

Briefing Note

Product loss and resource efficiency: challenges and trends of quantifying food loss and waste

Purpose of this briefing note

Understanding the concept of food loss and waste (FLW) is straightforward: FLW is food that is not consumed. However, complexities come into play when trying to quantify, monitor and evaluate progress related

to the current state of food loss and waste both within individual companies at different points in the value-chain as well as globally. This short briefing note has been prepared to clarify the areas of convergence as well as those

ongoing uncertainties and challenges. It serves as a first and necessary step to foster better alignment across the value-chain and guide impactful individual and collective action.

Aligning accounting and definitions: understanding the urgency and challenges

The distinction between food loss and food waste is not critical in most cases, though there does appear to be general consensus forming. While some thought leaders in the space have chosen to only define FLW together (such as the European Union, FLW Protocol and Champions 12.3), in general it is increasingly understood that food loss encompasses production and processing, while food waste includes the retail and consumption stages of the food value chain.

Many agree that a widely accepted set of definitions would be beneficial.¹ For various reasons agreeing on a common definition that can be meaningfully applied to a range of contexts has proven to be challenging because:

1. Food can be lost or wasted across all stages of the food supply chain making it hard to identify hotspots.
2. Uneaten food may have other useful destinations and includes inedible parts.
3. Regulators have taken different approaches to reflecting these variables resulting in a fragmented global operating environment.
4. Companies have a range of goals in tackling FLW which introduce variances in how it is defined.

[As noted in the Food Loss and Waste Accounting and Reporting Standard:](#) 'The choice of goals for FLW reduction and quantification will influence the scope of an FLW inventory. For example, an entity with a goal of reducing the amount of food that exits the supply chain for the sake of enhancing food security will want its inventory to focus on food alone, whereas an entity with a goal of reducing organic material going to landfills for environmental or economic reasons will want its inventory to cover both food and associated inedible parts. An entity may also consider the existing legal definitions in the

jurisdiction in which it operates. For example, in the current regulatory framework, the European Commission understands "food waste" to include both food and its inedible parts as material types.' Additionally, organizations such as the [United States Department of Agriculture \(USDA\)](#) specifically highlight the exclusion of preharvest foods from being considered as food loss, while others are less specific. Given the existing differences among studies and organizations, it is important to define the scope of any measurement taking place.



APPROACHES TO QUANTIFICATION

Edibility

The [FLW Protocol's FLW Standard](#) notes when accounting for and reporting on the amount of food loss and waste that the user must describe whether only food (i.e., that which was intended for human consumption) was included or both food and its associated inedible parts (e.g., bones, pits/stones, rinds). The 2019 [Reducing Food Loss and Waste: Setting a Global Action Agenda](#) paper highlights the value of including inedible parts, even though the data from some organizations that are focused on food availability, such as the USDA, do not. There is inherent subjectivity in defining what is 'inedible'; for example, [chicken feet](#), [eggshells](#), [banana peels](#) and even (ground) bones are consumed widely in some countries and cultures but not in others. In some instances, these 'inedible parts' of food are fed to animals or are made into non-food products and many questions arise in trying to quantify food loss and waste related to edibility.

Destination

With the final destination of lost or wasted foods often left out of FLW definitions, this could arguably also change what might be defined as loss and waste. The [FLW Standard](#) highlights ten different 'final' destinations for FLW, such as animal feed, bio-based materials/biochemical processing, co-digestion/anaerobic digestion, composting/aerobic processes, controlled combustion, land application, land fill, not harvested/plowed in, refuse/discards/litter and sewer/wastewater treatment. Each of these locations may differentiate what should be categorized as a loss or waste and what should not be. When trying to measure FLW, accurate quantification becomes increasingly difficult without evaluating the destination of the food items.

Quality

[Reducing Food Loss and Waste: Setting a Global Action Agenda](#) also comments on the distinction between quantitative and qualitative assessments of food loss and waste. Most current evaluations consider food quantity units of mass and this is the required unit to use to report in conformance with the FLW Standard. However, assessments of food quality (e.g. such as nutritional or economic value, water content and usage, as well as environmental impacts), can also be meaningful and should not be excluded from the information that is reported (see [Appendix D of the FLW Standard](#) for guidance; the [FLW Value Calculator](#) can be used to gain some of these insights). Choosing how to express the weight of FLW in other terms or units of measurement prior to conducting a study or policy initiative is important to best support the intended outcome and show the connection between reducing FLW and achieving the related benefits.

VARIED REGULATORY APPROACHES

Properly defining and quantifying food loss and waste is important from a regulatory perspective since what one is trying to enforce benefits greatly from having a concrete definition. Examples of such policies are:

- [Food Donation Tax Incentives](#): tax credits or deductions received directly proportional to amounts of food that are donated to organizations meant to supply those in need, e.g. in the United States as a part of the 2015 Protecting Americans from Tax Hikes Act.
- [Pay by Waste programs](#): systems implemented where waste is disincentivized by placing a price on the disposal of the items by the amount wasted, such as smart bins in Seoul, South Korea equipped with scales and Radio Frequency Identification that charges residents using an ID card.
- [Grocery Store Food Waste Bans](#): generation of fines or other legal repercussions proportional to the food items that are disposed of from grocery stores, including a 2016 law introduced in France that fines retailers who throw away any unsold food.
- [Funding Food Recovery Infrastructure](#): creating formal government positions related to and allocating funding towards FLW efforts as well as developing networks to enable to further reduction of food being sent to the landfill (including but not limited to curbside food waste pick up, composting programs, increased knowledge of alternative disposal methods etc.). Initiatives of this kind were included in the 2018 Farm Bill in the US.

Moving towards alignment

When tracking progress towards reducing the amount of FLW, many entities are choosing to follow the interpretation of Sustainable Development Goal (SDG) Target 12.3 published by Champions 12.3 in [Guidance on Interpreting Sustainable Development Goal Target 12.3](#).

This report is generally considered best practice for how governments and companies should interpret SDG Target 12.3. The definition considers FLW to be food (and its associated inedible parts) that is intended for human consumption but that leaves the food supply chain somewhere between being ready for harvest/

slaughter and being consumed. As in [FAO \(2011\)](#), alignment is growing that the losses² occurring during the process of harvest/slaughtering should be included but those that occur pre-harvest should not. This sentiment is supported by the [difficulty in empirically measuring](#). (USDA, WRI)

Key messages

Pre-competitive collaborative action has a key role to play in enabling sharing on practical challenges for a range of contexts and over time building alignment and capacity to tackle FLW at scale.

In summary this note highlights the:



¹ Including for example, the [European Court of Auditors on behalf of the E.U.](#)

² This definition is in line with the recommendations of the FLW Standard. Counting losses from the point of harvest/slaughter is also used by other researchers. The database APHLIS also includes losses that occur during harvesting.

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