

# Reducing Food Losses As A Strategy For Strengthening Food Security

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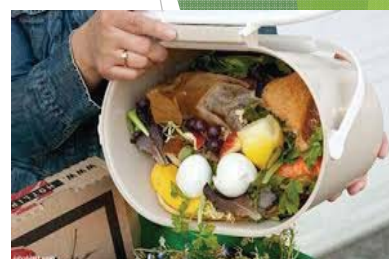
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## INTRODUCTION

- ✓ The amount of food losses and waste in Indonesia is relatively high that could be due to : financial, technical, managerial and institutional constraints on production inputs, machineries, food preservation and processing, packaging, handling, storage, distribution and marketing infrastructures.
- ✓ On the other hand, the availability of data and information about food losses and waste are very limited.



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- ✓ Data losses which are available nationally are data of rice postharvest losses.
- ✓ Because in Indonesia, rice is an important and strategic commodity, as the common staple food, hence, its availability and price will have multiple effects.

**Tabel 1. Official data of Rice Postharvest losses**

No.	Year of Measurement	Rice Postharvest Losses (%)
1	1987	20.30
2	1996	20.42
3	2008	10.86
4	2012	10.43

**Table 2. Rice postharvest losses in 2012**

No.	Rice Postharvest steps	Rice Postharvest Losses (%)
1	Harvesting	0.53
2	Threshing	0.83
3	Drying	6.09
4	Milling	2.98



## Institutions Involved In The Measurement Of Rice Postharvest Losses :

### 1. The Ministry of Agriculture

Through the Directorate General of Food Crops and Indonesian Agency for Agricultural Research and Development (IAARD) have a role to formulate a method for measuring rice postharvest losses and arrange policy.

### 2. The Central Bureau of Statistics (CBS)

Central Bureau of Statistics play a role in determining the methods of sampling and authorized release of data losses resulting from the measurement.

### 3. Provincial and Local Government.

Provincial and Local Government role in measurement losses on samples that have been determined by the Central Bureau of Statistics (CBS).



## IMPACTS OF FOOD LOSSES AND WASTE FOOD

- ✓ Economic impacts : represent a wasted investment that can reduce farmers' incomes and increase consumers' expenses such as seeds, fertilizers, and pesticides.
- ✓ Environmental impacts : inflict a host of impacts, including unnecessary greenhouse gas emissions and inefficiently used water and land, which in turn can lead to diminished natural ecosystems and the services they provide.
- ✓ Weaken food security systems. Food security is a major concern in large part of the developing world especially for the country with large population like Indonesia.



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Table 1. Projection of total population based on province 2010 – 2035 (in thousand)

The Island	2010	2015	2020	2025	2030	2035
Sumatera	50,860.30	55,272.90	59,337.10	62,898.60	65,938.30	68,500.00
Java	137,033.30	145,143.60	152,449.90	158,738.00	163,754.80	167,352.60
Bali & the Islands of Nusa Tenggara	13,129.70	14,108.50	15,047.80	15,932.40	16,751.40	17,495.70
Kalimantan	13,850.90	15,343.00	16,769.70	18,082.60	19,264.00	20,318.10
Sulawesi	17,437.10	18,724.00	19,934.00	21,019.80	21,953.50	22,732.00
Maluku	2,585.20	2,848.80	3,110.70	3,363.70	3,603.60	3,831.40
Papua	3,622.30	4,020.90	4,417.20	4,793.90	5,139.50	5,449.60
<b>Indonesia</b>	<b>238,518.80</b>	<b>255,461.70</b>	<b>271,066.40</b>	<b>284,829.00</b>	<b>296,405.10</b>	<b>305,679.40</b>



- ✓ Unevenness of Population Distribution cause strong competition of land utilization for farming, establishing industries, housing, establishing public facilities and infrastructure. This situation implies the difficulty of enhancement of food production to meet national needs
- ✓ Enhancement of food production is also faced another challenge, i.e. climate change, which cause less optimal farming production. As a country which is located in equator, Indonesia is susceptible exposed by climate change impacts.



## NATIONAL PROGRAM

- ✓ In order to anticipate increasing food needs from 2015 – 2019 Indonesian Government through Ministry of Agriculture focuses to develop 7 strategic staple foods :
  - rice,
  - corn,
  - soybean,
  - sugarcane,
  - meat,
  - chili,
  - red onion.Among those commodities, there are three main commodities which are targeted to reach self-sufficiency considering high national demand rate i.e. rice, corn, and soybean.
- ✓ Ministry of Agriculture, The Republic Indonesia, is currently implementing a national program, called **UPSUS** standing for **Upaya Khusus (Special Effort)**, aimed at increasing productivity and production while at the same time reducing yield losses.



- ✓ In this national program, Indonesian Government rehabilitates and builds irrigation systems and all supporting facilities, develop transportation access and networks, and provides production inputs, such as seed, fertilizer, and pesticide, and machineries, such as transplanter and combine harvester. The UPSUS program is being implemented in 33 provinces.
- ✓ Toward the target, Ministry of Agriculture has arranged operational step i.e.
  - increasing plant area,
  - increasing productivity,
  - **decreasing postharvest losses,**
  - increasing agricultural products quality.



**Table 2. Production Target for main commodities of food crops in 2015-2019\***

No	Comodities	Production Target (0000 Ton)						Growth (%/year)
		2014	2015	2016	2017	2018	2019	
1	Rice	70,607	73,445	76,226	78,132	80,085	82,078	3,06
2	Corn	19,127	20,314	21,354	22,360	23,485	24,700	5,25
3	Soybean	921	1,200	1,817	2,758	2,941	3,000	28,43
4	Peanuts	655	743	756	769	782	796	4,08
5	Green beans	239	292	296	300	305	309	5,59
6	Cassava	24,559	26,530	27,072	27,624	28,187	28,762	3,24
7	Sweet potatoes	2,360	2,650	2,700	2,750	2,800	2,850	3,93

\*Source : The strategic plan of the Directorate General of Food Crops (2015)



**Table 3 Reduction target of food crops postharvest losses (2015-2019)**

No	Comodities	Target reduction of yield losses (%)					Average (%)
		2015	2016	2017	2018	2019	
1	Rice	0.5	0.75	1.00	1.20	1.30	0.95
2	Corn	0.20	0.25	0.25	0.30	0.30	0.26
3	Soybean	0.20	0.20	0.20	0.40	0.40	0.28
4	Peanuts	0.10	0.10	0.10	0.15	0.15	0.12
6	Cassava	0.50	0.50	0.50	0.50	0.50	0.50
7	Sweet potatoes	0.50	0.50	0.50	0.50	0.50	0.50

\*source : Directorate of Postharvest of Food Crops, 2015



## STRATEGIC TO REDUCE LOSSES

1. Facilitating and optimizing the use of harvest and postharvest facilities/machinery :
  - Mini combine harvester
  - thresher/corn sheller,
  - dryer,
  - revitalization of rice milling unit,
  - silo/storage system)
  - included conducting capacity building of human resources as operator of agricultural machinery and developing agricultural machinery services
2. Implementing Good Handling Practices (GHP) for reducing postharvest losses  
According to Regulation of Ministry of Agriculture No 44/ 2009, the objectives of GHP:
  - **reducing postharvest losses,**
  - extending shelf-life,
  - maintaining products freshness,
  - increasing usefulness,
  - enhancing value added,
  - increasing efficiency of the use of resources and facilities,
  - strengthening competitiveness,
  - providing optimum benefits and developing sustainable agricultural business.



- ✓ Foodbank of Indonesia (FOI) was established on 21 May 2015 and works with partners to bring surplus foodstuffs to those most in need of food.



### Partners

Educational institutions  
Businesses/ Corporations  
Government  
NGOs  
Public figures

### Cooperation

CSR  
Social initiatives  
Donation  
Amenities



Kind of foods which may donate to Foodbank are preserved foods, unused foods, and food at least 2 months before it is expired

### ✓ Programm :

- Hope for disaster victims,
- Street of hope (collecting food donation at car free day event)
- Nutrition for remote area Indonesia (distribution meat on the feast of Eid al Adha)
- Food truck
- Social campaign (to persuade public for reducing food waste and stimulating public awareness about urgency of reducing food losses and waste)

## CURRENT STATUS OF R&D TO REDUCE FOOD LOSSES AND WASTE FOOD

1. Technology of Bio-Preservative Formulation (Waxing-Hot Water Treatment) – (used to increase the shelf life of mango)
2. Instore Drying Technology –to reduce onion weight losses, total damage
3. Modified Atmosfer Packaging – used to pack rambutan
4. Fresh handling technology of Chili
5. Fresh handling technology of potatoes- Lighting Insulation Technology
6. Revitalisation of small Rice Milling Unit to increase rice quality
7. Mini combine harvester
8. Corn sheller machine on high moisture content



# Method of disseminating technology

- ✓ Technological innovation has proven to be a source of growth and increased agricultural production and farmers' income. However, the utilization of the innovation has not been optimal. Many agricultural technological innovations produced by research institution have not been adopted properly and on a broad scale. This indicates that the segment of supply chain innovation in the delivery subsystem and receiving subsystem become a bottleneck that causes the slow delivery of information and low level of adoption of innovations.
  
- ✓ Technological dissemination and agricultural innovation that implemented in Indonesian Agency for Agricultural Research and Development (IAARD) is the **Multi Channel Dissemination Spectrum (MCDS)** approach .
  - Dissemination spectrum leads to an indefinite state only to one dissemination pattern, but it can change infinitely (dynamic)
  - Multi-channel meanings are more related to changing patterns of demands and potential acceptance of access from user targets, so the dissemination process should be done with certain types of channels.



## The Goal of MCDS

- ✓ to accelerate, enhance, and expand the prevalence of adoption of innovation technologies produced by IAARD, as well as capture feedback for future refinement and development references.

## Media for MCDS

- ✓ Media used to support MCDS includes various ways, such as
- ✓ 1) face to face (Meetings, consultations, training, mentoring)
- ✓ 2) demonstration (Appropriate technology performances)
- ✓ 3) exhibition / expose,
- ✓ 4) leadership,
- ✓ 5) print or electronic publications.

Some examples of implementation in IAARD scope are as follows:

- ✓ Development of site-specific innovation repositories;
- ✓ Development of Dissemination Laboratory of Agricultural Innovation;
- ✓ Development of Agricultural Innovation Field Laboratory (LLIP), Agricultural Science and Technology Park (TSTP), Bioindustrial Agriculture;





# CONCLUSION

- Collaborations between public and private sectors are essential to support food losses and waste reduction programs. In this case, a global food initiative, such as Save Food Initiative, should be promoted and well-coordinated, problems and solutions are shared, and methodologies, strategies and approaches are harmonized.
- Public-Private Partnership may include improvement of production planning, processing practices; preservation and packaging technologies; transportation and logistics management; marketing infrastructures and strategies, purchasing and consumption habits or consumer awareness.



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