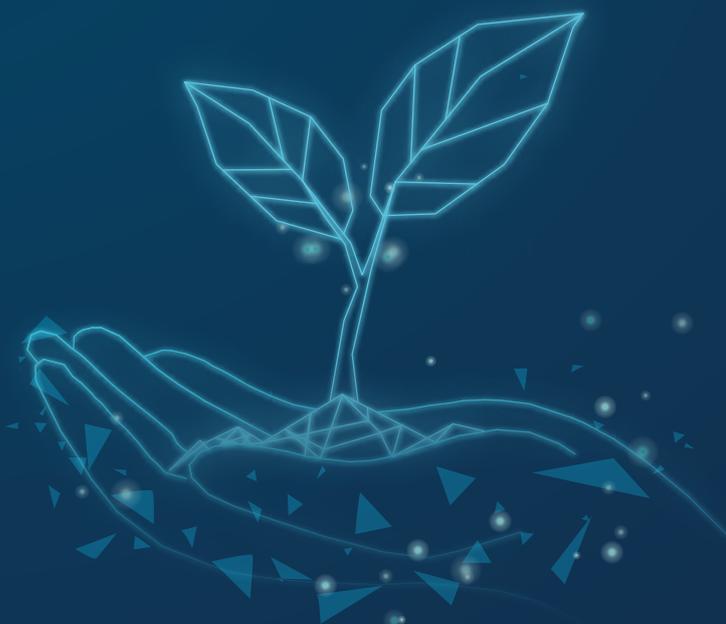




Asia-Pacific
Economic Cooperation

Plant Back Better Toolkit



Emergency Preparedness Working Group (EPWG)

APEC Project: EPWG 03 2017A

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**APEC Emergency Preparedness
Capacity Building Center**



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Acronyms and Abbreviations



Acronyms and Abbreviations

APEC	Asia-Pacific Economic Cooperation
APP	Application
ARP	APEC Resilience Partnership
BCM	Business Continuity Management
BCP	Business Continuity Planning
CIP	Critical Infrastructure Protection
CISR	Critical Infrastructure Security and Resilience
CTWG	Counter-Terrorism Working Group
DRR	Disaster Risk Reduction
EPCC	Emergency Preparedness Capacity Building Center
EPWG	Emergency Preparedness Working Group
GDP	Gross Domestic Product
GVCs	Global Value Chains
ICT	Information and Communication Technology
ILP	Intelligence-led policing
KY	Known-You Seed Co., LTD.
KYP	Known-You Seed Philippines, Inc.
LCP	Livelihood Continuity Planning
MSME	Micro Small and Medium Enterprise
NCDR	National Science and Technology Center for Disaster Reduction
NGO	Non-Governmental Organization
NPO	Non-profit Organization
OCD	The Office of Civil Defense, The Philippines
PBB	Plant Back Better
PPP	Public Private Partnership
SFDRR	The Sendai Framework for Disaster Risk Reduction
SME	Small and Medium Enterprise
SMEWG	Small and Medium Enterprise Working Group
WV	World Vegetable Center



Acknowledgement



Acknowledgement

This research paper is under the guidance and supervision of EPWG. The Synergy from APEC cross-fora, we fully elaborate APEC agenda on human security and gender balance with vision, creativity, local knowledge and practical experiences across the border. The in-depth strong research and implementation guiding support resources from the World Vegetable Center (WV) and the Known-You (KY) contributed to the APEC community with fruitful outputs. From scientific to action, the APEC Emergency Preparedness Capacity Building Center (EPCC) called for



Science Week

October 2, 2019
IPEI



APEC Emergency Preparedness
Capacity Building Center



cross-fora synergies among the APEC Emergency Preparedness Working Group (EPWG), Policy Partnership for Science, Technology and Innovation (PPSTI), Policy Partnership on Food Security (PPFS) and the National Science and Technology Center for Disaster Reduction (NCDR) to complete this research project on the “Plant Back Better” (PBB) initiatives.

December 2019



GENDER EQUALITY



**CLIMATE-SMART
AGRICULTURE**



FOOD SECURITY

PBB
The logo for PBB (Plant Back Better) features the letters 'PBB' in a bold, yellow, sans-serif font. A small green sprout with two leaves is positioned to the right of the second 'B'. Below the letters is a stylized graphic consisting of three horizontal sections: a blue section on the left representing water, a tan section in the middle representing soil, and a grey section on the right representing a field or road. Below this graphic, the text 'PLANT BACK BETTER' is written in a bold, dark grey, sans-serif font.

PLANT BACK BETTER

Executive Summary



Executive Summary

APEC Enhances Livelihoods through Planting Seeds, Planting Hope, Planting Friendship, Planting Linkage

— Connecting People for Resilience and Better Livelihood.

APEC suffered from the constant threats of extreme weather events, earthquakes, floods and other natural disasters. APEC long-term goal – the Food Security Road Map Towards 2020 and the APEC Food Security Business Plan (2014-2020) call for actions on cross-cutting collaboration on disaster risk management and food security issues to increase resilience to natural disaster and global climate change. To achieve the commitments of the APEC Food Security Road Map, strong infrastructure, early warning systems, emergency-actionable plans and countermeasures are critical to reducing the risk and impact of natural disasters against food supply chain interruption for better preparedness and recovery.

How to provide rapid growing global population with economic access to sufficient, safe, nutritious and quality food as well as better livelihoods of millions of rural people, mainly small farmers, particularly women on vegetable plantation? We call upon the APEC member economies to stand shoulder to shoulder with us to implement the climate extremes adaptation countermeasures for sustainable and inclusive growth through PBB initiatives.

PBB functions to boost up microeconomic momentum to tackle future challenges on climate change adaptation for facilitating microeconomic circulation. It aims at community-based capacity building and preparedness for quick recovery of microeconomic activities through public private partnership before or after disasters hit. The project incorporates the on-site implementation of the best practices and toolkits with sharing local knowledge and regional resources to facilitate Livelihood Continuity Plan (LCP) before or after disasters.

This project explored the feasibility and application model for engaging key stakeholders in our society to map out a pathway of sustainable and resilient developments. To elaborate the climate adaptation countermeasures for food security, Chinese Taipei contributed to promote “Plant back better” (PBB) initiatives and call for actions on mitigating vulnerability to enhance self-sufficiency through disaster-resilient vegetables and flowers plantation to foster sustainable and inclusive growth under APEC.

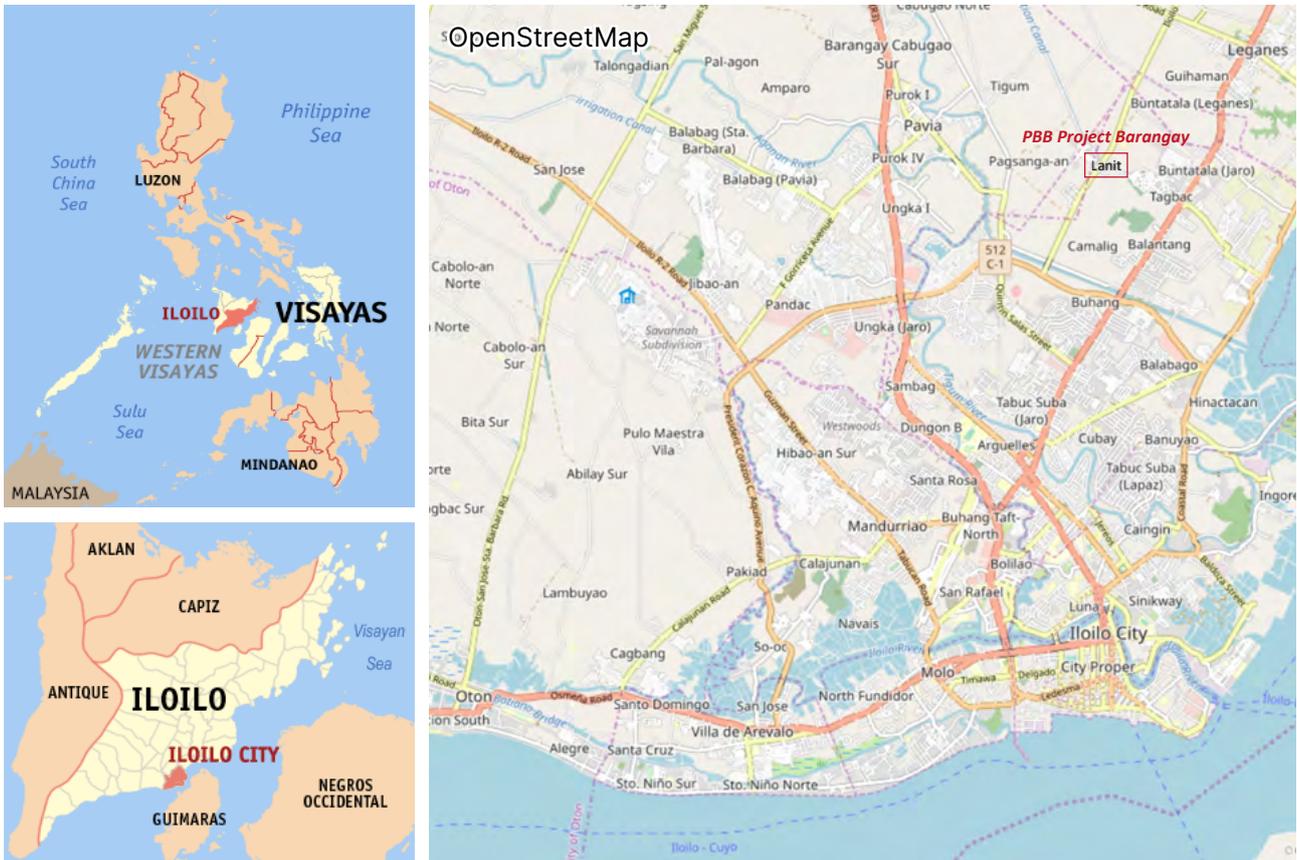


Pilot project for PBB



Pilot project for PBB

To implement the PBB, Chinese Taipei has been working with the Philippines on public private partnership to conduct a pilot project—the Best Practice at Barangay Lanit, Jaro Iloilo City, the Philippines.

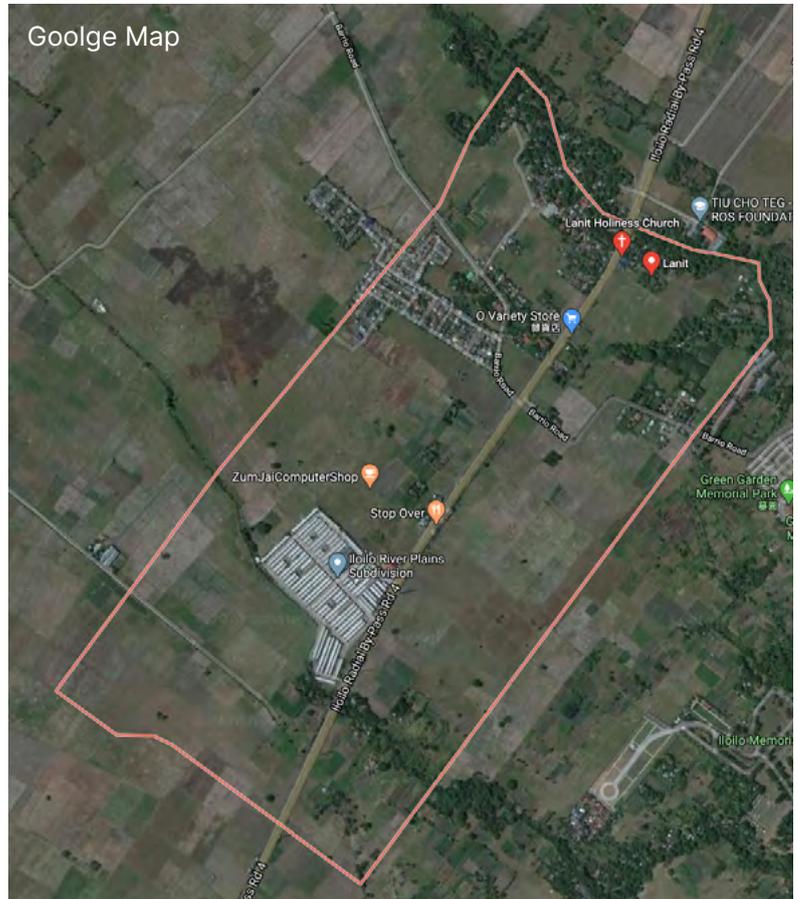


Data Source:
https://en.wikipedia.org/wiki/File:Ph_locator_map_iloilo.png
https://en.wikipedia.org/wiki/File:Ph_locator_iloilo_iloilo.png

PBB pilot project **focuses on the following items:**

- Helps risk-exposed community
 - To enhance capacity building and emergency preparedness countermeasures through smarter and disaster-resilient plantation of flowers and vegetables.
- At phases of disaster risk reduction and emergency preparedness, the initiatives
 - To build up a resilient community with local knowledge and regional efforts against natural disasters.

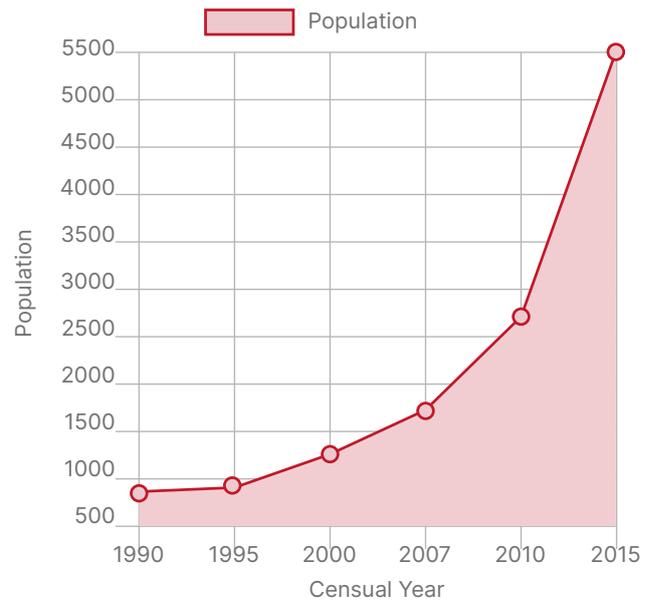
- After disaster strike,
 - To effectively and efficiently recover the microeconomic activities, vegetable plantation and food supply.
 - To quick recover the micro-economic model and activity to maintain sustainable operation.



Data Source:
[https://commons.wikimedia.org/wiki/File:Ph_locator_map_iloilo_\(white\).png](https://commons.wikimedia.org/wiki/File:Ph_locator_map_iloilo_(white).png)
https://en.wikipedia.org/wiki/File:Iloilo_City_District_Map.jpg



Census date	Population	Growth rate
1990 May 1	823	-
1995 Sep 1	883	1.33% ▲
2000 May 1	1,251	7.76% ▲
2007 Aug 1	1,698	4.30% ▲
2010 May 1	2,658	17.72% ▲
2015 Aug 1	5,484	14.78% ▲



Data Source: <https://www.philatlas.com/visayas/r06/iloilo-city/lanit.html>

The ATI, the original inhabitants, suffered from severe disasters including drought in 2007, floods in decades since 2008 Typhoon Frank, drought in 2019 and annual monsoon from May or August to October. In Barangay Lanit, the resettlement site, the population reached 5,484 (1.22% of Iloilo city's) in 2015 and total of about 1,600 households as of April 2019 (40% are farmers).





Resources of Expertise



Asia-Pacific Economic Cooperation



APEC Emergency Preparedness Capacity Building Center



World Vegetable Center



KNOWN-YOU SEED CO., LTD.

- **Company Profile**
 - Preface
 - History
 - Organization
 - Research Farms
 - Subsidiaries
 - Overseas Agents
 - Introduction Media
- **Product**
- **AAS Award Winner**



[SiteMap](#) [Chinese](#)

National Science and Technology Center for Disaster Reduction

Hot News Updated information on "About NCDR".

Events Video



The MoC signed with Rabdan Academy of Abu Dhabi
 A memorandum of cooperation on disaster



Resources of Expertise

[The APEC Emergency Preparedness Capacity Building Center \(EPCC\)](#)

With conviction to build a platform for APEC EPWG to strengthen innovation and capacity building for emergency preparedness to meet the demanding needs of APEC member economies, EPCC aims at all-hazards approaches for emergency preparedness in support of disaster risk reduction and emergency preparedness under APEC through:

Hosting of well-structured capacity-building activities: to develop sustainable programs to promote disaster risk reduction and emergency preparedness in accordance with EPWG's mandate and guidance as well as the proposals and priorities of APEC member economies;

- Establishing knowledge database: collecting best experiences, science and technology to support policy and decision making;
- Enhancing public-private-people partnerships in disaster risk management by actively introducing new technology and concepts as well as highlighting contributions from experts and professionals of governments, academia and practitioners, where appropriate;

[The World Vegetable Center \(WV\)](#)

WV, an international nonprofit research and development institute, is committed to alleviating poverty and malnutrition in the developing world through the increased production and consumption of nutritious and health-promoting vegetables. The Center mobilizes resources from the public and private sectors to disseminate improved varieties and production methods in developing countries. We help farmers increase vegetable harvests, raise incomes in poor rural and urban households, create jobs, and provide healthier, more nutritious diets for families and communities.

[Known You Seed Co., Ltd. \(KY\)](#)

A professional seed company engaging in breeding, production, and marketing of F1 hybrid vegetable varieties for more than 40 years. The main crops include cucurbit, solanaceae, and crucifer. Many of varieties are highly valued by global customers and have won the international prizes such as All-America Selections.

[NCDR](#)

As the think-tank of Chinese Taipei in disaster risk management at the Cabinet level, NCDR coordinates and collaborates with public and private sectors to deliver the emergency preparedness synergies from science to action for decision making, policy reshuffle and R&D innovation under the Ministry of Science and Technology.

1. Introduction

1.1 Purpose of the Toolkit

The Plant Back Better project mainly focused on promoting capacity building by adopting smarter and disaster-resistant plantation of flowers and vegetables. It also mainstreamed disaster risk reduction for building up resilience at community level with respect to local knowledge over the local social network. In addition, it revitalized local microeconomic activities efficiently and effectively. The three pillars of PBB toolkit are as following:

- **Helping vulnerable areas:** To promote capacity building by adopting smarter and disaster-resistant plantations of vegetables and flowers
- **Preparing for disasters:** Mainstreaming DRR for building up community resilience with respect to local knowledge and social networking
- **Recovering from disaster impacts:** To revitalize local microeconomic activities efficiently and effectively

The APEC PBB Toolkit, the final deliverables from EPWG 03 2017A (proposed by Chinese Taipei and Co-sponsors by Chile, Indonesia, Papua New Guinea, the Philippines and Viet Nam)— Capacity Building and Emergency Preparedness for Sustainable Development at Agricultural Communities through “Plant Back Better” (PBB) Initiatives which includes guiding principles and best practices, is now available at the APEC [EPCC website](#).

As one of the critical PBB outcomes, this toolkit shared with full spectrum of APEC human security agenda covering the following topics for experts, policymakers, practitioners, researchers and government officials to collect brainstorming on enhancing regional resilience:

1. The best practices sharing of PBB pilot community in Iloilo City, the Philippines.
2. Holistic and extensive policy dialogue on natural disasters and climate extremes for enhancing emergency preparedness and resilience
3. Cross-fora collaboration under APEC for sustainable development and inclusive growth

1.2 How to use the Toolkit

This Toolkit for PBB aims to provide for a single and easy-to-access gateway to various materials that the EPCC has developed for promoting PBB implementation. The toolkit, born out of a cross-border public private partnership brings expertise from the EPCC, NCDR, WV, KY and APEC economies to offer best practices, guidance, capacity building, training materials and practitioners and other stakeholders in the following areas:

1. Good Emergency Preparedness Practices for [PBB](#)
2. [Good Agriculture Practices](#)
3. Good Community-based [Capacity Building Practices](#)
4. Smart ICTs Practices and [Digital Resilience](#)
5. Good [BCP Practices for MSMEs](#)
6. Good LCP [Practices for MSMEs](#)
7. [Surveillance and Monitoring for In-time Support](#)
8. Single Windows of Contact-[Focal Point of Contact](#) Mechanism



The PBB pilot project in Iloilo City fully engaged the stakeholders in public and private sectors to build a good partnership networking for being resource partners. Base on “the Barangay Disaster Risk Reduction and Management Plan of Barangay Lanit, Jaro, Iloilo City for 2018-2020.” ([REPUBLIC OF THE PHILIPPINES, OFFICE OF THE PUNONG BARANGAY, BARANGAY LANIT](#)), the project team leads the PPP dialogue to network with the school, the church and the Barangay office via discussion to customized the workplan based on the local needs. From local governments, the agriculture department and the disaster risk reduction and management office in Iloilo City Government contributed to harmonize the law and regulation for resource allocation and infrastructure sustainability that paved the concrete foundation for project implementation. Local technical supports in agriculture from the Know-You Seed Philippines (KYP) and the World Vegetable Center (WV) for providing advanced skill-set and technology in smart agriculture is another key to succeed. EPCC called for NCDR and Christian Aid Philippines to deliver the community-based capacity building efforts as the advocators for PBB project with concept of disaster risk management.

1.3 How the Toolkit was Developed-Objectives

The PBB initiatives aimed at community-based capacity building and preparedness for quick recovery of microeconomic activities through public private partnership to tackle climate extremes and natural disasters. Vegetables are cash crops with offering quality nutrition. Besides, flowers, sunflower chosen for the school gardening, are one of the direct sales and marketing business models for activating the MSMEs’ and SMEs’ business cycle. With stories, the PBB pilot site caught attention of the general public and attracting tourist paying visits on-site. In this context, we promote the disaster resilient farming with economic returns on flowers and tickets sold as financial resources for sustainable plantation. PBB initiatives incorporate the implementation of the best practices and toolkits with sharing local knowledge and regional resources to facilitate Livelihood Continuity Planning before or after disasters.

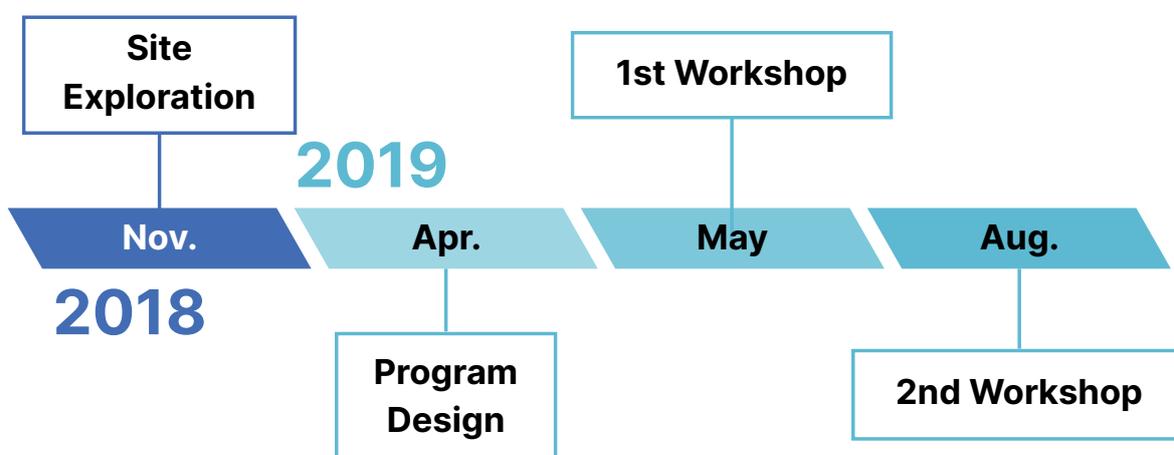
To achieve the commitments of the APEC Food Security Road Map, we targeted the following agenda while delivering PBB implementation:

1. Enhancing self-sufficient food supply for low social status communities ,
2. Sharing the best practices and knowledge for APEC Resilient Community,
3. Facilitating smart vegetable and flower plantation to mitigate disaster impacts and maximize sustainable economic benefits;
4. Promoting on demands capacity building programs at community level;
5. Empowering women leadership at all phases of implementation;

6. Synergizing regional and local resources for coordinated planning and implementation,
7. Conducting follow-up actions to sustain the project

1.4 Scope of Work— The WorkPlan

The workplan as shown below includes developing guiding principles and Disaster Resilient Seed Kits for PBB focused on assisting the most vulnerable members at community level for formulating Livelihood Continuity Plan (LCP) and enhancing resilience over climate extremes and natural disaster for a sustainable food supply chain.



Home Garden Seed Kits for SMEs/MSMEs

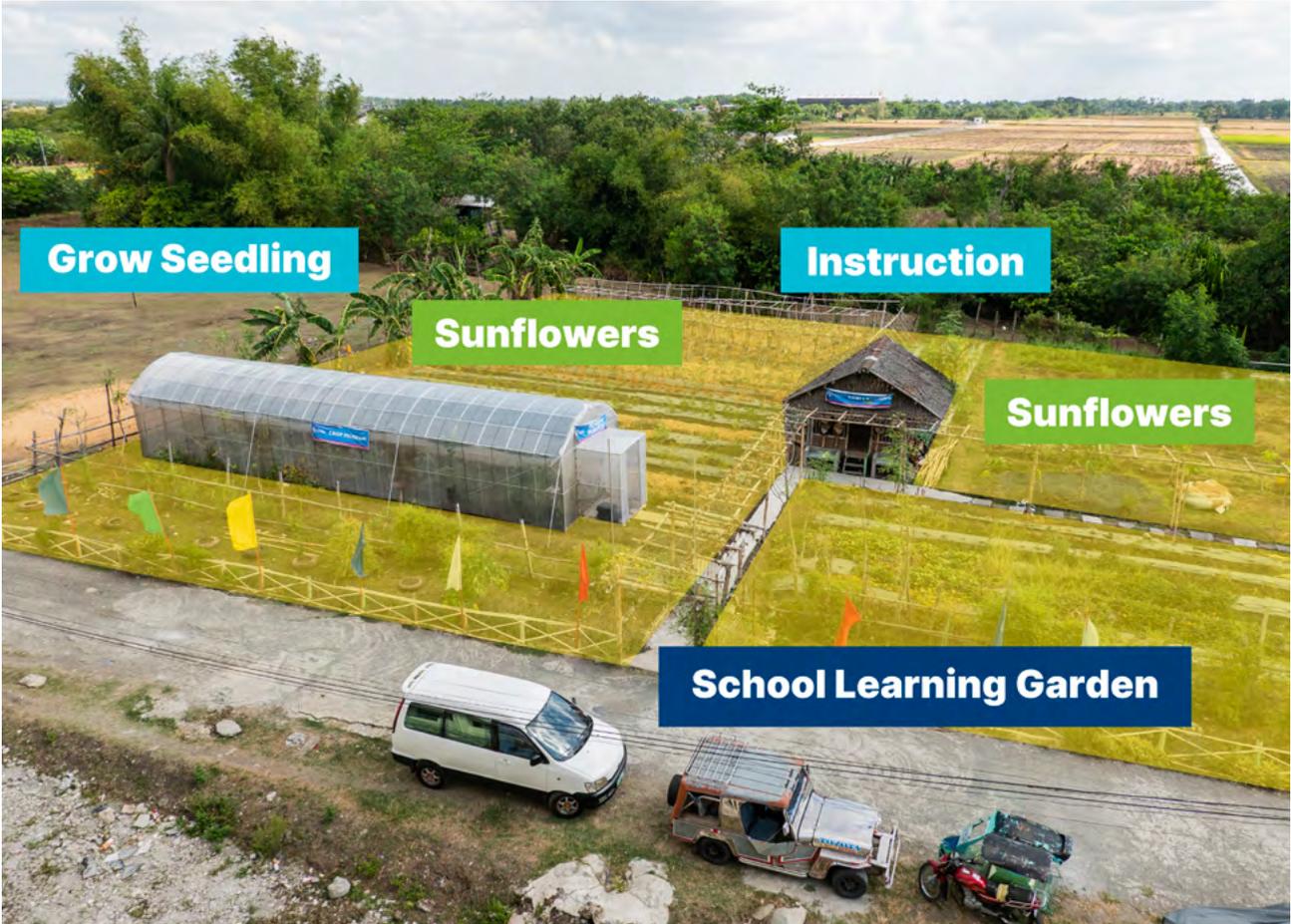
WV promotes home gardening in sub-Saharan Africa and South Asia with healthy diet gardening kits designed to improve family nutrition. The PBB project utilized the existing mechanism of the kits to deliver capacity building activities in the PBB pilot community to promote home gardening. Of a particular note, local food preferences and agronomic conditions are taken into account when seed is selected for the kits to ensure enough seeds to plant a home garden and provide a healthy diet for a family. For example, in South Asia, several different kits containing seed of 7-26 vegetables have been used in Bangladesh and the Indian states of Punjab, Jharkhand, Odisha, and Assam. Most kits provide sufficient seed to plant a 6 × 6 meter home garden to supply nutritious leafy vegetables year round. The more complex garden designs can produce more than 250 kg of vegetables per year and provide more than adequate vitamin A and vitamin C requirements for a family of four as well as supplementary protein and iron. Seed for kits is produced by partners who assemble home garden seed packs for local needs.

Disaster Resilient Seed Kits for PBB

For more than 20 years WV has researched and developed vegetable production seed kits for farmer training programs. Meanwhile, [Disaster Relief Seed Kits](#) also serve an additional purpose: When natural disasters destroy food production systems, vegetables can help rebuild local food supplies and provide essential nutrition for survivors. Since 2000, WV has distributed more than 65,000 disaster seed kits through humanitarian agencies to the victims of major disasters in Africa and Asia. The kits include seed of locally adapted varieties of nutrient-rich, fast-growing vegetables, and technical information in local languages on vegetable production, food preparation and preservation methods. For facing the future challenge of climate extreme and natural disaster in the APEC region, EPCC works with WV to promote the value of PBB and develop Disaster Resilient Seed Kits for PBB. Vegetables selected for the kits are commonly grown in many tropical and subtropical areas with characteristics of nutritious, hardy, fast-growing with low input requirements, relatively free of pests and diseases. Each kit provides enough seed for one household to grow vegetables on 100 square meters of land to provide a balanced supply of protein and micronutrients during the initial months after a disaster. **Disaster Resilient Seed Kits for PBB** will be distributed mainly to farmers in potential disaster-affected areas in conjunction with EPCC capacity building activity on PPP basis.

EPCC delivered the PBB capacity building in the TCT Foundation Integrated School (TCT) as the Capacity Building Center, which is planned for PBB implementation and the flood-prone community including a church (the residential landownership) and 20 households (urban poverty immigration). Of particular note, the pilot project community suffered from drought while implementing the PBB project in May of 2019. This climate extreme reminded all the involved partners that the climatic impact is hampered the plantation in a great deal.

With EPCC's conviction and WV/KY's sustainable & organic agriculture skill-set, the project exercised gender balance planning with extremely limited resources. Under the good leadership of TCT principal, the PBB project blossom on people's courage, pupil and school faculty's passion, community practitioners' enthusiasm, experts' innovation and government's recognition. From the press briefing of Major's office in the Iloilo City, the PBB initiatives contribute to further promote the value of PPP collaboration on building "the City of Flowers" in the Iloilo City. The following plan showed the scope of work after the 1st and 2nd phases PBB capacity building activities as outputs:



The implementation of the PBB project followed a model similar to that developed by WV in Asia for household gardens aimed at nutrition but with contests of disaster resilience. The differences between two are: household gardens focused on fast growing highly nutritious vegetables combined with a limited selection of hardy perennial vegetables which are likely to survive and regrow quickly after the disaster.

For 1st phase of project implementation, the following activities prior to the proposed on-site assessment visit to Barangay Lanit, the City of Iloilo, the Philippines in April and August 2019 are to:

1. **Select appropriate households and a pilot community.** It is important to note that rural households tend to be more vulnerable than urban households due to less access to societal resources, emergency or community services. It is important that the selected households joining the project must satisfy prerequisites and likewise for the local government. With the fully understanding, planning and assessment, the good start with the PBB plantation can be assured. The PBB initiative conducted as following plan turns out to be efficiently and effectively:
 - a. Select households according to the following criteria:
 - i. Vulnerable households: such as woman-led households; poor households with young children; elderly households with limited means in which to recover from a disaster
 - ii. Households generating the major income through rural activities either from production on small farming or labour on farming
 - iii. Households have a small land available for gardening, or just tenants.
 - iv. Households are willing to or actively participate in the capacity building activity for outputs and outcomes.
 - b. Limit the number of households to a maximum of 20 within the Lanit Community
 - i. The reasonable size for short lead time for introducing concepts of implementation.
 - ii. The households fit the appropriate selection criteria outlined above
 - iii. A local technical support availability (Known-You Philippines and OCD) in Iloilo City for implementing capacity building and resource allocation.

2. Definition of appropriate vegetables:

- a. WV and KY identify a list of vegetable species that would be suitable for Barangay Lanit, the City of Iloilo region. Through consultation and discussion with local proposed demands and needs, WV and KY assist project participants to identify what are the main fast-growing vegetables they consume on a regular basis and also explore the flowers chosen for better off the landscape and economic benefits.
 - b. KY functions as a local source of seed supply for the proposed number of households. WV recommends the following vegetables for implementing in this project:
 - i. Fast growing annuals for nutrition and cash crop purposes that have a crop duration between 20 – 40 days
 - ii. Fast growing perennials that have been identified as highly nutritious and tolerant of both dry conditions and short-term flooding. Some possible inclusions are:
3. WV coordinate the local seed company, KYP, to facilitate a technical person with knowledge of vegetables and flowers to be involved in the capacity building activities
- a. EPCC provided a capacity building package based on knowledge and skill-set of WV and KYP's household garden programs to implemented with rural households
 - b. During the site visit in April, an assessment team conducted assessment on-site and discussed plans for implementing EPCC capacity building activity. The capacity building activity targeted the School, the Church, the Community households and government officials on succeeding the PBB plantation and conducted policy dialogue to team up EPCC,WV, KYP experts and pilot project involved partners including the school, the church and the households.
 - c. Single Window of Contact— Networking the information for emergency preparedness and decision-making support through discussion amongst project partners.

2. Background

2.1 Public and Private Partnership on Science and Technology Sharing

In 2019, the project focused on the pilot implementation through three phases to build PBB disaster-resilient APEC community and encourage the public-private partnership with cross-fora collaborations for disaster-resilient food supply chain as part of disaster risk management in coping with future challenges by natural disasters and climate extremes. While implementing the PBB initiative, the project aimed at engaging public private partnership, including stakeholder of the Philippines and the expertise. The cross-border public private partnership built among the ATI community, the City of Iloilo, the Manila Observatory and the National Resilience Council, shortened the lead time of PBB implementation with fruitful outputs and outcomes.

Deliver changes in TCT School



Deliver changes in the ATI Community



2.2 Enhancing Disaster Resilience through Effectiveness of PPP Model

EPCC is leading the development of PBB Gardening kits and Guiding Principles for APEC Resilient Community on “Plant Back Better” Initiatives. To facilitate the implementation of the APEC PBB, EPCC will continue to promote food supply projects over climate extremes and natural disasters and identify challenges for providing capacity building programs through cross-fora collaboration on cross-cutting issues.

From science to action, Chinese Taipei adopted smart ICTs approaches for PBB initiatives to connect APEC resilient community to improve food supply reliability in supporting the sustainability and competitiveness of business in the APEC region. Promote PBB initiatives for APEC resilient community through smart ICTs approach for real-time information connectivity.

3. Challenges

As addressed within the project proposal, we target on high vulnerable areas. Checking the recent history of natural disaster, in 2018, nine active storms; including Hurricane Florence, Helene, Isaac, Olivia, Tropical Storm Paul, Typhoon Mangkhut and etc.; appeared simultaneously in the Atlantic Ocean and the Pacific Ocean. Meanwhile, same year in 2018, at least 1,000 earthquakes hit the APEC region with magnitudes 5.0 and above.

The “new normal” did show its tremendous challenges to project timeline and threat the project deliverables. During implementation, we suffered from drought, severe storm and floods that required teamwork between expertise and local involvements to deliver emergency response to the dynamic situations especially for the prolong drought from this year. In this context, the PPP value honored the PBB pilot project with team efforts as an excellent example Deal with the emergencies first for sustainable growth. Thus, the project elaborated the value of EPWG’s contribution in the long run.

In the end, overcome the impacts from the Mother Nature, the ATI community harvested flowers, melons and vegetables for a living and future sustainable plantation. PPP has been highly valued and recognized by the local community and government. The plantation starts with the assistance of the Iloilo City Government and EPCC will expand in the near future for long term development.

4. Moving Forward

Stocktaking the PBB project from assessment, implementation and harvests, the team efforts from grass-root support are the spine to sustain the PBB project with fruitful outcomes delivered. Among all factors assessed, women are the integral element to the health and growth of economies at community level. The PBB empowered women for strengthening the local resilience. In total, up to 56% expert and practitioners are female that demonstrates female potentials to make a change for sustainability future.

PBB project invited government officials, experts, practitioners, NPOs and NGOs to brainstorm the future collaborations. In the three-day intensive event, we sincerely appreciate the contributions from APEC member economies to the APEC Resilience Week with sharing of best practices across the border for a balanced and resilient society against natural disasters. With significant outputs from the APEC member economies, the guiding principle aimed at providing guidance to tackle climate extremes and natural disasters and provide rapid growing global population with economic access to sufficient, safe, nutritious and quality food as well as better livelihoods of millions of rural people, mainly small farmers, particularly women on vegetable plantation. We continuously aimed at synergized work on PBB through cross-sectorial collaborations and commit to deliver:

1. **Continue supports to success a sustainable model**

- Share Science, technology and agriculture knowledge for smart plantation of vegetables and flowers
- Develop Microeconomic model to enable a sustainable environment for community

2. **Learn from failures we made this year**

- Explore countermeasure on How to tackle extreme weathers through smart technology and agriculture approach for planning seed package
- Tailor to local needs” for developing environmental friendly seed package.

3. **Updates for “Plant back better”**

- Share the best practice in Iloilo City
- Publish the guiding principles online for reference

4. **On-site Visit to Iloilo City**

- Maintain the fruitful outcomes achieved together
- Engaging DRR Intelligence-led policing (ILP) Network to serve as a platform for risk communication. Intelligence officers of EPCC serve as guides to operations, rather than operations for concurrent updates and risk communication.

5. **Conclusion and Recommendation**

The future development on the PBB project will be aimed at promoting the value of PBB, sharing the best practices and upgrade the pilot community on the following subjects for APEC capacity building:

- Networking - Accumulation of Knowledge, Experience and Know-how of PBB
- Living PBB Community with LCP
- Updates or disseminate the involved partners for disaster information for PBB
- Synergies of Regional Collaborations for Human Well-being
- Building APEC Resilience Partnership (ARP) Toward APEC Resilient City



GENDER EQUALITY



FOOD SECURITY



References



References

01. Guiding principle on selecting a voluntary pilot community for Plant Back Better (PBB)
02. Building APEC Resilience Partnership (ARP) Toward APEC Resilient City
03. Home garden seed kits: a sustainable business model
(<https://avrdc.org/home-garden-seed-kits-a-sustainable-business-model/>)
04. Entrepreneurs are quick to grasp the value of packing vegetable seed in small quantities for home use
<https://avrdc.org/?s=Entrepreneurs+are+quick+to+grasp+the+value+of+packing+vegetable+seed+in+small+quantities+for+home+use>
05. Home garden seed kits pioneered by AVRDC – The World Vegetable Center four years ago in Jharkhand in eastern India have now stimulated entrepreneurs to supply growing demand for the kits.
06. Seed Kits <https://avrdc.org/seed/seed-kits/>
07. Food Security Road Map Towards 2020 and the APEC Food Security Business Plan (2014-2020)
08. FB Tiu Cho Teg-Ana Ros Foundation Integrated School
<https://www.facebook.com/pages/Tiu-Cho-Teg-Ana-Ros-Foundation-Integrated-School/390453294299833>
09. Iloilo City Government FB
https://www.facebook.com/iloilocitygov/?__tn__=%2Cd%2CP-R&eid=ARAUuajA_yapeSGvZPLh_H5RCnUpZv4QQz_D15W_2XQ4UEzDrYa-9IJEhzrgvYUsvkBmLqrUxR4I9jRF
10. Iloilo City Disaster Risk Reduction and Management Office FB
<https://www.facebook.com/IloiloCityDRRMO/>
11. Finance is a Shield in Times of Natural Disaster
https://www.apec.org/Press/Features/2019/0613_risk
12. EPCC [website https://www.apec-epcc.org/](https://www.apec-epcc.org/) for Video on PBB



Annex 1

Guiding principle on selecting a voluntary pilot community for Plant Back Better (PBB) implementation, 2019



Annex 1— Guiding principle on selecting a voluntary pilot community for Plant Back Better (PBB) implementation, 2019

- 1. Strong Leadership**— conviction to lead for effective coordinated team efforts on the local needs and opinions.
Needs driven mission can motivate the local practitioners and households as self-starters. It is critical to synergize the efforts among the stakeholders creatively while implementation in terms of engaging the whole community/ society's participation in the process target on the common interests and goals.
- 2. Active Participation**— passion to take action to change for a better livelihood at community.
The inclusive growth value is critical from sharing. Helping hands can make the world a better place. The coordinated efforts on-site contribute fruitful outputs and outcomes if constantly take turns to look out the whole process. With team efforts, we share work loading and knowledge for better harvests while implementation.
- 3. Determined Public Private Partnership**— collaboration on land ownerships neighborhood for vulnerable community from policy to strategy for action. Harmonized legislation for common practices at community is essential. For sustainable farming and livelihood continuity planning (LCP), it is a must to involved legal assistance from the local government to identify the farmlands and resources availability while implementation.
- 4. Risk Awareness**— a multi-disciplinary approach for mitigation.
For tackle climate extremes and natural disasters such as typhoon, flood and earthquakes, it is necessary to draw appropriate attention on multiple disciplines for solutions based on a new understanding of complex situations. For upgrade the local plantation skill-set on sharing dynamic disaster risk exposures, information dissemination through the information intelligence platform on smart agriculture helps risk communication.
- 5. Human Capacity Building**— building a learning organization for sustainable growth.
Agriculture activities are labour intensive. For sustainable development toward the future, human capacity building for smart agriculture and disaster risk management through structure capacity building programs are critically important to maintain labour capacity with skill-set to gear towards the goals

for LCP among the stakeholders.

6. **Local Investment**— local knowledge and capacity benefit the in-time local needs and development in culture aspects.

Both tangible (such as local funding and grants) and intangible (such as local knowledge and culture) are key to sustaining the long term development for PBB implementation. Reducing food miles and selling agri-products to a more local rather than regional demography are environmental friendly approaches. Local investment from the stakeholders or business activities provide long-term community benefits in terms of satisfying in-time local needs. Local investment came from local consumer behavior (buying and selling) can self-sufficient the grass-root implementation of PBB and revitalize the local economic activities.







Annex 2

Guiding Principles for APEC Resilient Community on “Plant Back Better” Initiative



Annex 2— Guiding Principles for APEC Resilient Community on “Plant Back Better” Initiative

APEC suffered from the constant threat of extreme events, earthquakes, floods and natural disasters. To achieve the commitments of the APEC Food Security Road Map, Strong infrastructure, early warning systems, emergency-actionable plans and countermeasures are critical to reducing the risk and impact of natural disasters against food supply chain interruption for better preparedness and recovery. The “Plant Back Better” (PBB) Initiative extends grassroots support to those whose livelihoods depend on the agricultural sector and exposed to extreme weather and disasters at an economic and social level. When extreme events, typhoons or other natural disasters strike, the farmers are always hit hardest. The PBB initiative focused on “Enhancing agriculture's ability to adjust and mitigate the impact of climate change” to recover the SMEs/ MSMEs’ economic activities with nutrition concept. The guiding principle aimed at providing guidance to tackle climate extremes and natural disasters and provide rapid growing global population with economic access to sufficient, safe, nutritious and quality food as well as better livelihoods of millions of rural people, mainly small farmers, particularly women on vegetable plantation.

Strengthening Rural Development as a Place of Opportunities

To face impacts brought by natural disasters or climate extremes or food security at the community level, the PBB initiatives seek smart solutions for sustainability, inclusiveness and resilience in line with the spirit of the APEC Food Security Roadmap Towards 2020 and the UN 2030 Agenda for Sustainable Development for enhancing society’s wellbeing and aims at community-based capacity building and preparedness for quick recovery of microeconomic activities through public private partnership if disasters hit. Echo to APEC Chile 2019 theme of “Connecting People, Building the Future” on Sustainable Growth, Digital Society, Integration 4.0 and Women, SMEs and Inclusive Growth as well as APEC Ministers of Agriculture Joint Statement of “Towards Integrated Smart and Sustainable Food Systems” (Puerto Varas, Chile 24 August 2019 Issued by the 5th APEC Food Security Ministerial Meetings) in the areas of fostering sustainable food systems and embracing emerging technologies, we seek to cooperate on strengthening Plant Back Better initiative and widely implementing better policies towards integrated, smart and sustainable food systems, public-private partnership for building APEC Resilient Community/City as followings:

Five Principles for APEC Resilient Community

1. Well-structured Policy Framework for Implementation

To encourage policies that improve infrastructure, basic services and the quality of life of rural populations as well as strategies that help develop sustainable and market-based methods for added-value for promoting the integration through the PBB initiatives.

- To enhance infrastructure resilience for the economic performance, social inclusiveness and environmental sustainability through sharing best practices.
- To enable dialogue exchanges for extensive participations by key stakeholders such as community leaders, local governments, local NGOs, local experts and resource persons.

2. Applicable Financial Resilience

To enhance financial resilience through innovative mechanisms in line with FMP-DRFI workplan for promoting the efforts on Disaster Risk Financing of FMP-DRFI as “Finance is a Shield in Times of Natural Disaster”. Enhancing resilience to disasters became APEC priority for FMP and EPWG. EPWG promoted efficient and effective early warning systems and emergency-actionable plans or countermeasures for disaster risk reduction for years under APEC. The cross-fora collaboration synergy between FMP-DFRI and EPWG can be expected on introducing the best practices both at both economic and social level on APEC Resilient Community. With knowledge sharing in disaster risk financing from FMP, EPWG can further achieve disaster-resilient livelihoods of APEC Resilient City. For example, the pilot project in Iloilo City, limited seed grants can offer sufficient financial support to boost microeconomic activities and sustainable plantation.

3. Effective Public Private Partnership

To enhance public-private partnership on disaster resilience for Plant Back Better Initiative: Amid food production process, it requires risk understanding to build up resilience. More valuable disaster risk reduction knowledge sometimes offered by private sector. An appropriate network recommended as Network of Emergency Management Officials (NEMO) designed for integration on infrastructure, agriculture and disaster resilience for APEC Resilient Community are as following:

- To encourage cross-fora collaborations and public private partnership to work

out feasible solutions. The proposed project includes experiences and the best practices sharing on disaster risk management as well as climate change adaptation tools for smallholders and showcases handy tools for improving food security.

- To support strengthening regional cooperation with an aim at creating enabling conditions to face the challenges and leverage the opportunities brought by climate extremes to enhance resilience of our food systems to climate variability for our economies.
- To encourage the **public-private partnership with cross-fora collaborations** for food supply chain as part of disaster risk management in coping with future challenges if extreme event, natural disasters and climate change.
- To facilitate PBB **information and knowledge sharing** on best practices for enrooting food security awareness and good supply chain resilience at agricultural communities
- To facilitate the APEC Capacity Building for Sustainable Development at APEC Resilient Communities if extreme events such as floods or drought impact.
- To intensify efforts to **mitigate impacts** of drought, flood and climate-related disasters on food production and food security.
- To boost microeconomic momentum to tackle future challenges on extreme events and climate change. PBB initiatives endorsed by EPWG for cross-fora supports from ATCWG, PPFs, PPSTI, PPWE and regional institutes to synergize the project deliverables and crosscutting outcomes. Within agendas, workshops and plans under APEC **ATCWG** and **PPFS**, the **APEC Food Security Road Map Towards 2020** and the APEC **Food Security Business Plan (2014-2020)** call for actions on cross-cutting collaboration on **disaster risk management** and **food security** issues to increase resilience to natural disaster and **global climate change**.
- To develop workplan in line with Plant Back Better toolkits for **APEC Resilient Community** on growing vegetables in the APEC disaster-prone areas.

4. Empower Human Capital and Gender Balance

- To empower women in disaster: The majority of rural or disaster community are women, children and the elderly population. PBB aimed at “Women leading capacity building” on “Home Garden” to better illustrate the important role of women in agriculture and disasters for sustainable and quality growth. To

encourage the incorporation of gender into the design of the PBB initiative. Higher level of women participation in the economy is key to raising living standards and boosting economic growth in the disaster-prone areas. Recognizing the significant contribution and impact that women have in rural and coastal communities is key to success the implementation of PBB initiative.

- Leveraging associativity and enhancing food value chains and trade: Micro, small and medium enterprises (MSMEs), including small-scale farmers, indigenous peoples, and women in particular, face constraints to being competitive in food value chains. Individually these actors may have limited capacity to negotiate and less access to the financial system, market information and new technologies, among other challenges. To strengthen their resilience and adaptive capacity, we support identifying new trading opportunities and promotion online (Online to Offline, O2O) to encourage well-functioning markets.

5. Efficient In-time Information Sharing

- Efficient Information Sharing through ICTs on best practices of value-added knowledge base on local demand for disaster-resilience food production
- To facilitate dialogues on formulating robust policies for supporting APEC cross-cutting issue and cross-fora cooperation in generating information and improving measurements; strengthening partnerships with the stakeholders; encouraging research, development and innovation, including information and communications technology (ICT); raising awareness and building capacity for APEC Resilience Community.
- **Embracing innovation, emerging technologies and digital opportunities:** Innovation, emerging technologies and digitalization are engines for sustainable productivity growth in the agriculture. To make innovation a priority, including through effective coordination with the stakeholders for appropriate adoption of new technologies.
- To digitalize agriculture impacts, identifying common approaches to promoting technology adoption, challenges and opportunities for human capital, and developing policy that targets local realities, effectively leveraging the opportunities from the digital transformation, sustainably and inclusively for digital resilience.
- To promote vegetables plantation: Vegetable are cash crops with offering quality nutrition which can help farmers in the affected area reclaim the

productivity with healthier workforce.

- To incorporate real scenarios for implementation: Best practices and “Home Garden” toolkits designed with sharing local knowledge and regional resources to better fit in the real situation for planning before or after disasters. Take the example of 2019 pilot community (where is a frequent flood affected community suffered from prolong drought in 2019), the fruitful outcome of plantation activity can inspire and encourage the APEC economies to further promote food security and resilient food supply chain on PBB initiatives.
- To quick recovery after disasters— “Home Gardening”. Healthier lives and more resilient livelihoods through greater diversity in what we grow and eat. Vegetables can **alleviate poverty** by creating new jobs and new sources of income for farmers and landless labourers, **improve health** by providing essential micronutrients lacking in diets, **enhance learning and working capacities of whole community through** improved diets and health, and improve the sustainability of food production practices by **diversifying cropping systems**.



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