

Food Losses and Waste & Post-Harvest Losses - Definitions

Background

While 805 million people were suffering from chronic hunger in 2012-14, the FAO estimates a loss or waste of 32 percent of the globally produced food, representing 1.3 billion tons per year. Converted to calories, as it was done by the World Resources Institute, 24 percent or *'one out of four food calories intended for people is not ultimately consumed by them'*.

Definitions

Losses and waste occur throughout the supply chain. However, no agreement regarding consistent definitions for the terms of *Food Losses*, *Food Waste* and *Post-Harvest Losses* exist. First of all, approaches can either be waste-focused (non-food and non-edible parts are included) or food-focused (only food and edible parts of food are included). The latter one is applied in the following explanations on food losses and food waste. Furthermore, losses or waste can be both quantitative and qualitative.

// Food Losses and Food Waste

As described in the 2014 report *'Food losses and waste in the context of sustainable food systems'* of the *High Level Panel of Experts on Food Security and Nutrition* (HLPE), different approaches for *Food Loss* (FL) and *Food Waste* (FW) can be described as follows: While *Food Loss and Waste* (FLW) refers to all stages of the supply chain *'from harvest to consumption'*, FL alone and FW alone can be distinguished, based on

- the stage of the value chain at which the loss or waste happens physically
- the cause of loss or waste, whether its cause is "behavioural" (waste) or not (loss); "voluntary" (waste) or not (loss); the result of an explicit choice (waste) or not (loss)

Additionally, *Food Waste* or *Food Wastage* is often used as a generic term for FLW. Therefore the limitation exist since *'waste'* can be accounted as *'losses'* in other approaches.

A commonly applied definition was set by the FAO in the publication *'Global Food Losses and Food Waste'*, where a food-focused approach classifies losses during the production, post-harvest and processing stages as FL and titles losses at the end of the food chain during retail and consumption as FW. Amongst many others, the above mentioned HLPE report adopts this approach and defines FLW, FL, and FW as follows:

Food loss and waste (FLW) refers to a decrease, at all stages of the food chain from harvest to consumption in mass, of food that was originally intended for human consumption, regardless of the cause.

Food losses (FL) refers to a decrease, at all stages of the food chain prior to the consumer level, in mass, of food that was originally intended for human consumption, regardless of the cause.

Food waste (FW) refers to food appropriate for human consumption being discarded or left to spoil at consumer level – regardless of the cause.

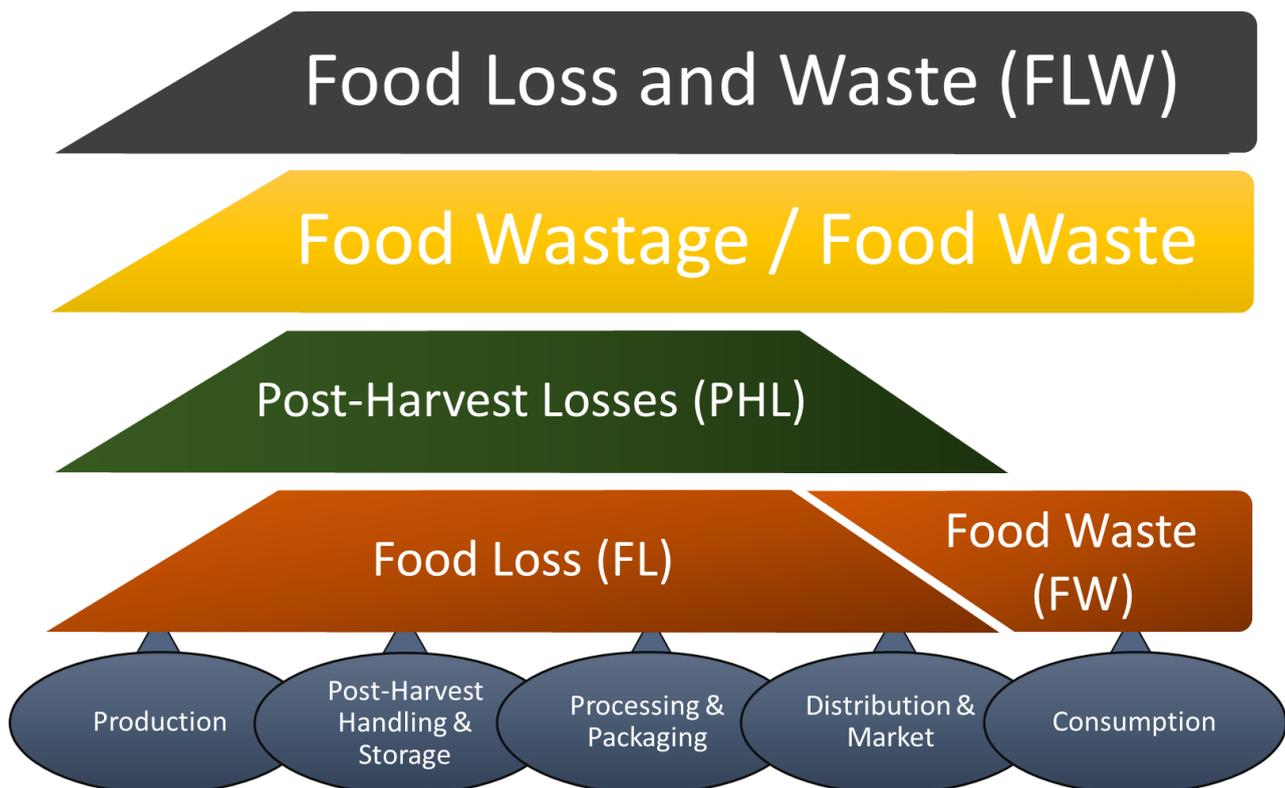
Unlike the original FAO report, the HLPE approach does not count edible commodities, planned for non-human food uses (feed, bioenergy etc.), as FLW.

// Post-Harvest Losses

Similar to FLW, definitions of the term *Post-Harvest Losses* (PHL) vary widely: Commonly, the post-harvest system combines all activities from the time a crop is harvestable until it reaches the consumer¹. PHL can therefore be described as the loss or waste happening during the various stages of this system. However, while some definitions nearly reach this description, others do not. Whereas the '*loss all along the food production chain, from harvest and handling, to storage and processing, to packing and transportation*' (U.S. Department of State) and up to storage at the market level (APHLIS) and during commercialization² is reflected, the FAO introduces '*Post-Harvest Handling and Storage*' as one step of the value chain between the activities of harvesting and processing, where losses such as spillage, degradation or death (for animal commodities) occur.

Most commonly, PHL are treated as synonym for FL (as defined above).

The following graph shows the interconnected stages of the food chain between *Production* and *Consumption*, and to which extend each stage is covered by the so far described definitions:



¹ Spurgeon, David. 1976: Hidden Harvest – A systems approach to postharvest technology. IDRC. Ottawa.

² Affognon H.; Mutungi C.; Sanginga P.; Borgemeister C. 2014: Unpacking Postharvest Losses in Sub-Saharan Africa: A Meta-Analysis

// Inconsistencies and Hot Spots of different approaches

Not only inconsistencies and critical hot spots among the definitions of different organisations or authors exist, but also within the approaches, often in form of inaccuracies. Some examples are as follows:

Pre-Harvest Conditions and Activities

- *'Global Food Losses and Food Waste'* (FAO): Even though the report mentions that losses are influenced by crop production choices on the field, pre-harvest activities are not included and a homogeneous definition for activities belonging to this stage of production is not applied. While losses of vegetable commodities at the stage of *'Agricultural Production'* only include losses during harvest operations or sorting, losses of animal commodities at this stage include animal death during breeding or decreased outputs due to sickness.
- A study by GIZ on PHL in Nigeria³ adopts FAO's approach, but extends the definition of *'Agricultural Production'* by additionally including the pre-harvest-activities *land preparation, planting, weeding and farm maintenance*. A further report⁴ recognises that *'farmer practices engender heavy losses'* and therefore the stage of *'Agricultural Production'* is replaced with the stages *'Pre-Harvest'* and *'Harvest'*.
- *'Food losses and waste in the context of sustainable food systems'* (HLPE): the report emphasizes that pre-harvest conditions and activities can lead to losses at later stages and therefore *'can be important'*. However, while FL are defined as *'decrease, at all stages of the food chain prior to the consumer level, in mass, of food that was originally intended for human consumption, regardless of the cause'* and therefore space for including pre-harvest activities, clearly one part of the food chain, is left, the report simultaneously states that pre-harvest factors *'are not included in the scope of FLW'*.

Post-Harvest Handling and Post-Harvest Losses

- The exact scope of FAO's *'Post-Harvest Handling and Storage'* stays unclear, since PHL are simultaneously treated as synonym for FL and therefore go beyond the activities of the stage of *'Post-Harvest Handling'*.

Non-Edible Commodities and Non-Food Uses

- Since most approaches are food-based, loss or waste in non-edible commodities (e.g. cotton) is not addressed, even though food security is still compromised, e.g. by the futile land footprint or lower income. By contrast, PHL does not necessarily implies edible commodities.
- On the one hand, alternative non-food uses of edible commodities (e.g. maize as bioenergy crop, feed, seeds etc.) do not meet the FAO's definition of *'edible products going to human consumption'* and are therefore considered as losses. On the other hand, the mentioned HLPE report adopts FAO's approach, but does not count edible commodities, planned for non-human food uses, as FLW.

Quantitative and Qualitative Losses and Waste

- Losses or waste can be both quantitative and qualitative. Due to the difficulty of establishing and communicating qualitative measurements, most approaches only refer to quantitative losses and waste. Thereby relevant issues fall through the cracks, such as the loss of nutritional value or contamination. For instance commodities contaminated with aflatoxin are frequently still consumed and therefore do not count as FLW by definition. However, the consumption can result in massive economic losses.

³ GIZ 2013. The Ecological Footprint of Cassava and Maize Post-Harvest Losses in Nigeria – A Life Cycle Assessment.

⁴ GIZ 2014. Post-harvest losses in potato value chains in Kenya - Analysis and recommendations for reduction strategies

// Conclusion

Concluded, different definitions for FLW and PHL exist. However, neither PHL nor FLW cover the whole extent of the food supply chain. While the definitions for FLW deal with all stages where PHL occur and further recognise the waste at the stage of consumption, both approaches do not consider the losses occurring before harvesting, even though pre-harvest activities are recognised and stressed as factor, which determines losses significantly, directly and indirectly. Moreover, the approaches of excluding non-edible commodities, counting alternative uses of edible commodities as losses, as well as qualitative FLW, should be revisited.

This discussionNote has been compiled for the members of the Global Donor Platform for Rural Development



Contact

Secretariat of the Global Donor Platform for Rural Development
Godesberger Allee 119, 53175 Bonn, Germany
+4922824934165
secretariat@donorplatform.org
donorplatform.org