

IMPLEMENTATION PROCEDURES
WORKSHOP ON QUANTIFICATION AND VISUALIZATION OF CH₄ EMISSIONS IN AGRICULTURE
AND CARBON CREDIT DEVELOPMENT THROUGH ALTERNATE WETTING AND DRYING
APO CENTER OF EXCELLENCE ON CLIMATE-SMART AGRICULTURE

About the COE on CSA

The APO COE on CSA, under the National Agriculture and Food Research Organization (NARO), Japan, contributes to improving agricultural productivity, enhancing farmers' livelihoods, and reducing greenhouse gas (GHG) emissions across APO member economies through knowledge sharing, collaborative research, and technical capacity development. The activities focus on climate-change mitigation and adaptation, GHG quantification and visualization, and the application of scientific approaches to support sustainable, climate-resilient agricultural systems, particularly for major crops such as rice, wheat, and soybeans.

1. Objective and Background

The APO COE on CSA, launched in 2023, was established to strengthen member economies' capacity in GHG emission quantification and visualization, among other key objectives. Since its establishment, it has progressively advanced regional technical capacities, focusing on key emission sources and mitigation approaches relevant to major agricultural production systems.

In 2024, activities focused on carbon dioxide (CO₂) emissions, introducing soil carbon sequestration modeling with the RothC model and carbon-crediting methodologies, particularly for biochar. In 2025, the COE on CSA expanded its scope to nitrous oxide (N₂O) emissions, strengthening members' capacities in meta-analysis, emission quantification, and simulation approaches to support improved understanding and management of agricultural N₂O emissions. India was selected as the main counterpart due to its high emissions and data availability.

Building on these initiatives, the 2026 program addresses methane (CH₄) emissions, particularly from irrigated rice production systems, one of the largest agricultural sources of CH₄ emissions in Asia. The workshop will strengthen participants' capacities to quantify, analyze, and visualize CH₄ emissions, while assessing the mitigation potential of alternate wetting and drying (AWD). It will also examine the technical, institutional, and methodological considerations for developing and scaling up AWD-based, high-integrity carbon credit projects, including data requirements, measurement and estimation approaches, and monitoring, reporting, and verification (MRV). The Philippines has been identified as the pilot project country for AWD-based carbon credit development.

2. Modality of Implementation

The workshop will be implemented in a hybrid modality from 17 to 19 November 2026, comprising face-to-face sessions in Tsukuba, Japan, with online participation where appropriate. The event will bring together international resource persons (RPs), national experts, and relevant policymakers from participating APO member economies.

Participation is primarily intended for and limited to RPs engaged in the APO COE on CSA activities since the Need and Readiness Assessment Survey for CSA Technologies conducted in 2023, as well as other RPs nominated by NPOs based on relevant technical expertise. The workshop will be held at the Tsukuba International Conference Center, Tsukuba, Japan.

Scope

The workshop consists of two complementary components:

1. Capacity Development Workshop on Quantification and Visualization of CH₄ Emissions in Agriculture:

This component focuses on enhancing participants' understanding of CH₄ emission quantification, estimation methodologies, visualization approaches, and country experiences. It will also review progress made under previous activities on soil carbon and N₂O emissions while identifying future technical priorities for regional collaboration.

2. Panel Seminar on Current Status and Challenges in Developing Carbon Credit Projects through AWD Implementation:

This component provides a platform for researchers, policymakers, and practitioners to exchange experiences in AWD implementation and discuss technical, institutional, and methodological considerations related to MRV, carbon credit development, and future regional cooperation.

Together, these two components are designed to integrate scientific knowledge exchange with policy and implementation discussions to support evidence-based CSA initiatives.

Methodology

The workshop will adopt an interactive, collaborative approach combining expert presentations, country reports, technical discussions, panel dialogue, and facilitated group discussions to promote knowledge sharing, peer learning, and regional collaboration.

The agenda will include:

Days 1–2: Capacity Development Workshop

- Hands-on demonstration: Step-by-step guidance on setting up and using CH₄ quantification and visualization tools; and
- Comparative analysis: Presentation and discussion on CH₄ emission profiles and mitigation potential across APO members.

Day 3: Panel Seminar

- Expert dialogue: Panel discussion on AWD implementation experiences, carbon credit methodologies, and remaining bottlenecks; and
- Postworkshop follow-up: Consolidation of workshop outputs and recommendations for future activities of the COE on CSA.

3. Qualifications of RPs

International RPs who have contributed to previous APO COE on CSA initiatives, particularly the meta-analysis of 2025, or other suitable RPs proposed by NPOs possessing the following qualifications may attend:

- a. Advanced research and technical expertise in CSA technologies, particularly in rice cultivation, soil N₂O and CH₄ emissions, emission quantification and visualization, and AWD;
- b. Demonstrated knowledge of Intergovernmental Panel on Climate Change (IPCC)-based GHG accounting, MRV, and carbon credit methodologies;
- c. Hands-on experience in field measurement or estimation approaches, emission data analysis and visualization, and the application of digital tools for GHG assessment;
- d. Proven experience in designing and delivering technical training or capacity-building programs for government agencies, research institutions, or private-sector practitioners; and

- e. Excellent English communication, presentation, and technical reporting skills.

4. Task Assignments of RPs

International RPs are expected to:

- a. Participate in pre- and postworkshop coordination meetings and contribute to the technical design and preparation of the workshop;
- b. Collect, analyze, and prepare technical data and information, as guided by the COE on CSA, and carry out other relevant tasks based on the activity framework and methodology;
- c. Prepare and deliver assigned presentations, facilitate technical discussions, and share relevant knowledge, country experiences, and good practices;
- d. Coordinate closely with the COE on CSA and APO Secretariat throughout project preparation, implementation, and follow-up;
- e. Complete assigned activities in accordance with the agreed work plan, schedule, and quality standards;
- f. Prepare and submit project implementation reports in the prescribed format to the APO Secretariat by the agreed deadline; and
- g. Ensure that all assigned tasks and contributions support the achievement of the workshop objectives and expected outputs of the APO COE on CSA.

5. Roles and Responsibilities

COE on CSA

- a. Assign the chief RP and local RPs to conduct sessions in the workshop;
- b. Coordinate all technical and logistic arrangements for the workshop in consultation with the APO Secretariat and participating APO member economies; and
- c. Facilitate the smooth implementation of the workshop and ensure the quality of its technical outputs.

APO Secretariat

- a. Identify and assign international RPs and assist their effective participation in the workshop;
- b. Supervise and monitor overall implementation and reporting by the COE on CSA and RPs;
- c. Ensure that the workshop design and implementation remain aligned with the objectives of the APO COE Program; and
- d. Provide administrative support in accordance with APO rules and procedures.

6. Financial Arrangements

All financial arrangements for the workshop will be made in accordance with the APO's prevailing rules, regulations, policies, and procedures. The respective financial responsibilities are outlined below:

To be met by the APO

- a. Honoraria for international RPs for up to three working days in the face-to-face workshop in accordance with APO policy;

- b. Other assignment-related costs of international RPs including preparation and reporting, daily subsistence allowance, miscellaneous expenses, and per diem allowance, if applicable, in accordance with APO policy;
- c. Round-trip discounted business-class airfare by the most direct route between the international airport nearest to RPs' places of work and project venue;
- d. Costs related to the development, publication, and dissemination of workshop reference materials and outputs; and
- e. Local implementation costs associated with organizing the workshop, including meeting package, local transportation, technical equipment rental, and welcome lunch.

To be met by the COE on CSA

- a. Honoraria and related costs for the chief RP, local RPs, and COE staff involved in project implementation; and
- b. Any other costs not covered by the APO.

To be met by RPs

- a. All expenses incurred due to additional stay at the project venue before and/or after the official project duration due to early arrival, late departure, or any other reason;
- b. Any cancellation charges for airfare and hotel accommodation arising from withdrawal/cancellation of participation after issuance of letters of assignment by the APO; and
- c. Any other costs not covered by the APO and the COE on CSA.