

# REDUCING FOOD LOSSES AND WASTE FOR STRENGTHENING FOOD SECURITY

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# OUTLINE

I. Introduction

II. FLW Situation

III. Efforts to Reduce FLW



# I. INTRODUCTION

“Food loss” refers to food that spills, spoils, incurs an abnormal reduction in quality such as bruising or wilting, or otherwise gets lost before it reaches the consumer. Food loss is the unintended result of an agricultural process or technical limitation in storage, infrastructure, packaging, or marketing.



“Food waste” refers to food that is of good quality and fit for human consumption but that does not get consumed because it is discarded—either before or after it spoils. Food waste is the result of negligence or a conscious decision to throw food away.

# FOOD LOSS AND WASTE ALONG THE SUPPLY FOOD CHAIN

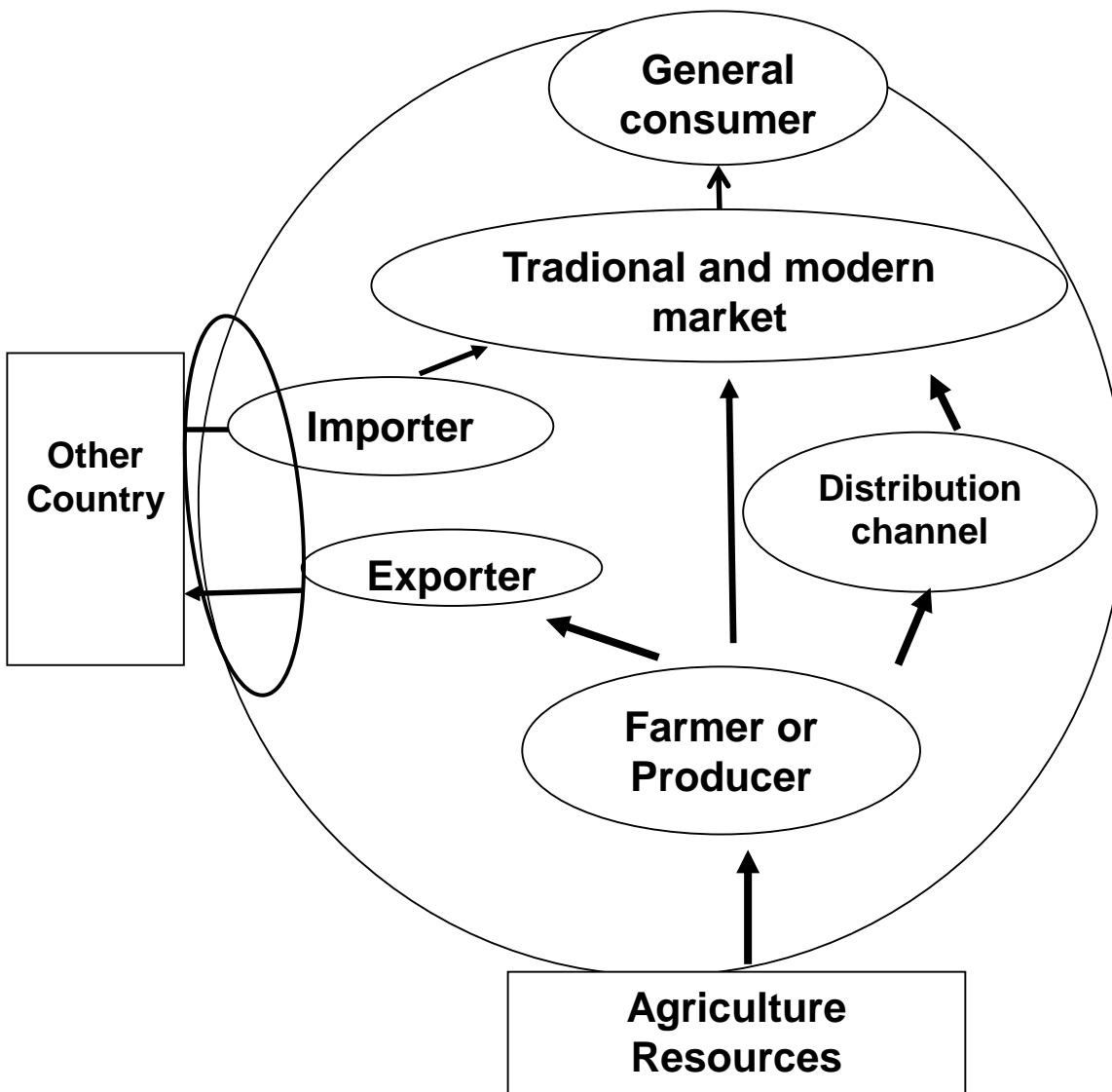
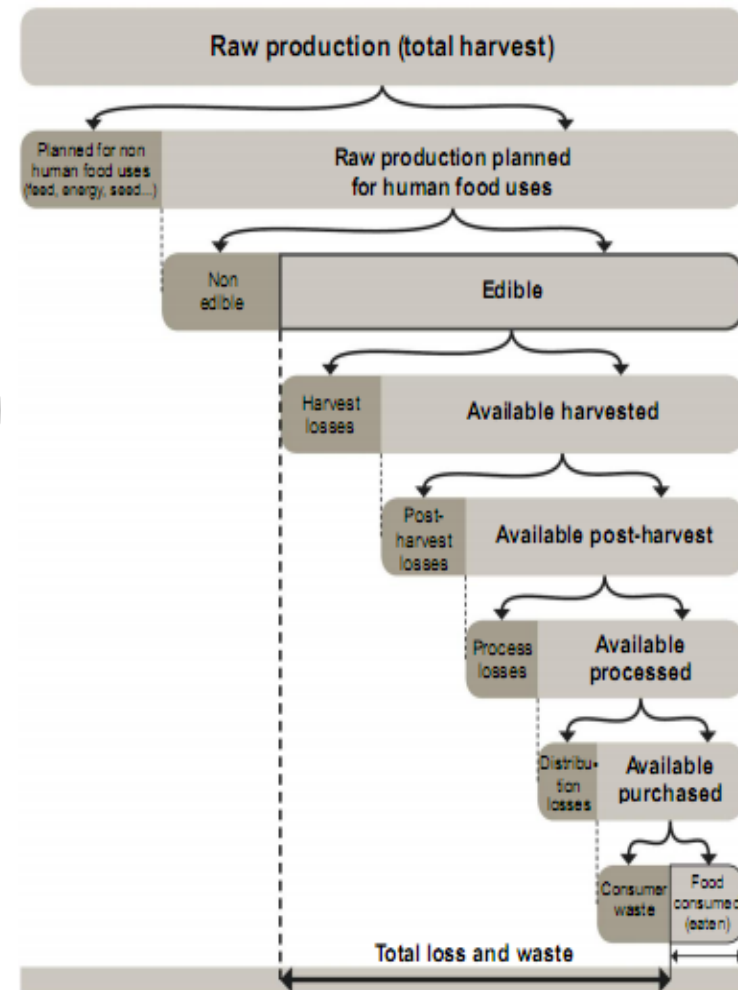


Figure 1 Schematic representation of the definition of food losses and waste along the food chain





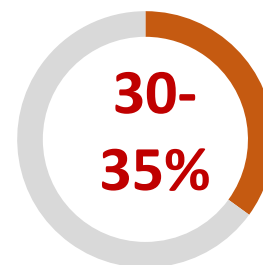
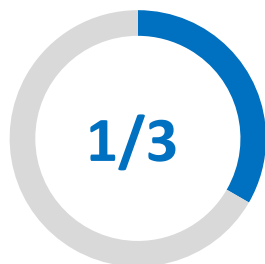
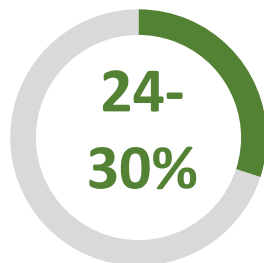
## II. FLW Situation

### GLOBAL FOOD LOSS AND FOOD WASTE

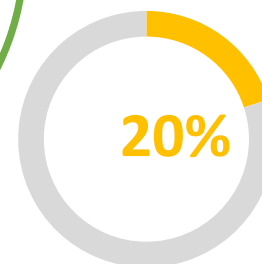
1/3 Global Food  
Production gets lost  
and wasted

- ❑ 1,3 bilyun ton per year
- ❑ 24% of Calorie: 614 kCal/capita/day

on production  
stage



on consumption  
stage



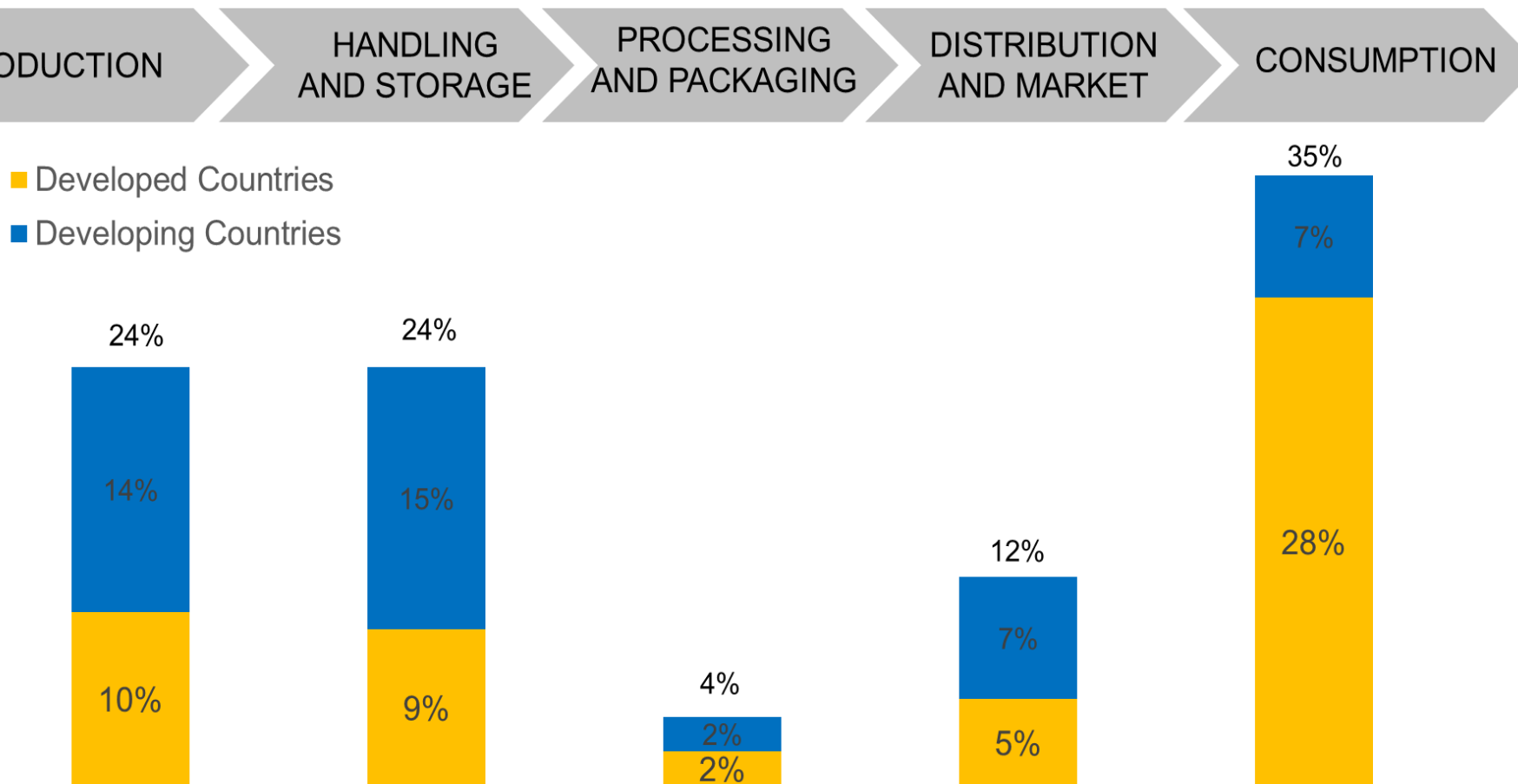
on post  
harvest stage

[www.fao.org](http://www.fao.org)



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# SHARE OF TOTAL FOOD LOSS AND WASTE



WRI Analysis based on FAO 2011 Global Food Losses and Waste-extent, causes and prevention



**Barilla**  
Center  
FOR FOOD  
& NUTRITION

## Food Loss and Waste



Largest food wasters  
(per person per year)



**Saudi Arabia**  
427kg



**Indonesia**  
300kg



**US**  
277kg



**UAE**  
196kg

In **rich countries**, consumers waste most food



In **developing countries**, food losses  
occur before reaching the consumer

### Top 3 / Lowest 3 Performers in reducing food loss & waste

#### TOP PERFORMERS

1. France
2. Australia
3. South Africa

#### LOWEST PERFORMERS

23. United Arab Emirates
24. Indonesia
25. Saudi Arabia

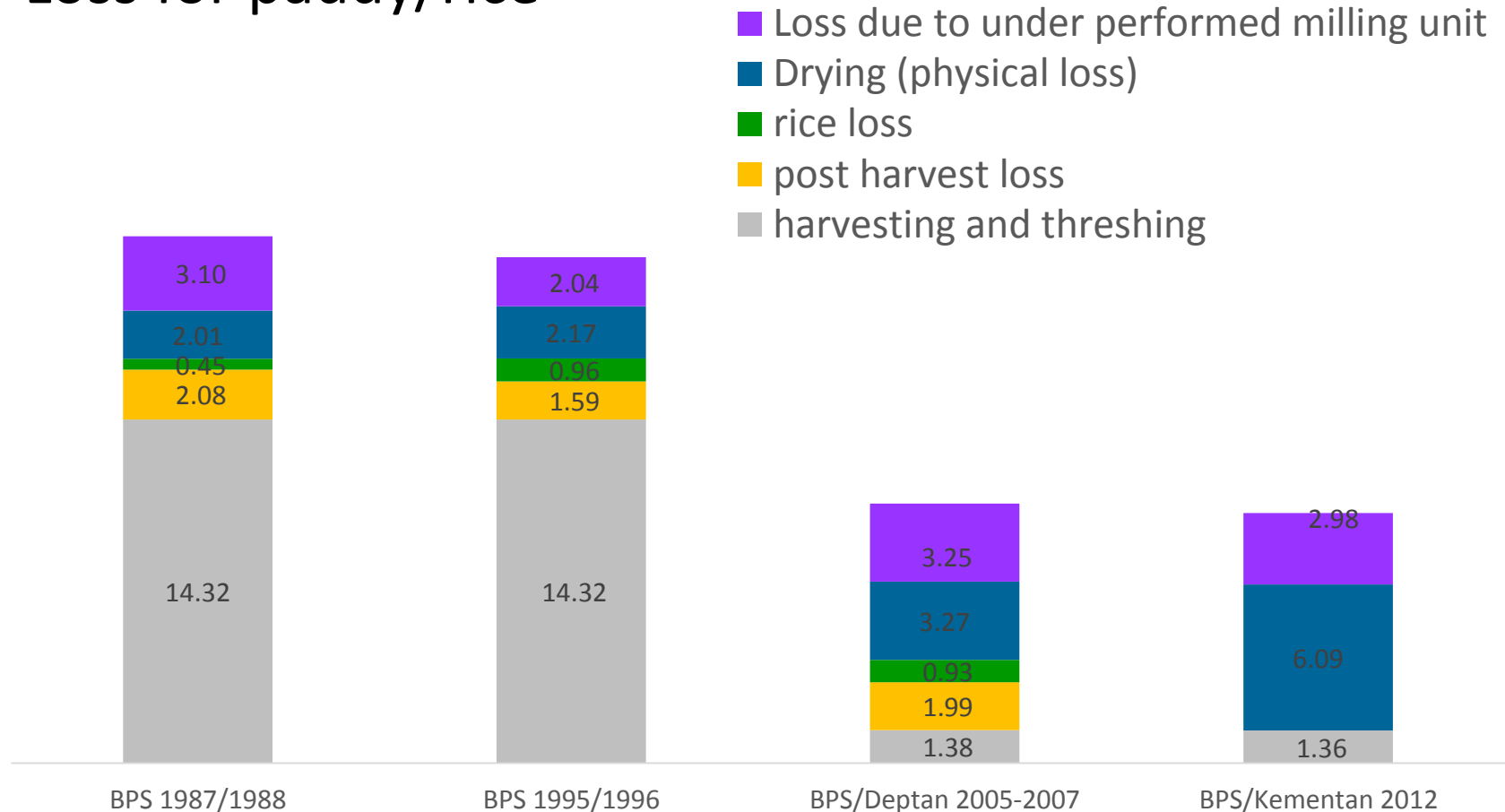
[Foodsustainability.eiu.com](http://Foodsustainability.eiu.com)



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# A. Loss of Commodity in Indonesia

## Loss for paddy/rice



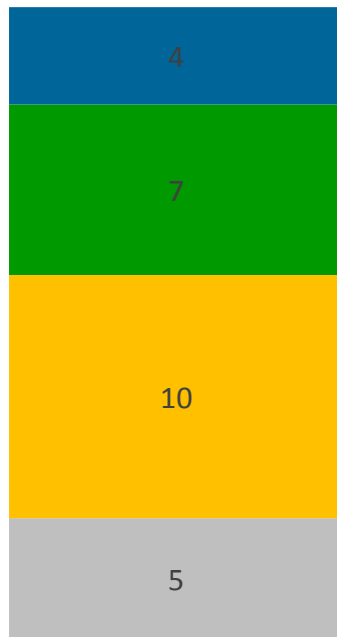
Source : BPS



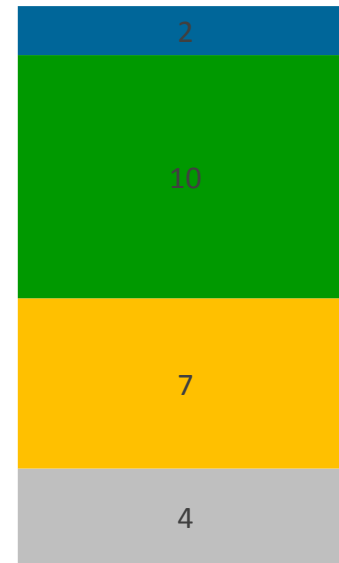


# POSTHARVEST LOSSES FOR TOMATO AND CHILLI (%)

- Harvesting
- Post Harvest
- Whole shale/Distribution Center
- Retail



Tomato



Chili



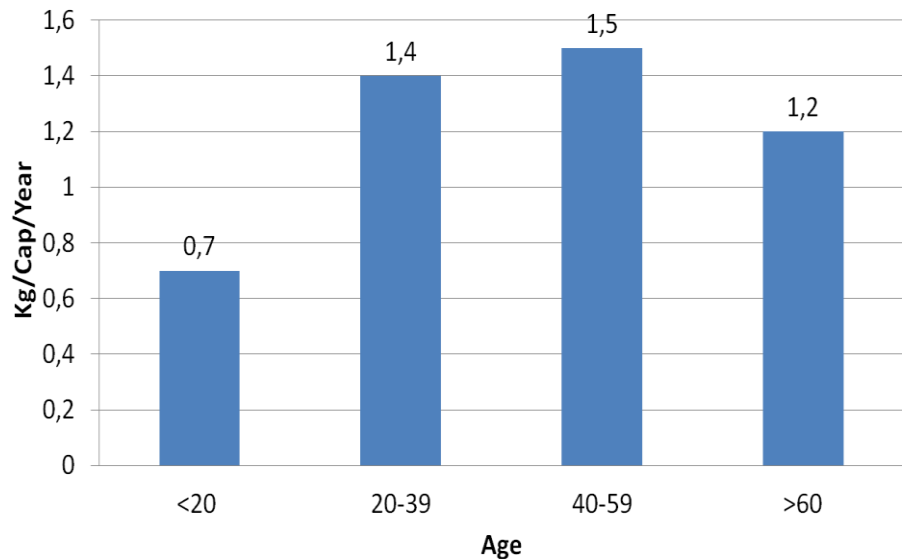
## B. Waste in Indonesia

### *Estimation of Consumer's Rice Waste at Various Restaurants in Bogor City*

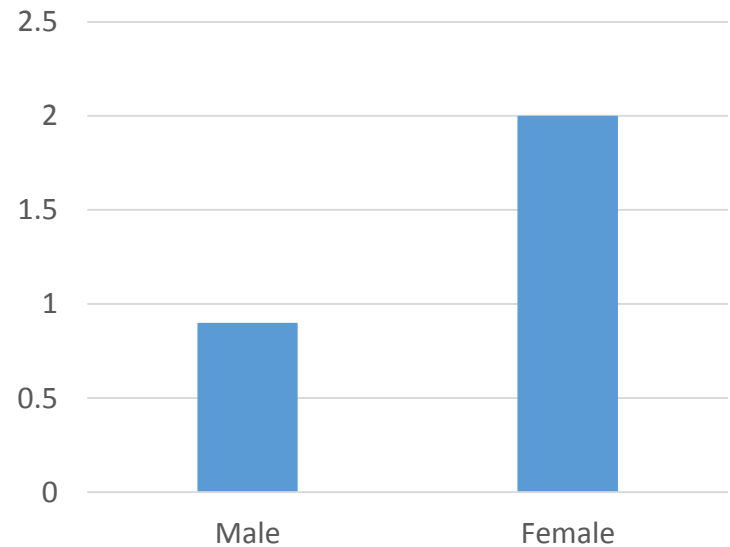
- *Rice waste from sundanese restaurant was the highest with an average of 4.7 g/capita/day of rice equivalent*
- *Rice waste from javanese restaurant and warung tenda were equal to 3.6 g/capita/day and 4.2 g/capita/day of rice equivalent*
- *The lowest was the waste from padang restaurant with the average of 2.5 g/capita/day of rice equivalent.*



## ***Estimation of Consumer's Rice Waste at Various Restaurants in Bogor City***



**Waste based on Age**



**Waste based on gender**



# Quantifying and analysing food waste generated by Indonesian undergraduate students

- produced 47.05 g of avoidable food waste per person each month (564.62 g each year).
- eating out frequency and gender were proven to be predictors of food waste occurrence



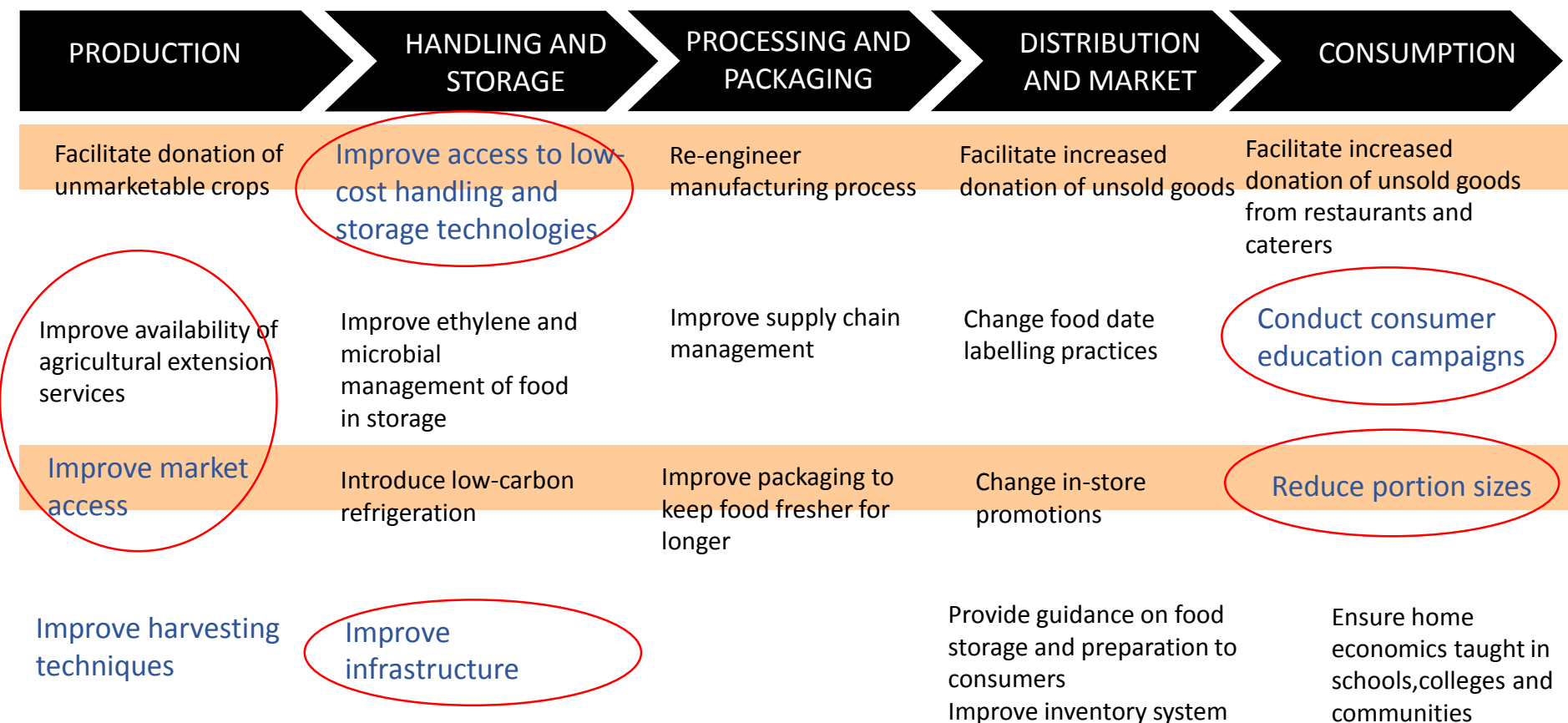
# ***Estimation of Household Rice Waste in Industrial Settlement (Case study desa Banjarkemantren, Sidoarjo)***

- *Rice waste per household was 108 g/month equal to 1.296 g/year*
- *Main actor for household rice waste was children: too big portion; time constraint during breakfast; no space after consuming milk; least preference over a tastier side dishes*
- *Other actors were parents: time constraint during breakfast*



# III. Efforts to Reduce Food Loss and Waste

## POSSIBLE APPROACHES FOR REDUCING FOOD LOSS AND WASTE





# PADDY LOSSES REDUCTION

## Technology for paddy loss reduction

Losses decrease 20,92% --> 11-13%

- >Mechanization: the use of combine harvester (9,49% → 2,5%)
- >Flatbed dryer (2,98 → 2,3%)
- >Revitalization on small RMU → yields from 58% → 60%



# MAIZE LOSS REDUCTION



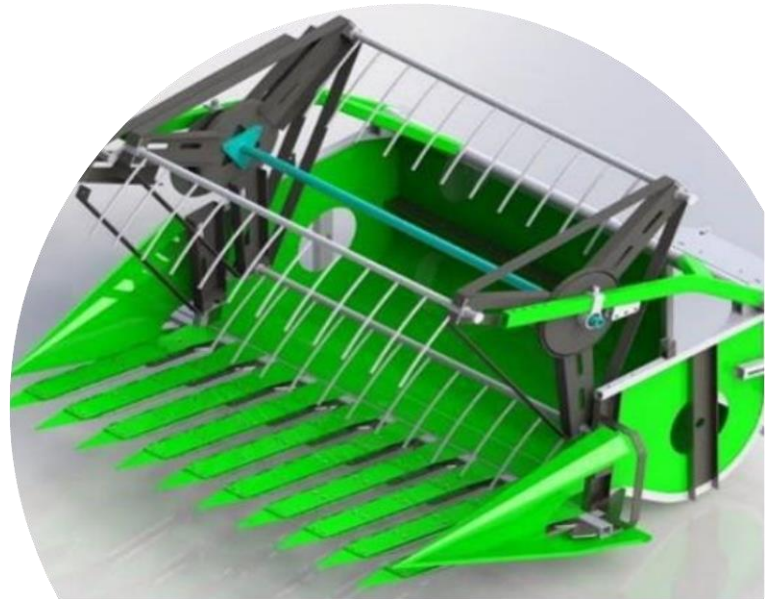
Combine harvester :

- Cutting
- Threshing
- Separation and Cleaning
- Chopping the stalks



Reduced losses from 8,95%  
to 2,5-2,79%

Source : ICAPRD, 2019



# Reducing Chili Loss



Pilot Project from ASEAN  
Study Case : Magelang

Used cigarettes plastic sacks as  
harvested chilli packaging  
(farmers level)



Plastic create for distribution  
from farmers to collectors



Used cardboard/unperforated/thin cardboard  
for transportation (intercity/inter-island)



Perforated cardboard for  
transportation from collectors tot  
trader (intercity)

- Losses > 20 %

Existing

- Losses < 15%

Shorter Supply  
Chain

- Losses <10%

Technology  
Intervention

Packaging  
Recommendation







Existing transportation method



Refrigerated transportation (intercity)



Ozone treatment

Technology for  
Desinfection



# REDUCING POSTHARVEST LOSSES OF SHALLOT

## IMPROVED STORAGE TECHNOLOGY



*Instore Dryer* → Losses 15 %



Souce : ICAPRD, 2019

Funded By AFACI and MOA

*Controlled Atmosphere Storage (CAS)* → Losses <10%



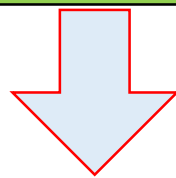
# IMPROVE MARKET ACCESS

## DEVELOPMENT COMMUNITY FOOD BUSSINESS (PUPM)/INDONESIAN FARMERS' STORE (TTI)



COMMUNITY FOOD BUSSINESS (RICE)  
(LUPM)

Farmer Group engaged in the production / food business, to ensure the supply of basic staple food to the Indonesian Farmers' Store (TTI)



SUPPLYING

INDONESIAN FARMERS' STORE  
(TTI)

Stores / stalls as Gapoktan partners in channeling staple food and direct marketing to the community

### LOCATIONS:

Consumer areas, mainly the barometer of price fluctuations and basic food supply and strategic. Target 2019 = 5.000 TTIs

### Target 2018:

- Farmer Group 2016: 250 Groups
- Farmer Group 2017: 406 Groups
- Establishment of 2018: 500 Farmer Groups



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# CONDUCT CONSUMER EDUCATION CAMPAIGNS

- ❑ Socialization and campaign
- ❑ Reducing portion size to minimize waste during consumption and processing





## Reduce Organic Waste for Safe Environment

The Jakarta Regional Environmental Management Agency in 2011 had released the quantity of garbage production reaches 7,500 tons/day. More than 54 percent or 4,050 tons is food waste.



The pilot project of Agency for Applicable Technology (BPPT) in 2018: developing waste processing at Bantargebang “The integrated waste management place” in Bekasi City (34,7 kilometers from Jakarta) with the technology of producing electricity → “Batman” (*best available technology meet actual need*)



**The Garbage Power Plant**

Target : waste processing capacity reaches 100 tons per day and will generate electricity 700 kilowatt hours



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## ***NGO DEALING WITH FOOD LOSS AND WASTE***



# **Thank you**



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