12 RESPONSIBLE CONSUMPTION AND PRODUCTION

# Monitoring SDG 12.3
## Measuring progress

**APEC HLPD on Food Losses and Waste**

Taipei, 15 June 2018

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Food and Agriculture Organization of the United Nations

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# Outline



- Overview
  - Governance, institutional architecture
  - Current Status and Goals
- Global Food Loss Index
  - Main Principles and Methodology
  - Next steps for the up-grade
- Food Waste Index specifics
  - Suggested equation
  - Initial thoughts on methodology

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# Governance and Institutional architecture

*"By 2030 halve per capita global food waste at the retail and consumer level, and reduce food losses along production and supply chains including post-harvest losses"*

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**APEC HLPD on FLW – 15th June 2018**

# Governance and Institutional architecture



Food Loss Index

Focuses on the *supply* side of the market and decreasing losses in the supply chain

"By 2030, …

12.3

12.3.1 Food Loss

"…reduce food losses along production and supply chains, including post-harvest losses."

Waste Index

Focuses on retail and consumer sectors and improving the efficiency on the *demand* side of the supply chain

12.3.2 Food Waste

"…halve per capita global food waste at the retail and consumer levels."

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# Current Status and Goal

- Goal : Upgrade SDG 12.3 indicators to Tier II
  - **By November 2018**: Joint proposal for a Food Loss Index and Food Waste Index at next Inter-Agency Expert Group meeting on SDG's
- Current Status is Tier III
  - Global Food Loss Index: request for more pilot tests by the IAEG-SDG
  - Food Waste Index: not available yet

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# Food Loss Index

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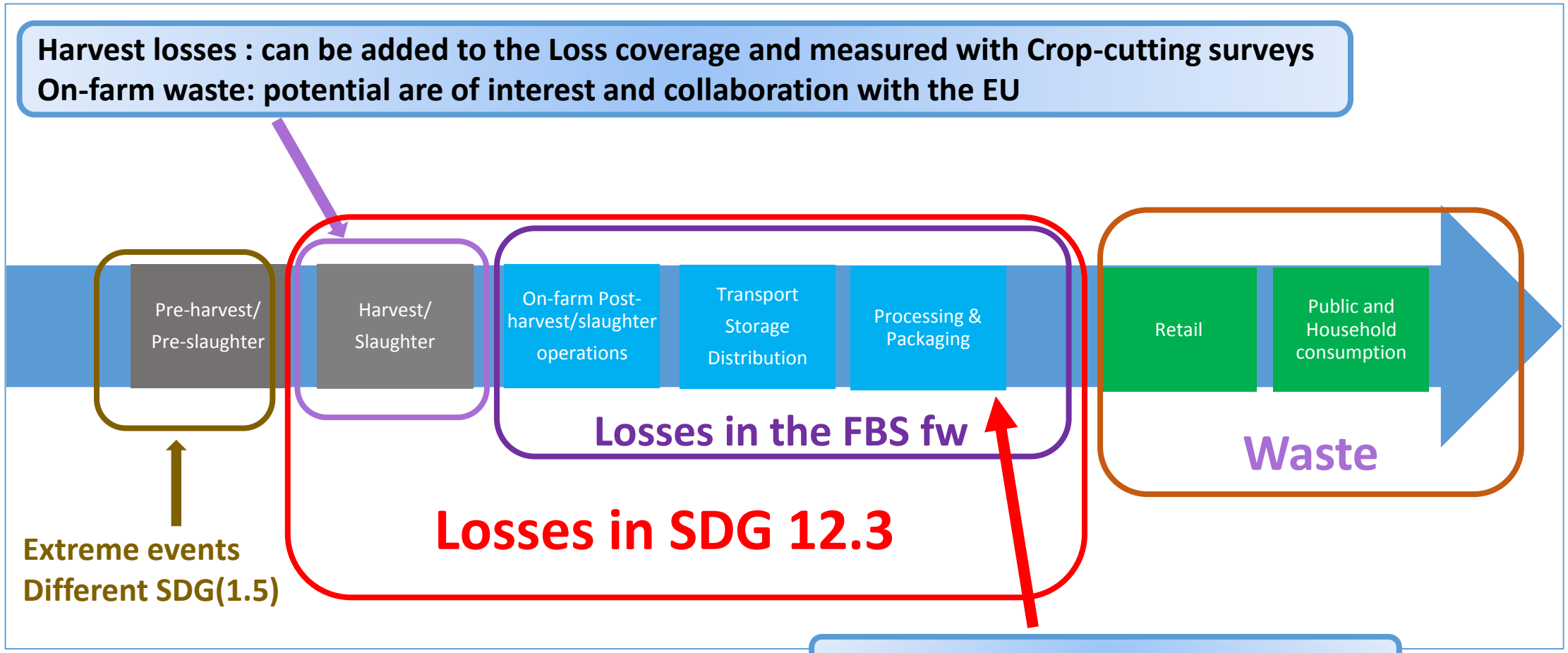
# Boundaries between the FLI and the FWI



# Definitions: Food Losses

- FAO AGRICULTURAL STATISTICS

- **Food losses** Crop and livestock product losses cover all quantity losses along the supply chain for all utilizations (food, feed, seed, industrial, other), up to the retail/consumption level. Losses of the commodity as a whole (including edible and non-edible parts) and losses, direct or indirect, that occur during storage, transportation and processing, also of relevant imported quantities, are therefore all included.

- 2016 DEFINITIONAL FRAMEWORK

- **Food loss and waste (FLW):** The decrease in quantity or quality of food.
- **Food losses** in the production to distribution segments of the FSC is mainly caused by the functioning of the food production and supply system or its institutional and legal framework.

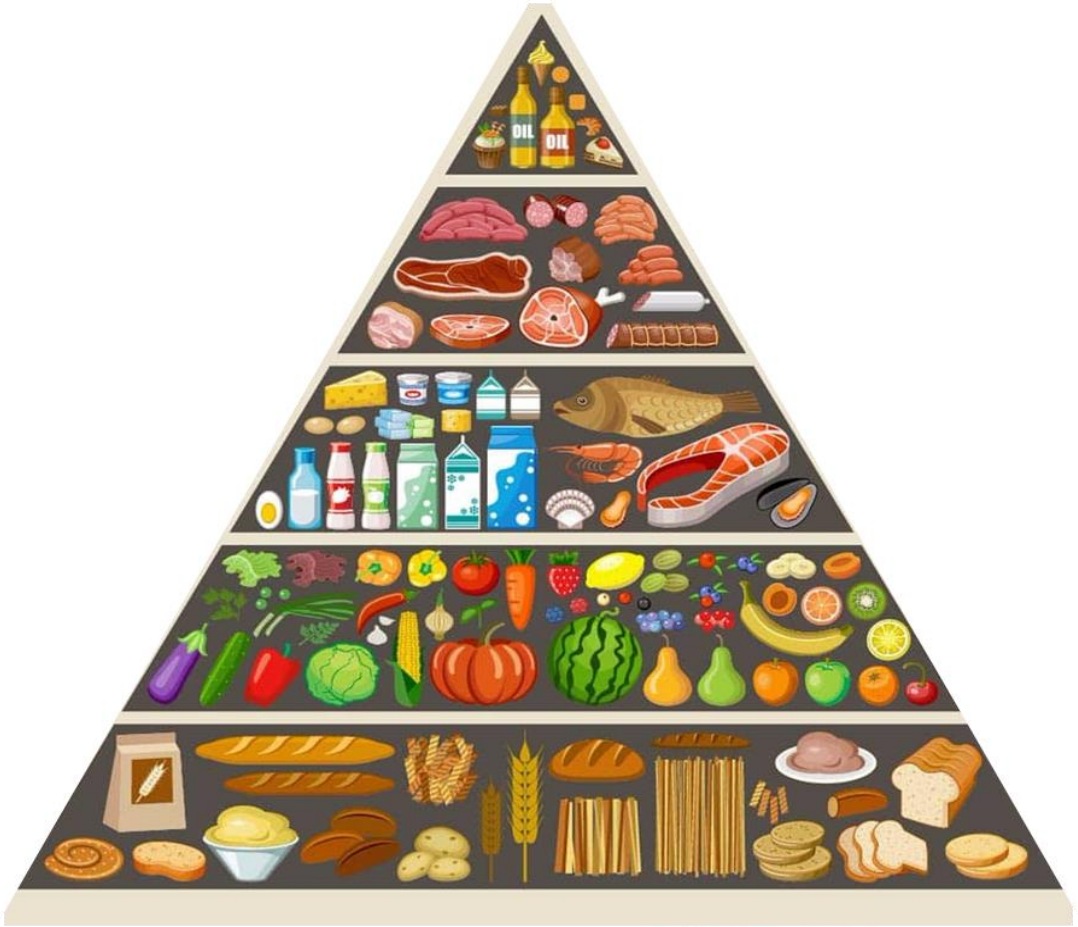
Definitions differ for qualitative losses, non-edible parts, value chain boundaries – treatment of pre-harvest and harvest losses

# FLI - Main principles and methodology



1. Focuses on 10 key commodities in 5 main groups
2. Measures Food Loss Percentages (FLP) and not on total losses
3. Monitors changes in the Food Loss Percentage over time
4. Based on nationally representative loss percentages along the supply chain

# FLI – Top 10 commodities within 5 Groups



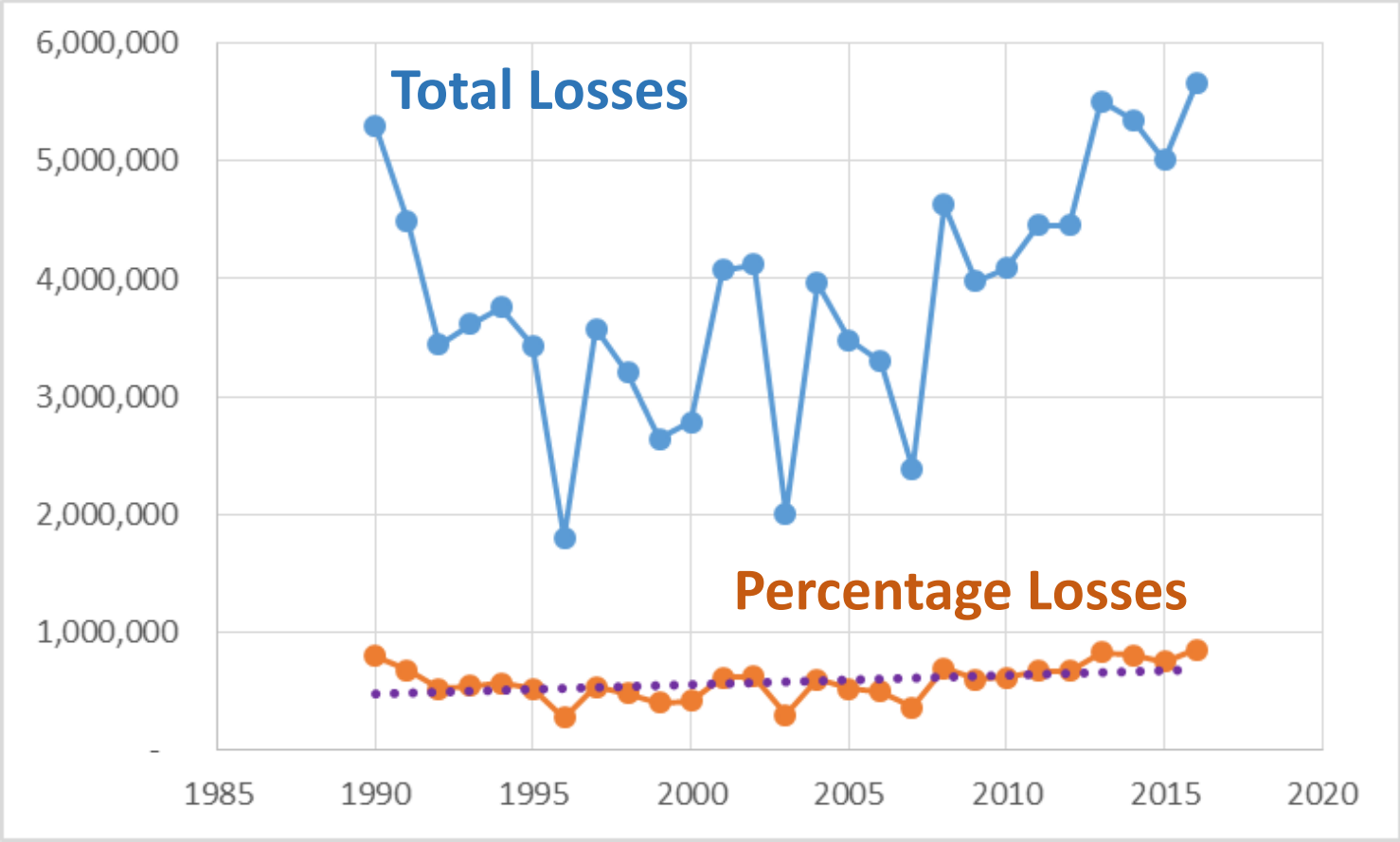

To ensure relevance for countries and some degree of comparability at international level

- Loss statistics cannot cover the entire basket
- Trade-off between relevance at country level and comparability across countries : the same commodities are not relevant for all countries

The five groups are representative of a diversified diet

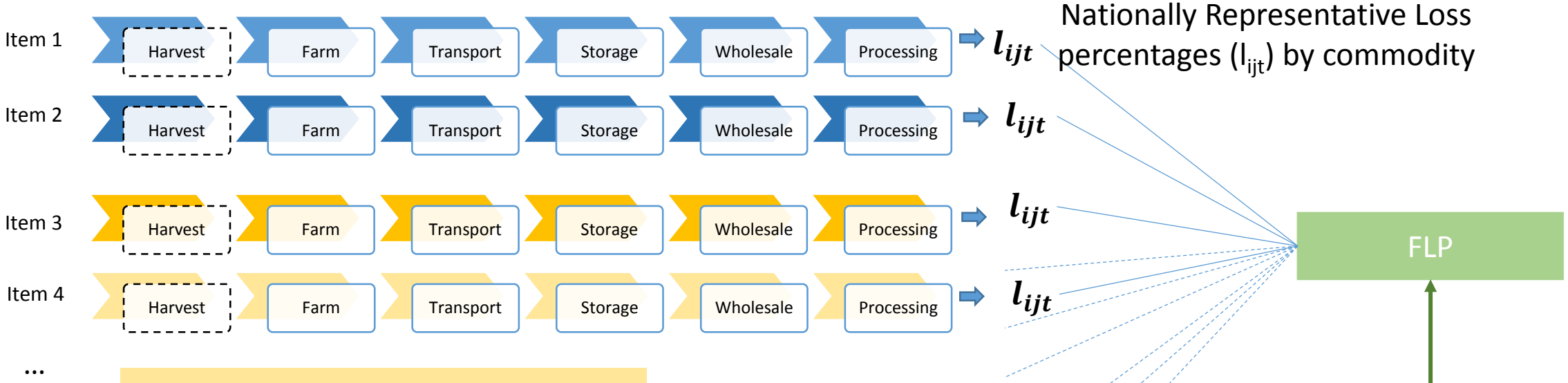
# FLI – Uses percentages to track structural losses






**A Food Loss Percentage (FLP) can be interpreted as the percentage of production that does not reach the retail stage**

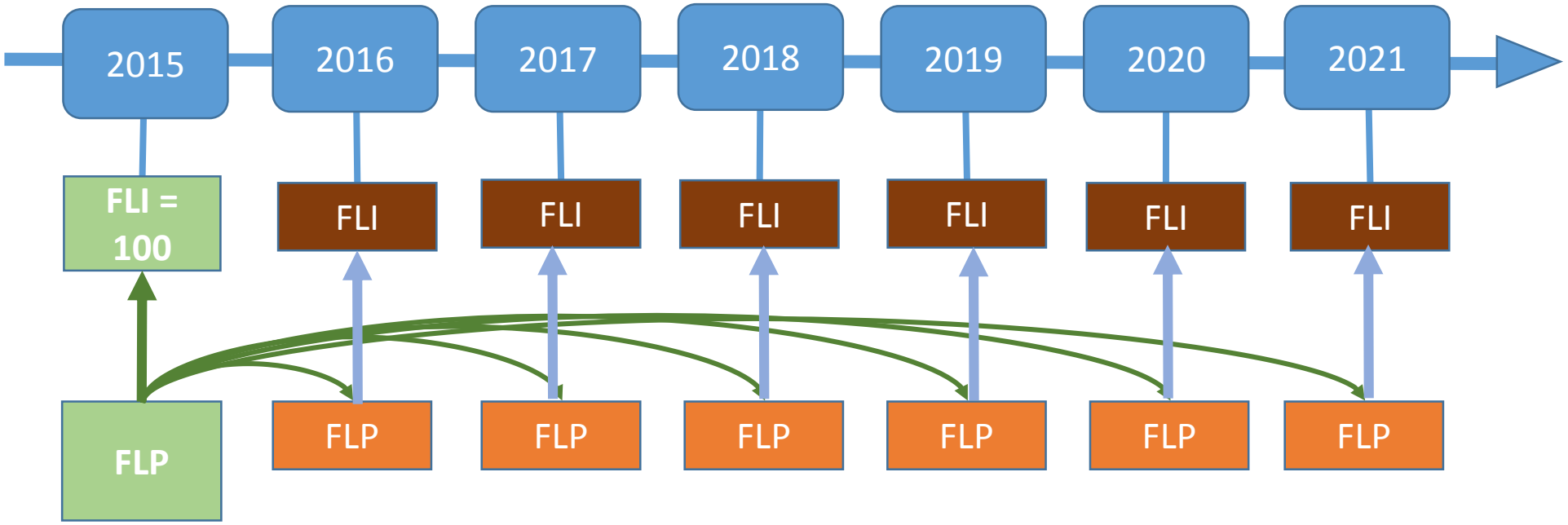
# FLI - Underlying data: compiling the Food Loss Percentage, by commodity, for one country



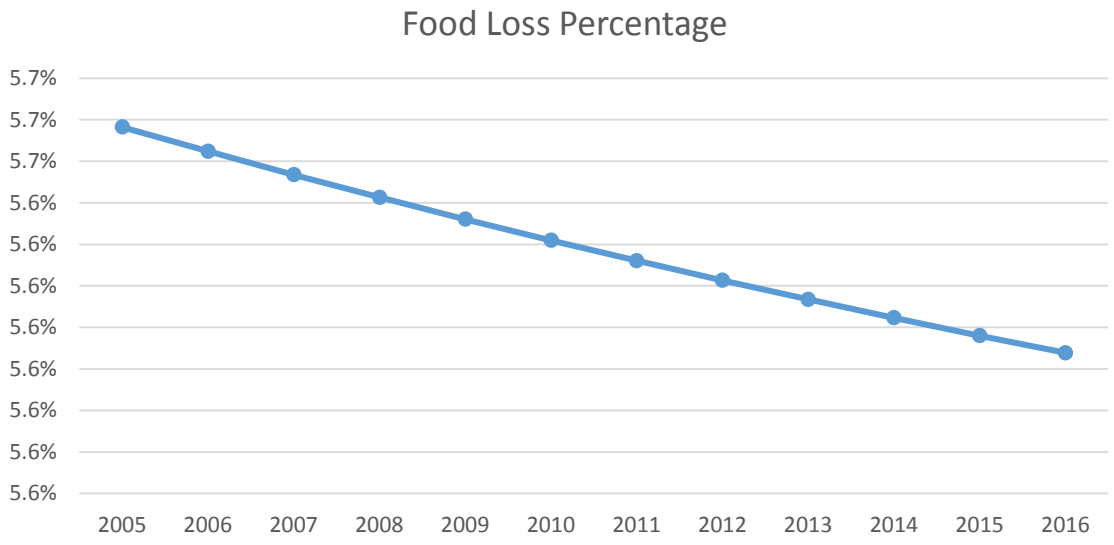

Each commodity's supply chain can be disaggregated down to stage. Estimates for the different stages can come from various instruments and tools.

# FLI - Underlying data: compiling the Food Loss Index

$$Food\ Loss\ Index\ (year\ t) = \frac{Food\ Loss\ Percentage_i (year\ t)}{Food\ Loss\ Percentage_i\ \ (Baseline\ year)} * 100$$



# FLI - Monitoring trends





| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLP | **5.7%** | 5.7% | 5.6% | 5.6% | 5.6% | 5.6% | 5.6% | 5.6% | 5.6% | 5.6% | 5.6% | 5.6% |
| FLI | **100.0** | 99.9 | 99.8 | 99.7 | 99.6 | 99.5 | 99.4 | 99.3 | 99.3 | 99.2 | 99.1 | 99.0 |

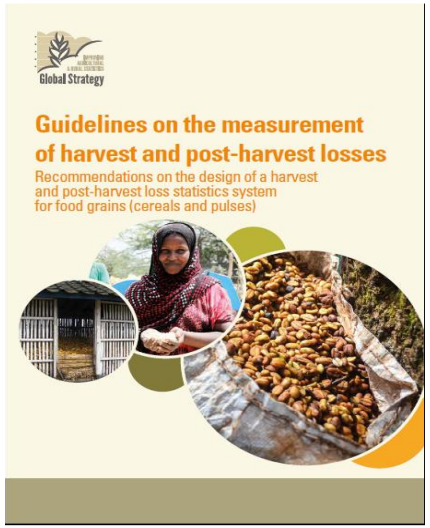
# Data collection methods: Guidelines on the measurement of losses



- Range of surveys and sample-based statistical tools
- To obtain nationally representative loss estimates
- Grounded in the National Statistics Systems
- Drawn from 40 years of methodological literature and field practice

## Grains

Published and tested




## Fruits and Vegetables, Milk and Meat, Fish and products

# Training material - eLearning



## Training course on postharvest losses surveys for grains

Menu

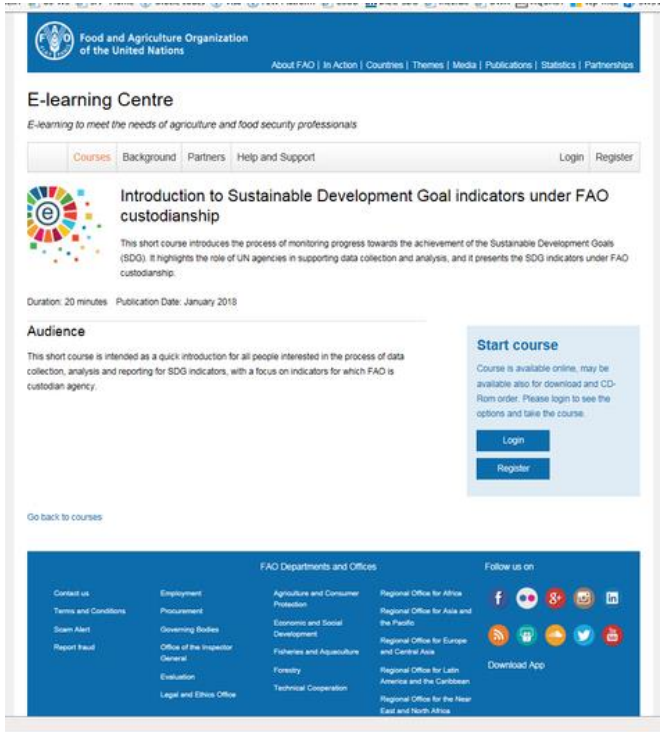
(http://gsars.org/en)

Global Strategy
IMPROVING AGRICULTURAL & RURAL STATISTICS

Training Course on Post-Harvest Losses – English

This material for in-classroom training on the measurement of harvest and post-harvest losses for food grain targets decision makers, survey managers, questionnaire designers, trainers of field staff and data analysts interested or involved in the measurement of food losses.

## Training course on SDG 12.3.1 Global Food Loss Index: in progress

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**APEC HLPD on Food Losses & Waste – 15th June 2018**

# Next steps



1. Further improvements on the methodological proposal
   - Webinar in June
   - Online consultation June-August
   - Improve on on-farm losses to include on-farm waste (EU)
2. Pilot testing the Guidelines on Fruits and Vegetables, Milk and Meat, Fish and products
3. Pilot testing the Food Loss Index:
   - India, USA, Turkey
4. Revised submission to the IAEG-SDG by November 2018

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# Food Waste Index

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# Timescales and Approach



- Project to develop Food Waste Index methodology started in January 2018
- Involves UN-Environment, UN-FAO, World Resources Institute (WRI), WRAP, WUR
- Builds on existing methodologies e.g. Food Loss and Waste Standard, FUSIONS manual
- This is the first pilot
- Aiming to present piloted approach to Inter-Agency Expert Group on SDGs (IAEG-SDG) November 2018

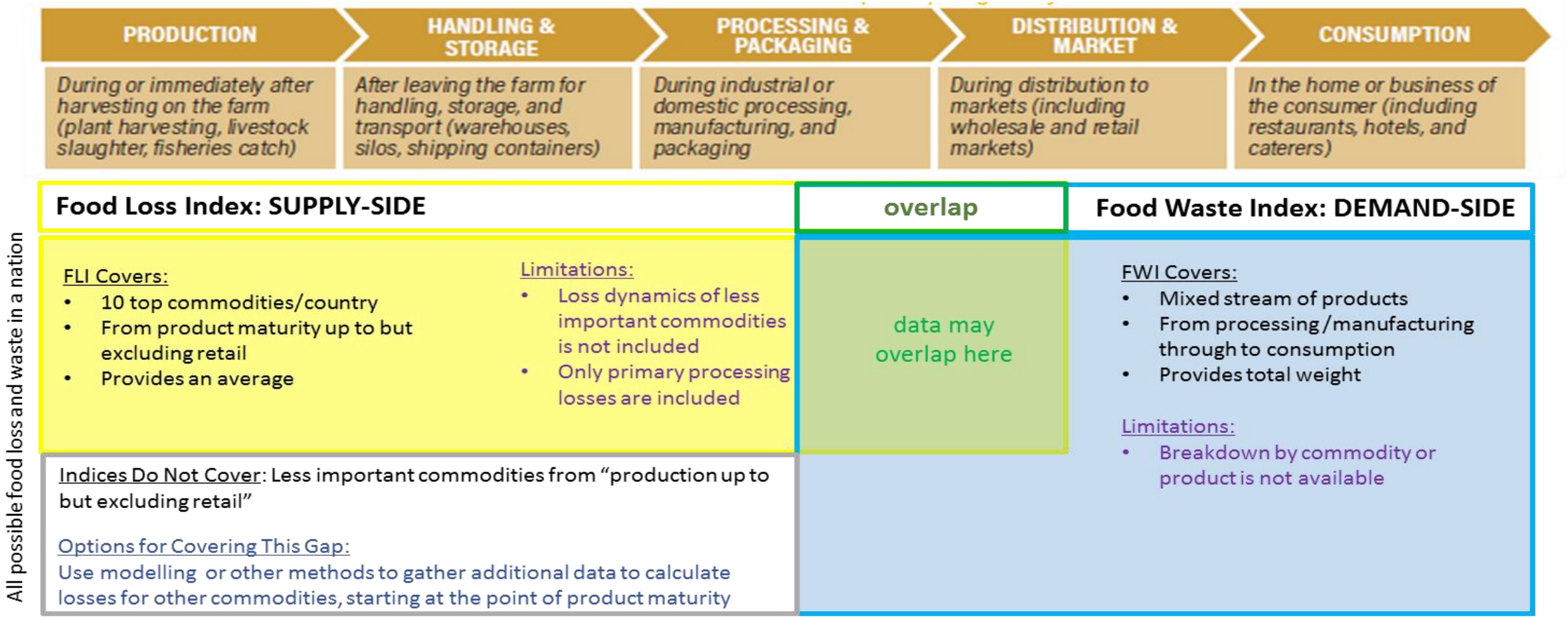
# Overlap with other SDG indicators

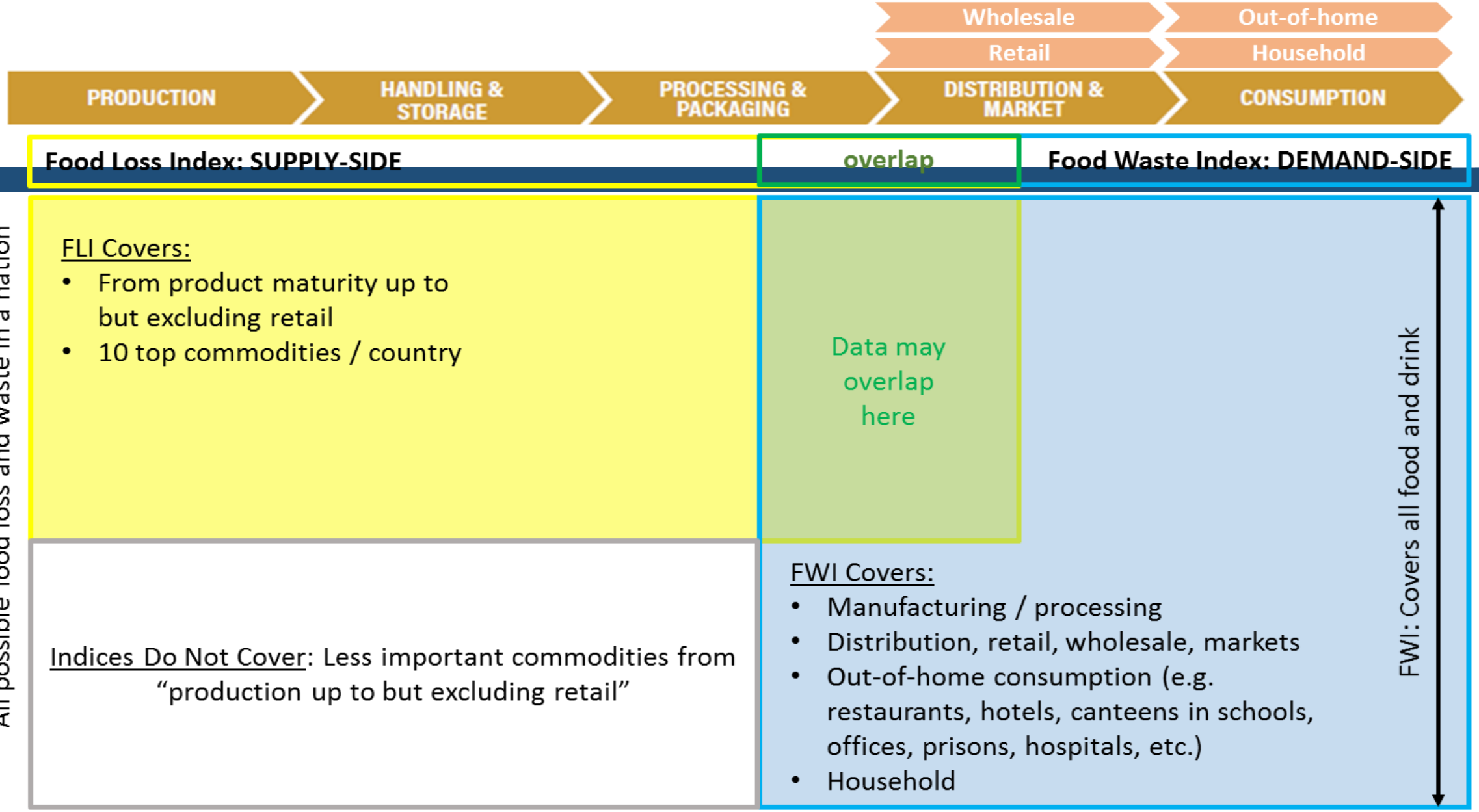


- Following two indicators both cover waste
- Opportunities to collect related data for multiple indicators
  - 11.6.1: Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities (Tier II, UN-Habitat, UNSD)
  - 12.5.1 National recycling rate, tons of material recycled (Tier III, UNSD, UN Environment)

# Boundaries and aggregation






Wholesale
Out-of-home
Retail
Household
PRODUCTION
HANDLING & STORAGE
PROCESSING & PACKAGING
DISTRIBUTION & MARKET
CONSUMPTION
Food Loss Index: SUPPLY-SIDE
overlap
Food Waste Index: DEMAND-SIDE
All possible food loss and waste in a nation
FLI Covers:
• From product maturity up to but excluding retail
• 10 top commodities / country
Data may overlap here
Indices Do Not Cover: Less important commodities from "production up to but excluding retail"
FWI Covers:
• Manufacturing / processing
• Distribution, retail, wholesale, markets
• Out-of-home consumption (e.g. restaurants, hotels, canteens in schools, offices, prisons, hospitals, etc.)
• Household
FWI: Covers all food and drink

# Food Waste Index – Equations



The FW Index tracks progress as kg / capita / year.

$$\text{Food waste per capita} = \frac{\text{Total food waste}}{\text{Population}}$$

Where total food waste is the sum of that in the four sectors:

$$\text{Total food waste} = \text{FW}_{\text{Household}} + \text{FW}_{\text{Out of home consumption}} + \text{FW}_{\text{Retail}} + \text{FW}_{\text{Manufacture}}$$

The **Food Waste Index** compares food waste per capita in year t with a baseline year:

$$Food\ Waste\ Index = \frac{Food\ waste\ per\ capita\ in\ year\ \text{t}}{Food\ waste\ per\ capita\ in\ base\ year} \times 100$$

# Example based on hypothetical country



| Year | Weight of FW (tonnes) | Country population | FW (kg per person) | *Comparison with base year* | FW INDEX |
|---|---|---|---|---|---|
| 2018 | 360,000 | 3,000,000 | 120 | 1 | 100 |
| 2020 | 324,000 | 3,200,000 | 101 | 0.84 | 84 |
| 2022 | 291,600 | 3,400,000 | 86 | 0.71 | 71 |
| 2025 | 262,440 | 3,700,000 | 71 | 0.59 | 59 |
| 2030 | 254,000 | 4,200,000 | 60 | 0.50 | 50 |

# Steps for FW quantification



| Review existing data | Develop quantification plan | Quantify FW | Report FW |
|---|---|---|---|
| • **Purpose**: Understand what data already exists | • **Purpose:** create a quantification plan for FW Index for baseline and subsequent years<br>• **Can use existing data or undertake new measurement** | • **Purpose**: to quantify food waste in relevant sectors<br>• To analyze above information to obtain information for FW Index | • **Purpose**: to report FW data and metadata to allow the FW Index to be created |

# Quantification plan – household example



| Review existing data | Develop quantification plan |
|---|---|
| Find out what data is collected on waste coming from households: e.g.<br>▪ Municipal waste statistics?<br>▪ Waste compositional studies?<br>▪ Diaries or surveys?<br>Determine accuracy and likely biases in existing estimates<br>Determine coverage of waste streams, destinations, 'informal' sector | Determine if existing estimates can be used for the baseline:<br>▪ Degree of accuracy?<br>▪ Coverage of waste streams?<br>▪ Replicable for future years?<br><br>If further measurement required, consider:<br>▪ Where to intercept waste to accurately quantify (at entrance to waste treatment / disposal facility or at kerbside?)<br>▪ Sampling design, including geography, time frame, seasonality<br>▪ Measurement methods |

# Quantification plan – retail, wholesale, markets



| Review existing data | Develop quantification plan |
| --- | --- |
| Find out what data is collected on food waste in sector. Is measurement undertaken by<br>▪ Retailers<br>▪ Markets<br>▪ Wholesalers<br>▪ Trade bodies<br>▪ Government surveys of commercial / industrial waste<br>If information exists, how is it measured:<br>▪ Measurement methods<br>▪ Coverage of food waste destinations (e.g. landfill only, or a wider range of destination) | How could food waste be measured accurately and cost effectively?<br>Could companies measure and share data regularly, e.g. via a voluntary agreement or legislation?<br>Is a Government survey of food waste in company waste streams feasible?<br>▪ Cost?<br>▪ Access to waste? |

# Summary



- Methodology for Food Waste Index recently under development for piloting
- Four sectors covered by Food Waste Index
- Definition of which material and destinations are included
- Process for quantification of food waste outlined
- Examples of process given for two sectors