions of acts by everyone from farmers to consumers. One big development over the past 12 months is that food manufacturers and retailers scaled up their ambitions and efforts to cut consumer food waste by standardizing food date labels. In 2017, the U.S.-based Food Marketing Institute and Grocery Manufacturers Association announced an industry-led voluntary standard to simplify date labels, using only two endorsed phrases (one describing food quality, and one linked to food safety) yet only one phrase per package. Building on this effort, The Consumer Goods Forum has made a global call to action to promote consumer education of labeling and to standardize date labeling worldwide by year end 2020.

The past year witnessed many hopeful signs of progress. But is the world on track to achieve Target 12.3 by 2030? To answer this question, this report introduces a road map showing a pathway for achieving the target. The road map proposes a series of milestones for governments and companies—for every three-year period from 2016 to 2030—covering the “target, measure, act” approach.

This report’s authors have assessed progress against the 2016–2018 milestones, with “green” indicating developments are on track to achieve this first milestone, “yellow” indicating some progress has been made but below the pace needed to achieve this milestone in time, and “red” indicating progress is not on track to meet this milestone in the next year. The assessment has the following results:

- **Target (governments): Yellow.** Countries or regional blocs that have set specific food loss and waste reduction targets aligned with SDG Target 12.3 cover an estimated 28 percent of the world’s population—well on the way to getting 40 percent of the world’s population under a specific food loss and waste reduction target by the end of next year (the 2018 milestone). Going forward, it is critical for a few large countries such as China, India, Indonesia, and Brazil to adopt specific food loss and waste reduction targets.
- **Target (companies): Green.** 60 percent of the world’s 50 largest food companies (by revenue) participate in programs that have a food loss and waste reduction target (the 2018 milestone). Since most of the companies with targets are food retailers and manufacturers, important next steps

include encouraging more companies in other food sectors (e.g., food service and restaurants) to adopt targets and having large food companies engage their suppliers and customers on food loss and waste reduction.

- **Measure (governments): Red.** A few countries with targets currently measure and report on food loss and waste within their borders. The United Kingdom has been an early example. But these countries comprise just 7 percent of the world’s population.
- **Measure (companies): Yellow.** Several of the world’s largest food companies are currently measuring and a growing number are publicly reporting on food loss and waste within their operations. Going forward, many more of the largest companies as well as others need to complete their base year food loss and waste inventories to identify hot spots, develop effective strategies, and monitor progress.
- **Act (governments): Yellow.** There has been a burgeoning of initiatives in the European Union, United States, Japan, Saudi Arabia, United Arab Emirates, and other countries with regard to public-private partnerships, new government policies, and consumer campaigns aimed at food loss and waste reduction. However, these efforts do not approach covering 20 percent of the world’s population (the 2018 milestone), and even within countries the efforts are arguably not yet sufficiently comprehensive. Going forward, more countries, regional blocs, and cities need to start implementing comprehensive food loss and waste reduction initiatives.
- **Act (companies): Green.** More than 10 percent of the world’s 50 largest food companies now have active food loss and waste reduction programs (the 2018 milestone). Among those taking action, half are engaged with their suppliers to reduce the latter’s FLW. Business partnerships such as The Consumer Goods Forum, Global Agri-business Alliance, the World Business Council for Sustainable Development, Courtauld 2025, International Food Waste Coalition, and U.S. Food Loss and Waste 2030 Champions provide a good foundation for companies to jointly embark on the journey toward halving food loss and waste, share best practices, motivate one another, and collaborate on solutions.

Set targets, measure, and take action. If the world does this over the remaining 13 years of the SDGs, it will take a big step toward realizing a future that achieves food security, protects the planet, and contributes to prosperity for all.

THE CHALLENGE

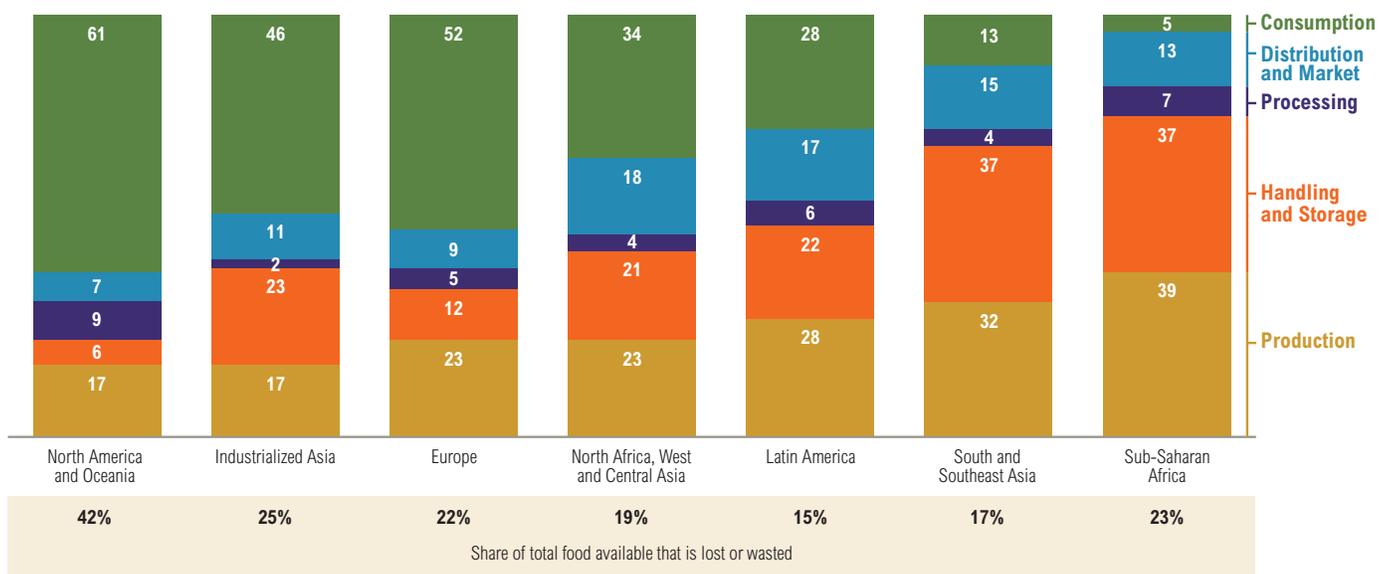
According to the Food and Agriculture Organization of the United Nations (FAO), approximately one-third of all food produced in the world is lost or wasted (FAO 2011).¹ This huge level of inefficiency has significant impacts.

Consider food security. In some areas, food losses near the farm are predominant (Figure 1) and can affect the ability of farmers to make a good 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 is undernourished, the fact that more than 1 billion tons of food never gets consumed is a travesty (WFP 2016; FAO 2017). And as the demand for food production rises to meet 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 results in roughly US\$940 billion in economic losses globally per year (FAO 2015). In sub-Saharan Africa, postharvest losses total up to \$4 billion per year (World Bank 2011). Food waste in households and restaurants costs an average of \$1,500 per year for a family of four in the United States and about \$1,100 per year for the average household with children in the United Kingdom (Buzby et al. 2014; WRAP 2015).

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). It requires land area greater than the size of China to be grown (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 (Figure 2).

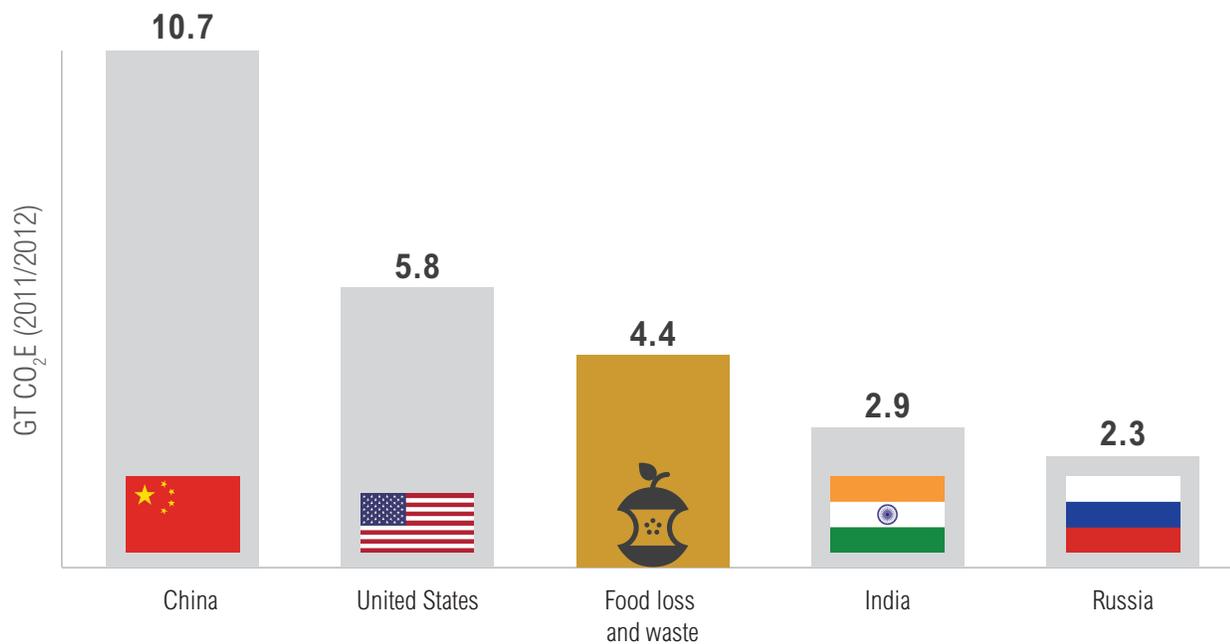
FIGURE 1. Food losses near production are more prevalent in developing regions while food waste near consumption is more prevalent in developed regions (Percent of kcal lost and wasted)



Note: Numbers may not sum to 100 due to rounding.

Source: WRI analysis based on FAO 2011.

FIGURE 2. **If food loss and waste were a country, it would be the third-largest greenhouse gas emitter**



Note: Figures reflect all six anthropogenic greenhouse gas emissions, including those from land use, land-use change, and forestry (LULUCF). Country data is for 2012 while the food loss and waste data is for 2011 (the most recent data available). To avoid double counting, the food loss and waste emissions figure should not be added to the country figures.

Source: Climate Analysis Indicators Tool 2017; FAO 2015.

A HISTORIC OPPORTUNITY

In light of these impacts, reducing food loss and waste can be a triple win (Box 1). It can help feed more people. It can save money for farmers, companies, and households while creating new business opportunities. And reductions can alleviate pressure on climate, water, and land resources.

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 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 2017a). These SDGs and their associated targets came into effect on January 1, 2016.

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.

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. 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. This target contributes to achieving other international aspirations such as the Zero Hunger Challenge, the United Nations Framework Convention on Climate Change, and more. For instance, the Paris Agreement on climate change calls for nations to take action on climate mitigation and adaptation; reducing food loss and waste is a strategy that addresses both. Moreover, the second United Nations Environment Assembly adopted a resolution on prevention, reduction, and reuse of food waste, which calls for increased awareness and action to reduce food waste by governments and the United Nations Environment Programme (UNEP).

BOX 1. About food loss and waste

The difference between food loss and food waste is not always sharply defined. However, a distinction is sometimes made to reflect different underlying causes. Under the SAVE FOOD initiative, FAO, UNEP, and stakeholders use the following definitions:

- “Food loss’ in the production and distribution segments of the food supply chain is mainly caused by the functioning of the food production and supply system or its institutional and legal framework.
- ‘Food waste’ refers to the removal of food from the food supply chain which is fit for consumption, by choice, or which has spoiled or expired, mainly caused by economic or social behavior, poor stock management, or neglect.”^a

Figure 3 provides examples of food loss and waste during various stages of the food supply chain.

a. FAO and UNEP 2016.

FIGURE 3. Examples of food loss and waste along the food supply chain

| PRODUCTION | HANDLING & STORAGE | PROCESSING & PACKAGING | DISTRIBUTION & MARKET | CONSUMPTION |
|---|---|--|---|---|
| <i>During or immediately after harvesting on the farm</i> | <i>After leaving the farm for handling, storage, and transport</i> | <i>During industrial or domestic processing and/or packaging</i> | <i>During distribution to markets, including at wholesale and retail markets</i> | <i>In the home or business of the consumer, including restaurants and caterers</i> |
| <ul style="list-style-type: none"> • Fruits discarded due to bruising during picking • Crops sorted out post-harvest for not meeting cosmetic standards • Crops left behind in fields due to poor mechanical harvesting or drops in prices • Fish discarded during fishing operations | <ul style="list-style-type: none"> • Food eaten by pests • Food degraded by fungus or disease • Livestock death during transport to slaughter or not accepted for slaughter • Fish that are spilled or degraded after landing | <ul style="list-style-type: none"> • Milk spilled during pasteurization and processing • Food sorted out as not suitable for processing • Livestock trimming during slaughtering and industrial processing • Fish spilled or damaged during canning or smoking | <ul style="list-style-type: none"> • Food sorted out due to quality • Safe food disposed because of going past sell-by date before being purchased • Food spilled or damaged in market | <ul style="list-style-type: none"> • Food sorted out due to quality • Food purchased but not eaten • Food cooked but not eaten |

Source: WRI analysis based on FAO 2011.

“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.”

—SDG Target 12.3

PROGRESS SINCE SEPTEMBER 2016

Over the past 12 months, essentially the second year since the announcement of the SDGs, to what degree has the world continued to make progress toward achieving Target 12.3? This publication addresses this question by evaluating progress relative to a three-step approach for reducing food loss and waste: target, measure, and act.

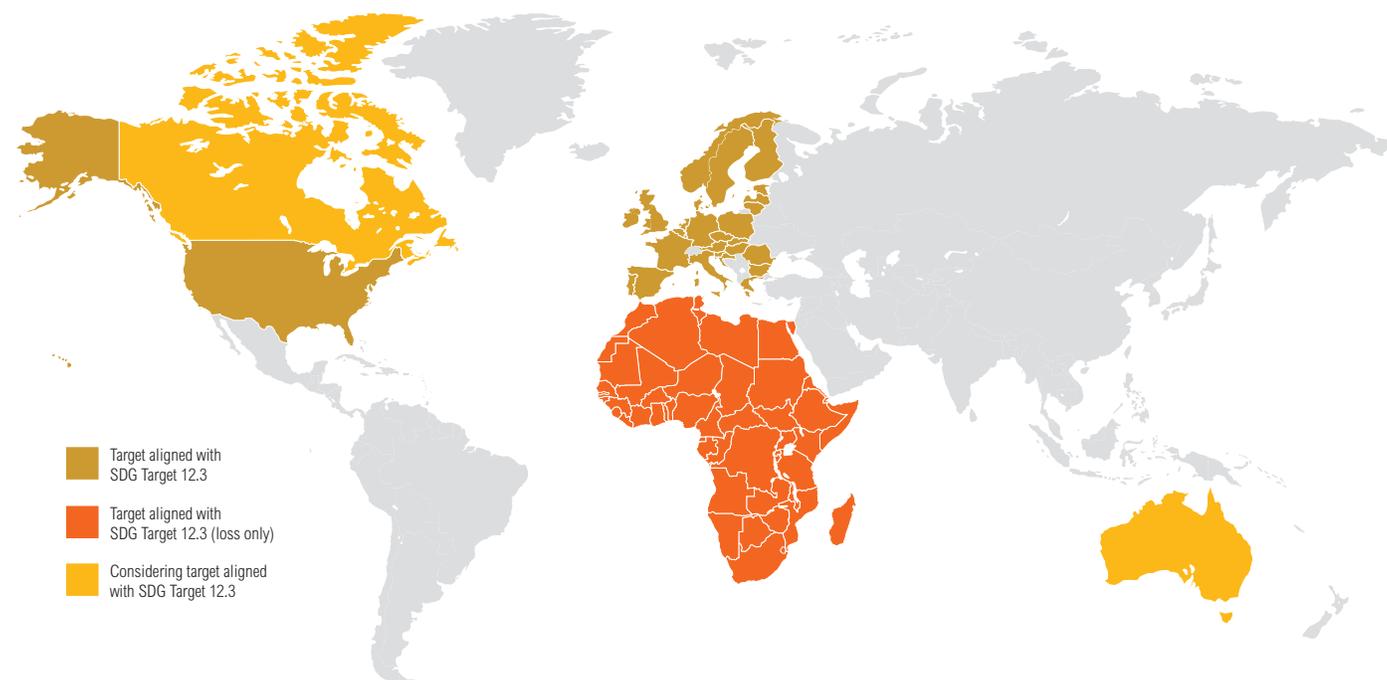
1. Target

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 Target 12.3. Some governments and companies have already adopted such targets, with some being set even before the SDGs were approved.²

Governments

With the adoption of the SDGs in 2015, all nations implicitly agreed to SDG Target 12.3. But since 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. Explicitly articulated or specific food loss and waste reduction targets made by governments, aligned with SDG Target 12.3, would indicate such attention and focus. Figure 4 shows countries or regional blocs with such targets (either voluntary or mandatory) in place that the authors could identify, including those that set specific targets before September 2016.

FIGURE 4. National and regional governments with food loss and/or waste reduction targets aligned with SDG Target 12.3 (as of September 2017)



Source: WRI analysis.

Progress in government targets over the past 12 months include the following:

- The government of **Norway** and the food industry signed an agreement in July 2017 to reduce food waste in Norway by 50 percent by 2030, a target aligned with SDG Target 12.3. The Minister for Climate and Environment and Minister of Children and Equality signed the agreement on behalf of the government, and thirteen separate trade organizations signed on behalf of industry (Norwegian Government 2017).
- **Morocco** rejoined the African Union in January 2017 (*The Guardian* 2017). This implies that Morocco is now under the target set as part of the African Union’s Malabo Declaration in 2014, which contains a commitment to “halve current levels of post-harvest loss by the year 2025” (African Union 2014).³

In addition, two national governments are now considering new 50 percent reduction targets:

- The National Zero Waste Council of **Canada**, a public-private partnership, has proposed a National Food Waste Policy that would contain a 50 percent reduction target by 2030 (National Zero Waste Council 2017).
- The government of **Australia** is considering a 50 percent reduction target by 2030 in advance of a National Food Waste summit to be held in November 2017 (Frydenberg 2017).

Companies

The private sector continues to adopt targets aligned with SDG Target 12.3. In September 2017, the Global Agri-business Alliance announced a Food and Agricultural Product Loss Resolution. The Global Agri-business Alliance is a global coalition of leading agricultural companies, including growers and producers, traders, seed suppliers, primary processors, and more. With design input from the World Resources Institute and the World Business Council for Sustainable Development, this landmark resolution has Global Agri-business Alliance members voluntarily commit to avoiding and reducing food and other agricultural product loss within their own operations by 50 percent by 2030, relative to a 2018 baseline. In addition, they will engage with suppliers and customers to help them reduce food and other agricultural product losses. This resolution complements the Food Waste Resolution made by The Consumer Goods Forum in 2015 (Consumer Goods Forum 2015). Now, many of the leading companies in the food sector—across the food supply

chain from farm to fork—have an explicit food loss or waste reduction target.

In November 2016, the U.S. Department of Agriculture and U.S. Environmental Protection Agency announced the formation of the U.S. Food Loss and Waste 2030 Champions coalition (hereafter referred to as “2030 Champions”). The coalition is composed of 20 U.S.-based companies that have made a public commitment to halve food loss and waste within their own operations by 2030.⁴

Other companies are setting targets independent of collective efforts. In December 2016, for example, IKEA started a “Food Is Precious” initiative that aims to cut food waste within its operations by 50 percent by the end of August 2020, surpassing the ambition of SDG Target 12.3 in terms of timing (IKEA 2017).

2. Measure

An old adage is that “what gets measured gets managed.” This also holds true for food loss and waste. 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 Target 12.3. Entities need to quantify a base year amount of food loss and waste and monitor change over time.

Governments

The FAO conducted the first global food loss and waste quantification effort and in 2011 published the results in the report *Global Food Losses and Food Waste*. Although the results were entirely based on existing data and literature and no new measurements were conducted, this landmark study was a catalyst for the current movement to tackle food loss and waste. It estimated food loss and waste throughout the food supply chain, dividing the world into seven near-continental regions (FAO 2011).

However, much government action to achieve SDG Target 12.3 will likely occur at the country or even subnational level. This requires quantification at that geographic scale. As noted in the *2016 Progress Report*, a few governments have been early movers in measuring food loss and waste. These include the United Kingdom, European Union, United States, and Japan.

Some regional blocs have made progress over the past 12 months. The African Union, for instance, is developing a mechanism for member states to track and monitor loss reduction efforts for priority commodities. The European Commission’s waste legislation proposal—put forward in December 2015 as part of the Circular Economy Action Plan—is currently under discussion by the European Parliament and European Council. It introduces new obligations requiring member states to monitor food waste levels and report back on progress made. In addition, the European Commission is developing measurement guidelines for member states in cooperation with the EU Platform on Food Losses and Food Waste, but consistent measurement and reporting has yet to begin.

Companies

A number of companies have begun measuring their food loss and waste. Company-level data is valuable for identifying hot spots of food loss and waste, as well as root causes. Members of The Consumer Goods Forum are conducting measurement as part of the Food Waste Resolution. Companies participating in voluntary agreements like Courtauld 2025, the International Food Waste Coalition, and 2030 Champions are also measuring their food loss and waste to track reductions over time. In some instances, they publish their data. However, in most cases, companies are not publicly reporting their food loss and waste data on an individual basis, making progress difficult to track independently.

Some examples of measurement-related developments from the private sector over the past 12 months include (but are not limited to) the following:

- Tesco published a category breakdown of food waste in its own operations in conformance with the *Food Loss and Waste Accounting and Reporting Standard*, including details of the quantification method and definitions used. Tesco has annually reported on its food waste—with external assurance provided by KPMG—since 2013, when it became the first UK retailer to do so. Publishing a detailed category breakdown of food waste has allowed Tesco to identify hot spots, partner with others to reduce food waste, and increase food surplus redistribution in a targeted way.
- In September 2016, the food retailer Sainsbury’s published data on its UK food waste generation for the first time, reporting a nearly 10 percent reduction in one year. The report details methodologies and the company’s waste hierarchy (Sainsbury’s 2016).

- Kellogg Company’s *2016/2017 Corporate Sustainability Report* contains its first breakdown of the food loss and waste occurring within its manufacturing operations by destination and is reported in conformance with the *Food Loss and Waste Accounting and Reporting Standard (FLW Standard)* (Kellogg Company 2017).
- Delhaize America, Kellogg Company, Nestlé, and Tesco have each published case studies describing their experiences using the *FLW Standard*.⁵ Ahold Delhaize, Delhaize America’s parent company, has additionally published data on food loss and waste within its *Supplementary Report on Sustainable Retailing Performance 2016* (Ahold Delhaize 2016).

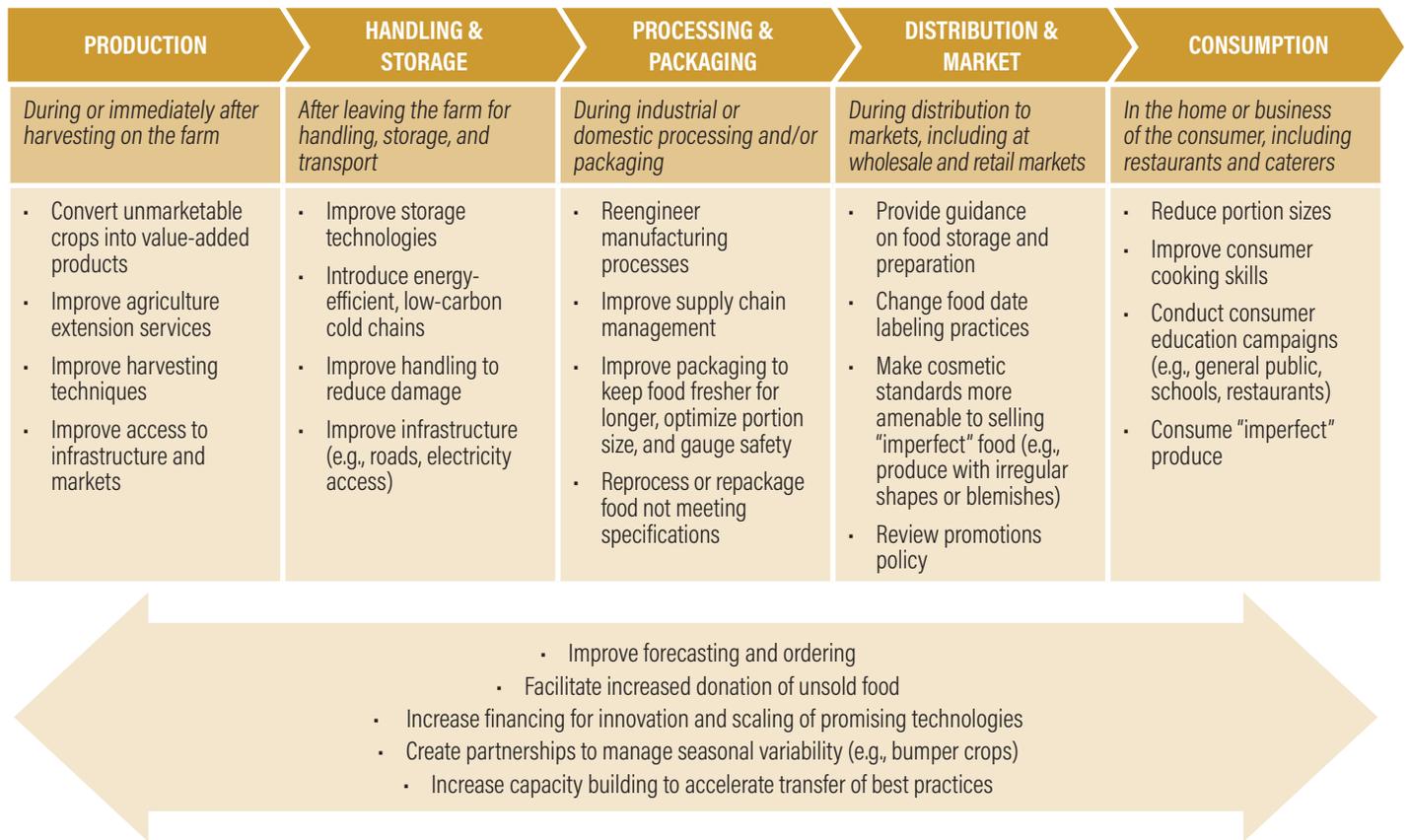
3. Act

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.

Knowing where and how much food is being lost and wasted, entities can prioritize actions to tackle the hot spots. Exactly what needs to be done varies between countries—often related to their level of economic development—and by stage in the food supply chain. In developing regions, most food loss occurs during production and storage (Figure 1). Thus, investing in better infrastructure to improve storage, processing, and transportation will be critical. In developed regions, as well as in rapidly growing urban areas around the world, most food waste occurs at the consumption stage of the food supply chain. Thus, steps to raise awareness among consumers and retailers, clarify date labeling, and facilitate food redistribution and food donations will be vital. Figure 5 provides examples of actions per stage in the food supply chain that would reduce food loss and waste.

Efforts to address food loss and waste are not new, and activity in many places has been ongoing for some time. Since the launch of the SDGs in 2015, there have been a number of notable actions by countries, companies, and others to tackle this issue. The following is a sample list—by no means exhaustive—highlighting various types of action over the past 12 months.⁶ These actions are listed according to the stage in the supply chain where food loss and waste otherwise would have occurred.

FIGURE 5. Possible approaches for reducing food loss and waste (not exhaustive)



Source: Based on Lipinski et al. (2016).

Production

- The World Wildlife Fund (WWF)—in partnership with the University of California–Davis and the Global Cold Chain Alliance and with funding from the Walmart Foundation and the Foundation for Food and Agriculture Research—launched a research program in early 2017 to maximize crop utilization and edible food recovery in the United States. The project will run until 2019, and its main objectives are to form base year measurements for on-farm food losses and to increase profit for farmers by finding markets and solutions for products that might otherwise be lost (WWF 2017a).
- YieldWise—a \$130 million initiative by the Rockefeller Foundation launched in 2016 and profiled in the 2016 *Progress Report*—has already shown promising results. In the tomato value chain in Nigeria, for example, YieldWise

- has aggregated and connected 10,000 farmers to 15 alternative market channels and introduced effective storage technologies (Akinfenwa 2017). Additionally, the Rockefeller Foundation sponsored the first-ever All Africa Post-Harvest Congress in March 2017 (Rockefeller Foundation 2017). YieldWise also funded research by the organization Feedback into causes of food loss and waste in international supply chains, as well as more specific work on mango loss and waste within Senegal (Feedback 2017)
- The International Institute of Tropical Agriculture established an agricultural research facility in Nigeria in June 2017. The goal of the research facility is to develop innovative solutions for increasing agricultural productivity and reducing postharvest losses and then disseminate those solutions to smallholder farmers (Newspeak 2017).

Handling and storage

- In December 2016, the International Food Policy Research Institute, the Bangladesh Institute of Development Studies, and the University of Illinois Urbana-Champaign started a five-year research effort in Bangladesh to improve food storage and build capacity in the country. As a first step, they completed a wide-scale analysis of grain losses in the country's public food distribution system. This research is matched by action to improve storage facilities around the country, as well as to fortify future food grains (Chowdhury 2017).
- As part of its Purchase for Progress program, the World Food Programme (WFP) partnered with GrainPro to pilot the use of hermetic grain storage solutions in Malawi. The hermetic grain bag was developed primarily for smallholder farms, and the pilot project aims to help smallholder farmers reduce postharvest losses. The pilot project will train more than 60 WFP-beneficiary farmer organizations in 15 districts throughout Malawi (WFP 2017).
- The Postharvest Loss Alliance for Nutrition in Nigeria has recently started working with the Lagos government and Ministry of Agriculture to promote the use of plastic crates for postharvest handling to reduce tomato losses (AgroNigeria 2017).

Processing and packaging

- In the United States, the Food Marketing Institute (FMI) and Grocery Manufacturers Association (GMA) announced an industry-led standard to simplify date labels and reduce consumer confusion over food safety concerns. The plan endorses two standard phrases: "BEST if used by" indicates a date pertaining to product quality and is for use on nonperishable products, while "USE by" relates to food safety and is only for use on perishable products. Only one date will be used per package. Manufacturers and retailers in the United States are anticipated to have widely switched to the new standard by the summer of 2018 (GMA 2017).
- Taking the FMI and GMA approach global, The Consumer Goods Forum announced in September 2017 a call to action to standardize food date labeling worldwide by year end 2020. The call to action calls on food manufacturers and retailers to utilize only two types of written food date labels on packaging—one communicating food quality and the other linked to food safety—and to utilize only one written date label per food product to avoid confusion among consumers. It also calls on retailers, manufacturers, government agencies, and nongovernmental organizations to educate consumers about the meaning of the date labels.

Distribution and market

- In 2017, Tesco launched its No Time for Waste campaign, which includes a commitment that by the end of the year no food that is safe for human consumption will be wasted inside Tesco's UK retail operations. In addition to tackling food waste in its own operations, Tesco has communicated a shared responsibility to reduce waste from farm to fork and thus is working in partnership with producers and suppliers to reduce their food loss and waste, as well as helping customers reduce food waste at home. Examples of initiatives include the introduction of innovative products and packaging to cut waste, as well as the use of enhanced forecasting and ordering systems to manage bumper crops (Tesco 2017).
- Members of the Courtauld Commitment 2025 signed an agreement to double the amount of food surplus they send for redistribution by 2020. It is estimated that this agreement will result in an extra 60 million meals being made available for human consumption in the United Kingdom (WRAP 2017).
- Stop Wasting Food, Danish People's Aid, and the REMA 1000 retail chain hosted their annual national charity project, Christmas Surplus, in which volunteers around Denmark redistributed surplus food from the holidays to food insecure families (UN 2017b).

Consumption

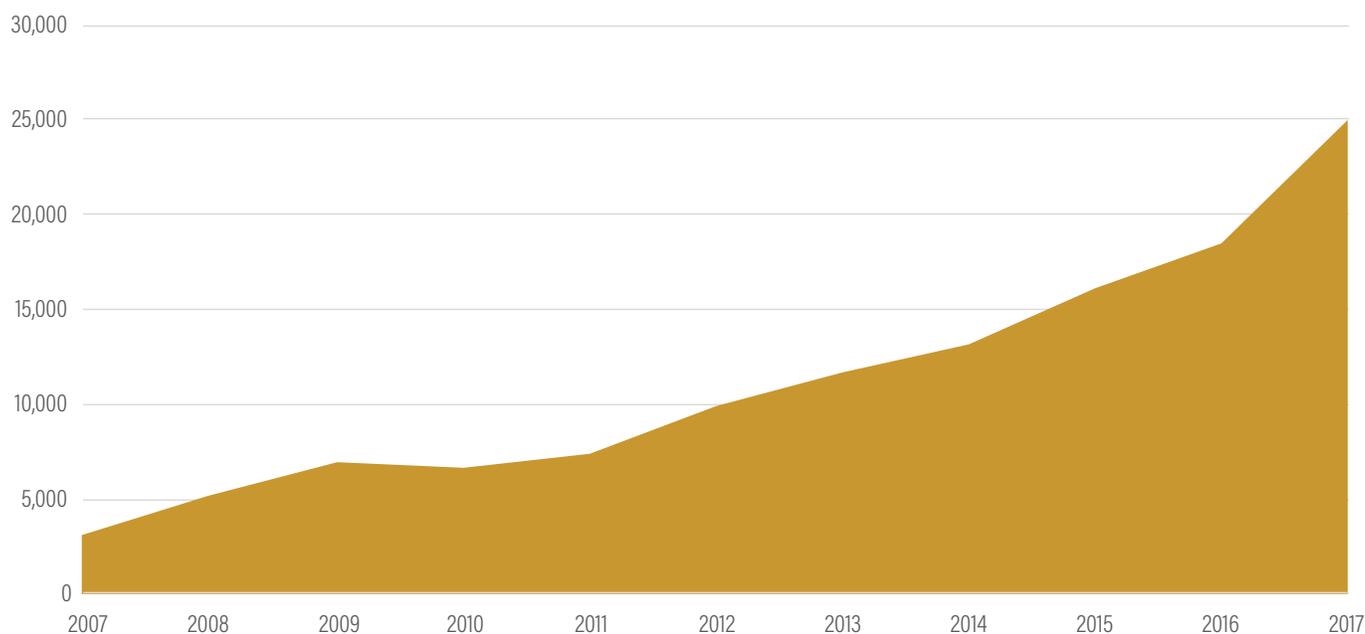
- In China, the Ministry for Commerce and the Central Commission for Guiding Ethical and Cultural Progress announced a policy to reduce food loss and waste, specifically focusing on wasted food from catering and banquets (*Xinhua* 2017). The statement also calls for the continuation of a consumer education campaign on reducing banquet waste.
- WWF, along with the Rockefeller Foundation and the American Hotel & Lodging Association, began a series of pilot projects to reduce food loss and waste within the hotel industry. The project includes training employees on best practices for reduction, measurement of food loss and waste, and redesigning menus to limit waste. The most successful practices will then be collected in a tool kit for wider industry adoption (WWF 2017b).
- The city of Dubai has launched a number of initiatives to reduce food waste. These include fees on organic waste going to landfills and education campaigns targeting schools and households. These campaigns include cash prizes and certificates for homes with the lowest amount of organic waste (Zakaria 2017).

- In September 2016, Resource London started the TRiFOCAL London initiative, funded by the LIFE program of the European Commission. The initiative focuses on consumer education and outreach to reduce food waste in London and will run for three years. Seven other European cities are confirmed to replicate the initiative (WRAP 2016).

Crosscutting

- Further With Food launched in early 2017 as an online hub to exchange information and solutions regarding food loss and waste reduction in the United States.⁷ It was developed by a network of 12 partners across the government, non-governmental organizations, and the private sector and contains over 200 resources addressing food loss and waste reduction.
- The organization Rethink Food Waste through Economics and Data (ReFED) launched the Innovator Database and Policy Finder resources online, which aim to link initiatives and share best practices from existing work within the United States (ReFED 2017). The Innovator Database is a compilation of commercial and nonprofit entities working to address food loss and waste. The Policy Finder specifically focuses on state and federal policies around food waste prevention, recovery, and recycling.
- In the Netherlands, Wageningen University & Research, the Ministry of Economic Affairs, and the Sustainable Food Alliance announced the formation of the Taskforce Circular Economy in Food to connect initiatives against food waste. This group contains representatives from government, nonprofits, the private sector, and academia working to reduce food loss and waste and support the circular economy (Wageningen 2017).
- At the first All Africa Postharvest Congress and Expo in March 2017—covering topics from food loss assessment to educational capacity building—a competition for the Top 10 Postharvest Innovations saw a number of emerging technologies with potential for scaling in Africa (ACDI/VOCA 2017).
- In October 2016, the EU-based International Food Waste Coalition published the results of a waste reduction program in the education market segment in Italy, France, and the United Kingdom. It achieved on average a 12 percent reduction in food waste across the value chain for school food (IFWC 2016).
- Ghana passed the National Food Donor’s Encouragement Bill. This bill creates a legal framework for food donation, establishes compliance and liability standards, and encourages donation through tax deductions (*Modern Ghana* 2017).
- In Saudi Arabia, UNEP and the Savola Group initiated the Negaderha program, which aims to reduce, manage, and raise awareness of food loss and waste levels within the country. Some of the activities are to measure food loss and waste across the supply chain, provide storage containers for surplus food, provide a manual for businesses on how to reduce food loss and waste, and conduct a public awareness campaign to educate consumers (GulfBase 2017).
- Africa and Europe moved closer together in partnership on food loss and waste reduction. African and European agriculture ministers, as well as high-level representatives from the private sector and financial institutions, agreed to collaborate on measuring food loss and waste and to explore how to increase financing for food loss and waste reduction. This progress occurred at the High Level Ministerial meeting on “Making Sustainable Agriculture a Future for Youth in Africa” in Rome during July. The African Union Commission and the European Commission, supported by the Governments of the Netherlands, Malta, and Estonia, organized the event. The Rome meeting was the second session under an initiative for improving agricultural cooperation between the two regions.
- Media coverage of food loss and waste as an issue continues to rise, increasing awareness and public profile of the issue. Evidence includes a clear upward trend over the past 11 years—and a spike over the past 12 months—in English-language print and online news sources (Figure 6).⁸
- In Denmark, the Danish government has created new forums to involve stakeholders in the process of formulating recommendations for actions. The government has initiated an advisory board on circular economy with business leaders from 12 different Danish companies and a team of gastronomy frontrunners and food businesses to advise the government on recommendations for action called Gastro2025. The Government has also involved civil society through a subsidy scheme to encourage private initiatives to enfold. Additionally, the government has initiated an annual “World Food Summit – Better Food for More People” that addresses food challenges of global relevance including prevention of food waste.

FIGURE 6. “Food loss” and “food waste” media hits (all English-language)



Source: WRI analysis using LexisNexis.

GOING FORWARD: A ROAD MAP AND ASSESSMENT

It has been two years since the launch of the SDGs. So how is progress going in relation to Target 12.3? Is the world on track, or is the world behind?

A road map

To reduce the amount of subjectivity involved in answering these questions, we developed a road map that describes a possible pathway for achieving SDG Target 12.3 (Table 1). Based on expert input, the road map provides milestones for a series of metrics per each three-year period from 2016 to 2030—from the first full year of the SDGs to their stated completion date. There are milestones for setting targets, for

measuring food loss and waste, and for taking action—aligning with our Champions 12.3 “target, measure, act” approach. The milestones are split between two sectors: governments (which includes the citizens they represent) and companies.

The pacing of these milestones reflects the fact that change does not occur immediately but rolls out over time, often in a nonlinear fashion. We start by generically assuming that 10 percent of a metric is met after the first three-year period (2016–2018), 20 percent after the second period (2019–2021), 40 percent after the third period (2022–2024), 60 percent after the fourth period (2025–2027), and more than 95 percent after the fifth period (2028–2030). We then modify these percentages to reflect the fact that some activities need to be completed early in order for there to be sufficient time

for full implementation to occur. For example, governments and companies need to set targets by 2021, otherwise they are unlikely to have enough time to measure and take actions that enable achievement of Target 12.3 by 2030.

Finally, the road map is a balancing act. It needs to meet the scale of the challenge yet be conceivably attainable, all within the remaining 13 years. Of course, this road map presents just one potential pathway; other combinations of milestones are possible. Nonetheless, this road map is intended to provide a basis for monitoring progress and for prompting discussion about what next steps are needed.

2017 assessment

Table 1 also shows our assessment of where the world is in relation to achieving Target 12.3 after the first two years of the SDGs. We use the following color-coded indicators:

-  **Green.** There is sufficient progress to suggest that the sector is on track to meet or exceed the milestone within the time period.
-  **Yellow.** There is some progress toward meeting the milestone, but it is below the pace needed to meet the milestone within the time period.
-  **Red.** There is little progress toward meeting the milestone, or previous progress is backsliding.

These indicators should be taken solely as an assessment of progress to date. A green indicator does not necessarily mean that the milestone has been already met, but rather that the progress to date is on track for the milestone to be met within its three-year time period. We will indicate in future progress reports when a milestone has been achieved. Moreover, our assessment is based on publicly available information; thus, there may be developments toward meeting Target 12.3 of which we are unaware.

TABLE 1. Road map to achieving SDG Target 12.3 (2017 Assessment)

| | | 2016–2018 | 2019–2021 |
|-------------------------------|---|---|---|
| TARGET | GOVERNMENTS |  <p>Countries with 40% of the global population have set specific FLW^a reduction targets aligned with Target 12.3.</p> | Countries with >95% of the global population have set specific FLW reduction targets aligned with Target 12.3. |
| | COMPANIES |  <p>60% of the world's 50 largest food companies by revenue (spanning manufacturing, production, processing, retail, and food service sectors) have set specific FLW reduction targets aligned with Target 12.3.</p> <p>Among those setting targets, half are working with their suppliers to set their own targets.</p> | <p>>95% of the world's 50 largest food companies have set specific FLW reduction targets aligned with Target 12.3.</p> <p>Among those setting targets, all are working with their suppliers to set their own targets.</p> |
| MEASURE | GOVERNMENTS |  <p>Countries with 20% of the global population have quantified base year FLW and have started reporting on FLW.</p> | Countries with 40% of the global population have quantified base year FLW and have started reporting on FLW. |
| | COMPANIES |  <p>20% of the world's 50 largest food companies have quantified base year FLW and have started measuring and reporting on FLW.</p> <p>Among those measuring and reporting, half are engaged with their suppliers to quantify the latter's FLW.</p> | <p>40% of the world's 50 largest food companies have quantified base year FLW and have started measuring and reporting on FLW.</p> <p>Among those measuring and reporting, half are engaged with their suppliers to quantify the latter's FLW.</p> |
| ACT | GOVERNMENTS |  <p>Countries with 20% of the global population are actively working at scale to reduce FLW.^b</p> | <p>Countries with 40% of the global population are actively working at scale to reduce FLW.</p> <p>First country halves its rate of FLW.</p> |
| | COMPANIES |  <p>10% of the world's 50 largest food companies have active FLW reduction programs.</p> <p>Among those taking action, half are engaged with their suppliers to reduce the latter's FLW.</p> <p>The first global company halves FLW in its own operations.</p> | <p>20% of world's 50 largest food companies have active FLW reduction programs.</p> <p>Among those taking action, half are engaged with their suppliers to reduce the latter's FLW.</p> <p>The first global company halves FLW in its own operations and its supply chain.</p> |
| OVERALL PROGRESS ^c | <p>5% reduction in FLW achieved globally</p> | | <p>10% reduction in FLW achieved globally</p> |

Notes:

^a FLW = food loss and waste.

^b Evidence of working at scale could include the presence of nationwide voluntary agreements between government agencies and businesses, passage of public policies aimed at reducing FLW, increased investment in FLW reduction, consumer campaigns, and so on.

^c Currently, there is no globally agreed-upon base year FLW quantification. Thus, it is not possible to measure overall progress against SDG Target 12.3 until the base year FLW levels have been quantified.

2022–2024

2025–2027

2028–2030

Countries with **60%** of the global population have quantified base year FLW and have started reporting on FLW.

Countries with **>95%** of the global population have quantified base year FLW and have started reporting on FLW.

60% of the world's 50 largest food companies have quantified base year FLW and have started measuring and reporting on FLW.

>95% of the world's 50 largest food companies have quantified base year FLW and have started measuring and reporting on FLW.

Among those measuring and reporting, **all** are working with their suppliers to reduce the latter's FLW.

Among those measuring and reporting, **all** are working with their suppliers to reduce the latter's FLW.

Countries with **60%** of the global population are actively working at scale to reduce FLW.

Countries with **>95%** of the global population are actively working at scale to reduce FLW.

10 countries halve their rate of FLW.

50 countries halve their rate of FLW.

40% of the world's 50 largest food companies have active FLW reduction programs.

60% of the world's 50 largest food companies have active FLW reduction programs.

Among those taking action, **half** are engaged with their suppliers to reduce the latter's FLW.

Among those taking action, **half** are engaged with their suppliers to reduce the latter's FLW.

>95% of the world's 50 largest food companies have active FLW reduction programs.

Among those taking action, **half** are engaged with their suppliers to reduce the latter's FLW.

20% reduction
in FLW achieved globally

30% reduction
in FLW achieved globally

50% reduction
in FLW achieved globally



Green. There is sufficient progress to suggest that the sector is on track to meet or exceed the milestone within the time period.



Yellow. There is some progress toward meeting the milestone, but it is below the pace needed to meet the milestone within the time period.



Red. There is little progress toward meeting the milestone, or previous progress is backsliding.

Target

Governments

Countries or regional blocs that currently have set specific food loss and waste reduction targets aligned with SDG Target 12.3 represent 28 percent of the world's population. These regions include the African Union, European Union, and United States. This amount is more than halfway to the 2018 milestone of countries that represent 40 percent of the world's population having set such targets. Therefore, we give this milestone a “yellow” assessment.

In order to reach the 2018 milestone, more governments will need to set specific food loss and waste reduction targets. For example, the milestone would be met if China (with 19 percent of the world's population); India (with 18 percent of the world's population); or the combination of Indonesia, Brazil, Pakistan, Bangladesh, and Russia (with 13 percent of the world's population) set specific targets.

Companies

With the resolutions of The Consumer Goods Forum and the Global Agri-business Alliance, 60 percent of the world's 50 largest food companies (by revenue) now have a food loss and waste reduction target. These companies span the manufacturing, production, processing, and retail stages of the food value chain. And a few of them are starting to engage their supply chains to adopt food loss and waste reduction targets, as well. Therefore, we give this milestone a “green” assessment.

In order to reach the 2018 milestone, a few more food companies outside of The Consumer Goods Forum and the Global Agri-business Alliance will need to set targets. A major gap in sector coverage is among restaurants and food service companies. In addition, more of those already with targets will need to proactively engage their suppliers to set their own targets. Tackling food loss and waste requires a whole value chain approach.

Measure

Governments

Few of the countries with targets currently measure and report on food loss and waste within their borders. Japan, the United Kingdom, the Netherlands, and the United States are notable exceptions. These countries comprise just 7 percent of the world's population. Therefore, this milestone is a “red” assessment.

In order to reach the 2018 milestone, more countries and regional blocs such as the European Union, the African Union, or the Asia-Pacific Economic Cooperation coalition will need to begin systematic quantification of their food loss and waste and report the results. Such measurement need not be every year; every three to five years should be sufficient to monitor progress and mobilize efforts.

Food loss and waste measurements conducted in conformance with the global *FLW Standard* would enable consistent, clear, and transparently reported quantification for both governments and companies.. The *FLW Standard* provides a common set of requirements and guidance for quantifying and reporting on the weight of food and/or associated inedible parts removed from the food supply chain.⁹

Companies

Several of the world's largest food companies are currently measuring and a growing number are publicly reporting on food loss and waste within their operations. Therefore, we give this milestone a “yellow” assessment.

In order to reach the 2018 milestone, at least five more companies among the 50 largest—and their suppliers—will need to complete their base year food loss and waste inventories and conduct follow-up inventories to monitor progress. Importantly, these companies should publicly report the results in order to showcase success, engage internal and external stakeholders, and inspire others.

In some cases, data is already being collected by companies, but it is not being shared publicly, making progress toward this milestone difficult to track. Trade associations and other business coalitions can encourage their members to publicly share their inventories. As with governments, company inventories conducted in accordance with the *FLW Standard* would help with consistency and transparency.

Act

Governments

A number of countries are already working at scale to reduce food loss and waste. As highlighted in this and the *2016 Progress Report*, there has been a burgeoning of initiatives in the European Union, United States, Japan, and a number of developing countries with regard to public-private partnerships, new government policies, and consumer campaigns aimed at food loss and waste. However, these efforts do not come close to covering 20 percent of the world's population (the 2018 milestone). Even within countries, the efforts are arguably not yet sufficiently comprehensive. Therefore, this milestone has a “yellow” assessment.

In order to achieve SDG Target 12.3, more countries will need to pursue food loss and waste reduction initiatives at scale—initiatives involving activities such as public-private partnerships, public policies that support food loss and waste reduction from farm to fork, increased investments, farmer and consumer education campaigns, and more. One specific area to scale up is financing—from philanthropic, development assistance, commercial loan, and equity investment sources—for food loss and waste reduction technologies and small- to medium-size enterprise solution providers. Another area to scale up is capacity building across the food supply chain so that best practices, innovation, and know-how disseminate even more quickly.

Companies

More than 10 percent of the world's 50 largest food companies—including Danone, Kellogg Company, Nestlé, Sodexo, Tesco, Unilever, Walmart, and others like Campbell Soup Company—now have active food loss and waste reduction programs. In addition, at least half of them are engaging with upstream suppliers on food loss and waste reduction efforts. Because of this high level of commitment and progress, we give this milestone a “green” assessment.

Going forward, even more businesses will need to follow this lead. Business partnerships such as The Consumer Goods Forum, Global Agri-business Alliance, Courtauld 2025, International Food Waste Coalition, and 2030 Champions provide a good foundation for companies to jointly embark on the journey toward halving food loss and waste, sharing best practices, motivating one another, and collaborating on solutions.

Overall progress

The overall 2016–2018 milestone is a 5 percent reduction in global food loss and waste, as compared to 2015 base year levels. However, we are unable to determine by how much the world has reduced food loss and waste over the past two years because global base year data (e.g., food loss and waste in 2015) has not yet been reported and no follow-up quantification of global food loss and waste levels has been conducted. Over time, as more and more countries conduct national food loss and waste inventories, a global picture should emerge. And the FAO (in collaboration with others) is working on developing indicators to track global progress.

Among both governments and countries, action is currently taking place at a more rapid pace than is measurement. Although perfect data is not required to start addressing food loss and waste, without adequate measurement it is impossible to determine whether actions are successful in achieving reduction of food loss and waste.

Ultimately, without establishing base year food loss and waste levels and conducting periodic subsequent measurement, it will be impossible to determine whether the planet is achieving SDG Target 12.3. Therefore, we give the overall progress milestone an “unknown” assessment. Developing this information and making it publicly available as soon as possible is a critical gap that needs to be filled.

IN CLOSING

SDG Target 12.3 is a historic opportunity for the world to curtail food loss and waste at scale and reap the food security, economic, and environmental benefits. Fortunately, momentum toward achieving this target is growing, even after only two years. But only 13 years remain before the SDGs are due. It is therefore incumbent upon all governments, companies, farmers, and individuals to deepen their commitment and accelerate their efforts.

Set targets, measure the problem, and take action. If the world does this, it will take a big step toward realizing a future where no more food goes to waste.

REFERENCES

- ACDI/VOCA. 2017. "All Africa Postharvest Technologies and Innovation Challenge," April 3. <http://www.acdivoca.org/2017/04/all-africa-postharvest-technologies-and-innovation-challenge>.
- African Union. 2014. *Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods*. Malabo, Equatorial Guinea: African Union.
- AgroNigeria. 2017. "LASG, PLAN Nigeria Storm Markets on Plastic Crates Adoption Exercise," July 5. <https://agronigeria.com.ng/lasg-plan-nigeria-storm-markets-plastic-crates-adoption-exercise>.
- Ahold Delhaize. 2016. *Supplementary Report on Sustainable Retailing Performance 2016*. Zaandam, NL: Ahold Delhaize.
- Akinfenwa, G. 2017. "We Are Adopting All-Inclusive Solution to Tackle Food Waste, Says Biteye." *The Guardian*, April 2. <https://guardian.ng/features/we-are-adopting-all-inclusive-solution-to-tackle-food-waste-says-biteye>.
- Buzby, J.C., H.F. Wells, and J. Hyman. 2014. *The Estimated Amount, Value, and Calories of Postharvest Food Losses at the Retail and Consumer Levels in the United States*. Washington, DC: USDA Economic Research Service.
- Chowdhury, S. 2017. "New Program's Early Results Show Potential to Improve Food Security." IFPRI Bangladesh, May 2. <https://bangladesh.ifpri.info/2017/05/02/new-programs-early-results-show-potential-to-improve-food-security>.
- Climate Analysis Indicators Tool (CAIT). 2017. "Historical Emissions." Accessed August 25.
- Consumer Goods Forum. 2015. "Consumer Goods Industry Commits to Food Waste Reduction," June 24. <http://www.theconsumergoodsforum.com/consumer-goods-industry-commits-to-food-waste-reduction>.
- 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 & Climate Change*. Rome: FAO.
- FAO. 2017. "Food Loss and Food Waste." <http://www.fao.org/food-loss-and-food-waste/en>. Accessed August 25.
- FAO and UNEP (United Nations Environment Programme). 2016. *Definitional Framework for Food Loss*. Rome: FAO.
- Feedback. 2017. *Causes of Food Waste in International Supply Chains*. London: Feedback.
- Frydenberg, J. 2017. "Roundtable on Food Waste Marks the Beginning of Halving Australia's Food Waste by 2030," April 11. <http://www.environment.gov.au/minister/frydenberg/media-releases/mr20170411.html>.
- GMA (Grocery Manufacturers Association). 2017. "Grocery Industry Launches New Initiative to Reduce Consumer Confusion on Product Date Labels," February 15. <http://www.gmaonline.org/news-events/newsroom/grocery-industry-launches-new-initiative-to-reduce-consumer-confusion-on-pr>.
- The Guardian*. 2017. "Morocco Rejoins African Union after More than 30 Years," January 31. <https://www.theguardian.com/global-development/2017/jan/31/morocco-rejoins-african-union-after-more-than-30-years>.
- GulfBase. 2017. "Savola and UNEP Launch Drive to Reduce Food Waste in the Kingdom," March 16. <http://www.gulfbase.com/news/savola-and-unep-launch-drive-to-reduce-food-waste-in-the-kingdom/295487>.
- IFWC (International Food Waste Coalition). 2016. *SKOOL Report—Oct. 2016*. Ixelles, Belgium: IFWC.
- IKEA. 2017. "IKEA Aims to Cut Food Waste by 50% with 'Food Is Precious' Initiative," June 23. <http://newsroom.inter.ikea.com/news/ikea-aims-to-cut-food-waste-by-50--with-new-food-is-precious-initiative/s/efde35e5-2909-4d45-be75-ff5f7941d092>.
- Kellogg Company. 2017. *2016/2017 Corporate Responsibility Report*. Battle Creek, MI: Kellogg Company.
- 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: 477–489.
- Lipinski, B., C. O'Connor, and C. Hanson. 2016. *SDG Target 12.3 on Food Loss and Waste: 2016 Progress Report*. Champions 12.3.
- Modern Ghana*. 2017. "National Food Donors Encouragement Bill: Ghana's Shared Responsibility to End Hunger," April 16. <https://www.modernghana.com/news/769225/national-food-donors-encouragement-bill-ghanas-shared-resp.html>.
- National Zero Waste Council. 2017. *National Food Waste Reduction Strategy*. Burnaby, BC: National Zero Waste Council.
- Newspeak. 2017. "At 50, IITA Expands Research Investment with 205.5ha Research Farm," June 2. <http://newspeakonline.com/50-iita-expands-research-investment-205-5ha-research-farm>.
- Norwegian Government. 2017. "Agreement to Reduce Food Waste," June 28. <https://www.regjeringen.no/en/aktuelt/agreement-to-reduce-food-waste/id2558931>.
- ReFED (Rethink Food Waste through Economics and Data). 2017. "New ReFED Innovation and Policy Tools," April 17. <http://www.refed.com/content-hub/press-release>.
- Rockefeller Foundation. 2017. "First Ever Africa-Wide Post-Harvest Congress Held in Nairobi," March 29. <https://www.rockefellerfoundation.org/about-us/news-media/first-ever-africa-wide-post-harvest-congress-held-nairobi>.
- Sainsbury's. 2016. *Sainsbury's Food Surplus and Food Waste: How We Are Delivering a Positive Impact*. London: Sainsbury's.

Tesco. 2017. "Food Waste." <https://www.tescopl.com/tesco-and-society/food-waste>. Accessed August 25.

UN (United Nations). 2017a. "Sustainable Development Goals." <http://www.un.org/sustainabledevelopment/sustainable-development-goals>. Accessed August 25.

UN. 2017b. "Partnership for SDGs: Christmas against Food Waste— #SDGAction11929." <https://sustainabledevelopment.un.org/partnership/?p=11929>. Accessed August 25.

Wageningen. 2017. "Dutch Taskforce Connects Initiatives against Food Waste," January 26. <http://www.wur.nl/en/Expertise-Services/Research-Institutes/food-biobased-research/Show/Dutch-Taskforce-connects-initiatives-against-food-waste.htm>.

WFP (World Food Programme). 2017. "Hunger Statistics." <https://www.wfp.org/hunger/stats>. Accessed August 25.

WFP. 2017. *Malawi Country Brief*. Rome: WFP.

World Bank. 2011. *Missing Food: The Case of Postharvest Grain Losses in Sub-Saharan Africa*. Washington, DC: World Bank.

WRAP (Waste and Resources Action Programme). 2015. *Estimates of Food and Packaging Waste in the UK Grocery Retail and Hospitality Supply Chains*. Banbury, UK: WRAP.

WRAP. 2016. "€3.2m London Project to Target Food Waste Prevention and Recycling alongside Healthy Eating," September 6. http://www.wrap.org.uk/TRIFOCAI_PR.

WRAP. 2017. "Courtauld Commitment 2025 Signatories to Double Redistribution," January 16. <http://www.wrap.org.uk/content/courtauld-commitment-2025-signatories-double-redistribution>.

WWF (World Wildlife Fund). 2017a. "WWF, FFAR, and Walmart Foundation Team Up with Producers to Study Food Rescue Opportunities on Farms," July 26. <https://www.worldwildlife.org/press-releases/wwf-ffar-and-walmart-foundation-team-up-with-producers-to-study-food-rescue-opportunities-on-farms>.

WWF. 2017b. "World Wildlife Fund, American Hotel & Lodging Association and the Rockefeller Foundation Bring Hotel Brands Together to Prevent Hotel Food Waste," March 21. <https://www.worldwildlife.org/press-releases/world-wildlife-fund-american-hotel-lodging-association-and-the-rockefeller-foundation-bring-hotel-brands-together-to-prevent-hotel-food-waste>.

Xinhua. 2017. "China Calls for Reducing Food Waste Nationwide," July 12. http://news.xinhuanet.com/english/2017-07/12/c_136438702.htm.

Zakaria, S. 2017. "Smart Meters to Help Reduce Food Wastage in UAE Hotels." *Khaleej Times*, April 1. <http://www.khaleejtimes.com/lifestyle/food/smart-meters-to-help-reduce-food-wastage-in-uae-hotels>.

ACRONYMS AND ABBREVIATIONS

| | |
|------|---|
| FAO | Food and Agriculture Organization of the United Nations |
| FLW | food loss and waste |
| FMI | Food Marketing Institute |
| GMA | Grocery Manufacturers Association |
| SDG | Sustainable Development Goal |
| UNEP | United Nations Environment Programme |
| WFP | World Food Program |
| WWF | World Wildlife Fund |

ENDNOTES

1. As measured by weight.
2. Targets that are less ambitious than SDG Target 12.3 are not the focus of this publication.
3. The *2016 Progress Report* profiled the Malabo Declaration.
4. A full list of member companies can be found at United States Department of Agriculture. 2017. "U.S. Food Loss and Waste 2030 Champions." <https://www.usda.gov/oce/foodwaste/Champions/index.htm>. Accessed August 25; or United States Environmental Protection Agency. 2017. "Sustainable Management of Food," August 10. <https://www.epa.gov/sustainable-management-food/united-states-food-loss-and-waste-2030-champions>.
5. These case studies can be found at Food Loss + Waste Protocol. 2017. "Case Studies." <http://flwprotocol.org/case-studies/>. Accessed August 25.
6. Many actions by multiple entities to reduce food loss and waste have occurred prior to 2015. This publication, however, focuses on actions initiated in 2015 or later.
7. See Further With Food. 2017. Home page. <https://furtherwithfood.org/>. Accessed August 25.
8. In LexisNexis, we queried "food waste," "food loss," "wasted food," and related terms in the "all English language" news outlets option. This option pulls everything ranging from CNN transcripts, trade press, and journals to major media outlets from all over the world. While no search will pull everything, these parameters gave the most comprehensive view of media coverage of food loss and waste.
9. See Food Loss + Waste Protocol. 2017. Home page. <http://flwprotocol.org/>. Accessed August 25.

ACKNOWLEDGMENTS

The authors thank Champions 12.3 and their associates for reviewing and providing helpful input on draft versions of this publication. The authors acknowledge in particular the following individuals for their thorough comments: Erin Augustine (Kellogg Company), Neil Barrett (Sodexo), Walter Belik (Unicamp), Signe Skibstrup Blach (Danish Ministry of Environment and Food), Javiera Charad (Nestlé), Melissa Donnelly (Campbell Soup Company), Shenggen Fan (International Food Policy Research Institute), Anne-Laure Gassin (European Commission), Elise Golan (U.S. Department of Agriculture), Dominika Jarosz (Feedback), Selina Juul (Stop Wasting Food), Lisa Kitinoja (Postharvest Education Foundation), Mark Little (Tesco), Ted MacDonald (U.S. Environmental Protection Agency), Carina Millstone (Feedback), Clementine O'Connor (Think Eat Save), Robert van Otterdijk (Food and Agriculture Organization of the United Nations), Julian Parfitt (Anthesis Group), Kai Robertson (World Resources Institute), Kim van Seeters (Netherlands), Tim Smith (Tesco), Tristram Stuart (Feedback), Lana Suarez (U.S. Environmental Protection Agency), and Cephas Taruvinga (Food and Agriculture Organization of the United Nations).

The authors thank Lauri Scherer for copyediting and proofreading, and Carni Klirs for publication layout and design.

The authors gratefully acknowledge the generous financial support of the Ministry of Economic Affairs of the Kingdom of the Netherlands.

This publication represents the views of the authors alone.

ABOUT CHAMPIONS 12.3

Champions 12.3 is a unique coalition of more than three dozen leaders from around the world dedicated to inspiring ambition, mobilizing action, and accelerating progress toward achieving SDG Target 12.3.

Visit www.champions123.org for more information.

