2017 APEC Expert Consultation on Food Losses and Waste Reduction







An Overview of APEC Roadmap and Action Plans for Reducing Food Losses and Waste and Preliminary Survey Results

Ching-Cheng Chang

Outline

- 1. APEC Food Security Roadmap towards 2020
- 2. APEC Action Plan for Reducing Food Loss and Waste
- 3. APEC Multi-year Project on Reducing Food Losses
- 4. Preliminary Survey Results
- 5. Conclusions and Suggestions

APEC Food Security Roadmap Towards 2020

Reducing Food Losses has been repeatedly underscored as one of primary task to safeguarding APEC Food security in relevant APEC fora and Leader's meeting



2013 Leaders' Declaration -Bali, Indonesia 08 Oct 2013

• Para 18.

- We recognized that **resource scarcity** presents an immense challenge that limits our ability to pursue economic growth and we were mindful of the grave economic consequences of **natural and human-caused disaster**, particularly to the most vulnerable members of society.
- In response to these challenges, we will take the following steps:
 a. address the nexus of water, energy and food security through the promotion of integrated policies and collaborative approaches;
 b. implement the APEC Food Security Road Map Towards 2020 to enhance supply chain connectivity,
 - achieve efficiencies,
 - reduce post-harvest losses and waste, and
 - improve the food system structure by 2020,
 - to provide lasting food security to APEC economies;

APEC Food Security Roadmap Towards 2020 (Version 2014)_1

• "Para 5.

Considering that establishing a comprehensive food system-based food security environment in APEC is a complex and long term effort, APEC created the Policy Partnership on Food Security [PPFS] in 2011, and welcomed Niigata Declaration in 2010 and Kazan Declaration in 2012 on APEC Food Security."

APEC Food Security Roadmap Towards 2020 (Version 2014)_2

- "**Para 7.** The long term goal of the PPFS, as mentioned in its Term of Reference, is
 - the attainment of a food system structure by 2020, sufficient to provide lasting food security to APEC member economies.
 - Enhance food supply efficiency, provide more affordable food for lower income consumers.
- 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.

Definition of Food system

• A *food system* gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socio-economic and environmental outcomes.

Source:

Adapted from "HLPE, 2014. Food losses and waste in the context of sustainable food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome 2014. "

APEC Action Plan for Reducing Food Loss and Waste

(Endorsed in The PPFS 2014 Plenary Meeting, August 15, 2014, Beijing, China)

Background

- **Para 2:** Food loss and waste reduction is equal to increasing food supply and saving limited resources.
- **Para 3:** It is necessary and timely to develop and carry out the APEC Action Plan For Reducing Food Loss and Waste to assist with the implementation of the APEC Food Security **Road Map Towards 2020** as stated in 21st APEC Leaders' Declaration, October 8, 2013(para 18b, c, and d).

Goal

- **Para 4.** Enhance food supply efficiency, provide more affordable food for lower income consumers. 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 5.** Promotion of sustainable food systems, which includes sustainable food production, as well as sustainable diets and consumption.

Key Actions

- **Para 10.** Develop, support, and implement complementary multi-year projects on reducing food loss within all 21 APEC economies, such as:
- "Strengthening Public-Private Partnership to Reduce Food Losses in the Supply Chain",
- "Survey on Innovative Technology and Best Practices to Reduce Food Loss" and
- "Supply Chain Connectivity: reducing post-harvest losses by improving transport supply chains through practical low cost and low tech but efficient measures".

Why it is so important?



APEC Multi-Year Project on Reducing Food Losses

Strengthening Public-Private Partnership To Reduce Food Losses In The Supply Chain (2013-2018)

APEC Multi-Year Project

Purposes

- Identify key issues on reducing food losses and waste
- Seek best practices in private and public sectors
- Find practical solutions and enhance capacity-building

Work Plan (2013-2018)



APEC Multi-Year Project



✓ 2013 on Cereal/Tuber/Roots
 ✓ 2014 on fruit and vegetables
 ✓ 2015 on fishery and livestock
 ✓ 2016 on consumption wastes
 ✓ 2017 on policy and no-regret actions

Outcome-1 Food Loss & Waste Assessment (1) Unified Methodologies

"Mass Flow Model (MFM) of FAO

• Measurable quantitative losses along the food supply chain starting with harvest until consumption by end users."

Source: Linpinski et al .(2013); Gustavsson et al., (FAO 2011)

Stages	Definition
Production and Harvesting	Contains losses due to mechanical damage and/or spillage during harvest operation, crop sorting etc.
Handling and Storage	Contains losses due to storage and transportation between farm and distribution, and spillage and degradation during handling.
Processing and Packaging	Includes losses during industrial or domestic processing and packaging
Distribution and Marketing	Includes losses and waste in the market system, including wholesale markets, supermarkets, retailers, and wet markets.
Consumption	Includes all the losses and waste at the household level.

Outcome-1 Food Loss & Waste Assessment (2) Estimation Results: APEC region

APEC Food Loss and Waste in Volume Base



Outcome 2- Toolkits and Best Practices

(1) Information Platform: http://apip-phlows.ntu.edu.tw/

Phase I

- To serve as a repository of information on APEC strategic plans on food loss/waste reduction
- To connect interested stakeholders, to share information and best practices and build business

Phase II

- Content: Regulatory Reform Initiatives, Waste reducing Projects/Programs, Toolkits/Best Practices
- Features: Social network, e-training for capacity building



19



Outcome 2- Toolkits and Best Practices (2) A Value Chain Approach: Input of Science-based Agricultural Services proposed by Dr Ian Ferguson, New Zealand



Source: Dr. Ian Ferguson (2015)'s presentation in APEC Seminar on Strengthening Public-Private Partnership to Reduce Food Losses in the Supply Chain of Fishery and Livestock, Iloilo, Sept 27, 2015. http://apipphlows.econ.sinica.edu.tw/index.php/seminar-reports/2015-myp/agenda

Capacity Building Activities Outcome-3



Outcome-3 Capacity Building Activities

5.2 Major Recommendations of 2014 Seminar in Beijing, China, 2014

- The enhancement of public-private partnership has been achieved with the participation of speakers from government, business and academia.
 - The government representatives have related about the government policies and programs.
 - ✓ The business representatives have presented the practical solutions to address the challenges.
 - ✓ The researchers have discussed the methodology for assessing food losses in fruits and vegetables.

Preliminary Survey Results

- Meso-level (Food Chain) Solutions
- Macro-level (Food System & Beyond) Solutions.

Main Purposes

- 1. Provide information of food losses and waste data collection and reporting system;
- 2. Inventory public programs, legislations, and private initiatives on food losses and waste reductions;
- 3. Identify available innovative technologies and best practices to prevent, reduce, reuse, recover, or recycle food losses and waste along the food chain;
- 4. Assess capacity building needs for member economies to implement available innovative technologies and to encourage public and private sectors to collaborate.

Questionnaire Design

• I. Basic Information:

- 1.1 Is there any data collecting/accounting/statistics system for tracking and reporting of food losses and waste along the food chain in your economy?
- 3.5 Are there any <u>innovative technologies or best practices</u> on prevention, reduction, recovery, recycling of food losses and waste you believe would help support the implementation?
- 3.6 Are there any <u>capacity building needed</u> to increase the adoption of innovative technologies or best practices to support the implementation in your economy?
- 3.4 Are there any <u>Food Waste Law or Act</u> that provide immunity from liability of food donors or protection for food reuse from being sued in the event of consumer sickness in your economy?
- II. Existing Food losses and Waste Reduction Programs/Initiatives
- III. Implementation of the Existing Programs/Initiatives

1. Basic Information Based on -10 economies -52 programs/actions



adoption

Innovative technologies or best practices

Food Waste Law to provide immunity

Data collecting system for tracking and reporting of FLW

2. How do you "rate" these program/project in terms of food losses and waste reduction efforts?



3. For a successful implementation of food loss/waste reduction programs, are the following factors strengths or weaknesses in your economy?

	Weakness		leutr	al	Str	engtl	h					
	Monitoring and evaluation of outcomes				7					2	1	
	Adequate and effective use of innovative		L	ł				4			2	
ifficient infrastructure support & investment					6					4		
Sufficient funding & financing					6					4		
Human resource capacity building, training			2	ļ				5			1	
Broad consultation with experts					4				5			
Effective communication with beneficiaries Thorough planning before implementation			2				7				1	
			4	ŀ			2			4		
	Clear directive and active involvement	1			5					4		
		0	1 2	2	3	4	5	6	7	8	9	1

4. Considering the 10% reduction target in comparison to 2011-12 levels, how likely will it be to reach the target in your economy?



5. What are the major barriers to successfully reduce 10% food losses and waste by 2020 in your economy?



6. Existing FLW reduction programs/initiatives – by Type and Agency Partner



6. Existing FLW reduction programs/initiatives- by Food Value Chain



Production
Handling/Storage
Process/Package
Transport/Market
Consumption

Tools for Actions

Financing (Grant, Investment, Low-cost project finance)

Policy (Legislations on food donation tax incentive, Standardize safe handling regulation, Boost recycling infrastructure)

Innovation (Technology & Business Models on package, labeling, IT-enabled transportation, storage, logistics, compost, recycling)

Education (Training courses for food industry employees, Consumer awareness campaign)

Source: ReFED (2016), <u>A Roadmap to Reduce US Food Waste by 20 Percent.</u>

nnovatior

6. Existing FLW reduction programs/initiatives- by Action Tools



Hierarchy to Minimize FLW



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

6. Existing FLW reduction programs/initiatives - by 3 types of "no regret options"





Conclusions and Suggestions

Conclusion-1

- Food losses and waste in the context of **sustainable food system** is crucial to the APEC Food Security Roadmap Towards 2020.
- Based on the preliminary results of our survey
 - There are more than **5** programs/initiatives/actions on average per economies on reducing FLW in APEC.
 - More than half are public & private partnerships
 - Across Value Chain: Equally distributed among all stages
 - Action Tools: More on policy/education, less on innovation/financing
 - Hierarchy: "Prevention"→ Recycling → Recovery

Conclusion-2

- Whither 10% reduction goal?:
 - -Not sure yet
 - Major barriers:
 - Lack of technology and infrastructure
 - Lack of interest from consumers,
 - Lack of data or standards,
 - Lack of clear objectives,
 - Poor planning or insufficient funding

Suggestions for Next Step: (1) **Stocktaking Activities in APEC**



Macro-level (Food System & Beyond) Solutions.

Suggestions for Next Step: -(2) Replacing MDGs with SDGs

- UN Sustainable Development Goal (SDG, 2015-2030)
 - SDG 12.3 "By 2030, <u>halve</u> per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses."



EU

- **The European Commission** is taking the issue of tackling food waste very seriously.
 - The EU and Member States are committed to meeting the Sustainable Development Goals (SDG), adopted in September 2015, including
- Because:
 - "Reducing food waste has enormous potential for reducing the resources we use to produce the food we eat."
 - "Being more efficient will save money and lower the environmental impact of food production and consumption."

The U.S.

- Between 30 and 40 percent of the U.S. food supply is lost or wasted annually, accounting for 133 billion pounds and \$161 billion worth of food.
- In 2015 the U.S. Department of Agriculture (USDA) and the U.S. Environmental Protection Agency (EPA) announced the nation's first ever goal to *cut food loss and waste in half by 2030*.



Comment Welcome

Email:

Emily@econ.sinica.edu. tw