



**Asia-Pacific
Economic Cooperation**

2014 APEC Seminar on Strengthening Public-Private Partnership to Reduce Food Losses in the Supply Chain of Fruits and Vegetables

**Agricultural Technical Cooperation Working Group (ATCWG)
Policy Partnership of Food Security (PPFS)**

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APEC Multi-Year Project: “Strengthening Public-Private Partnership to Reduce Food Losses in the Supply Chain” (M SCE 02 2013A)

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Summary Report
APEC Seminar on Strengthening Public-Private Partnership to Reduce Food Losses in the Supply Chain of Fruits and Vegetables

Keynote Speech

Moderator: Dr. Ching-Cheng CHANG, Chinese Taipei

Topic: “Challenges and Solutions in Reducing Food Losses of Fruits and Vegetables in the Asia-Pacific Region”

Presenter: Mr. Wilhelmus van BON, Adviser to the BoD of Van Bon Cold Stores Holding BV, Amsterdam; Former Chairman of The Dutch Cold Stores Association (NEKOVRI) and of The European Cold Storage and Logistics Association (ECSLA) based in Brussels.

- Mr. van Bon stated that all fruits and vegetables were different from each other, so that the right handling was needed. Hard work will reduce food waste.
- Food waste consisted of two types: agricultural production post-harvest losses and consumer level.
- Some legislation caused food waste because of the date of expiration.
- Individual treatment of fruits and vegetables will be needed.
- The Adopt an Area (AAA) Project will seek to start the right logistics after harvesting and will also base on cooperating among similar agricultural areas and products.
- Mr. van Bon also said that every farm should have a small, local, cold store.

Session 2: APEC Member Economies’ Voluntary Reports

Moderator: Dr. Jean C. BUZBY, the United States

Report from the Philippines

Presenter: Ms. Maria Cecilia R. ANTOLIN, Senior Science Research Specialist, Philippine Center for Postharvest Development and Mechanization, Department of Agriculture, the Philippines

- Ms. Antolin related that refrigerated trucks were expensive in the Philippines. For high-end markets, the refrigerated trucks were used.
- She recommended the utilization of good harvesting practice, such as using modified atmosphere packaging, as it will reduce losses.
- For bananas, the usage of ethylene scrubber was beneficial for preventing losses.
- The food lane project sought to exempt trucks carrying fruits and vegetables

from not being to enter Manila during days when trucks were not allowed.

Report from Chinese Taipei: “Food Loss Prevention and Comparison in a Chinese Taipei Supply Chain”

Presenter: Mr. Wen-Ben YANG, CEO Sinon Corporation, Chinese Taipei

- Mr. Yang stated that the Sinon Corporation had been working with farmers to plan their crop protection and nutrition program before each planting.
 - The correct usage of fertilizer meant even maturity, better quality and yield.
 - Post-harvest produce were quickly chilled in cold storage facilities and transferred in refrigerated trucks to their processing center.
 - The main reason for fresh produce rejection was excess pesticide residue.
 - Rapid Bioassay of pesticide residues was developed in Chinese Taipei in 1985.
 - The Sinon Corporation developed their own supply chain management software.
- Mr. Yang suggested that APEC should develop technology that can measure pesticide residue, promote food traceability across borders, and standardize maximum residue limit.

Report from Thailand: “Thailand’s Current Situation of Food Losses”

Presenter: Ms. Siriwat SUWANNASRI, Office of Agricultural Economics, Ministry of Agriculture and Cooperatives, Thailand

- Ms. Suwannasri related that post-harvest losses of vegetables was about 30% and about 20-50% for fruits.
- The causes of food loss were disease, insect pest, careless handling, and poor transportation and road infrastructure especially at the farm level.
- Thailand had created the Save Food Network (SFNET). The objectives were: 1) To serve a common platform; 2) To exchange knowledge; and 3) To contribute to the development of strategic approaches.

Session 3: Best Practices of Enhancing Public-Private Partnership to Reduce Food Losses in the Supply Chain of Fruits and Vegetables

Moderator: Mr. Wilhelmus van BON

Topic: The Zespri System - An Integrated Supply Chain Approach to Quality”

Presenter: Mr. Matt CRAWFORD, Corporate Relations Manager, ZESPRI Jia Pei Fruit (Shanghai) Co., Ltd., New Zealand

- Mr. Crawford said that the New Zealand kiwifruit industry was the world’s largest kiwifruit marketer.
- There were 2,700 growers and 14,000 hectares. ZESPRI was a recognized brand.

- The Zespri's long-term strategy will work on: 1) Health marketing; 2) Developing new markets; 3) Developing new varieties; 4) Continuous supply chain improvement; and 5) Year-round global supply.
- The Zespri Model sought to create the advantage of scale and to ensure direct line from the customer to the grower.

Topic: "Key Challenges in the Public-Private Partnership in the Supply Chain of Vegetables and Fruits- Chinese Taipei's APEC Multi-Year Food Losses Project"

Presenter: Dr. Ching-Cheng CHANG, Research Fellow, Institute of Economics, Academia Sinica, Chinese Taipei

- Dr. Chang stated that about one-third of edible parts of food produced for human consumption, which was about 1.3 billion tons per year, got lost or wasted.
- Developing economies in APEC accounted for most of the postharvest losses, with higher losses in the Southeast Asia than the other areas.
- She said that public-private partnership (PPP) was important. PPP can allocate tasks, obligations, and risks among the public and private partners in an optimal way.
- From the private sector side, PPP can reduce risk on investment and assist with entering new markets.
- The public sector had been promoting PPP because of the lack of public funding and the realization that the private sector had better ability to increase efficiency and quality of services.

Session 4: Innovative Technologies and Management on Reducing Food Losses in the Supply Chain of Fruits and Vegetables

Moderator: Mr. Matt CRAWFORD, New Zealand

Topic: "Cold Chain System for Fresh Produce: Case Study of ZEN-NOH"

Presenter: Mr. Minoru SHINOHARA, Deputy General Manager, Horticulture General Control Department, National Federation of Agricultural Co-operative Associations, Japan

- Mr. Shinohara related that there were 227 municipal wholesale markets in Japan. They accounted for 86% of domestic produced fruits and vegetables.
- He said that in the wholesale markets, temperature rose, because of ordinary-temperature warehouse. Thus cold chain was interrupted.
- In order to build temperature controlled warehouse, large initial investment was needed and included high operating cost. New computer system was also installed.
- However, the results were space and management efficiency, customer

satisfaction and higher sales.

Topic: “Innovative Technologies and Management on Reducing Postharvest Losses in the Supply Chain of ‘Irwin’ Mango: A Case Study from Chinese Taipei”

Presenter: Dr. Chun-Ta WU, Associate Professor, Department of Horticulture and Landscape Architecture, National Taiwan University, Chinese Taipei

- Dr. Wu stated that Chinese Taipei’s Irwin mangoes were harvested at ripening stage to ensure best quality.
- He also said that the mangoes were subjected to the application of nondestructive NIR sorting system to ensure outstanding quality.
- In addition, the government had established a safety management program for the orchards and distributors that supplied mangoes for export.
- Furthermore, traceable supply chain management and total-quality management from production to marketing assured food quality and safety.

Session 5: Developing Assessment Methodology and Dataset

Moderator: Ms. Maria Cecilia R. ANTOLIN, Philippines

Topic: “USDA’s Food Availability Data System and Food Loss Estimates”

Presenter: Dr. Jean C. BUZBY, Chief of Diet, Safety, and Health Economics Branch, Economic Research Service, USDA, the United States

- Dr. Buzby mentioned that, according to the Loss-Adjusted Food Availability (LAFA) data series, 31% of the available food supply were lost at the retail and consumer levels.
- If losses on-farm and between the farm and retailer had been included, total postharvest loss in the US would be over 31%.
- She also said that data limitations prevent estimating total food loss across all commodities at the farm level and at the farm to retail levels.
- In addition, food donations at the retail level or transfers to thrift shops suggested that food may be eaten and should not be counted as food loss.
- Quantity food losses at the consumer level in the US were larger than at the retail level for all food groups except added fats and oils.

Topic: How to Evaluate the Losses in the Supply Chain of Vegetables and Fruits in Chinese Mainland?”

Presenter: Dr. Guangyan CHENG, Associate Professor, Institute of Food and Nutrition Development, Ministry of Agriculture, P.R China.

- Dr. Cheng mentioned that proportion of vegetable processing is 18.1 % and the

loss in all the sectors from production to consumption is about 51.3% of the total supply, while the proportion of fruit processing and loss are both 25%.

- There was a high production concentration of fruits and vegetables and a low self-sufficiency rate in cities.
- In addition, the storage and transportation facilities of cold chain were lagging. There were also too many steps in the process of circulation.

Session 6: Roundtable Discussions

Moderator: Dr. Chen-Sheng HO, Chinese Taipei

1. Topic: Key Findings
2. Topic: Follow-Ups

Discussion: All Participants