

International Workshop on Food Loss and Waste Prevention targeting Southeast and East Asian region - Summary

Introduction

The this year's workshop on food loss and waste (FLW), held in Tokyo from October 16th to 18th, 2019, was part of a series voluntarily organised by Thünen Institute after 2015 annual Meeting of G20 Agricultural Chief Scientists (MACS-G20) emphasized the decisive importance to reduce FLW. This year, it was implemented together with UN Environment's programme of regional capacity building workshops on FLW and the World Food Day 2019 of Food and Agriculture Organisation of UN (FAO). The organisation team included the Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF) as the presidency holder of 2019 MACS-G20, FAO Liaison Office in Japan, UN Environment Programme (UNEP) and Thünen Institute (Germany).

The aim of the workshop was to support the delivery of SDG Target 12.3, halving food waste at retail and consumer level, and reducing food loss across the supply chain as well as to facilitate the cooperation and network building among countries in Asia with respect to sharing knowledge and experiences in measuring and reducing FLW at all levels. Guidance was provided on setting baselines and measuring progress on FLW, defining a national strategy on FLW reduction, developing effective actions targeting households and the supply chain, and using FLW to raise ambition on greenhouse gas reduction in the 2020 Nationally Determined Contributions revision.

Target region was Southeast and East Asia with the aim to attract stakeholders along the food supply chain (FSC) from agriculture to waste management (e.g. farmer associations, businesses, research, policy makers, NGOs, consumer associations, social organisations such as food banks, etc.)

The workshop

In total, 78 participants from Japan, China, Macao Special Administrative Region of the People's Republic of China, Indonesia, Republic of Korea, Singapore, Thailand, Taiwan, Saudi Arabia and Germany as well as from FAO and UNEP attended the workshop at United Nations University Headquarters (UNU Centre, Tokyo), Japan from October 16th to 18th, 2019.

The workshop started on October 16th afternoon with a bus excursion to CS Evaluation Center of Sumitomo Bakelite Co. Ltd. which researches special plastic packaging using the Modified Atmosphere Packaging (MAP) technology in order to preserve freshness of fruits and vegetables and extend their shelf-life. Depending on the target food item and its individual respiration activity, the plastic film which is used for the packaging is modified with a certain number of micro holes. The effect of the packaging was presented by using examples of potato, persimmon, broccoli and banana wrapped in different packaging materials or unwrapped in order to compare state of ripeness, smell, color and other

characteristics of the food items. The advanced packaging material can be used by conventional sealing and packaging equipment at even higher prices than conventional packaging film.

The evening of October 16th was dedicated to the World Food Day Event “For a world free from hunger – our actions are our future” provided by FAO, International Fund for Agricultural Development (IFAD), World Food Programme and MAFF. The event included a symposium in order to highlight challenges towards hunger combating on a global scale. The day was closed by a welcome reception including remarks by Mr. Yoshihiro Kawano (Parliamentary Vice-Minister for Agriculture, Forestry and Fisheries), Ms. Toshiko Takeya (Member of the House of Councillors, the National Diet of Japan) and Mr. Katsuhiro Nakamura (FAO National Goodwill Ambassador for Japan) among others and good opportunities for networking.

October 17th was opened with welcome addresses by the organising partners and a **keynote speech** given by Ms. Toshiko Takeya who serves also as Secretary-General of the Japanese Parliamentary League for reducing food loss and supporting food banks. Among others she introduced the recent Japanese Act on Promotion of Food Loss and Waste Reduction. In the first plenary session, presentations from UNEP, Japan and China focused on the **global framework** on the prevention of FLW as well as baseline approaches. The second session provided more insights into FW at **household level** including an **interactive session** which was designed to experience the food waste categorisation proposed and presented earlier in the day by Ms. Okayama. After the introductory explanation, participants were divided into six groups with 8 to 9 people from different countries each. Each group was given a same set of 25 photos of various food items found in household waste, and the task was to sort them into four categories (A: unused ingredients, B: unused ready-to-be-eaten food, C: leftovers, D: intentionally removed parts, which were then separated into D_e: possibly avoidable and D_i: physically inedible). At each group many items were sorted into categories without major disagreements, but for some items there were differences in opinion and at times a heated debate took place. The organisers deliberately selected some tricky items for the workshop in order to stimulate discussion among participants. Looking at the final outcome, the largest discrepancy between groups was the border between D_e and D_i. Some groups decided that items such as broccoli stems, potato peels, and apple peels were D_e, while others classified them as D_i. Another difference occurred between categories A and D. Some came to the conclusion that radish leaves and green ends of leek were cut off and saved as an ingredient, while others thought that they were intentionally removed as parts that will not be eaten. We gather that these disagreement happened because of differences in custom in various countries, and also due to differences in personal values. Many of the participants of this workshop were highly aware of food waste issues, and thus were more willing to put higher values in each item (A rather than D, D_e rather than D_i). The aim of the organisers is to achieve an international understanding and agreement on the framework for sorting, hence there is no need to universally agree on where each individual items are classified. What is important is that in each place, focus is given on wasted foodstuffs that are usually eaten. We were happy to see that the participants understood very well the framework for sorting, and moreover that they enjoyed the "sorting game". We hope that they will try out sorting analyses with real waste in their home countries, according to the sorting scheme proposed in this workshop.

In the afternoon, **legal challenges and policy options** in the context of FLW prevention were highlighted by discussing examples from Japan, Macao and Hongkong which showed different framework conditions, adapted approaches and plans for the future. The presenters shared their experience from a researcher's, a hotel and resorts business company's and waste management company's point of view with close context to practice. The discussion was intensified within the following **poster session** where contributors from research and business sector presented their approaches towards FLW prevention but also utilisation and recycling. Each poster was introduced briefly to subgroups and discussed afterwards. Challenges and perspectives related to **post-harvest losses** in East and Southeast Asian countries were

addressed with the last session of the day. After presentations from research and FAO with background information as well as practical applications, the following discussions were conducted in smaller working groups. Within the most urgent food loss issues in the region, the participants mentioned among others

- storage and transportation losses,
- capacity building and education,
- consideration of weather extremes and climate change,
- improvement of infrastructure,
- need to include demand forecasting technology,
- preservation technology as well as
- data collection and sharing among stakeholders.

As **overarching principles** for food loss reduction, topics such as need to combine traditional with new technologies, education, sharing information among stakeholders in a respectful way, cooperation with other countries to create improved food supply chains (e.g. adjusting export/import standards), a circular economy approach including social and economic issues, support for farmers and other stakeholders to identify their opportunities, interministerial responsibility and cooperation, public-private-partnerships (PPPs) and technology requiring low investment and maintenance costs were highlighted by the participants. As **critical food loss point** along the FSC transportation was mentioned. A gap between producers and consumers in fresh agrifood market, inappropriate cooling facilities and extreme weather conditions were identified as **main reasons for food losses** in the region. From China the implemented food waste classification and the clean food plate plan as well as the Thailand plan to study rice losses more in detail were mentioned as policies supporting food loss prevention. The participants collected ideas on **desirable policies** such as government support for local farmers related to food loss reduction, subsidies for cooling facilities investments, enhancing local sourcing of supermarkets to keep FSC short as well as need of advanced organisation of information flow and coordination of authority's responsibilities in order to reduce food losses. As **barrier** for the development of useful food loss reduction policies, data gaps on food losses for specific commodities as well as a lack of budget allocation for data collection were identified by the working groups.

October 18th started with a session related to food waste in the **food service sector**. Three presentations presenting research results from Japanese sports events, experiences from practice addressing food waste prevention activities in Chinese restaurants and measuring food waste in kitchens by using artificial intelligence equipment were the basis for further group discussions. The participants expressed that the **following insights or data** could support their individual work towards food waste prevention:

- data on generation of food waste in different sectors on annual basis as well as in relation to number of clients and food input to sector/company along with metadata (e.g. product groups, origin (storage, preparation, plate...))
- specific food waste data on rice
- comparable data with harmonized units, available time series
- separate measurement for edible and inedible food waste
- environmental impact of generated food waste per food category such as imported/local, plant-based/animal-based, raw/cooked
- reduction potential of specific measures in practice, Key performance indicators (KPIs) on policy efficacy
- impact of weather on food demand/eating habits of clients
- clear reduction targets
- adjusted internal information flow on food waste data for self-improvement
- data on rescued food which was not wasted due to implemented prevention measures (e.g. food donation data)

- more information on (legal) framework in order to fight arguments against data measurement and implementation of prevention measures
- posters and POPs (small posters for table display) should be provided by authorities
- individual practical guidelines and trainings for different types of food service institutions
- information on food waste treatment
- collaboration with private sector in relation with sharing data and encouraging stakeholders (e.g. by chamber of commerce)

The participants also reflected the presented measures for their own countries and framework conditions and identified some issues which should be **considered before implementation** such as conflicting competition between prevention and recycling (e.g. biogas).

But there were also measures such as the preparation of specific food items in smaller portions within food service kitchens instead of bulk preparation, the use of educational posters and POPs, the use of artificial intelligence technology supporting data collection and management or implementing a price by mass at buffets which could be **transferred** to other countries without expecting problems due to different local framework conditions (e.g. cultural, legal).

In session 7, **National strategies on FLW**, UNEP presented elements for a national strategy for reducing FLW: a plan of action within national borders, which can be oriented around the delivery of SDG 12.3. A national strategy will include a suite of programmes, policies, practices, incentives, and/or other related measures to influence the actions of farmers, companies, consumers, and political bodies in order to achieve the reduction target.

A national strategy has the power to align public policies along with private sector actions, farmer practices, and consumer behavior toward a common target—governments cannot achieve the SDGs on their own. It needs to be politically supported, backed by financial resources, and monitored for follow through.

As an example, a national strategy on food loss and waste may include:

- The adoption of SDG 12.3 at national level
- Measurement of baseline and progress across time
- A range of policies, for example:
 - A voluntary agreement on SDG 12.3 in retail and manufacturing sectors
 - A requirement for food companies to report on FLW
 - Simplification and awareness raising around date labels
 - Simplification of food donation policy and efforts to improve understanding of it
 - Incentives for food donation and/or a requirement for retail-food bank partnerships
 - Enabling policies for sustainable cooling and cold chains
 - Market development for by-products & cosmetically imperfect produce
 - Promotion of entrepreneurship and social innovation to resell or reuse surplus (i.e. ugly fruit juices, sharing apps)
 - Consumer awareness-raising (including in schools)

Ms. Anuda Tawatsin of the Pollution Control Department, Ministry of Natural resources and Environment of Thailand presented the national strategy of Thailand and its extensive activities on food waste prevention. Ms. Clementine O’Connor of UNEP convened a working session where participants took stock of activities in their own country and developed new ideas for a national strategy on FLW at home. The results of the working session were as follows:

Target

Few targets in line with SDG 12.3 have currently been set in Asia. Only Japan has a target on FLW consistent with SDG 12.3 in the region. China and Vietnam have set targets only on food loss. Workshop participants from Thünen Institute confirmed that Germany and Austria had adopted the target, participants from Saudi Arabia stated that the target had not yet adopted the target but that this was expected soon, and Thailand confirmed the target had not yet been adopted nationally.

Measure

Japan has data on FLW at all levels except production and post-harvest loss. Germany and Saudi Arabia published their baselines this year. Thailand expects to publish its baseline in 2020. In Singapore, measurement is on-going.

Act

Participants from Japan noted the need to raise awareness on FLW in the run up to the Olympic Games, cited the need for Good Samaritan legislation, and mentioned the relevance of incentives or mandatory partnerships for food donation, awareness raising around expiry dates, and food education attuned to the needs of urban and rural populations.

Thünen Institute highlighted their activities: awareness raising campaigns, an award for company innovation on food waste, subsidies for investments on food waste prevention, school education materials, and roundtables for stakeholders. Saudi Arabia pointed to the action plan on FLW it has developed and implemented, including public awareness raising.

Participants suggested **new ideas for action**, including support to the food service sector in reporting on food waste, and a regional food waste audit.

Within session 8, **Facilitating cooperation and network building on FLW in the region**, Dr. Ching-Cheng Chang of Institute of Economics, Academia Sinica of Taiwan, Coordinator of the APEC-FLOWS Initiative on FLW, presented on existing networks and regional cooperation on FLW in the APEC region. She noted that FLW has been repeatedly underscored as one of the primary tasks to safeguarding food security in relevant APEC fora and leaders' meetings. The APEC-FLOWS initiative convenes an annual workshop hosted by an interested economy in the region, and produces an annual APEC FLW reduction outlook report, that covers regional trends, updated data, local action and policies, and highlights challenges and opportunities.

Subsequently, Ms. Clementine O'Connor of UNEP facilitated a discussion in two groups on what is needed to strengthen regional cooperation on FLW in Asia. Most participants agreed more regional cooperation on the issue would be helpful, citing the sharing of challenges with regard to data collection and collaboration in developing relevant new technologies. It was noted that Japan imports a large proportion of its food, and thus cross-supply chain and international collaboration are necessary to address the issue effectively. Participants noted the importance of engaging local governments in collaborative activities as well. Existing cooperation on FLW among APEC economies and the ASEAN+3 network was noted. It is important to build on these initiatives effectively.

In terms of activities that would be most helpful for regional cooperation, participants pointed to: public private partnerships for technology transfer, citizen-driven solutions through consumer groups and social networks, regional reporting on FLW data, and regular workshops to track regional progress towards SDG 12.3. Existing conferences, such as the APEC-FLOWS annual workshop, the ASEAN conference, the FAO regional conference and the One Planet Network Sustainable Food Systems Programme Summit (to take place in Thailand in 2020), could be good opportunities for stakeholder collaborations on FLW.

Most of the workshop's presentations, the participant list as well as photos from the workshop are provided at [MACS-G20 website](#) for public download in order to facilitate further cooperation and inspiration.

All organising partners would like to thank the chairs, presenters, poster providers, participants and staff members for contributing to a successful workshop on FLW! The FLW workshop series organised by Thünen Institute will be continued in 2020 in cooperation with Saudi Arabia which already sent a delegation to the Tokyo workshop for collecting inspiration and discussing pressing issues for the region.