亞洲太平洋地區糧食與肥料技術中心 函

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主旨：本中心(FFTC)訂於本（112）年 10 月 17 日至 19 日與農業部所屬農業試驗所、畜產試驗所及臺南區農業改良場，以及日本農研機構(National Agriculture and Food Research Organization, NARO)共同舉辦「亞太地區小農低碳農業發展：選項、減緩潛力與挑戰」國際研討會，該研討會將於臺中集思新烏日會議中心採現場與線上混合方式舉行，相關議程資料如附件，敬邀貴單位同仁提供海報(數位及實體)分享有關農業淨零議題相關之研發成果、計畫、策略或政策，請查照惠復。

說明：

一、亞洲太平洋地區糧食與肥料技術中心(FFTC) 與農業部所屬農業試驗所、畜產試驗所及臺南區農業改良場，以及日本農研機構(NARO)共同舉辦之旨揭國際研討會，第一、二日為研討會，第三日為田間參訪。該研討會將包含四個主題:(一)減少作物及畜牧生產的溫室氣體排放；(二)增加土壤碳匯；(三) 智慧農業邁向淨零排放；(四)小組討論:鼓勵小農採行低碳農耕的實踐策略；另於第一日(10 月 17 日)第一主題後分別安排30分鐘的海報簡介及45分鐘的茶會暨海報分享時間。

二、應農業部資源永續利用司之推薦，敬邀貴單位同仁提供海

報分享有關農業淨零議題但不限於本研討會主題之相關成果、計畫、策略或政策，以英文內容為主，海報大小為 A1 尺寸。

三、所有參與之海報將被放在線上展示區，該線上展示區包括互動之功能，可與國內外來賓互動交流，研討會籌備委員會將選擇其中部分海報於現場空間實體展示，並邀請海報製作者在現場給予兩分鐘簡短報告，並於茶會暨海報分享時段與現場來賓交流互動。

五、倘貴單位同仁對此海報展示活動有興趣，請於本年 9 月 1 日前向本中心確認是否參與現場或線上海報展示，以及聯繫人姓名、電子郵件及電話。

六、海報收件截止日期為本年 9 月 25 日，並於 9 月 27 日以電子郵件通知獲選現場參與之報告者。

七、檢附旨揭研討會之海報格式說明及英文議程各 1 份。該研討會已於 8 月 21 日開放線上網站提供報名及其他詳細資訊，可上本中心網站或臉書查詢。

正本: 農業部資源永續利用司、農業部農業試驗所、農業部畜產試驗所、農業部水產試驗所、農業部桃園區農業改良場、農業部臺中區農業改良場、農業部臺南區農業改良場、國立臺灣大學、國立中興大學、國立嘉義大學、國立高雄科技大學、國立屏東科技大學、國立宜蘭大學、台灣經濟研究院

副本: 農業部農業試驗所作物組王毓華組長、農業部農業試驗所農業化學組林毓雯研究員、農業部農業試驗所農業化學組許建輝副研究員、農業部農業試驗所農業化學組林素禎副研究員、農業部農業試驗所農業化學組江志峰助理研究員、農業部畜產試驗所動物營養組林幼君副研究員、農業部畜產試驗所動物營養組洪靖崎副研究員、農業部畜產試驗所北區分所王思涵主任、農業部水產試驗所東部海洋生物研究中心黃侑勛副研究員、農業部水產試驗所東港生技研究中心許自研助理研究員、農業部桃園區農業改良場作物環境課吳有恆副研究員、農業部桃園區農業改良場作物改良課林勇偉助理研究員、農業部臺中區農業改良場吳以建助理研究員兼主持人、農業部臺南區農業改良場鹿草分場陳榮坤副研究員兼分場長、國立臺灣大學農業化學系許正一特聘教授兼系主任、國立中興大學農藝學系作物科學組許奕婷副教授、國立中興大學土壤環境科學系楊秋忠國家講座教授、國立中興大學土壤環境科學系林政賢助理教授、國立嘉義大學農藝學系莊愷瑋教授、國立高雄科技大學漁業科技與管理系侯清賢助理教授、國立屏東科技大學水土保持系簡士濠教授、國立宜蘭大學生物技術與動物科學系蕭士翔副教授(均含附件)

主任

張淑賢

裝 訂 線

Concept Note

Project type	Workshop (Hybrid)
Project title	Workshop on Developing Low Carbon Farming for Smallholders in Asian and Pacific Region: Options, Mitigation Potential, and Challenges.
Date	October 17-19
Venue/host	Taichung, Taiwan
Organizers	FFTC and TARI, TLRI, TNDARES; and NARO
Coordinators	FFTC-Dr. Tomonari Watanabe & Jennifer Lii; TARI-Dr. Yu-Wen Lin; TNDARES-Wen-Jing Jiang; TLRI-Dr. Tsui-Miaw Chen

Rationale

Global agricultural production systems are both causes and victims of climate change. On the other hand, agriculture can also be part of the solutions to climate change mitigation, which aims to reduce greenhouse gases. The goal is to deploy low-carbon technologies on a large scale between now and 2050 and offset the GHG emissions of various human activities to zero. Due to agriculture and livestock being the two main GHG emission improvement targets in the agriculture sector, the workshop will focus on the technology of low-carbon farming in the crops and livestock sectors.

Because low-carbon farming can be costly, low-carbon farming incentives need to outweigh the setup, maintenance, and other costs of low-carbon farming to make economic sense for farmers to support their multi-benefit actions. Low-carbon agricultural action can be implemented as a business model or government policy, but farmers need to understand the meaning of low-carbon agriculture and how to operate negative carbon technologies and practices and choose the proper operation method suitable for their farmlands.

The carbon footprints and the carbon credits are valuable ways to show the effectiveness of mitigation activities. Moreover, there is a need to label verified low-carbon agricultural products for market promotion. Unlike other industries, however, agriculture is greatly affected by weather fluctuations. There is uncertainty in the calculation process of the carbon footprints and carbon credits. The MRV, measurement, reporting, and verification is an important procedure not only to apply the carbon credits but also to implement their mitigation activities. But, the MRV procedure is complicated and hard to prepare for each small-scale farmer. Therefore, there is still a small number of authorized methodologies for calculating carbon credit in the agricultural sector.

In this workshop, we share experiences and approaches in developing and encouraging the adoption of technologies suitable for smallholder low-carbon farming and livestock systems and improve understanding and implementation of digital technologies into low-carbon agricultural and livestock systems in the Asian and Pacific region.

Both the program and workshop activities are in line with the FFTC's 2021-2024 Strategic Action Plan, Theme 3 "Promoting Climate-Smart and Resilient Agriculture" and Theme 4 "Promoting Circular Agriculture."

Objectives

- Provide world development trends and effective carbon sink enhancement methods (which are already or will be in the near future implemented by small-scale farmers).
- Introduce the outcomes and technologies that can clearly show the reduction of GHG emissions in smart agriculture.
- Exchange the current situation and challenges of agri-businesses and farmers (group or association) toward the agriculture-related net-zero carbon society and discuss the direction of improvement from their respective standpoints.
- Compile together the expert knowledge pool of the workshop and provide a reference for developing low-carbon farming and livestock in the Asia-Pacific region.

Possible themes

- Session 1: Reduce GHG Emissions from crop fields and livestock
- Session 2: Increase Soil Carbon Sequestration
- Session 3: Smart Agriculture toward Net Zero with the focus on digital solutions
- Session 4: Panel discussion - Approaches to increased farmers' incentives to adopt low-carbon practices; carbon credit, carbon financing, MRV...
- Field trip

Expected participants

- Around 80 onsite participants, and a maximum of 1,000 online participants.
- Experts from government agencies, universities, or private sectors and producers who work on negative carbon techniques, low carbon farming, and livestock, GHG reduction policies of agriculture and livestock sector, carbon market, and carbon knowledge transferring.

Expected outputs

- Share experiences and approaches in Asian and Pacific countries in developing and encouraging the adoption of technologies suitable for smallholder low-carbon farming and livestock systems.
- Improve understanding and implementation of digital technologies into low-carbon agricultural and livestock systems in Asian and Pacific regions.
- Promote government and market adoption of technical and policy approaches to improve low-carbon farming and livestock at the farm level.
- Do on-site observation of pioneer test sites and field operations of low carbon.

ANNEX 1: Tentative Program

2023 TARI-TLRI-TNDARES-NARO-FFTC Workshop

Developing Low-carbon Farming for Smallholders in the Asian and Pacific Region: Options, Mitigation Potential and Challenges

Tentative Workshop Program

October 17-19, 2023

Hybrid Mode

Venue: GIS Taichung Xinwuri Convention Center
No. 26, Gaotie E. 1st Rd., Wuri Dist., Taichung City 414, Taiwan

Oct. 16, 2023 (Monday): Overseas Participants' Arrival Day

Oct. 17, 2023 (Tuesday), **09:00 – 17:20** (GMT+8) **Workshop**

Time (GMT+8)	Topics and speakers	Note
08:30 – 09:00	Onsite registration and online login	
Opening MoA, NARO, TLRI, TARI, DARES, FFTC (TBD)		
09:00 – 09:20	Welcome remarks	
09:20 – 09:30	Group photo	
09:30 – 10:10	**Keynote lecture 1** *Carbon and nitrogen management for climate-resilient crop production and SDG achievement* **Dr. Jagdish Kumar Ladha** Adjunct Professor at UC Davis, Former IRRI Principal Scientist, Science committee member of 4 per 1000, US	Moderator (TBD)
10:10 – 10:50	**Keynote lecture 2** *Resilient Ecosystem & Emission Diploma (REED)* **Dr. Yangming Martin Lo** Chief Scientist, The Reed Center for Ecosystem Reintegration, US	
10:50 – 11:10	Tea Break/ networking/ poster	
Session 1 **Reduce GHG emissions from crop fields and livestock**		
11:10 – 11:40	*Reduction of greenhouse gas emissions from livestock waste treatment processes (online)* **Dr. Yasuyuki Fukumoto** Leader, Institute of Livestock and Grassland Science, NARO, Japan	*Moderator (TBD)*

11:40 – 12:10	*Reduction of GHG emissions and electricity production from farm-scale piggery wastewater treatment systems in Taiwan* **Dr. Hsing-Lung Lien** Professor, National University of Kaohsiung, Taiwan	
12:10 – 13:00	Lunch break	
13:00 – 13:30	*GHG emission reduction in paddy rice production through AWD water management with a livestock biogas effluent* **Dr. Keiichi Hayashi** Program Director, Environment Program, JIRCAS, Japan	*Moderator (TBD)*
13:30 – 14:00	*Field crop output from Thailand and its perspectives on carbon capture and sequestration in agricultural land* **Dr. Natthapol Chittamart** Associate Professor, Kasetsart University, Thailand	
14:00 – 14:30	**Poster presentations** (2 min each)	*Moderator (TBD)*
14:30 – 15:15	Tea break/ networking/ poster	
Session 2 **Increase Soil Carbon Sequestration**		
15:15 – 15:45	*Current progress of long-term soil management research in Taiwan* **Dr. Yu-Wen Lin** Researcher, Taiwan Agricultural Research Institute, Taiwan	*Moderator (TBD)*
15:45 – 16:15	*Strategies in Developing Low Carbon Technologies Toward Sustainable Agriculture (Online)* **Dr. Wahida Annisa Yusuf** Head, Indonesian Agricultural Environment Standardization Institute, Indonesian Agency for Agricultural Standardization, Indonesia	
16:15 – 16:45	*Practical Cases for Mitigation of Greenhouse Gas Emissions for Cropland in South Korea* **Dr. Sun-Il Lee** Agricultural Researcher, National Institute of Agricultural Sciences, RDA, Korea	
16:45 – 17:15	*Assessment of Inherent SOC Sequestration Potential: A Strategy for Effective SOC Management* Dr. Karen S. Bautista Chief Science Research Specialist, the Bureau of Soils and Water Management (BSWM), the Philippines	
17:15 – 17:25	The first-day Wrap up	

Oct. 18, 2023 (Wednesday), **09:30 – 17:00** (GMT+8) **Workshop**

Time (GMT+8)	Topics and speakers	Note
09:30 – 10:10	**Keynote lecture 3** *Near real-time multi-stream multi-model digital soil carbon and GHG predictions: A step towards NetZero* **Dr. Jagadeesh Yeluripati** Senior Scientist (Ecosystem Modelling), Group Leader, Human and Environmental Modelling group, Information and Computational Sciences Department, The James Hutton Institute, UK	Moderator: TBD
10:10 – 10:50	**Keynote lecture 4** *Challenges of promoting low-carbon farming in smallholder countries in the Asia-Pacific region - taking Taiwan as an example* **Dr. Tsang-Sen Liu** Director Taiwan	
10:50 – 11:10	Tea Break/ Networking/ Poster	
Session 3 **Smart agriculture toward net-zero with the focus on digital solutions**		
11:10 – 11:40	*Monitoring and incentivizing of low-emissions rice farming (Online)* **Dr. Bjoern Ole Sander** Senior Scientist - Climate Change Specialist, Lead, Asian Mega-Deltas Initiative, IRRI c/o Agricultural Genetics Institute, Vietnam	*Moderator (TBD)*
11:40 – 12:10	*Reducing agricultural greenhouse gases – a New Zealand perspective* **Dr. Sinead Leahy** Principal Science Advisor, Grassland Research Centre, Agricultural Greenhouse Gas Research Centre, New Zealand	
12:10 – 12:40	*Web-based visualization tool for agricultural C sequestration and GHG emissions* **Dr. Nobuko Katayanagi** Principal Scientist, Institute for Agro-Environmental Sciences, NARO, Japan	
12:40 – 13:30	Lunch Break	
Session 4 **Approaches to increase farmers' incentives to adopt low carbon practices** **4-1 :Business models and success cases**		
13:30 – 14:00	*"COOL VEGE®": Pioneering eco-brand for biochar soil carbon sequestration in the real world* **Dr. Ayaka Kishimoto-Mo**	*Moderator* Dr. Yasuhito Shirato

	Principal Scientist, Institute for Agro-Environmental Sciences, NARO, Japan	Research Division leader, National Institute for Environmental Studies (NIAES) & Dr. Su-San Chang, Director, FFTC
14:00 – 14:30	*The decarbonized business model of agricultural circular economy* **Mr. Yen-Ming Chen** Hanbo Livestock & Farming Products Co., Ltd, Taiwan	
14:30 – 15:00	Tea break/ networking/ poster	
4-2 Panel discussion **Approaches to increase farmers' incentives to adopt low-carbon practices:**		
15:00 – 16:20	Challenges and solutions for building a business model that promotes the introduction of agriculture-related carbon credit calculations and low-carbon labeling into farm management **Panelists** (4, TBD)	*Dr. Yasuhito Shirato & Dr. Su-San Chang*
16:20 – 16:30	Two days' wrap-up	
16:30 – 16:40	**Closing ceremony** FFTC, TLRI, TARI, DARES, NARO (TBD)	

Oct. 19, 2023 (Thursday): Field Trip Day

Time (GMT+8)	Topics and speakers	Note
09:30	Gather in the lobby of the National Hotel, Check out	
09:30-10:00	Transport to Taiwan Agricultural Research Institute (TARI)	
10:00-11:50	Taiwan Agricultural Research Institute (TARI) (413 台中市霧峰區中正路 189 號)	
11:50-12:00	Transport to the restaurant (議蕙會館) for lunch	
12:00-13:00	Lunch time (41341 台中市霧峰區中正路 734 號 民主議政園區內)	
13:00-14:00	Transport to Nextland (良作工坊)	
14:00-15:30	Nextland (631 雲林縣大埤鄉豐田路 57 號)	
15:30-16:30	Transport to Taichung HSR station	
16:30-16:40	Drop off people who directly return to Taipei at Taichung HSR station (414 台中市烏日區站區二路 8 號)	
16:40-18:30	Transport to City Suite near Taoyuan Airport	
18:30	City Suite near Taoyuan Airport (337 桃園市大園區中正東路 442 號)	

Oct. 20, 2023 (Friday): Overseas Participants' Departure Day

2023 International Workshop on Low Carbon Farming for Smallholders in the Asian and Pacific Region
October 17-19, Taichung, Taiwan

Enhancing international cooperation for sustainable agrifood systems towards net-zero

Ray-Yu Yang, Jennifer Lii, Tomonari Watanabe, Ruby Chen and Susan Chang*
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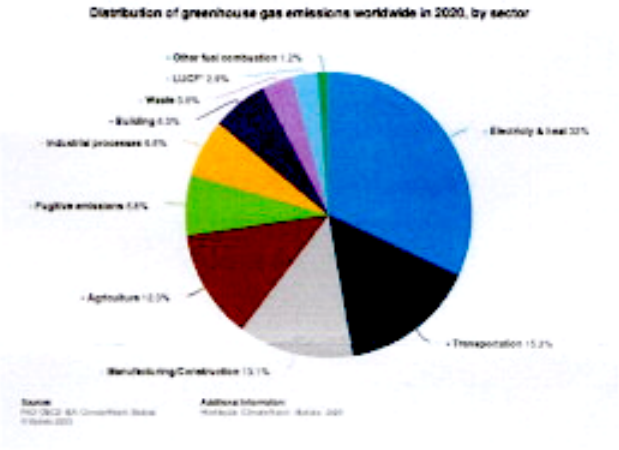
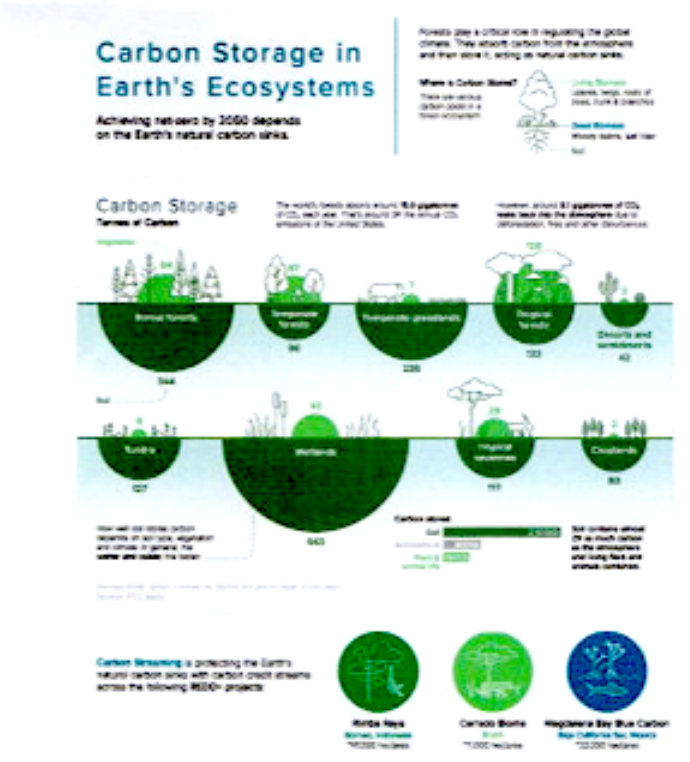
Background

The transformation of agricultural and food systems towards intelligent and low-carbon models is imperative to achieve the dual Sustainable Development Goals (SDGs) of food security and climate change mitigation. The integration of climate-smart and digital intelligent farming technologies holds the potential to usher in innovations that can revolutionize every facet of the agri-food system, thus enabling the inclusion of numerous smallholder farmers in this transformative paradigm. By fostering international information exchanges, networking, and the active engagement of researchers in international initiatives and events, the acceleration of information exchange and dissemination among countries will be facilitated, thereby propelling the development of intelligent and climate-smart agri-food systems.

Primary Objective

Strengthen international collaboration to advance sustainable agri-food systems towards improved health, safety, and net-zero carbon emissions through the sharing of information, effective knowledge management, and the establishment of international networks.





Workplan and Expected Outputs

Within the framework of the 4-year project plan (2023-2026):

- Establish an international consortium, create networks, and extend invitations to experts and scholars from various countries in both the public and private sectors
- Develop an information platform designed to collect and disseminate up-to-date insights on critical issues.
- Organize annual international seminars/online sessions focusing on topics revolving around "Net-zero and smart agricultural approaches for enhanced sustainable agri-food systems."
- Disseminate information about pivotal international seminars, encouraging Taiwanese researchers and government officials to actively partake in global activities.
- Conduct expert consultation meetings to synthesize project information and outcomes, thereby identifying crucial issues and offering recommendations.

Acknowledgement

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