CHAMPIONS 12.3

SDG TARGET 12.3 ON FOOD LOSS AND WASTE: 2023 PROGRESS REPORT

An annual update on behalf of Champions 12.3

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

LETTER FROM THE CO-CHAIRS OF CHAMPIONS 12.3

Tipping points are unpredictable moments when an invisible line is crossed, and incremental movement turns to rapid momentum. They can be for the good of society and our health – as happened when smoking went out of fashion – or something that could destroy our very existence and the nature of the planet we live on, as we face with the climate crisis.

We have yet to see a tipping point in the fight to halve food loss and waste by 2030, which would be an undeniably positive development. This report shows that the world – at this moment—is failing. That is a rather crude assessment, but we believe it is fair.

Too few decision makers realize that reducing food loss and waste is critical to meeting global climate goals. Too many households are not reaping the financial savings that come from using up the food they buy. And far too many people are going hungry even as over one-third of the world's food is lost or wasted.

But as Mary Silber, professor at The University of Chicago, has said, "The thing about tipping points is that they sneak up on you."

This report shows that efforts to reduce food loss and waste can produce results – and quickly. Already, the first major global company – Ingka Group, the largest IKEA retailer – has more than halved food waste in its restaurants, proving that SDG Target 12.3 is achievable. And we have a roadmap – the Target-Measure-Act approach – to help governments, businesses and others get started.

Through the Champions 12.3 network, we are fortunate to work with many bright minds who care deeply about this issue and are dedicated to reducing the more than 1 billion tons of food that are lost or wasted each year. So, while the world remains woefully behind where it needs to be to meet SDG Target 12.3 by 2030, a tipping point could be around the corner.

As you read this report, we ask that you look for ways to contribute to the movement to halve food loss and waste. We hope you find inspiration in the innovative examples of efforts already underway. No matter your role – whether a business leader, policymaker, farmer, advocate, or home cook – you are needed in this movement.

Afterall, tipping points come about because of many big and small actions that together add up to change.

Hans Hoogeveen
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Sunny Verghese
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ABOUT THIS PUBLICATION

SDG Target 12.3 on Food Loss and Waste: 2022 Progress Report is the eighth 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. Previous progress reports (2016–2022) can be found at https://www.champions123.org.

This progress report contains text from the previous editions in the series, with permission of the authors of those editions.

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EXECUTIVE SUMMARY

Highlights

- At the near-halfway point of the Sustainable Development Goals, global progress by governments and companies on achieving SDG 12.3 is slower than needed when compared with the Champions 12.3 *Road Map to Achieving SDG Target 12.3*.
- New research suggests that food loss and waste may be an even more significant problem than previously thought, and may be increasing at the consumer level.
- The European Commission has announced proposals for the first legally binding targets on food loss and waste, which may provide a template for further national and regional action.
- Although action from national governments is still slower than needed to achieve SDG 12.3, many cities are adopting new programs to address food loss and waste.
- Several companies are reporting large reductions in food loss and waste by also adopting innovative new programs within their operations to tackle the issue.

Summary

According to the latest available data, about 8 percent of all food produced in the world for human consumption is lost on the farm; 14 percent is lost between the farm gate and the retail sector; and 17 percent is wasted at the retail, food service provider, and household levels, resulting in significant impacts on human livelihoods and well-being, the global economy, and the environment. Over the past years, events such as Russia's invasion of Ukraine and the COVID-19 pandemic have exacerbated food loss and waste by causing massive disruptions to the human food supply chain. New research also indicates that food loss and waste may be a more significant problem than suggested by previous data.

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

Although progress toward achieving SDG 12.3 continues to be limited, there are signs of movement. The first proposals for legally binding targets for food loss and waste reduction have been put forward within the past year. Additionally, some cities and companies have introduced initiatives to address the issue that may provide a template for others to follow. It is clear, however, that not enough governments or companies fully recognize the link between food loss and waste and greenhouse gas emissions. As a result, food loss and waste reduction is not being prioritized to the extent that climate change demands. This situation is exacerbated by other ongoing issues such as shocks to global supply chains and the cost-of-living crisis plaguing many countries. With only seven years left to achieve SDG 12.3, more and immediate action is needed.

The challenge

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

Consider food security. In some areas, food loss is most common during either production or post-harvest handling and storage. This can affect the ability of farmers to live above the poverty line and, at times, feed their families. In other places,

food waste near the end of the food supply chain can affect household nutrition and food-related spending. Regardless of where the food loss and waste occur, in a world where nearly 1 in 10 people is undernourished (FAO 2018), it is a travesty that more than two billion tonnes of food each year never gets consumed (WWF-UK 2021).

And in the past several years, global shocks including the COVID-19 pandemic and Russia's invasion of Ukraine have led to food shortages, restrictions on exports, and increased global food prices to the highest levels ever recorded (Glauber et al. 2022; Treisman 2022). In the face of such shocks, reducing food loss and waste effectively means increasing the amount of food available to consumers. Recovering surplus food that would otherwise be wasted and ensuring its redistribution to people in need can also help address growing food security concerns.

Consider the economic costs. Food loss and waste results in more than US$1 trillion in economic losses globally per year (Scialabba 2015; WWF-UK 2021). Therefore, investing in food loss and waste reduction efforts can reap significant economic benefits. For example, one study found that food-related businesses such as canteens, hotels, and restaurants can experience up to a 14-fold return on their investment in food waste reduction programs (Hanson and Mitchell 2017). Reducing and reusing food loss and waste can also benefit farmers, who may be able to convert it into fertilizer to regenerate soil.

Consider the environment. The production of food that is ultimately lost or wasted requires a land area greater than that of China (FAO 2013). Moreover, food loss and waste generates about 8–10 percent of global greenhouse gas emissions annually (IPCC 2020). To put this in perspective, if food loss and waste were a country, it would be the third-largest greenhouse gas emitter on the planet—surpassed only by China and the United States. In fact, reducing food loss and waste by half would avoid 1.5 gigatonnes of carbon dioxide equivalent emissions per year by 2050, an amount greater than the current energy-related and industry-related emissions of Japan (Searchinger et al. 2019). And when food is lost or wasted, the land, water, and fertilizer used to produce that food goes to waste as well. In light of these impacts, reducing food loss and waste can generate a triple win. It can help feed more people. It can increase savings for farmers, businesses, and households. And it can reduce the food system's pressure on the environment and help mitigate climate change.

A historic opportunity

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

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

A road map to assess progress

It has been seven years since the launch of the SDGs. So how much progress has been made in relation to SDG 12.3? Is the world on track, or is the world behind?

In the 2017 edition of this progress report, the authors introduced a "road map" of milestones (grouped into three-year segments) based on Champions 12.3's "Target-Measure-Act" approach (Box 1) (Lipinski et al. 2017). This road map is designed to track global progress by governments and businesses toward achieving SDG 12.3 and provides an assessment on where progress is sufficient or insufficient relative to Target-Measure-Act. We most recently assessed these milestones in the 2022 edition of the report, in which, globally, companies were overall found to be making more progress than national governments (Lipinski 2022). However, our analysis found that the global rate of progress on food loss and waste reduction was currently insufficient to achieve SDG 12.3. The next set of milestones concludes at the end of 2024, so the 2025 progress report will provide a new assessment of global progress toward achieving SDG 12.3 by both companies and countries.

BOX 1. **Why Target-Measure-Act?**

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

- 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 this issue as well. Quantifying food loss and waste within borders, operations, or food supply chains can help decision-makers better understand how much, where, and why food is being lost or wasted. This information is the foundation for developing and prioritizing reduction strategies. In addition, measurement is necessary if entities are to know whether they are on track to meeting 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.

Source: Lipinski et al. 2016.

MAJOR DEVELOPMENTS AND TRENDS SINCE SEPTEMBER 2022

To track progress on SDG 12.3 within the past year, this report profiles four major advancements and trends that represent the diversity of efforts occurring across the food supply chain that are helping to achieve a 50 percent decrease in food loss and waste. While not an exhaustive representation of global action on food loss and waste reduction, these stories highlight the range of activities occurring among governments, companies, and international organizations. The author identified these developments through a literature review and con¬sultation with experts, based on what developments may have the highest potential impact (Box 2).

The four developments profiled in this year's report (in no particular order) are the following:

1. New research has indicated that successful food loss and waste reduction may be offset by rebound effects, although the real-world applicability of the study is not yet clear.
2. In July 2023, the European Commission proposed setting legally binding targets requiring European Union (EU) member states to reduce food waste by 10 percent in processing and manufacturing and by 30 percent (per capita) jointly at retail and consumption (restaurants, food service establishments, and households) by the end of 2030.
3. Several cities globally have introduced initiatives on food loss and waste reduction, primarily relating to composting at the household level.
4. An increasing number of large companies have made significant progress toward achieving SDG 12.3 within their operations, but many more are not reporting publicly on food loss and waste.

Development 1: New research on food loss and waste

In recent years, new research has expanded on previously held conceptions about food loss and waste. For example, a 2021 study from WWF and Tesco found that on-farm and harvest-level losses, which had previously been excluded from global estimates of food loss and waste, represented 1.2 billion tonnes of food (WWF-UK 2021). And the Food Waste Index, developed by UNEP, found that consumer-level food waste was more prevalent across all countries than previously thought (UNEP 2021).

In 2023, a new major study modeled the potential impact of food loss and waste reduction. Using a scenario of "costless" food loss and waste reduction, in which food loss and waste reduction measures were assumed to have no additional economic cost, the authors found that food loss and waste reduction might lead to additional consumption that could erase the majority of the reduction benefits (Hegwood et al. 2023). This additional consumption would result from lower

BOX 2. **Data Sources for This Report**

The author found examples of progress to date through a literature review, expert consultation, and internet searches in the English language. Sources included reports by governments, nongovernmental organizations, and businesses as well as media and journal articles. Data gathered by the Food and Agriculture Organization of the United Nations for the Food Loss Index and by the United Nations Environment Programme (UNEP) for the Food Waste Index were especially valuable for assessing what measurement has taken place to date. The author also gathered examples of progress by requesting information from a group of over 100 associates who support members of Champions 12.3 and Friends of Champions 12.3 coalitions.

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

prices and would represent what is known as a rebound effect, which would also imply similar reductions in the environmental and food security benefits of reducing food loss and waste.

However, as the authors note, food loss and waste reduction is not costless, and when food loss and waste reduction was made more costly within their model, the rebound effects decreased. Additionally, these results assume that food loss and waste reduction will occur without any other changes in production or consumption habits. The report also does not consider what types of food consumers would be more likely to purchase. It assumes consumers would simply purchase *more* food without considering that they might choose to purchase shelf-stable or higher-value products with their additional purchasing power.

Whether these rebound effects appear as a real-world result of food loss and waste reduction is yet to be seen, but the possibility of such effects raises the importance of countries and companies measuring and reporting data on the extent of food loss and waste. Otherwise, such trends may not be apparent.

Development 2: European Commission proposes binding targets for food loss and waste reduction

On July 5, 2023, the European Commission proposed legally binding food waste[1] reduction targets to be achieved by EU member states by 2030. Specifically, these targets would require member states to take the necessary measures to reduce food waste by 30 percent per capita jointly at the retail and consumption levels (i.e., restaurants, food service establishments, and households), and by 10 percent at the processing and manufacturing levels (EC 2023).

Member states would need to achieve each of these targets by 2030 compared with a 2020 baseline. Pursuant to the proposal, progress toward these targets would be assessed by the end of 2027 and possibly adjusted upward if EU member states are able to achieve further reductions.

The Commission's legislative proposal will now be subject to negotiation with the European Parliament and the Council of the European Union in view of its adoption by these two co-legislators.

The Commission's proposed targets represent the first mandatory food waste reduction targets to be put forward by a national or supranational authority, and therefore signify a major first step in international efforts to reduce food loss and waste. The targets are less ambitious than the 50 percent reduction by 2030 that SDG 12.3 puts forth, but the planned 2027 progress assessment does raise the possibility of increasing ambition over time. The proposed targets are higher for the consumption side, which represents the majority of food waste within EU countries (Eurostat 2023), thus addressing the largest sources of food waste in the region.

As part of its work on this proposal, the European Commission convened the first European Citizens' Panel[2] relating to a legislative initiative. The panel focused on food waste, exchanging views with citizens and harnessing their insights on how to step up action to reduce food waste in the EU. As a result, the panel released a document of final recommendations that will support the Commission's work on food waste, including the legislative proposal, and will serve as a guide to help EU member states achieve their future targets once the proposal is formally adopted.

Development 3: More cities take action on food loss and waste

As discussed in our 2022 progress report, very few countries are implementing targets, measuring food loss and waste, or taking systematic action to address the issue (Lipinski 2022). However, this national-level approach does not always capture some of the efforts occurring in some of the world's largest cities, where innovative approaches to food loss and waste reduction are taking place. These initiatives and policies provide examples of how local governments can address food loss and waste within an urban environment.

- In Milan, Italy, the local government has worked with nonprofits and local businesses to develop "Local Food Waste Hubs," which gather surplus food from local food businesses, such as supermarkets, and from company cafeterias. These hubs then make the food available to citizens in need at the local level. Each of these hubs recovers and redistributes between 20,000 and 30,000 meals monthly, and has been estimated to reduce Milan's city-wide food loss and waste by 30 percent (FPM n.d.). These hubs also provide a variety of social services, such as support groups for parents and parents-to-be, meetings with specialist doctors, and classes for both children and adults. One such hub in the Gallaratese neighborhood of Milan was previously an abandoned building, which was renovated to add shelves and a refrigeration room. These hubs therefore reduce food loss and waste while improving social outcomes within a neighborhood.
- In London, England, a program known as the Food Flagship Initiative aims to reduce and redistribute food waste within the city and its boroughs. Currently, about 33 percent of London's food is lost or wasted. To address this, the Food Flagship Initiative has taken a multipronged approach to addressing food waste, with activities such as implementing pilot projects on household food waste reduction, developing a citywide food waste reduction road map, creating food waste recycling plans at the borough level, and establishing food redistribution hubs similar to those in Milan (ReLondon 2023). Food waste reduction is one of three pillars for the initiative; the two others are increasing both the prevalence of healthy and sustainable food and the potential of locally grown food.
- In South Korea, urban areas such as Seoul use radio-frequency identification (RFID) technology to address household food waste. South Korea has a mandatory composting law in which households use a designated bag to collect food waste (Kim 2023). Under these "pay-as-you-throw" laws, households collect food waste in designated bags purchased by consumers, who then dispose of them in compost receptacles. Although those bags had a fixed fee, under the new RFID system, the amount of food waste is weighed and the household is billed according to the weight of the bag. The RFID system covers about 54 percent of Seoul currently, with additional processors being added over time.
- In Cape Town, South Africa, the city government has identified that food waste makes up between 14.5 and 20 percent of all landfill waste, but that the city may run out of landfill space as soon as 2032 (GreenCape 2022). To address this problem, the city has partnered with local startups that work to reduce food waste within landfills. The most promising of these to date are working with the black soldier fly, which converts organic waste into protein that can be used for other products, primarily pet food and animal feed.
- In the United States, several major cities are implementing new policies around food loss and waste prevention and reduction. In August 2023, the city government of Nashville, Tennessee, passed "a resolution supporting municipal leadership on food waste reduction and encouraging a Metropolitan Government and community-wide target of a 50% reduction in food waste from 2017 levels by 2030" (MGN and DC 2023). City governments such as that in Cincinnati, Ohio, have also included food loss and waste reduction in their climate action plans, strengthening the link between food loss and waste and climate change (CC 2023).
- Cities in the United States are also increasingly adopting composting programs, which can be a means of addressing food loss and waste that is otherwise unavoidable. In June 2023, Washington, DC, began a yearlong pilot program for curbside composting for 12,000 residents, and also offered home composting workshops to those residents who were not able to join the pilot (Zero Waste DC 2023). Even more significantly, the New York City Council approved a bill requiring curbside composting for all residents, with the goal of all boroughs being included in compost pickup by October 2024 (DSNY 2023).

Development 4: Company-level action on food loss and waste

As detailed in the 2022 progress report, the private sector as a whole is more advanced in food loss and waste reduction efforts than national governments, especially when it comes to measurement and action. Table 1 shows a sample list of large companies that have achieved significant reductions in food loss and waste to date, compared with their baselines.[3]

TABLE 1. **Company-level reductions in food loss and waste exceeding 10 percent (non-exhaustive)**

COMPANY	% FOOD LOSS AND WASTE REDUCTION ACHIEVED
Ingka Group (IKEA)	54%
Tesco	45%
Kellogg's	42%
Campbell Soup Company	36%
Ahold Delhaize	33%
Grupo Bimbo (Central America)	32%
Mars, Inc.	26%
Unilever	17%
Walmart	12%

Source: Analysis by Champions 12.3.

Although not exhaustive, we profile here some of the more prominent and innovative efforts by companies to reduce food loss and waste since September 2022.

- Danone works internationally with the Global FoodBanking Network and retail partners to reduce waste while strengthening food security, redistributing surplus food to food relief organizations that support vulnerable communities. In Argentina, Danone partnered with Carrefour and Banco de Alimentos, the latter an organization that collects products close to expiration date from Carrefour sites for redistribution to community groups (PremiosEikon 2022). After an initial pilot in two Carrefour sites in the greater Buenos Aires region, redistributing over 2.2 tonnes of products, Danone launched similar programs with two Walmart stores, with the ambition to expand further with other retail partners.
- The United Kingdom–based retailer Tesco reports having achieved a 45 percent reduction in food loss and waste compared with its 2016 baseline year (Tesco 2023). Tesco has also increased the ambition of its food loss and waste reduction targets, now aiming to reduce food loss and waste by 50 percent by 2025, rather than 2030. The company has also achieved an internally set target of redistributing 85 percent of unsold food safe for consumption to either humans or animals.
- Unilever has implemented a "waste warriors" team, an internal group devoted to preventing and reducing food waste within the organization. This team is designed to maximize the outflow of products before expiration, reduce forecast bias for materials being purchased, and help consumers waste less at home. These goals are achieved by sharing data across facilities, adjusting forecasts based on outcomes, changing product designs, and increasing public awareness about food waste. Seventeen countries are now participating, and Unilever reports that no edible food has been wasted within the past two years (Keljzer 2023).
- In 2022, the UK's Waste and Resources Action Programme (WRAP) published research into the relationship between plastic packaging and food waste, as well as the impact of date labels and storage temperatures, revealing significant opportunities to reduce food waste. For uncut fresh fruit and vegetables, one of the key recommendations was to remove "best before" dates unless it was shown that the date reduced overall household food waste. In the year that followed the publication of this research, all major United Kingdom supermarket retailers using best before dates on fresh produce announced their removal from thousands of products (WRAP 2022).
- Several public-private partnerships and industry-wide initiatives are bringing together companies to address food loss and waste in a precompetitive approach. Within the last year, the Pacific Coast Food Waste Commitment—a partnership among Cascadia, ReFED, WRAP, and WWF that includes participants on the West Coast of the United States and Canada—added six companies and increased the number of its participants reporting food loss and waste data publicly (PCFWC 2023). GRASP 2030, a group of 23 signatories within Indonesia committed to food loss and waste reduction organized by the Indonesia Business Council for Sustainable Development, launched the Consumindful Initiative to promote public awareness on food loss and waste reduction (GRASP 2030 2023).

- In India, the Integrated Cold Chain and Value Addition Infrastructure program put forth by the Ministry of Food Processing Industries is bringing together the government, private businesses, and smallholder farmers to develop mobile cooling and processing facilities to reduce food loss and waste early in the food supply chain (MFPI n.d.). And in Mexico, Pacto por la Comida has joined with companies and food banking nonprofits, helping Mexico's largest food bank, Bancos de Alimentos de México, redistribute 149,000 tonnes of food in 2022 (BAMX 2023).

CONCLUSIONS

Only seven years remain to achieve the SDGs, and as detailed in the 2022 progress report, global action is currently insufficient to halve food loss and waste. The advancements profiled in this report show that while success stories are out there, they are far from being systematically implemented by governments and businesses. As some of these efforts show, reductions in food loss and waste can happen relatively rapidly once a concerted effort is made. But every participant in the food supply chain has a role to play, whether it be at the farm level, the manufacturing plant, the produce market, the food service counter, or the household. And with the 28th United Nations Climate Change Conference (COP28) approaching in Dubai in November, there remains an opportunity to strengthen the connection between food loss and waste reduction and greenhouse gas reduction. The opportunities to tackle this issue are available, but only by working across the entire food system can this ambitious target be achieved.

ENDNOTES

1 In the EU, all food that is discarded as waste is considered to be food waste across all stages of the food supply chain, including post-harvest losses.

2 More information about the panel, including the final set of recommendations, can be found here: https://citizens.ec.europa.eu/food-waste-panel_en.

3 Because companies have begun addressing food loss and waste at different points in time, it is common for companies to identify their own base year for food loss and waste reduction efforts. Thus, there is no consistent "starting point" for the companies highlighted here.

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