



On the Vision and Goal of APEC Food Security Roadmap Towards 2020

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The Vision and Goal of “APEC Food Security Roadmap Towards 2020” (SOM3, Beijing, China, 20-21 August 2014):

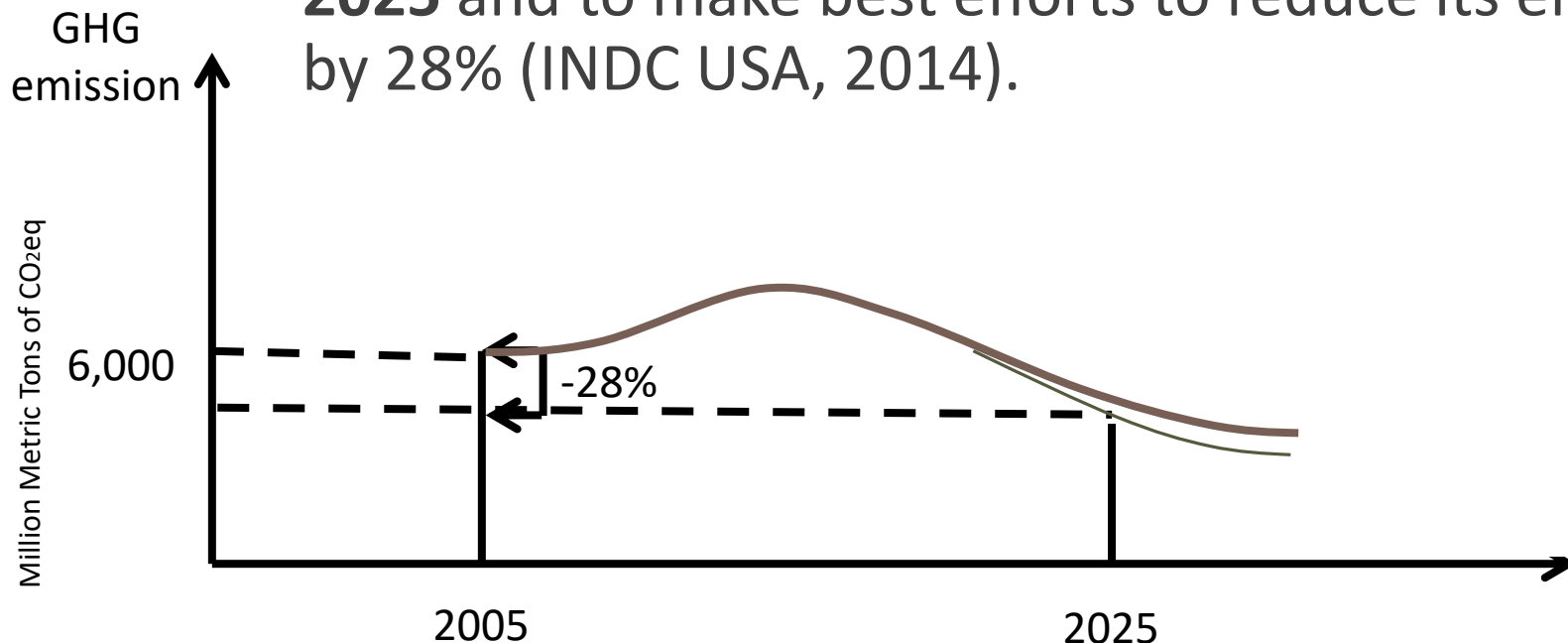
APEC economies will strive to reduce food loss and waste by 10%* compared with the 2011-2012 levels by 2020 in the Asia-Pacific economies aim to advance beyond the Millennium Development Goals 2015 hunger goals. (Para. 7)

*** It is an average level for all economies. Specific indicator can be developed based on each economy's situation.**

Goal Setting

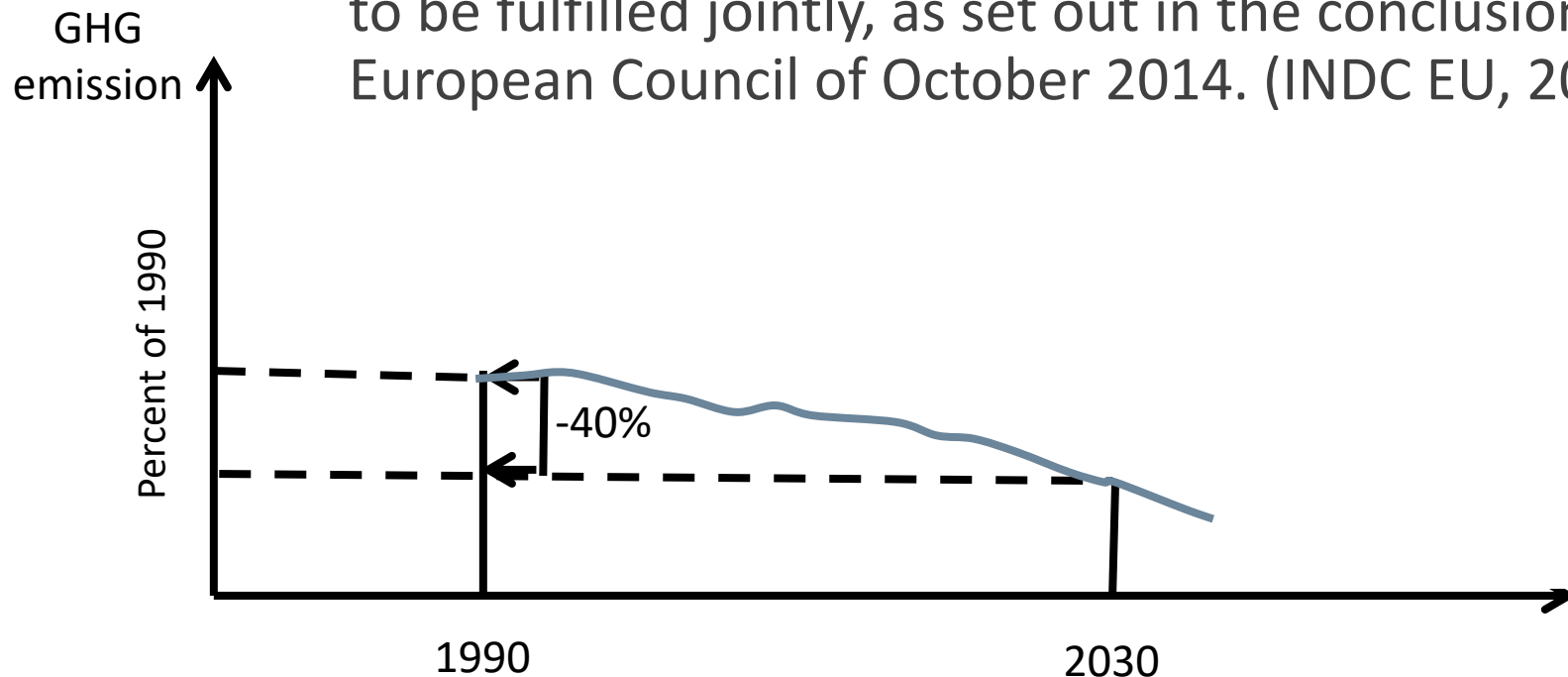
U.S. Target of GHG emission

For instance, the United States intends to achieve an economy-wide target of **reducing its greenhouse gas emissions by 26-28 per cent below its 2005 level in 2025** and to make best efforts to reduce its emissions by 28% (INDC USA, 2014).



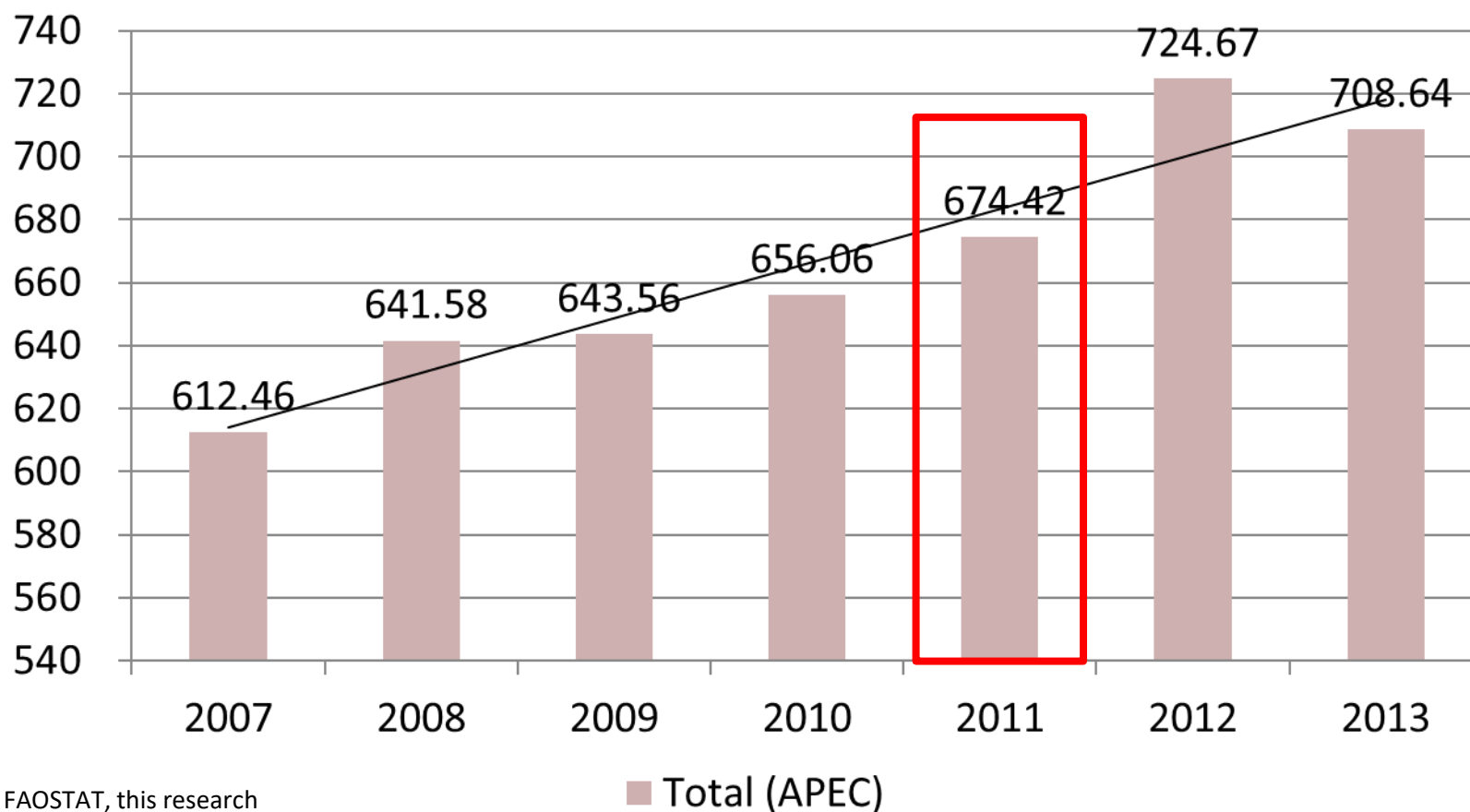
E.U. Target of GHG emission

The EU and its Member States are committed to a **binding target of an at least 40% domestic reduction in greenhouse gas emissions by 2030 compared to 1990**, to be fulfilled jointly, as set out in the conclusions by the European Council of October 2014. (INDC EU, 2014).



APEC Food Losses and Waste

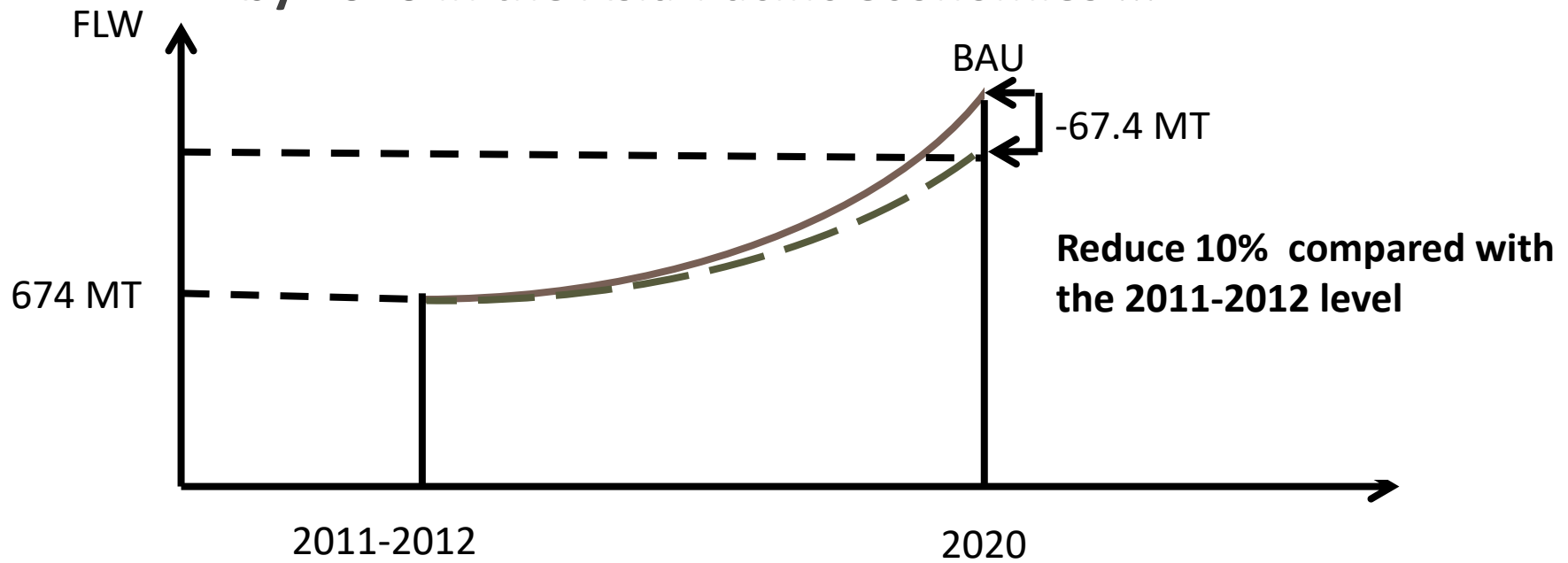
Unit: MT



Source: FAOSTAT, this research

Target of FLW Reduction for APEC Economies by 2020

“APEC economies will strive to reduce food loss and waste by 10% compared with the 2011-2012 levels by 2020 in the Asia-Pacific economies ...”



Source: APEC Food Security Roadmap Towards 2020 Third Senior Officials' Meeting, Beijing, China, 2014

Summary Results from Expert Consultation, Taipei, June 12-13, 2017



- Empirical results show an achievable path for APEC to a 10% reduction of food loss and waste through 25 no-regret solutions. These solutions would divert 71 million tons from **landfills** and on-farm losses.
- Implementing these no-regret solutions is projected to generate 81 thousand **new jobs**, recover 9.8 billion meals per year of **food donations** to nonprofits, reduce 8.7 trillion gallons per year of **freshwater** use and avoid nearly 96 million tons of **greenhouse gas emissions** annually.
- These no-regret solutions will require a 9.5 billion investment per year which will yield an expected 55 billion in social economic value.

Replacing MDG with SDG 12.3

“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.”

(Sustainable Development Goal, SDG 12.3)

Perspectives

Understanding FLW in a Triple Perspectives (HLPE 2014)

- **A systemic perspective**
 - Considering FLW not as an accident but as an integral part of food systems.
 - along food chains
- **A sustainability perspective**
 - Including the environmental, social and economic dimensions of sustainability
- **A food security perspective**
 - For human consumption (3F: Food, Feed and Fuel)

Definition, Indicator and measurement

Definition 1: Food and Agriculture Organization (FAO)

“Food loss is defined as ‘the decrease in quantity or quality of food.’ Food waste is part of food loss and refers to discarding or alternative (nonfood) use of food that is **safe and nutritious for human consumption** along the entire food supply chain, from primary production to end household consumer level” (FAO 2016).

Definition 2: U.S. Economic Research Service (ERS)



“Food loss represents the amount of food postharvest, that is available **for human consumption** but is not consumed for any reason. It includes cooking loss and natural shrinkage (for example, moisture loss); loss from mould, pests, or inadequate climate control; and food waste.

Food waste is a component of food loss and occurs when **an edible item goes unconsumed**, as in food discarded by retailers due to color or appearance, and plate waste by consumers” (Buzby et al., 2014).

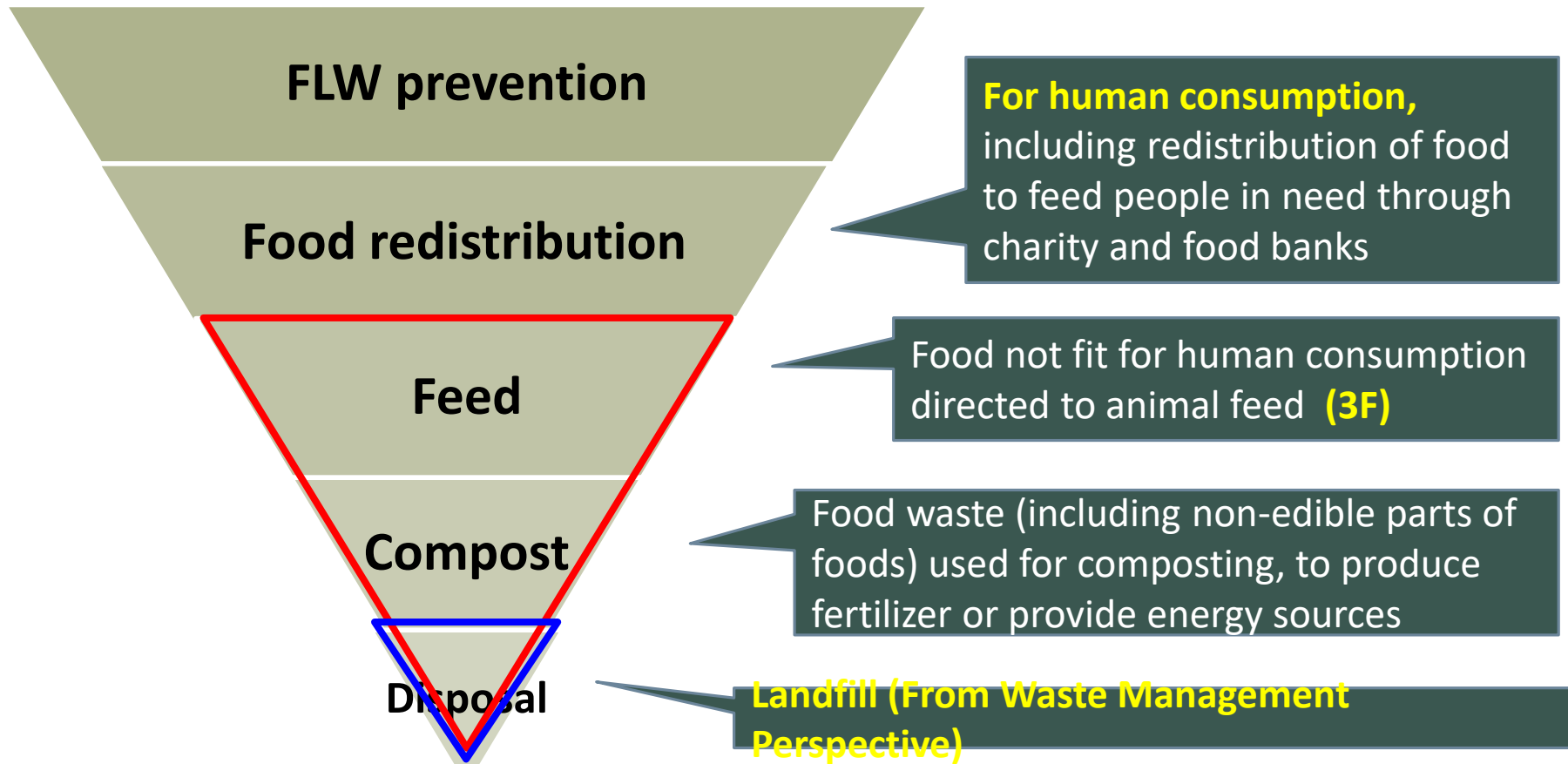
Definition 3: EU FUSIONS Project

“**Food waste** is any food, and **inedible parts** of food, removed from the food supply chain to be recovered or disposed (including composed [sic], crops ploughed in/not harvested, anaerobic digestion, bioenergy production, co-generation, incineration, disposal to sewer, landfill or discarded to sea)” (EU FUSIONS 2016).

Definition 4: U.S. Environmental Protection Agency (US EPA)

“The amount of food going to **landfills** from residences, commercial establishments (e.g., grocery stores and restaurants), institutional sources (e.g., school cafeterias), and industrial sources (e.g., factory lunchrooms). **Pre-consumer food** generated during the manufacturing and packaging of food products is **not included** in EPA’s food waste estimates.”
(US EPA 2016)

A Food-Use-Not-Waste Hierarchy to Minimize FLW



Source: HLPE (2014), adapted from www.feeding5k.org

“Specific indicator can be developed based on each economy’s situation”

**- APEC FOOD SECURITY ROADMAP
TOWARDS 2020” (SOM3, BEIJING,
CHINA, 20-21 AUGUST 2014)**

Issue Related to “Edible Food” Distinction

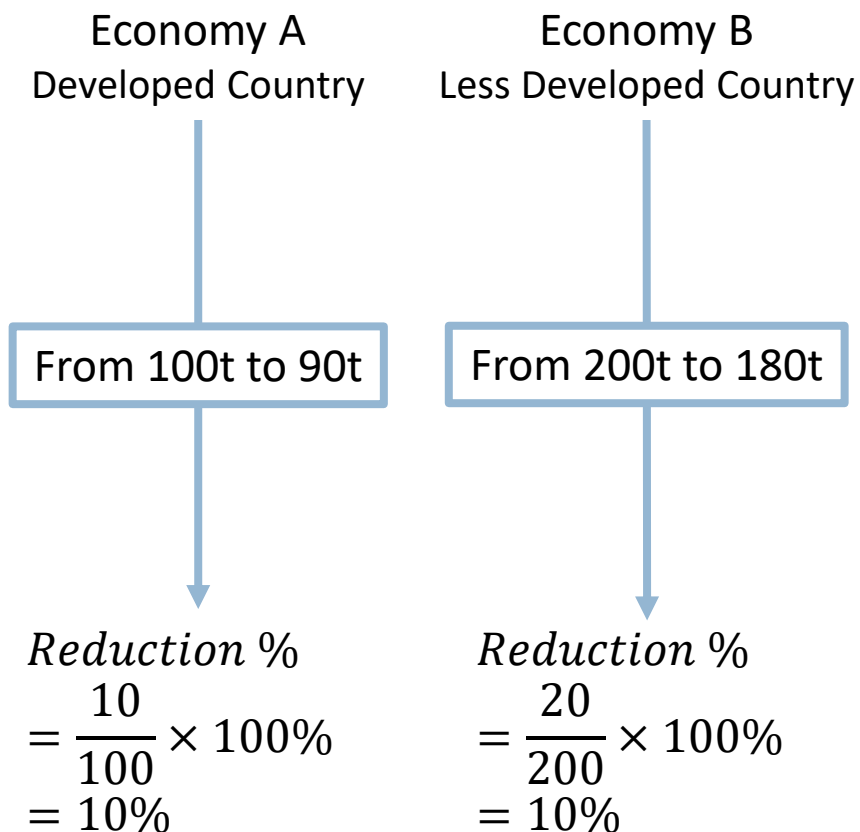
- The FAO and ERS definitions only apply to edible and safe and nutritious food. They **do not specify what “edible” or “inedible” mean**, nor do they acknowledge the fact that they are not universally understood in the same way. (Bellemare et al., 2017)
- The issue is highly **culture-dependent**.
- For example, the skin of kiwi-fruits, chicken feet, etc.

Issue Related to “Edible Food” Distinction

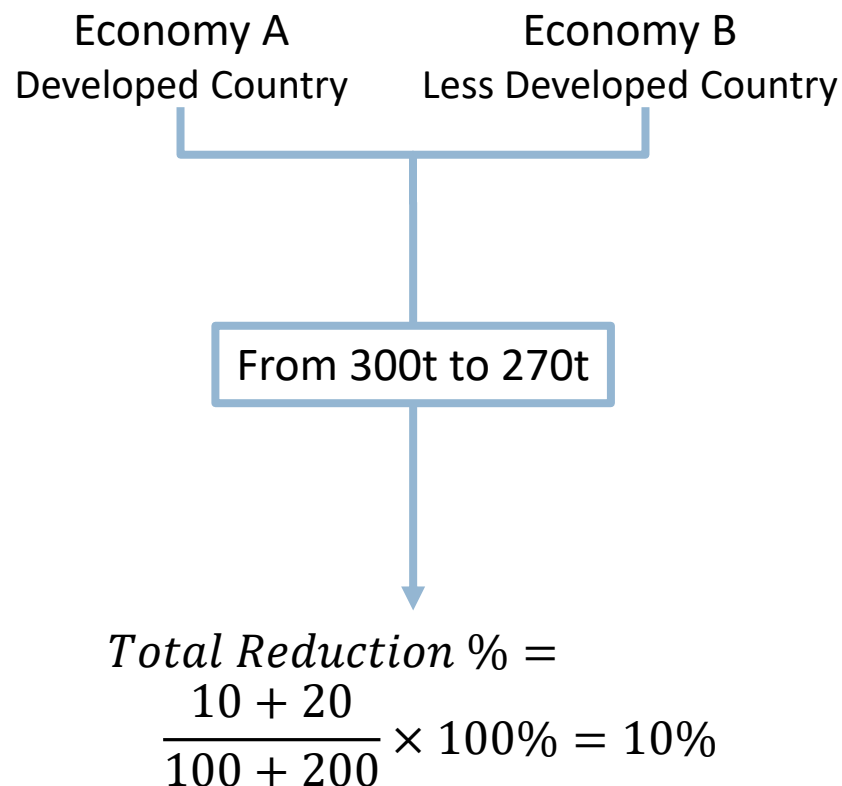
- Bellemare et al., 2017:
Operationalizing the edibility or usability of foodstuff in measuring food waste poses a major challenge.
- **Question:** Should the issue of edibility be ignored ?
- **Why not let each economy decide by themselves?**

Common Indicator for Aggregation and Ranking

Type I

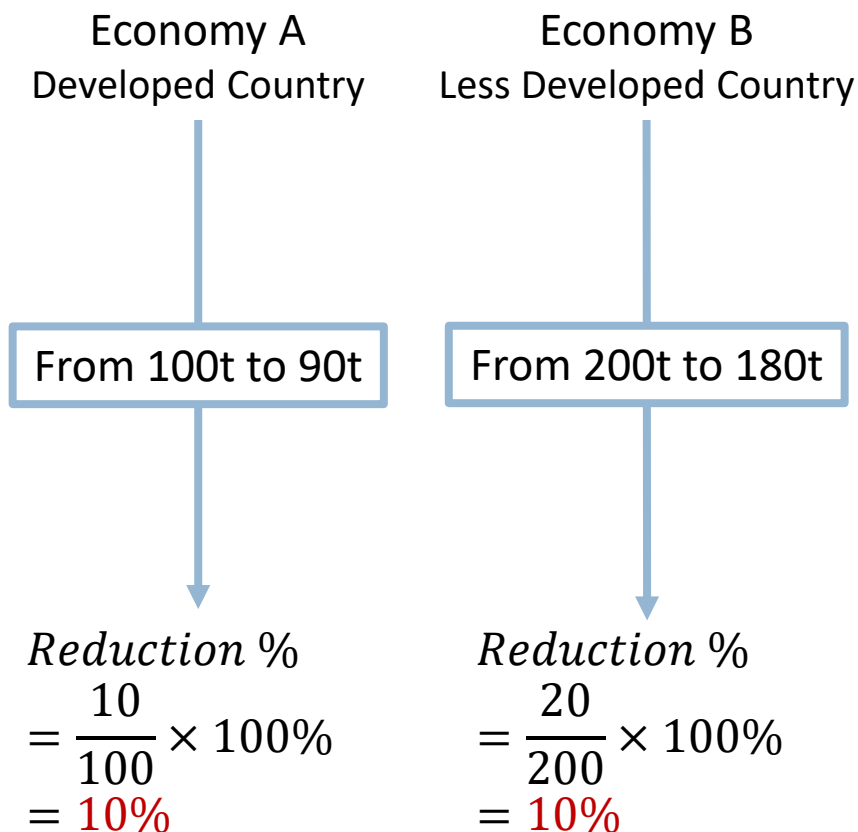


Type II



Different Indicator

Type III



- Aggregation or ranking is Meaningless
- Bottom-up Approach

Different Indicator

Type IV

Economy A
Developed Country

Economy B
Less Developed Country

From 100t to 80t

From 200t to 190t

$$\begin{aligned} \text{Reduction \%} &= \frac{20}{100} \times 100\% \\ &= 20\% \end{aligned}$$

$$\begin{aligned} \text{Reduction \%} &= \frac{10}{200} \times 100\% \\ &= 5\% \end{aligned}$$

Aggregation or ranking
is meaningless

$$\begin{aligned} \text{Total Reduces \%} &= \frac{20\% + 5\%}{2} = 12.5\% \end{aligned}$$

*** It is an average level for all economies. Specific indicator can be developed based on each economy's situation**

Conclusions and Suggestions

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- “The APEC target of 10% reduction in food loss and waste is set to achieve the *Millennium Development Goals (MDGs)*.” (APEC Food Security Roadmap Towards 2020)
- However, APEC and Member Economies may strive to meet the *Sustainable Development Goals (SDG) 12.3*, that is, **APEC economies will strive to “halve per capita food waste at the retail and consumer level by 2030, and reduce food losses along the food production and supply chains, including post-harvest losses.”**

Conclusions and Suggestions

- For APEC FLW reduction, there is still a long way to go. **An APEC FLW Center** for coordination, capacity building and awareness raising may be needed.
- “Specific indicator can be developed based on each economy’s situation.” **Let each economy decide by themselves.**