

Editorial Statement

The Pacific Economic Cooperation Council (PECC) is a unique tripartite partnership of senior figures from business, government and academia who participate in a private capacity to freely discuss current practical and policy issues affecting the Asia-Pacific region.

Established in 1980, PECC currently comprises 26 members from across the region, each with their own committee. Of these members, one is an associate, while two are institutional members representing the Pacific Trade and Development Conference (PAFTAD) and the Pacific Basin Economic Council (PBEC).

As the sole official non-governmental observer of APEC since the latter organization's founding in 1989, PECC has provided information and analytical support to APEC, and has also channeled and facilitated the private sector's participation in APEC projects and processes.

The Chinese Taipei Pacific Economic Cooperation Committee (CTPECC) was formed in 1984 to participate in PECC events as an observer, and in November 1986, its application for full membership was approved at the 5th PECC General Meeting, since which time CTPECC has been a full and active member of PECC.

The Chairman of CTPECC is Dr. Chien-Fu Jeff Lin, President of the Taiwan Institute of Economic Research (TIER), and the Secretariat of CTPECC is located at the TIER Department of International Affairs. The Director General of CTPECC is Dr. Darson Chiu.

Asia-Pacific Perspectives is a key publication of CTPECC and an open forum welcoming submissions of analyses, perspectives, and commentaries on the Asia-Pacific region. The newsletter focuses on political, economic and social issues.

For enquiries and submissions, please contact Mr. Alexander Martin.

Address: Taiwan Institute of Economic Research, 5F, No. 16-8, Dehuei Street,
Zhongshan District, Taipei 10461, Taiwan.

Email: d33517@tier.org.tw

ISSN: 1997-5511

Copyright © by CTPECC

Asia-Pacific Perspectives

Publisher:

Dr. Chien-Fu Jeff Lin 林建甫

(Chairman, CTPECC)

Chief-Editor:

Dr. Darson Chiu 邱達生

(Director General, CTPECC)

Editorial Committee:

Dr. Sheng-Cheng Hu 胡勝正

(Academician, Academic Sinica)

Dr. Chyuan-Jenq Shiau 蕭全政

(Professor, National Taiwan University)

Dr. Shunyo Liao 廖舜右

(Associate Professor, National Chung Hsing University)

Dr. Chen-Sheng Ho 何振生

(Director, Department of International Affairs, TIER)

Dr. Charles T. Chou 周子欽

(Deputy Director, Department of International Affairs, TIER)

Dr. Wayne Chen 陳威仲

(Associate Research Fellow, TIER)

Editors:

Alexander Martin 馬騰

(Assistant Research Fellow, TIER)

Tzuying Chen 陳子穎

(Assistant Research Fellow, TIER)

Iris Liu 劉芸甄

(Research Assistant, TIER)

Asia-Pacific Perspectives Online: <http://www.ctpecc.org.tw>

CTPECC Facebook: <http://www.facebook.com/CTPECC>

Contents

Table of Contents

APEC Charting a Course Through Global Trade Turbulence 4

Eric Chiou

Formation of APEC’s Post-2020 Vision:

Observations from SOM2 2018 9

Linda Liu

A General Comparison of National e-sports Policies 12

Gary Chen

**Summary of Activities, Findings and Recommendations from
the APEC High Level Policy Dialogue on Enhancing Public and
Private Partnership to Reduce Food Losses and Waste for a
Sustainable APEC Food System 15**

Council of Agriculture



APEC Charting a Course Through Global Trade Turbulence

Eric Chiou

Amid the recent escalation of trade tensions in the global economy, the APEC Trade Ministers Meeting held in late May achieved significant and fruitful results, showing that APEC remains resilient and is determined to serve as a rudder for its members to safely sail through the billows of global trade turbulence.

Without a doubt, this latest bout of instability in world trade is due not to the unpredictability of natural disasters, but can be primarily attributed to human causes. US-China trade disputes have become the epicenter of this global trade upheaval, threatening to wipe out the fruits of the hard-earned economic recovery that has taken place in the ten years since the 2008 global financial crisis.

Under this highly volatile global economic climate, international trade frictions, if not handled carefully, can easily escalate to trigger unexpected consequences. Such hazards are especially possible at this particular juncture, given the recent roller-coaster developments in US-China trade negotiations, which lurched from the brink of a trade war, back to a truce, and then right back towards a devastating confrontation.

Given the uncertainty involved in these US-China trade disputes, various international economic organizations and forums, including the WTO, IMF,

protectionism and reiterated their unwavering support for free trade. These bodies have also consistently expressed their opposition to any use of tariffs or non-tariff measures to distort free trade.


As one of the most active economic forums in the Asia-Pacific region, APEC has persistently devoted efforts to facilitating an open and free trading environment, enshrining the principle of open regionalism and upholding its long-term vision of the Free Trade Area of the Asia-Pacific (FTAAP).

After their May meeting, APEC trade ministers issued a joint statement demonstrating their steadfast determination to pursuing further reforms while accelerating the pace of regional economic integration. In addition, they also noted the ongoing trade spats between members while saying they are willing to take concrete measures to address these deep-rooted issues.

The statement indicates APEC recognizes that the benefits of trade have not been evenly distributed among all segments of society, and that income inequality has increased among APEC members. These admissions suggest that APEC members are pursuing the benefits of globalization while developing an awareness of the negative effects of deeper economic integration among states.

Not only that, the statement reveals that APEC understands that mounting protectionism is being driven mainly by a backlash to the uneven distribution of economic benefits between states and peoples within states brought about by globalization. Correcting this inequality is an imperative that needs to be appropriately addressed with collective action, and the statement demonstrates that APEC is willing to take on this challenge.

Furthermore, to counter ongoing anti-globalization and anti-free trade sentiments, the statement also emphasizes the role of APEC as an incubator and facilitator for multilateralism. Aside from its push toward FTAAP, APEC aims to enhance its member economies' ability to participate in high-quality,



comprehensive free trade agreements through capacity building initiatives.

APEC trade ministers seem fully aware that the origins of recent trade tensions stem not only from trade imbalances and tariffs, but also from more complicated trade issues which have not been adequately addressed by the WTO. As a result, these ministers have decided to develop a work plan for taking on Next Generation Trade and Investment Issues.

To enhance economic integration among APEC members and strengthen institutional participation in trade and investment, the ministers also reached an agreement on support for investment promotion, facilitation and retention through the Investment Facilitation Action Plan, as well as on other international investment principles and practices. Additionally, the ministers also acknowledged efforts to address non-tariff measures, while encouraging APEC members to continue relevant capacity-building initiatives.

Most importantly, given the approaching 2020 deadline for meeting the Bogor Goals, APEC must develop a post-2020 vision to continue addressing regional challenges and exploiting economic opportunities.

Although the preceding analyses suggest that APEC trade ministers have worked to help APEC weather an approaching thunderstorm of trade protectionism, the divides among APEC members remain significant, as seen in the Statement of the Chair on Supporting the Multilateral Trading System issued in that meeting.

The first sentence of the statement indicates that it "reflects the Chair's assessment of the prevailing views of APEC economies," revealing an implicit divergence between APEC members. With this prefatory phrase, the subject of the statement, "Supporting the Multilateral Trading System (MTS)," which heretofore had been regarded as part of APEC orthodoxy and had frequently appeared in various formal APEC statements, must then be addressed individually by economy. Hence, this statement itself symbolizes a

significant departure from APEC convention.

The chair's statement recognizes "the importance of international trade to stimulate economic growth, support job creation and drive prosperity and development," and reaffirms a "commitment to achieving free and open markets in the Asia-Pacific region and the importance of international trade to job creation."


Additionally, it also underscores "the importance of ensuring the effective functioning of the rules-based, transparent, non-discriminatory, open, and inclusive MTS as embodied in the WTO," and pledges that APEC members will "work together to support, strengthen and improve the MTS."

Furthermore, the statement reaffirms "APEC's leadership to promote free and open markets," as well as its "commitment to keep markets open, and to fight against and to rollback protectionist and trade distorting measures."

Those familiar with official APEC statements may wonder why such boilerplate APEC verbiage appeared in this Statement of the Chair, though the reason should not come as a surprise when one recalls the recent G7 summit which was mocked as "G6 plus one." This chair's statement may be viewed in the same vein as that summit, as an expression of collective resistance by APEC members to the unilateralism and protectionism of the Trump administration.

Since the US opposed inclusion of an expression of support for the multilateral trading system in the formal statement issued by APEC trade ministers, the rest of APEC members as a result listed their "prevailing views" in the Chair's statement. Although APEC has been known for its inclusive and often watered-down resolutions, it remains rare to see such a huge divide appear in an APEC meeting.

One certainty is that this standoff of "the US versus the rest" may return frequently in APEC meetings throughout the year. Given the tenacity of the



Trump administration in pursuing fair trade and opposing multilateralism, this divergence between APEC member economies regarding the organization's future direction is likely to remain unresolved.

But it is precisely APEC's inclusivity, openness and emphasis on facilitating consensus that will continue to play a vital role in helping its member economies safely navigate the troubled waters of global trade amid challenges to economic integration in the Asia-Pacific region.


(Eric Chiou is an Associate Professor in International Political Economy at National Chiao Tung University)

Formation of APEC's Post-2020 Vision: Observations from SOM2 2018

Linda Liu

As the 2020 deadline for the Bogor Goals approaches, APEC has been seeking to map out its future vision, including through specialized group discussions at the second APEC Senior Officials Meeting (SOM2) in 2018, held in Port Moresby, Papua New Guinea, from May 14 to 24. This article will outline some observations and thoughts on meetings of the first APEC Vision Group (AVG1) and of the related SOM Steering Group (SSG) on APEC's Post-2020 Vision.

The AVG1 meeting touched on APEC's achievements so far. Attendees noted that the Asia-Pacific region will soon account for almost 60% of the world's GDP, and that average tariffs in the region have fallen since the establishment of the Bogor Goals in 1994. Meanwhile, extreme poverty conditions have been alleviated while the middle class has also been strengthened. However, deficiencies across APEC remain, with the goal of achieving free and open trade and investment by 2020 in the region still a ways away, and tariffs in important industries such as agriculture still high despite declining average duties. Additionally, non-tariff measures and restrictions on foreign capital have seemed to increase, and uneven economic growth has prevented some social groups from receiving the benefits of globalization. During AVG1, the APEC Secretariat further mentioned that if there is strong interest in AVG in the future, consultations may be held



with relevant APEC working groups and other affiliate organizations, including the Association of Southeast Asian Nations (ASEAN), the Pacific Islands Forum (PIF), the APEC Policy Support Unit (PSU), APEC Business Advisory Council (ABAC) and the Pacific Economic Cooperation Council (PECC). AVG representatives may also decide to invite representatives from the aforementioned organizations to serve as observers at upcoming AVG meetings.

To facilitate interactions and discussions between AVG and SOM, a SOM Steering Group (SSG) has been established, with its membership consisting of Senior Officials from past, present and future APEC host economies from the years 2016 to 2022. At SOM1, the SSG meeting was a subject of concerns regarding its limits on participation from other economies, which was regarded in some quarters as contrary to APEC's consensus-based tradition. After several efforts were made during the intersessional period to allow non-SSG members to participate and voice their opinions in future AVG, SSG and joint meetings, most procedural concerns were resolved, and subsequent discussions have been relatively smooth and constructive. In particular, a certain SSG co-chair sought to allay the concerns of other economies by reiterating that the role of SSG should be to coordinate communications between SOM and AVG rather than to replace the role of SOM, and emphasizing that SSG has worked on guidelines under which AVG can operate efficiently and secure outcomes from discussion.

To create a more open atmosphere at SSG meetings, delegates are not assigned seats in the typical alphabetical order used by APEC, but are rather allowed to sit where they please. At these meetings, some non-member economies actively voiced their opinions on the outstanding and still contentious question of whether or not to involve other APEC-related bodies or international organizations in AVG's shaping of a post-2020 vision. The

SSG meeting acknowledged the importance of involving these organizations, but reiterated that SOM will still have the final say in approving any decision made. This clarification was made to preserve the effectiveness of the multi-stakeholder dialogue to be held at SOM3 this year, which aims to strengthen and broaden the discussion of APEC's goals beyond 2020.

At the SSG-AVG joint meeting, representatives from the APEC Secretariat delivered an overview of APEC's history and evolution over the past few decades, as well as the obstacles it has faced and its future challenges ahead, all with the aim of reminding AVG representatives of the importance of passing on APEC's ambition for building a free and open trading environment and its concurrent emphasis on maintaining inclusive growth. However, the choice of some APEC member economies to assign senior officials to serve as AVG representatives, and others to assign ad-hoc representatives, suggests that member economies are approaching the formulation of a post-2020 vision from different perspectives. Possible reasons for this divergence might be a desire to streamline or simplify coordination between AVG and SOM domestically, or may also stem from the view that the function and tasks of AVG do not vary significantly from that of senior officials. The decision by economies to name their senior officials to concurrent positions as AVG representatives, or to select new AVG representatives based on their backgrounds, may reveal, together with the degree of commitment that each representative has made or will make, the sort of efforts and planning that each economy is willing to take on the way to APEC's new era after 2020. As the political tectonic plates in the Asia-Pacific region gradually shift, this will become an important point of interest for the two years to come.

(Linda Liu is an Assistant Research Fellow at the Taiwan Institute of Economic Research)



A General Comparison of National e-sports Policies

Gary Chen


As physical and social environments continue to change, popular sports and recreational preferences have reached a point of transition, as the increasing degree of immersion in video gaming allowed by technological advancement has paved the way for a gradual shift in public perception of video games. Moreover, innovations in communications technologies have forced the individuals and organizations involved in the gaming industry to formulate new legal definitions of gaming and prepare for new challenges. On November 7, 2017, the Legislative Yuan passed a bill to amend part of the Sports Industry Development Act, formally recognizing e-sports as part of the sports industry and, in turn, requiring public organizations at various levels to allocate funds to e-sports under relevant policies and development projects. The bill also made Chinese Taipei a world-leader in recognizing e-sports competitions as formal sporting events. For the sake of evaluating the progress of other economies in recognizing and developing e-sports, this essay briefly introduces the current state of e-sports across various economies.

Besides Chinese Taipei, China is the only other economy that has passed laws and regulations recognizing e-sports competitions as formal sporting events. In 2003, the General Administration of Sport of China formally listed e-sports as one of the economy's official categories of sports at the ceremony

marking the launch of the Chinese Digital Sports Exchange Platform. In contrast, views on e-sports differ in economies such as Korea, Malaysia, Italy and the United States because of different development conditions.

E-sports has become a primary industry in Korea, which is an acknowledged world leader in e-sports development. Since the launch of the World Cyber Games in 1997, e-sports has ranked among the top three sporting events in the country, along with soccer and go. To promote e-sports, the Ministry of Culture, Sports and Tourism of Korea ratified the Act on Promotion of E-Sports, charging the Game Industry Section of the Cultural Industry Department with managing and promoting e-sports. In contrast to the economy's Act of Promotion of Sports, which aims to promote conventional athletic sports, the Act on Promotion of E-Sports regulates government funding for e-sports and policies establishing departments at universities and other institutions to develop professional athletes. Regarding academic advancement, Chung-Ang University is the only institution to include e-sports performance as an assessment criterion in its admission review process. But as for Korea's national conscription system, medal winners in major e-sports events are still required to serve, unlike medalists in conventional sporting events, who may be eligible for exemption from conscription.

The United States government has yet to put forth a clear, independent definition of e-sports, which is still categorized as a part of the technology and gaming industries rather than the sports industry. However, e-sports players competing in the United States may apply for a P1 visa, which is applicable to professional entertainers or athletes taking part in short-term events held in the United States. In the academic sector, the National Association of Collegiate E-sports serves as the management association for college-level e-sports activities in the United States. Currently, 56



universities in the United States offer courses or subjects related to e-sports, and over 30 universities offer scholarships for e-sports athletes. It is especially worth mentioning that Stephens College in Missouri is the first school to offer scholarships specifically for female e-sports athletes.

In Malaysia, eSports Malaysia (eSM), which is responsible for holding various competitive events, was registered with the Sports Commissioner's Office of the Ministry of Youth and Sports in January 2015. However, Malaysia has not yet adapted its training and subsidization schemes for traditional athletes to competitors in e-sports.

Italy's e-sports industry is currently promoted by the Italian Sports Federation and supervised by the Italian National Olympic Committee, though Italy does not at present provide academic advancement counseling services to e-sports athletes. As conscription in Italy became voluntary in 2005, e-sports athletes do not face military service obligations. Notably, the technology company MSI sponsors e-sports competitors and competitions in Italy and provides related technical support.

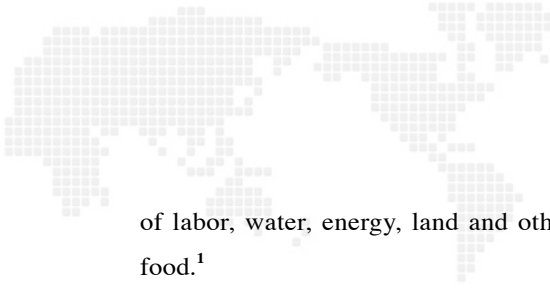
As an increasingly popular activity, e-sports has been listed as a demonstration sport in the upcoming 2018 Asian Games in Jakarta, Indonesia, and will make up a formal event in the 2022 Asian Games held in Hangzhou, China. There is also rising demand for e-sports to be listed as an Olympic event at Paris 2024. Thanks to policy support and overall government planning, we anticipate that elite e-sports athletes should have greater opportunities to perform at international events in the years to come.

(Gary Chen is an Assistant Research Fellow at the Taiwan Institute of Economic Research)

Summary of Activities, Findings and Recommendations from the APEC High Level Policy Dialogue on Enhancing Public and Private Partnership to Reduce Food Losses and Waste for a Sustainable APEC Food System

Council of Agriculture

1. We, the high level representatives of APEC member economies in attendance at the APEC High Level Policy Dialogue on Enhancing Public and Private Partnership to Reduce Food Losses and Waste for a Sustainable APEC Food System, held in Taipei from June 14 to 15, 2018, acknowledging the urgent need to reduce food losses and waste (FLW) in the supply chain to achieve food security and a sustainable food system, hereby: (I) recognize the activities conducted under APEC Multi-Year Project APEC MYP SCE 02 2013A to reduce FLW; (II) summarize the findings of these activities; and (III) encourage APEC member economies to adopt the following recommendations derived from these activities and findings, as listed in the corresponding sections below.
2. We recognize that APEC economies face food security challenges arising from population growth, rapid urbanization, changes in diet, natural resource constraints, inequality in income and resource distribution, and climate change.
3. We acknowledge that up to one-third, or approximately 1.3 billion tons, of food produced for human consumption each year is lost or wasted along the supply chain, representing enough food to feed the estimated 1 billion people around the world that are food insecure, and resulting in the waste



of labor, water, energy, land and other resources used in producing that food.¹

4. We reaffirm that the reduction of food losses and waste can strengthen food security and support the attainment of a sustainable food system.
5. We take note of UN Sustainable Development Goals (SDGs) Target 12.3, which calls on governments, the private sector and individuals to, "[b]y 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses."
6. We recognize that the issue of FLW can best be addressed from three perspectives: "a systemic perspective; a sustainability perspective, including the environmental, social and economic dimensions of sustainability; and a food security and nutrition perspective, looking at how food losses and waste relate to the various dimensions of food security and nutrition." ²
7. We emphasize that, under the APEC Food Security Roadmap Towards 2020, approved in 2014, the long-term goal of the Policy Partnership on Food Security (PPFS) is the attainment by 2020 of a sustainable food system sufficient to provide lasting food security to APEC member economies.
8. We recall that APEC economies committed in the APEC Food Security Roadmap Towards 2020 to "strive to reduce food loss and waste by 10% compared with the 2011-2012 levels by 2020 in the Asia-Pacific

¹ Statistics by United Nations Food and Agriculture Organization (FAO).

² 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.


region, [and to] aim to advance beyond the Millennium Development Goals (MDGs) 2015 hunger goals," noting that the 10% specified in that goal is an average level for all economies, with specific indicators to be developed based on each economy's respective situation.

9. We recognize the important role of public-private partnerships in achieving food security, and welcome these partnerships as a key part of any PPFS activity, as emphasized in the APEC Food Security Roadmap Towards 2020.

I. APEC Activities to Support the Reduction of Food Losses and Waste

10. We recognize that, under the APEC Multi-Year Project "Strengthening Public-Private Partnership to Reduce Food Losses in the Supply Chain" (APEC MYP SCE 02 2013A, hereafter "APEC MYP FLW") and associated initiatives, APEC has undertaken a number of activities to support its objective of reducing FLW in APEC member economies.
11. We note that "A Food Loss and Waste Quantification Handbook for APEC Economies" (hereafter "APEC FLW Handbook"), produced under APEC MYP FLW, provides a review of food loss and waste definitions, measurement approaches and APEC case studies to support APEC member economies in developing their own systematic quantification methods to estimate FLW, while drawing on the Mass Flow Model and 2011 Food Balance Sheet of the United Nations FAO to provide baseline FLW quantity data for 19 APEC member economies.³

³The UN FAO Mass Flow Model facilitates the simple mathematical estimation of food waste across the food chain through an assessment of the change in weight and quantity of products at each stage of production.


- 
12. We further note that the "APEC Survey on Food Loss and Waste Reduction Policy" (hereafter "first FLW survey") was carried out under APEC MYP FLW in May 2017 with the main purpose of assessing the current progress of implementation of programs and initiatives across APEC economies to reduce FLW, and received responses from 15 APEC member economies.
 13. We also note that the "APEC Survey on No-regret Solutions for Food Loss and Waste Reduction" (hereafter "second FLW survey") was carried out under APEC MYP FLW on a continuing basis to collect the responses of APEC economies on (1) their targets, policies and strategies for FLW reduction; (2) their methodology for defining and measuring FLW; (3) their FLW diversion potentials derived from no-regret solutions⁴ and the implementation costs of those solutions; and (4) examples of public-private partnerships (PPP) to reduce FLW; this survey received responses from 15 APEC member economy representatives.
 14. We note that the "APEC Project on Food Loss and Waste System" (hereafter "APEC-FLOWS") was established as a public platform to share FLW quantification methods, to disseminate best practices and policies for reducing FLW, and to publicize the results of expert consultations and other capacity-building activities attended by APEC member economy representatives for reducing losses and waste of grain, vegetables, fruits, fishery and livestock products at each stage of the supply chain.

⁴The term "no-regret solution" refers to "Actions to reduce greenhouse gases emissions that have negative net costs (i.e. win-win solutions)" (IPCC, 2001). Here, a no-regret solution to reduce FLW refers to a solution that is beneficial or useful even without accurate measurement or reliable information, or a solution that carries a relatively low cost of implementation.

15. We acknowledge the close collaboration between ATCWG, OFWG and PPFS in carrying out these activities for reducing FLW and enhancing food security across APEC.
16. We also acknowledge and value the contributions to these goals made by the APEC project "High Level Public-Private Forum on Cold Chain to Strengthen Agriculture & Food's Global Value Chain," as well as by the APEC project "Enhancing Connectivity of APEC Grain Standards & Small Farmer and Small and Medium-Sized Enterprises' Food Loss-Reduction Technology and Experience," which, through enhancing connectivity of technical quality standards for grain across APEC economies, has contributed to facilitating grain trade, supporting industrial development, promoting technical progress, and reducing the grain lost and wasted during trade among member economies.

II. Findings of Food Losses and Waste Reduction Activities in APEC Economies

17. We have found that losses and waste of fruits and vegetables in APEC economies are 45.38% and 42.64%, respectively, because of the relatively short shelf-lives and high quality standards for these products; losses and waste of fish and seafood stands at 39.20%; losses and waste of meat averages 21.14%; losses and waste of milk and dairy products is 17.44%; losses and waste of eggs is 16.45%; and losses and waste of cereals is the lowest of all product categories examined, with losses and waste of maize at 7.61%, and wheat and rice between 15% and 19%.
18. We have also found that losses and waste of each given type of product occur differentially across the various stages of the supply chain, with proportionally more fruits and vegetables lost or wasted during




production, processing and packing, and proportionally more seafood and meat wasted in distribution.

19. We have found, in the first FLW survey, that there is an average of 4.3 FLW reduction programs per APEC member economy; that developing economies are relatively more focused on reducing post-harvest losses; that developed economies are engaged in efforts to reduce food losses and waste across the entire supply chain; that developed economies also have better systems to measure food losses and waste across the entire supply chain; that developed economies are more confident of meeting the APEC goal of reducing FLW by 10% by 2020, given their current policy and regulatory initiatives; and that developing economies are less confident in their capacity to reach this goal, having reported insufficient funding and resources, a dearth of standardized and reliable data, and a lack of consumer attention on the issue of reducing FLW.
20. We have found, in the second FLW survey, that APEC member economies have implemented a variety of no-regret solutions to reduce FLW which can be sorted into three main categories: prevention solutions, which eliminate avoidable FLW at the source, including by improving cold chain infrastructure, adjusting packaging to increase the shelf life of food products, changing customer behavior, and serving smaller portions at dining places; recovery solutions, including solutions supporting food donation such as donation tax incentives, standardized donation regulation, donation matching software, donation transportation, donation storage and handling, donation liability protection, and safe donation education; and recycling solutions, under which unavoidable FLW can be composted or otherwise recycled as food or animal feed.
21. We have further found that the results of the second FLW survey reaffirm

the importance of public-private partnerships in FLW reduction activities, outline what APEC member economies consider the key indicators of successful public-private partnership projects, highlight the strengths and weaknesses of these partnerships in FLW reduction activities, and suggest directions for improving public-private partnerships to reduce FLW.

22. We have further found that by implementing no-regret solutions, APEC member economies could potentially reduce collective food losses and waste by approximately 112 million tons per year and thereby achieve or exceed the APEC goal of reducing FLW by 10% by 2020; could create a diversion potential worth about \$141 million per year at an average cost estimated at \$29.5 million per year, creating economic value of about \$112 million annually; and could, by implementing no-regret solutions to eliminate avoidable FLW of approximately 36 million meals per year and 17.8 billion gallons of water per year, reduce greenhouse gas emissions by more than 163 million tons per year, and generate at least 184,000 jobs annually.
23. We have found that the use of innovative technologies for adapting to climate change, such as on-farm procedure improvements, temperature and water-content control systems, quality control systems, packing and storage improvements, transportation improvements and other technologies recommended in the project "U.S.–APEC Technical Assistance to Advance Regional Integration" can further reduce production and post-harvest losses of agricultural products.
24. We have further found that other non-technological improvements made across the supply chain, such as improving temperature control, monitoring and handling procedures in the cold chain, can considerably reduce FLW in a cost-effective manner.



III. Recommendations to Reduce Food Losses and Waste in APEC

25. We encourage APEC member economies to consult the resources produced under APEC MYP FLW and to refer to relevant information and activities from the United Nations Food and Agriculture Organization (FAO), the United Nations Environment Programme (UNEP), the World Resources Institute (WRI), the Waste and Resources Action Programme (WRAP), the EU-funded REFRESH project, the Consumer Goods Forum (CGF), the World Business Council for Sustainable Development (WBCSD), the Rethink Food Waste through Economics and Data (ReFED) program, the World Food Program (WFP), the International Fund for Agricultural Development (IFAD), the Organization for Economic Cooperation and Development (OECD) and Champions 12.3.
26. We encourage APEC economies to hold regional seminars and workshops, to liaise with other relevant APEC sub-fora and international organizations, to carry out other activities to share their best practices on FLW reduction, and to publish these best practices on the APEC-FLOWS platform.
27. We encourage APEC economies to systematically measure FLW in their food systems, while also recognizing the importance of initiating active efforts to reduce FLW even without final measurements.
28. We encourage APEC economies to support the establishment of an organization to coordinate future regional programs and efforts to measure and reduce FLW.
29. We encourage APEC economies to conduct improvements, including low-cost steps that can be implemented quickly, to their cold chain

systems in order to strengthen global value chains for foods and agricultural products.

30. We encourage private sector actors across APEC to implement feasible solutions to reduce FLW, recognizing that engaging the private sector in a meaningful way can help develop business strategies around FLW reduction and meet regional food security challenges.
31. We encourage the adoption of voluntary agreements between government, industry, researchers, academics, and food supply chain stakeholders to promote policies and funding initiatives for reducing FLW.
32. We encourage APEC economies to recognize that the promotion of food donation through tax incentives and the expansion of consumer education programs, such as public information about date labeling systems and proper storage for fruits and vegetables, are important parts of reducing food waste at the retail and consumer levels.
33. We encourage the development of policy environments that enable open and efficient markets, private sector investment, and gender-equitable access to factors of production, products and income, with consideration of where deregulation can address deficiencies in infrastructure, training, fairness and education to enhance FLW reduction outcomes at each stage of the food supply chain.
34. We support the APEC Services Competitiveness Roadmap (2016-2025), which encourages the development of services-related statistics to measure the services regulatory environment in APEC economies for APEC-wide actions and individual economy action, acknowledging that innovative solutions offered by finance, logistics, telecommunications and other service industry sectors are critical for reducing FLW across the supply chain.



Memo

A large, empty rectangular area with a light gray background, intended for writing the memo's content.