CGIAR

RESEARCH PROGRAM ON
Climate Change, Agriculture and Food Security

CCAFS

5th Annual Progress Reporting and Coordination Meeting on

CCAFS Projects and Regional Activities in Southeast Asia

21 November 2019
Hanoi, Vietnam

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Ballroom Van Mieu 3, Pullman Hanoi Hotel
Hanoi, Vietnam

SPECIFIC OBJECTIVES

The one-day meeting will cover the following specific objectives:
1. Report on the progress of CCAFS projects and activities in 2019;
2. Identify the significant outputs and outcomes of FPs and regional activities; and
3. Share knowledge, learning, and experiences across projects.

EXPECTED OUTPUTS

1. A review of the implementation progress of FPs in 2019;
2. Identification of emerging outcomes that will be pursued in 2020; and
3. Solutions to the identified issues/problems/challenges/gaps in the implementation of the FPs and regional activities.

PROGRAM

Time	Activity	In-Charge
08:00–08:30	Registration	Secretariat
08:30–09:00	**Opening program**	
	• Welcome remarks	*Leo Sebastian, RPL, CCAFS SEA*
	• Opening remarks	*Chu Van Chuong, ICD-MARD*
	• Introduction	All participants
Plenary Session 1: Presentations on outcomes of CCAFS works in Southeast Asia		
09:00–09:20	**P264:** Application of the climate-related risk mapping and adaptation planning (CS-MAP) in the Mekong River Delta to cope with salinity intrusion	*Le Thanh Tung, DCP (20 mins report)*
09:20–09:40	**P264:** CCAFS's Outcomes in Vietnam	*Alice Ferrer, UPV (20 mins report)*
09:40–10:00	**P264:** Assessing the outcome of the Myanmar CSA Strategy	*Eisen Bernardo, CCAFS (20 mins report)*
10:00–10:15	Discussion (Q&A)	All *(Presenters are the panelists)*
10:15–10:25	Group photo	All participants
10:25–10:40	Poster sessions Coffee/tea break	
Plenary Session 2: Presentations on CCAFS Flagship Projects		
10:40–10:55	**P1591:** Policy imperatives for Southeast Asia's regional food systems under climate change.	*Sampriti Baruah, CIP Asia (15 mins report)*
10:55–11:10	The Asia Climate Policy Hub: Developments and strategy in Southeast Asia	*Godefroy Groesjean, CIAT Asia (15 mins report)*

11:10–11:30	**P1596:** Gender sensitive CSA options trialed and tested in CSVs, and business case development for scaling	*Tiffany Talsma, CIAT Asia* *Rene Vidallo, IIRR Asia* *Reiner Wassmann, IRRI* *(20 mins report)*
11:30–11:45	**P1602:** GHG mitigation in rice: From evidence-based concepts to adoption at scale	*Bjoern Ole Sander, IRRI* *(15 mins report)*
11:45–12:05	**P1608:** A Climate Services Menu for SEA (CliSM): tackling scaling with a diversity of end users in the climate services value chains	*Angelica Barlis, CIAT Asia* *Le Thi Tam, ICRAF* *Peter Clausen, CARE* *(20 mins report)*
12:05–12:15	Discussion (Q&A)	All *(Presenters are the panelists)*
12:15–13:15	Lunch break	
Plenary Session 3: Presentations on Bilateral Projects		
13:15–13:30	WorldFish	*Tran Van Nhuong, WorldFish* *(15 mins report)*
13:30–13:45	International Center for Tropical Agriculture	*Godefroy Groesjean, CIAT Asia* *(15 mins report)*
13:45–14:00	International Rice Research Institute	*Reiner Wassmann, IRRI* *(15 mins report)*
14:00–14:15	World Agroforestry	*Nguyen Quang Tan, ICRAF* *(15 mins report)*
14:15–14:30	Discussion (Q&A)	All *(Presenters are the panelists)*
Plenary Session 4: Presentations on Regional Activities		
14:30–14:40	**P264:** CCAFS's Regional Agricultural Forecasting Toolkit (CRAFT)	*Sridhar Gummadi, CCAFS SEA* *(10 mins report)*
14:40–14:50	**P264:** Prioritizing CSA in Vietnam	*Luu Ngoc Quyen, NOMAFSI* *(10 mins report)*
14:50–15:00	**P264:** Development of training materials on climate-smart rice production for extension staff and rice farmers	*Nguyen Viet Khoa, NAEC* *(10 mins report)*
15:00–15:10	**P264:** Developing a Training Manual on Establishing Climate-Smart Villages (CSVs) in the ASEAN	*Julian Gonsalves, IIRR* *Rosario B. Bantayan, SEARCA* *(10 mins report)*
15:10–15:20	**P264:** Adoption of climate-smart aquaculture (CSAq) in the North Central Coast of Vietnam	*Cao Le Quyen, VIFEP* *(10 mins report)*
15:20–15:30	**P264:** Harnessing rural radio for climate change mitigation and adaptation in the Philippines	*Rogelio Matalang, PFRB* *(10 mins report)*
15:30–15:40	**P264:** School-on-the-air on climate-smart agriculture (SOA-CSA) in Cagayan Valley, Philippines	*Mar Raquepo, DA-RFO2* *(10 mins report)*
15:40–16:00	Discussion (Q&A)	All *(Presenters are the panelists)*
16:00–16:15	Poster sessions Coffee/tea break	

Plenary Session 5: Roundtable discussion on transforming Southeast Asian agriculture Moderator: *Dada Bacudo, GIZ/ASEAN CRN*		
16:15–16:25	Introduction of the topic and panelists	
16:25–16:35	Presentation on *Transforming food systems under climate change*	*Jana Koerner* *CCAFS SEA*
16:35–17:20	Comments by panelist 1	*Somchai Boonpradub* *DoA, Thailand*
	Comments by panelist 2	*Thavone Inthavong* *NAFRI, Laos*
	Comments by panelist 3	*Mak Seoun* *MAFF, Cambodia*
	Comments by panelist 4	*Yiyi Sulaeman* *ICALRRD, Indonesia*
	Comments by panelist 5	*U-Nichols Manalo* *AMIA, Philippines*
	Comments by panelist 6	*Tran Cong Thang* *IPSARD-MARD, Vietnam*
	Discussion (Q&A)	*All panelists*
17:20–17:30	Conclusions by the chair	

Closing Plenary Session		
17:30–18:00	**Closing Program** • Closing remarks	*Dr. Le Quoc Doanh* *Vice Minister, MARD*

Master of Ceremonies: *Rex Navarro, CCAFS SEA*

Workshop highlights

Opening Program

- ***Welcome Remarks, Dr. Leocadio Sebastian, Regional Program Leader, CGIAR Research Program on Climate Change, Agriculture and Food Security in Southeast Asia (CCAFS SEA)***
    - Agriculture in Southeast Asia is already transforming due to many factors including a changing demography in the countries, the growing middle class, regional integration, and climate change. CCAFS aims to play a role in this transformation by implementing climate-smart agriculture (CSA) options that cater to the context-specific situation and needs of its target communities.
    - Outcomes refer to the changes that happened after using the outputs. An outcome determines if the outputs were used in the first place and if they changed the knowledge, skills, attitudes, and practices of stakeholders. Outcomes also refer to the development of initiatives that benefit large numbers of stakeholders.
    - This year, CCAFS have started to document the outcomes of its projects implemented in the last few years. This documentation was conducted to prepare the future activities and prioritized outcomes that CCAFS would pursue in the next few years.
    - The outcomes that would be prioritized must be context-specific, i.e., the outcomes are relevant in the situation where they would be pursued. To identify outcomes that were suitable to specific contexts, CCAFS has been collaborating with its partners at various levels across Southeast Asia. This collaboration would hopefully lead to more funding, and in turn, generate more outcomes in broader geographic areas.
    - CCAFS SEA and its partners are always ready to assist countries in scaling CSA technologies and practices that improve food and nutrition security and address impacts of climate change. To achieve this scaling, CCAFS is helping countries mainstream CSA into their national programs and projects.
    - Scaling calls for more closer collaboration among stakeholders as it is already hard to achieve in the first place. Community-based participatory activities, which compose the major works of CCAFS, are even harder to conduct. Stakeholders must discuss to synergize their ideas and elevate their quality of work to achieve scaling.

- ***Opening Remarks, Dr. Chu Van Chuong, Deputy Director General, International Cooperation Department, Ministry of Agriculture and Rural Development (MARD)***
    - Climate change is a major global issue that brings destructive impacts on many countries. In Vietnam, climate change impacts had already dealt major damages and losses to its agriculture sector.

- The Vietnamese government had taken actions to address climate change, specifically climate change adaptation and mitigation actions with CCAFS SEA and other international partners. These climate actions were integrated into the socio-economic plans of Vietnam.
- MARD highly appreciates the support of CCAFS SEA on the agriculture sector of Vietnam. Dr. Chu Van Chuong mentioned the risk mapping and adaptation planning project that CCAFS SEA helped develop for the Mekong River Delta (MRD).
- Dr. Chu Van Chuong encouraged the participants to share their knowledge and experiences to prepare for the next years that would be dominated by discussions on climate change. He also wished that Vietnam could expand its networks to broaden the reach of its activities.

Plenary Session 1: Presentations on outcomes of CCAFS works in Southeast Asia

- ***P264: Application of the climate-related risk mapping and adaptation planning (CS-MAP) in the Mekong River Delta to cope with salinity intrusion, Le Thanh Tung, Department of Crop Production***
  - The focus of the presentation was about the adaptation of MRD and other areas suffering from inundation and salinity intrusion. MRD, specifically, was shown to be divided into six agro-ecological regions. The salinity distribution and rainfall distribution of these regions were used to develop the CS MAP.
  - The development of CS MAP started by identifying the climate-related risks in the MRD. Based on the risk levels from technical data and local knowledge, the maps were drawn and had eventually guided the crafting of adaptive plans. The plans included adjusting cropping calendar and changing cropping systems.
  - The risk maps and adaptive plans were polished and verified through meetings with individual provincial Department of Agriculture and Rural Development offices. After polishing and verifying, they were integrated into the regional plans of MRD.
  - The adaptive plans reduced the damages on crops and minimized the risks of inundation and salinity intrusion in MRD.
  - The proposed cropping calendar for winter-spring season 2019-2020 was shown, as well as the status of rice production in autumn-winter 2019 on a monthly basis.

- ***P264: CCAFS's outcomes in Vietnam, Dr. Alice Joan Ferrer, University of the Philippines Visayas***
  - Outcome Harvesting was introduced as a new methodology to monitor and evaluate CCAFS projects. In this context, harvesting means identifying,

describing, and analyzing outcomes or behavioral changes at the individual, group, community, and organizational level.

- The steps to conduct Outcome Harvesting are: (1) design the study; (2) gather data and identify outcome leads; (3) engage with key informants; (4) substantiate outcomes; (5) analyze and interpret; and (6) write up. A total of 13 key informants were interviewed for this methodology, together with collecting and analyzing reports and online sources. Using this methodology, preliminary outcomes of CCAFS projects were identified.
- The outcomes can be divided into four categories: (1) use of new tools, approaches, methodologies, and learning outcomes; (2) trust, relationships, capability built among stakeholders in climate change; (3) use of new services; and (4) use of new knowledge generated in funded researches.
- New tools and approaches that are now being used are the Climate-Smart Village (CSV) as a research for development (R4D) approach, climate-smart maps and adaptation plans (The *CS MAP* project), alternate wetting and drying, participatory approaches—which were commonly mentioned in key informant interviews—gender and social inclusion, and changes in mindsets (from rice only to crop and livelihood diversification, from adaptation to adaptation and mitigation).
- Trust, relationships, and capacities were built through trainings/workshops, meetings, inputs in plans, country statements, source materials (CSA Compendium, training materials on climate-smart rice production for extension staff and rice farmers in Vietnam, etc.), and village demonstrations.
- The new services that are now being used in the CSVs include the agro-climate information services for women and ethnic minorities and the community innovation fund.
- Benefit-cost analyses were conducted on CSA technologies and farm-level climate-smart aquaculture. For future activities, more interviews would be arranged to improve the final report.

- ***P264: Assessing the outcome of the Myanmar Climate-smart Agriculture Strategies, Mr. Eisen Bernardo, CCAFS SEA***
  - Myanmar is facing a lot of climate-related challenges like any other countries in Southeast Asia. This makes Myanmar one of the most vulnerable countries to climate change impacts.
  - In 2014, the government committed to adopt CSA with the help of CCAFS and the International Rice Research Institute (IRRI). As part of this commitment, Myanmar adopted the Myanmar Climate-smart Agriculture Strategy (MCSAS) IN 2015.
  - The MCSAS follows a systems approach in agriculture, considering the roles of various stakeholders in the "system," i.e., the agriculture sector, and emphasizing knowledge generation among them. Knowledge generation, after all, is a key component of climate change adaptation.

- Despite its current weaknesses (unclear implementing mechanisms, absence of a long-term investment plan, lack of alignment with Myanmar's sustainable development plan, among others), opportunities were identified: understanding the overall picture of the climate change policy, integrating the MCSAS into educational activities about climate change and disaster preparedness, and recognizing its potential in terms of agricultural transformation.
- Emerging outcomes of MCSAS included an estimated amount of USD 1 billion in CSA investments from 2016 to present; USD 230 million for the Resilient Communities Development Project; and an almost 65 million-dollar fund for the five-year project, "Climate-Friendly Agribusiness Value Chain."

- ***Highlights of the group discussion for Plenary Session 1***
  - Outcome Harvesting is qualitative in nature, but its process is iterative. Evaluators can go back to the previous steps and choose outcomes that can be studied using quantitative methodologies.
  - The outcomes being targeted are not necessarily the result of CCAFS activities. Outcomes can still appear where CCAFS is already out of the picture. The key is to work closely with stakeholders to document these outcomes and set proper attributions. Outcome studies and impact evaluations must be conducted by third-party institutions and not by the CSA implementers.
  - A thought to ponder on after the session was the potential contribution of prioritized outcomes to the agricultural transformation in Southeast Asia.

Plenary Session 2: Presentations on CCAFS Flagship Projects

- ***P1591: Policy imperatives for Southeast Asia's regional food systems under climate change, Sampriti Baruah, International Potato Center***
  - The focus on roots and tubers in the Philippines came from the farmers in disaster-prone areas. Farmers considered root and tubers the insurance crops because they believed they were climate-resilient.
  - The Seeds without Borders was started by IRRI. An initiative to improve the "movement" of seeds across Southeast Asia, the Seeds without Borders aims to make the varieties developed in one signatory country available to other signatories on demand. Vietnam and the Philippines are being encouraged to join this initiative through linkages in policy circles.
  - Two policy forums were organized for Vietnam and the Philippines. The "Opportunities for a Climate Smart Food System in the Philippines" was held last 7 February 2019 while the second forum, "Opportunities for a Climate Smart Food System in Vietnam," was organized a few months later, on 10 April 2019.
  - Networks of diverse stakeholders in the Philippines and Vietnam were now established. These would help in promoting climate-smart food systems.
  - Two studies are being conducted. Both are covering seed systems in the Philippines and Vietnam, specifically value chains of seeds for major roots and

tubers, procedures for seed replacement and certification, processes on varietal release, and trades and markets on seeds.

- This 2019, these outputs were published: a technical report titled, *"Identifying Opportunities and Challenges for Creating a Climate-Smart Food system in Vietnam;"* the journal article, *"Changing Food Consumption Patterns in Rural and Urban Vietnam: Implications for a Future Food Supply System;"* a forthcoming paper called *"Identifying Opportunities and Challenges for Creating a Climate-Smart Food system in the Philippines;"* and a developing article titled, *"Changing Food Consumption Patterns in Rural and Urban Philippines Implications for a Future Food Supply System."*

- ***The Asia Climate Policy Hub: Developments and strategy in Southeast Asia, Godefroy Grosjean, International Center for Tropical Agriculture (CIAT) Asia***
  - The Climate Policy Hub (CPH) is founded on three pillars: supporting CSA investment planning; de-risking finance; and policy engagement. These pillars guide the CPH in scaling CSA investments.
  - CSA Investment planning: Part of this is developing CSA country profiles or "snapshots" of countries in the context of CSA. After compiling and analyzing these profiles for prevailing trends, a global synthesis report was prepared by CIAT. A major highlight of the report states that only five technologies account for about 50% of all practices considered climate-smart and that climate-smartness is context-specific
  - Step-by-step process of CSA investment plans: situation analysis, examining vulnerabilities, impacts, and readiness of communities; prioritizing interventions, looking for value and trade-offs; program design and implementation, scaling CSA and transforming knowledge into action; and monitoring and evaluation to document experiences.
  - Through the CPH, innovative and suitable financing services are being designed. This is in line with developing climate-smart business models and understanding the connection between climate change and agricultural risk management.
  - CPH is involved at the regional and international levels, working with the ASEAN Climate Resilience Network (ASEAN CRN) and the Conference of Parties (23 and 24). In the future, it will expand its support to CSA scaling and capital deployment, together with promoting digital agriculture (developing digital agriculture profile of Vietnam, specifically information and communication technology solutions for aquaculture value chains in the MRD).

- ***P1595: Gender-sensitive CSA options trialed and tested in CSVs, and business case development for scaling, Tiffany Talsma, CIAT Asia; Rene Vidallo, International Institute of Rural Reconstruction (IIRR); and Reiner Wassmann, International Rice Research Institute (IRRI)***
    - Since CSVs are already established, it is now high-time to prove that the CSV concept can be scaled. This project aimed to scale the climate-smart village (CSV) approach in the Philippines, Vietnam, and Laos. Alongside scaling, it searched for pathways to integrate CSA into programs and projects of national governments.
    - Through knowledge sharing activities in the Philippines (Guinayangan CSV), Laos (Phailom CSV), and Vietnam (Yen Bai Province), context-specific and scalable CSA portfolios, as well as the CSV approach, were promoted. In Vietnam, specifically, two new CSVs will be established.
    - In Laos, CSVs will focus on the nutritional contributions of CSA. The Laos experience also presents a case for scaling, where community-based seed production was expanded, and seed producers and rice exporters were linked. A manual on community-based rice production was also developed in the process.
    - The key outputs produced under this project included an info note about the promotion of adaptation platforms in agriculture; climate-resilient agriculture brochures made from the experiences of selected sites under Adaptation and Mitigation Initiative in Agriculture (AMIA) in the Philippines; a report about the advantages of climate-resilient cassava-cowpea intercrop practice in North Vietnam; and primers on CSV profiles in Myanmar.
    - Emerging outcomes of the project include research on the governance pathway to scale CSA in Southeast Asia. This explores how working with government partners through their major programs can broaden the coverage of CSA services and products.
    - The publications produced out of this project include the info note, *"Scaling the capacities to adapt to a changing climate: Experiences of the AMIA Climate Resilient Villages, Philippines;"* a peer-reviewed article titled, *"Adaptation, mitigation and food security: Multi-criteria ranking system for climate-smart agriculture technologies illustrated for rainfed rice in Laos;"* and the report, *"Triple advantage of climate-resilient cassava-cowpea intercrop practice in Northern Vietnam."*

- ***P1602: Greenhouse Gas (GHG) Mitigation in Rice: From evidence-based concepts to adoption at scale, Bjoern Olde Sander, IRRI Vietnam***
    - The project components are: (1) demand-driven support of mitigation planning; (2) monitoring, reporting, and verification; (3) low-carbon certification schemes; and (4) innovative technologies and policy analyses. It features alternate wetting and drying (AWD) as a viable mitigation practice for the rice sector in Vietnam.

- AWD suitability mapping was conducted in An Giang Province, Vietnam. Geographic information system (GIS) was used to develop climatic suitability maps while participatory approaches were employed to draw adoption capacity maps.
- During the AWD scaling workshop, the maps and the mapping process were passed on to the Department of Crop Production and scaling strategies were discussed with eight MRD provinces. After the workshop, representatives of An Giang Province expressed their plans to out-scale the AWD practice.
- Through this mitigation-based project, IRRI was able to contribute in the development and implementation of Vietnam's Nationally Determined Contributions (NDCs). They were also able to calculate baseline GHG emissions and run model reduction scenarios, which would be useful in the investment planning and MRV of GHG mitigation activities of Vietnam.
- A subsequent step of the project is classifying farmers based on their emission reduction potential. This means that the project will identify farmers who will be "full adopters," "partial adopters," and "non-adopters." Related to this classification is identifying the emission reduction potentials of various rice cultivars.

- ***P1608: A Climate Services Menu for Southeast Asia (CliSM): Tackling scaling with a diversity of end-users in the climate services value chains, Angelica Barlis and Pablo Imbach, CIAT Asia; Le Thi Tam and Elizabeth Simelton, World Agroforestry (ICRAF); and Tran Manh Hung and Peter Clausen, CARE***
  - There are several bottlenecks when it comes to scaling: diversity of and disconnection among actors along the national and local levels; weak capacity and infrastructures for climate services; and government structures.
  - To overcome these bottlenecks, scaling agents and project implementers must gather data about the end-users (integrate gender and youth as well). From this step, the project was able to develop an assessment framework of climate services value chains.
  - Afterwards, they must build business models that cater to the characteristics of end-users and their information needs. These models must be tested for their scalability at the national level.
  - There are already key outputs produced and currently in progress because of this project. An output that was tested and disseminated in Ha Tinh Province were agro-advisory bulletins specifically designed for farmers. Meanwhile, those in progress include a business model for climate services supporting Vietnam's coffee sector and an assessment of practitioners' needs to scale climate services.
  - The emerging outcomes of this project focus on improved stakeholder engagement in crafting strategies and implementation plans. Such engagement can ensure the uptake of climate services in the agricultural activities of MARD.

- In the future, the project will organize learning workshops for high-level officials and policy makers to enable them to add their inputs on climate services and provide feedbacks on the proposed scaling framework.

- ***Group discussion for Plenary Session 2***
  - *The process is as important as the outputs.* This is an important thought that we should always keep in mind when we aim for outcomes.
  - In CCAFS, we should be aware of the time we take for data gathering because we are always aiming to generate for outcomes. Aside from time, we should also be mindful in writing the citations of our outputs. Our partners must be highlighted in those outputs as they had major contributions in developing them. In the end, there should be a transfer of ownership from us to our partners.
  - Regarding the De-RISK project, implementers are already engaging with MARD at the start, ensuring the participation of government partners.
  - A policy line must be established to ensure that the gender dimension and youth sector are also included in our projects.

Plenary Session 3: Presentations on Bilateral Projects

- ***WorldFish, Tran Van Nhuong, WorldFish***
  - The project aims to scale out the best practices in managing community fish refuges (CFRs). These practices could then improve the climate resilience of CFRs and the nutritional benefits from consuming fish. CFRs also serve as major sources of water for their surrounding communities.
  - The adaptation practices of farmers include improved fish feeding, pond water management, water retention practices, and postharvest handling, as well as use of stress-tolerant fish.
  - Men and women differ in the adaptation practices they wanted to prioritize but both agree that stocking large fingerlings is a must.
  - A total of 5,222 hectares of rice field-fisheries areas are now under an improved management. Fish conservation was deemed effective due to the increase in fish biomass and household fish catch from 2017-2018.
  - As a source for domestic water use, CFRs led to the establishment of 12 drinking stations enjoyed by 34,000 households, 12 health centers, and 109 schools in 128 villages. The CFRs were also useful during the early drought in 2019 since they provided water to the communities.
  - CFR groups were able to solicit support from local governments and the private sector amounting to almost USD 300,000. This support would be dedicated to improving CFR activities.

- ***International Center for Tropical Agriculture, Godefroy Grosjean, CIAT Asia***
    - The current projects of CIAT in Asia cover climate-resilient agriculture, food systems and value chains, value adding to cassava, forages and livestock, and agricultural systems and landscapes.
    - The De-RISK project was again featured but presented with more in-depth information this time. Its main objective is to reach 27,000 farmers in Vietnam, Laos, Cambodia, and the Philippines.
    - To reach this number of farmers, the project aims to develop climate services based on seasonal forecasts, innovative insurance products, and supportive adaptation policies.
    - Another initiative that was featured was the weather forecasting for coffee sustainability, which aims to reduce the carbon footprint of the coffee sector through agricultural weather advisories and improved seasonal and yield forecasting for farmers.
    - CIAT is promoting innovative financial services in the Philippines by supporting the Agricultural Credit Policy Council and the Philippine Crop Insurance Corporation. These two offices are being engaged to implement CSA-based agri-financial products for farmers.
    - Climate-resilient cassava systems already benefited more than 4,000 farmers in more than 4,000 hectares of cassava in Yen Bai Province, Vietnam. The systems combined cassava with cowpea and grass barriers in appropriate regions to improve soil fertility and improve yield and income.

- ***International Rice Research Institute, Reiner Wassmann and Bjoern Ole Sander, IRRI***
    - IRRI implemented four bilateral projects: Thai Rice NAMA, Support national mitigation plans and programs in Vietnam and Bangladesh, Cost-Benefit Assessment of Mitigation, and the Vietnam Sustainable Agricultural Transformation (VnSAT).
    - New donors have one common factor: mitigation. Donors are looking for projects that reduce the GHG emissions of the agriculture sector.
    - Through Thai Rice NAMA, IRRI was able to implement mitigation technologies and practices in Thailand such as laser land levelling, straw and stubble management, AWD, and site-specific nutrient management. These are planned to be scaled through a "revolving fund" and direct financial investments, among other activities.
    - In Vietnam and Bangladesh, the Climate and Clean Air Coalition works with IRRI, national governments, non-government organizations, and other international institutions to reduce the amount of short-lived "climate pollutants" in the atmosphere. Specifically, this project aims to support governments to reduce their methane emissions from rice through evidence-based information and strategies.

- IRRI is also conducting cost-benefit analyses of mitigation projects. These analyses identify the technologies and practices used, account the costs against the co-benefits of adopting them, and identify impacts, if there are any.
- The VnSAT project targeted 30 key rice districts over eight provinces in the MRD with a budget of USD 100 million. Through the project, several issues on rice production were identified, including rice quality, certification standards, and market linkages.
- IRRI released a publication titled, "Climate-smart Rice Production Manual" for Myanmar. The publication has both English and Burmese versions. A new GHG calculator was also developed for croplands: the Source-selective and Emission-adjusted GHG calculator for Cropland (SECTOR).

- ***World Agroforestry, Nguyen Quang Tan, ICRAF***
  - ICRAF is working with Ha Tinh Province and the Ministry of Natural Resources and Environment in implementing an ecosystem-based adaptation project for farmers. Called the Ha Tinh SIPA project, it combines the principles of ecosystem services and CSA.
  - The project aims to improve the adaptive capacity and livelihoods of both male and female farmers in Ha Tinh Province and build the capacities of relevant stakeholders to integrate ecosystem services and CSA.
  - At the international level, the project supports Vietnam in developing a national adaptation plan, contributing to the "Loss & Damage" debate, and crafting provincial adaptation plans with financial components.
  - The project was able to build networks that facilitate knowledge sharing among farmers. Through these networks, as well as a kick-start fund platform called the Community Innovation Fund, CSA technologies and practices were promoted and eventually adopted. The networks are led by village leaders and farmer champions.
  - The project utilizes three forms of scaling: vertical, horizontal, and commercial.
  - Vertical scaling is achieved through government structures, integrating CSA in policies, national programs, and action plans. Horizontal scaling entails expanding the reach of the farmers that adopt CSA. Commercial scaling involves the private sector.

- ***Group Discussion***
  - We must present indicators to our policy makers to convince them to join us. At the same time, we must consider what kind of policy maker we are talking to because in many instances, what we think is not aligned with what they think.
  - There is no blanket strategy to engage policy makers. The key is to use various approaches and media to reach them. We can also bring them to the field or bring the evidence to them. The evidence must then be economically viable.
  - Even with the discussions on how to engage policy makers, a major issue still arises from outside the policy circles: working with farmers and the private

sector. We must find an approach or a set of approaches that can catch the interest of these stakeholders.

Plenary Session 4: Presentations on Regional Activities

- ***P264: The CCAFS Regional Agricultural Forecasting Toolkit (CRAFT), Sridhar Gummadi, CCAFS***
    - CRAFT is a computer-based, personal decision-making tool that analyzes agricultural risks and predicts short- and long-term yields. It can run many crop simulation models that lead to interactive thematic maps. CRAFT contains a user-friendly application, a database containing relevant data, and an integrated GIS map.
    - CRAFT is a useful tool to research about crop forecasting; it supports multiple crop and climate models; it is suitable for researchers working in developing countries.
    - Climate Predictability Tool (CPT) is an easy-to-use Windows software to generate seasonal climatic forecasts. Specifically, forecasts are generated through fields of sea-surface temperatures or outputs from a general circulation model. CPT is both a statistical prediction and downscaling tool.
    - There will be an evaluation of how CPT performed in the Philippine context (CPT performance in Vietnam will be evaluated as well). New datasets will then be developed for CRAFT and seasonal climate and yield predictions will be provided for the Philippines.

- ***P264: Prioritizing CSA in Vietnam, Luu Ngoc Quyen, Deputy Director General, Northern Mountainous Agriculture and Forestry Science Institute***
    - In 2017, CCAFS SEA supported the conduct of a survey identifying the CSA practices being conducted in Vietnam. From this survey, a CSA book was published, documenting a total of 90 CSA practices over the entire county.
    - CSA practices and systems that could contribute to achieving the NDCs of Vietnam were listed, together with those that could support the implementation of the country's National Adaptation Plan (NAP).
    - A total of 57 prioritized CSA practices and systems were identified for adoption. They were chosen for their potential to contribute in the NAP implementation and Vietnam's NDCs. These include integrated pest management, drip method, grass hedgerow, AWD, poultry, and rice-fish intercropping.
    - They were grouped into six categories: (1) pest control and production of quality products; (2) protection and sustainable use of cultivated land and water resources; (3) agroforestry and integrated cropping systems; (4) paddy rice production; (5) husbandry; and (6) aquaculture.
    - The impacts of these CSA practices and systems will be studied. This is to spot locations where they can be promoted and address the challenges that hinder

their implementation. All the information that will be gathered will be stored in a database.

- ***P264: Development of training materials on climate-smart rice production for extension staff and rice farmers, Dr. Nguyen Viet Khoa, Chief, Training and Extension Division, National Agricultural Extension Centre***
    - The project aims to develop a standard training manual and curriculum on climate-smart rice production for both extensionists and farmers. These materials will cover CSA options that farmers can adopt on their fields, as well as effective communication and extension practices that extensionists can apply on their activities.
    - The materials developed under this project covered the following: Rice production and greenhouse gas emission; Land preparation; Varieties and crop establishment; Crop nutrition management; Integrated water management; Harvest and postharvest technologies; Marketing and rice value chain; and Farmers engagement and training basics of training for adults.
    - To develop these materials, the project adopted this step-by-step methodology: (1) training needs assessment; (2) review of existing training materials; (3) compilation; (4) test trainings; and (5) launching and wide use. This methodology is participatory and involved not only the farmers, but also extension staff, researchers, and government officials.
    - At the national level, 550 extension staff were involved, together with 1000 users of climate-smart rice training manual. At the provincial level, 2000 officers used the training manual, together with 63 provincial agriculture extension centers with 2000 staff overall. At the district level, 15000 extensionists were involved. At the commune and village levels, a total of 11 162 people's committees participated.
    - E-learning materials will be developed to discuss climate-smart rice production. This will be complemented with video clips and mobile-based communication materials.

- ***P264: Developing a training manual on establishing Climate-Smart Villages (CSVs) in the ASEAN, Rosario Bantayan, Program Specialist, Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA)***
    - SEARCA, IIRR, and CCAFS are working together to scale the principles and processes of CSA in communities vulnerable to the worsening impacts of climate change.
    - In the workshop, "*Establishing Climate-Smart Villages in the ASEAN Region to Improve Food Security and Resiliency in Local Communities"* last 9-13 July 2019, participants were exposed to the potential of CSA to improve food security in local communities under a changing climate.
    - The workshop was divided into four modules to deepen the participants' appreciation and knowledge on CSA and show them on-ground CSA technologies and practices being adopted by selected communities.

- The first module was a backgrounder on CSA, introducing it as a transformative research-for-development approach to address the intersecting issues on climate change, agriculture, and food security. Included in this module were presentations about the participatory tools used by AMIA villages and Guinayangan CSV in the Philippines.
- Module 2 involved a panel discussion on emerging lessons from the CSVs in Southeast Asia. The panel included Dr. Leo Sebastian, Regional Program Leader of CCAFS Southeast Asia; Ms. Perla G, Baltazar, Senior Technical Officer of the DA Systems-wide Climate Change Office; and Dr. Julian Gonsalves, Senior Adviser and CCAFS Project Leader from the International Institute of Rural Reconstruction. Jana Koerner, CCAFS SEA Scaling Officer, presented how to conduct scaling in the context of CSVs.
- The third module involved a series of roving workshops in selected sites in Guinayangan CSV. The participants learned and witnessed firsthand intercropping and other interventions in an upland agricultural system in Barangay Cabong Norte; native pig raising in Barangay Capuluan Tulon; coastal reforestation and livelihood diversification in Barangay Capuluan Central; and agroforestry and crop diversification in Barangay Sta. Cruz.
- Module 4 was a reflection and synthesis exercise where the participants discussed the best practices in their CSA-related works.
- Key outputs include appreciation and understanding of CSA technologies and practices introduced during the roving workshops; proceedings, brochures, and evaluation reports; and re-entry action plans. The action plans discuss how to establish CSVs in Southeast Asia and applying climate-resilient practices in various vulnerable communities.
- Through these activities, SEARCA, IIRR, and CCAFS were able to contribute in promoting the concepts and practices of climate-resilient agriculture in Southeast Asia.
- In the future, there will be an analysis to determine the degree by which the participants applied their learnings during the roving workshop, a case story book of farmers in Southeast Asia, and another roving workshop in 2021 in Myanmar, Cambodia or Vietnam.

- ***P264: Adoption of climate-smart aquaculture in the North Central Coast of Vietnam, Cao Le Quyen, Tran Van Nhuong, Nguyen Duc Trung, Trinh Quang Tu, Phan Phuong Thanh, and Le Thi Thu Huong***
  - Climage-smart aquaculture (CSAq) can improve the adaptation and resilience of coastal communities, as proven by a case study in North Central Vietnam. In the case study, genetically improved farmed tilapia was integrated in CSAq systems.
  - Farmers are more likely to adopt CSAq if it helps them increase their incomes. This was seen in the results of the case study, where economic efficiency and market price are the primary drivers of adoption for CSAq among farmers.

Economic efficiency can be improved by reducing costs of farmers, improving efficiency of feed use, establishing CSAq value chain linkage, and managing diseases, among others.

- Access to CSAq-related information is another driver of adoption. Farmers are more likely to adopt CSAq if they are aware what it is, what its benefits are, and where they can access such information (i.e., aquaculture extension services).
- Demographic factors (age, gender, education, aquaculture experience, labor availability, technical awareness on CSAq), aquaculture practices (culture area, type of production, aquaculture revenue), access to extension services, market price, and perceived benefits were considered in analyzing the adoption behaviors of farmers.
- A total of 200 shrimp farms with and without *tilapia* integration were covered in the case study.
- Conducive policies must be developed to scale-out CSAq in other areas in Vietnam.

- ***P264: Harnessing rural radio for climate change mitigation and adaptation in the Philippines, Rogelio Matalang, Philippine Federation of Rural Broadcasters***
  - The rural radio campaign called "Climate Change, i-Broadkas Mo!" was implemented in 2015 in the Philippines by CCAFS SEA. The campaign was in collaboration with the Philippine Federation of Rural Broadcasters (PFRB) and regional field offices under DA. In 2018, the campaign entered a second phase, which served as its intensified follow-up and extension.
  - Ready-to-be-aired (RTBA) materials were produced under this campaign, which aims to educate rural broadcasters about climate change and CSA. In turn, the broadcasters are expected to serve as intermediaries of climate-related information that will be disseminated to rural areas in the Philippines.
  - "Sa Kabukiran," a television-radio program of DZMM, airs the materials produced under this campaign. Aside from DZMM, other radio stations that broadcasted the materials included 87.7 FM DYVL, DYDC FM, and DXMS Radyo Bida 882 KHz. Moreover, the materials were being aired in IBC-6 channel and in social media platforms through Facebook Live.
  - A total of 276 canned interviews, 285 scripts, 10 radio spots, and 3 jingles were produced under this campaign. These materials were disseminated to over a hundred active members of PFRB, many of which own a regular radio program. The materials were written and aired in major languages in the Philippines: Ilocano, Tagalog, Cebuano, Waray, Ilonggo, Maranao, Maguindanaon, and Bicolano.
  - The materials were produced during broadcast production workshops organized in strategic areas all over the Philippines. The areas were selected due to their proximity to relevant stakeholders that the campaign can engage with. In Phase 2, the workshop venues were in Cagayan de Oro, Leyte, and Isabela.

- ***P264: School-on-the-air on climate-smart agriculture in Cagayan Valley, Philippines, Marcelo Raquepo, Department of Agriculture, Regional Field Office 02***
    - A study was conducted to assess the immediate outcomes of a distance-based learning project titled, "School-on-the-Air Climate Smart Agriculture (SOA-CSA) in Cagayan Valley, Philippines." The SOA-CSA project proves to be an effective initiative to inform farmers about CSA practices on rice production. This is reflected on the high levels of retention, awareness, and adoption among farmers.
    - About 67% could recall the information they heard from the SOA lessons. Almost all of them (93%) displayed awareness of and knowledge on the causes of climate change. Meanwhile, 89% are aware of and have knowledge on the effects of climate change. Majority of them know about CSA practices on rice and almost always adopt them. Overall, 92% of the farmers in this study said that the information they heard from the SOA project are useful to them and, in turn, have influenced them to adopt CSA technologies for rice.
    - The outcomes of the project are promising. Farmers earned a mean yield increase of 19 cavans per hectare, which they attributed from the application of CSA. This yield increase led to a mean increase of PHP 18,000 in farm income per hectare.
    - For future SOA-CSA programs, farmers suggested they must discuss high-value crops, as well as corn. Their preferred time of the program is 5:00-6:00 in the morning, preferably hosted by male anchors or a male-female tandem and aired in Ilokano language.
    - The study was led by DA-Regional Field Office 02 and was participated by the following state universities: Cagayan State University, Isabela State University, Nueva Vizcaya State University, and Quirino State University

- ***Group Discussion***
    - Vietnam has different kinds of extension programs, but no specific program is dedicated for CSA. As a resolution, CSA is integrated into existing extension programs. While integrating CSA, it must be communicated to farmers to allow them to learn its benefits. In Vietnam, mass media platforms are utilized to communicate CSA.
    - Technical staff and extension workers who go to the farming communities complement media-based interventions. For instance, they will be the ones to clarify any information that the farmers found vague in media programs.
    - How is the roving workshop different from a farmer field school? A roving workshop is designed for high-level officials to bring them to the ground, but it can still serve as a learning platform for farmers. In roving workshops, most of the learning occur in the field sites. Moreover, a roving workshop is not something that is conducted every day. It requires long preparation.

Plenary Session 5: Roundtable discussion on transforming Southeast Asian agriculture

Moderator: Dada Bacudo, German Agency for International Cooperation/ASEAN CRN

Presentation: Jana Korner (CCAFS SEA) - "Transforming food systems under climate change"

Panelists: Somchai Boonpradub (Thailand), Thavone Inthavong (Laos), Mak Seoun (Cambodia), Yiyi Sulaeman (Indonesia), U-Nichols Manalo (Philippines), Tran Cong Thang (Vietnam)

- Transforming Food Systems under a Changing Climate is a new CCAFS-led initiative that aims to harness the benefits of food systems that are now undergoing major changes in polices, human diets, technologies, adaptation approaches, and investments.
- Many phenomena are occurring all at once, several of which have direct influence on global and local food systems. These include the aging farmer population, shifting dietary demands, rising urbanization, and the changing climate.
- This initiative is composed of five work packages:
    - Local to global policy as a catalyst for change;
    - Changing diets and transforming food systems;
    - Future technologies and food systems innovation;
    - Adaptation and development pathways for different types of farmers; and
    - Financing the transformation of food systems under a changing climate.
- The policy areas that can be explored are adaptation and mitigation in agriculture, food loss and waste management, and nutrition and sustainability.
- Diets should not be healthy and balanced only, but also climate-friendly. To achieve such diet, food must be familiar to the people, appealing (in terms of cost and taste among other factors), and most especially, accessible to them.
- Digital agriculture will play a role in the future of food systems. Innovative adaptation practices such as vertical agriculture can also be adopted. In scaling these practices, there must be safety nets for vulnerable sectors that are being encouraged for adoption.
- Currently, farmers are involved in typical large-scale commercial farming, small-scale subsistence farming, small-scale marketing, extensive traditional farming practices, and artisanal farming. By 2040, farmers are hoped to focus more on environmental externalities, land consolidation, and income diversification, among other targets.
- Public and private sector investments must be encouraged. The investments can incentivize farmers and de-risk the adoption of certain technologies and practices.
- The enabling environment that would facilitate transformation included investments on agricultural infrastructures, support of policy makers, and involvement of private sector.
- The roundtable discussion converged on three main themes: modernization, empowerment, and education.
- Modernizing agriculture was considered a key step to achieve transformation of food systems and an entry point for CSA. It can be achieved by employing innovative and

practical approaches in the farms (shift to high-value crops, adoption of climate-resilient varieties, farm mechanization, among others).

- Empowerment entails involving and organizing farmers. If they are working as a group (usually as cooperatives), they can collectively participate in agriculture-related activities and in key decision-making processes with their governments. They can also test and eventually adopt together new approaches (e.g. agricultural entrepreneurship) if they see that these are beneficial for their farming.
- Education is a critical component to engage the youth sector in agriculture.

Closing Remarks, Dr. Le Quoc Doanh, Vice Minister, MARD

- CSA may have been mentioned only recently, but climate-smart technologies and practices have long been adopted and utilized before. Still, recommendations are welcome to improve CSA implementation, especially at the institutional level.
- Vietnam committed to continue working with CCAFS to minimize the impacts of climate change on its agriculture sector. The CS MAP project was a good case study that they can learn from. It can now be scaled up to support the disaster management activities of Vietnam.
- Aside from the CS MAP, CCAFS is also involved in supporting Vietnam on their international commitments, specifically the country's commitment to the Paris Agreement—the NDCs. CCAFS is also assisting the country in implementing its NAP.
- Dr. Le Quoc Doanh called on the participants to identify programs that are really aligned with agriculture and encouraged scientists to work together further.

Awarding ceremony

- Dr. Sebastian was recognized for his invaluable contributions to the agriculture and rural development of Vietnam. He received the *"Medal for the contribution to the Cause of Agriculture and Rural Development*" from the Ministry of Agriculture and Rural Development.
- The Medal is considered the most honorable individual award for those who contributed greatly to the agriculture sector of Vietnam.
- Since 2013, Dr. Sebastian has been leading CCAFS Southeast Asia in developing crucial climate activities in Vietnam, specifically the CS MAP in the Mekong River Delta. He helped establish CSVs in the country and implement context-specific CSA technologies and practices. Moreover, he supported the mobilization of funds to the agriculture sector of Vietnam.
- Dr. Sebastian also contributed greatly to the negotiation team of Vietnam as the country prepared its National Determined Contributions that would be submitted to the United Nations Framework Convention on Climate Change.

Photos


5th Annual Progress Reporting
and Coordination Meeting on
CCAFS Projects and Regional Activities in Southeast Asia
Hội nghị điều phối và báo cáo
tiến độ hàng năm lần thứ 5
về các dự án và hoạt động của CCAFS ở Đông Nam Á


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Opening Remarks
Dr. Chu Van Chuong


RESEARCH PROGRAM ON
Climate Change,
Agriculture and
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Project posters

RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

CGIAR CCAFS

Application of the climate-related risk mapping and adaptation planning (CS-MAP) in the Mekong River Delta to cope with salinity intrusion

Le Thanh Tung[1], Bui Tan Yen[2], Nguyen Hong Son[3], Ngo Duc Minh[3], Nguyen Duc Trung[4], Sridhar Gummadi[5], Pham Thanh Van[5], and Leocadio S. Sebastian[5]

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Introduction

Over 1.7 million hectares of land in Mekong River Delta (MRD) of Vietnam are being used to produce 56% of the total domestic rice production and 90% of the country's rice export (GSO, 2016). MRD is facing increasing climate-related problems due to the impacts of climate change. Annually, high upstream discharge of Mekong River from September to November causes flooding in north-western provinces of the delta. Conversely, low river discharge from January to April causes salinity intrusion in coastal provinces. During the El Niño-Southern Oscillation (ENSO) years, the impacts of flooding or salinity intrusion dealt more serious damages to the autumn-winter or winter-spring rice crop, respectively.

Severe flooding, drought, and salinity intrusions have occurred in recent years and will be more serious in the future. Currently, the Vietnamese government, together with various international organizations, has improved infrastructure for irrigation, flood control, and water storage and has strengthened institutions' management capacity and policy development. Despite all of these efforts, the region was still adversely affected during the ENSO in 2016. An assessment conducted by CGIAR Centers found out that even as warnings were provided by the government for the 2016 ENSO, these were not translated into appropriate preparation and response for agriculture (CGIAR, 2016).

To respond to future climate-related risks, the Department of Crop Production (DCP) of the Ministry of Agriculture and Rural Development (MARD) of Vietnam, and CGIAR Research Program on Climate Change, Agriculture and Food Security in Southeast Asia (CCAFS SEA) collaborated to implement the climate-related risks maps and adaptation plans (Climate Smart MAP/CS-MAP) to recognize climate-related risks, identify potentially affected areas, and develop regional and provincial adaptation plans on rice production for the 13 provinces of MRD.

Methodology

Step 1

Identify climate-related risks (cropping season and location affected)

Step 2

Delineate boundary of risk levels based on technical data and local knowledge

Step 3

Propose corresponding adaptive plans (e.g. adjusting cropping calendar or changing cropping system)

Step 4

Fine tune and verify risk maps and adaptive plans (meeting with individual provincial Department of Agriculture and Rural Development [DARD])

Step 5

Integrate adaptive plans of individual province into ecological zone and regional plan (3 groups and whole MRD region)

Key outputs

CS MAP methodology was first piloted in Bac Lieu Province and then implemented in all of MRD's 13 provinces. The first multi-stakeholder dialogue was organized for 130 participants from 13 provincial DARDs, DCP, eight national research institutes, two hydro-meteorological centers, and international organizations. During the dialogue, scientific, technical, local knowledge, and historical and projected climate information were integrated into a map that delineates levels of risks and potential affected areas to flooding and salinity intrusion. Two risk scenarios based on intensity and duration of hazards were also developed. Changing rice-based cropping systems and sowing/transplanting calendars were common adaptive measures proposed by the provinces. Follow-up consultation meetings were then held in individual provinces to fine-tune CS MAP outputs with local officials. The risk maps for flooding, drought and salinity intrusion, and the corresponding monthly adaptive cropping schedule, both for normal and severe years, were launched in a MARD-organized conference in Tay Ninh Province on 20 July 2018.

Emerging outcomes

In 2018, DCP issued a directive to adjust the planting calendar in the rice production areas in MRD to avoid salinity intrusion that is expected to be aggravated by the 2019 El Niño. The adjustments were guided by the climate-risk related maps developed by the 13 provinces. In August 2019, MARD VIce Minister Le Quoc Doanh directed DCP to monitor the upcoming El Niño and apply CS-MAP for possible adjustments in the rice planting calendar during the Winter-Spring season (Announcement no. 6194/TB-BNN-VP). Per recent reports of the 13 provincial DARDs, areas planting earlier (October- November 2018) reached 997,976 ha (from 346,154 ha in 2017) and a reduction in later planting (December to February) to 599,579 (from 1,227,346 ha). This covers more than 600,000 ha planting earlier that has enabled the farmers to avoid the adverse effects of salinity intrusion that are common during winter-spring rice planting season and usually aggravated by El Nino.

	Total planted areas (ha)			
Month	2015 (with El Nino)	2016	2017	2018 (with El Nino)
October	265,746	341,057	171,616	320,274
November	631,414	434,714	174,538	677,702
December	554,622	485,120	960,115	499,775

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Development of training manual on climate-smart rice production for extension staff and rice farmers in Vietnam

Nguyen Viet Khoa
National Agriculture Extension Center

Rationale

Rice cultivation is negatively affected by climate change and sea level rise, as most paddy rice production areas in Vietnam are located in Red River Delta and Mekong River Delta where the altitude is 2 meters above sea level. Rice production emits greenhouse gases (GHGs) such as methane and nitrous oxide, worsening the problem of climate change.

There is no official training manual and training curriculum for extension staff on GHG mitigation and climate change adaptation for rice production.

Objective

To mainstream climate change adaptation and mitigation in rice production, the National Agriculture Extension Center (NAEC) of Vietnam developed a set of training materials on climate-smart rice production for extension staff and rice farmers. With the help of experts from various agencies attached tothe Ministry of Agriculture and Rural Development such as the institutes of the Vietnam Academy of Agricultural Sciences, NAEC drafted updated modules and presentations on the different steps of rice production and on effective communication and extension.

Methodology

1. **Training needs assessments**
   - Extension staff
   - VnSAT staff
   - Plant protection staff
2. **Review of existing training materials**
   - Extension system
   - Research institutes
   - Others
3. **Compilation**
   - Researchers
   - Extension staff
   - Users
   - Farmers
4. **Test trainings**
   - Extension staff
   - Farmers
5. **Launching and wide use**
   - Feedback
   - Comments

Key Outputs

Eight specific modules were developed tackling topics such as adaptive cropping calendar (rice varieties, soil preparation, and crop establishment); water management; waste and by-product management, reducing post-harvest losses; and scaling and evaluation. For the first time a specific module on climate change and GHG emissions in rice production has been included in the training outline as well. Alongside improving the clarity of lessons, the participants were also trained on how to keep the interest and attention of farmers, another crucial element for a successful training. The modules are intended to be used in the rice-intensive region of Red River Delta, and eventually, in the Mekong River Delta.

Emerging outcomes

Level	Number of extension staff/ technical staff	Number of users of climate-smart rice training manual
1: National level	550	40 provinces 1,000 staff
2: Provincial level	63 Provincial Agriculture Extension Centers (PAEC) - 2,000 Staff	250 districts 2,000 officers
3: District level	562 District Agriculture Extension Stations (DAES) - 4,200 officers	4,000 communes 15,000 extensionists
4: Commune/ Villages level	11,162 Commune People's Committees – 30,000 Extensionists	

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RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

Prioritizing Climate-Smart Agriculture practices and systems in Vietnam

Luu Ngoc Quyen
Northern Mountainous Agriculture and Forestry Science Institute (NOMAFSI)

Introduction

Towards large-scale adoption of CSA practices, not only in CSVs but also in the whole country, CCAFS has provided support to documentation and dissemination of information on CSA practices and systems for implementation in the different locations in Vietnam.

Methodology

Reviewing CSA practices and systems

existing in the whole country through collecting and compiling information from all possible sources (relevant past and on-going projects, provincial agriculture officers, community extension workers, farmers etc.). On each practice or system, the technical package details, barriers to adoption, and conditions (infrastructure, soil, water, climate, and labor) required for adoption, and possible benefits/impacts have been described.

Listing of current practices

and those that can potentially contribute to NDC and NAP implementation in different locations. To this end, natural and socio-economic conditions and potential climate change impacts on agricultural production in all provinces have been reviewed along with studying the specifications in NAP and NDC.

Defining the suitability levels

of each priority CSA practice or system for large-scale adoption in each location (province or agro-ecological zones). There are 3 levels of suitability: (1) adoptable with no significant difficulties; (2) adoptable after important difficulty/ties have been overcome and (3) adoptable after serious barrier/s have been removed or only necessary for small portion of the total growing area.

Organizing information into a database

to serve as an evidence base for 63 provinces and cities in Vietnam to develop their CSA development plans.

Key Outputs

57 existing CSA practices and systems in Vietnam were identified as priority for adoption by provinces in the implementation of NAP and NDC.

These could be grouped in 6 categories:

- pest control and production of quality products
- protection and sustainable use of cultivated land and water resource
- agroforestry and integrated cropping systems
- paddy rice production
- aquaculture
- animal husbandry

Developing Climate-Smart Village (CSV) Regulation

NOMAFSI continues to work towards a sustainable CSV by developing and implementing CSV regulations. With the project's facilitation, people of Ma CSV have developed a draft CSV regulation, comprising 13 chapters and 30 articles. The main objective of this regulation is to ensure long-term commitment of all the villagers in treatment of agricultural and living waste, management of community assets (e.g., library, broadcasting system, meeting hall etc.), protection of environment and natural assets, and common actions for adaptation and mitigation of climate change. Here are the steps used by NOMAFSI and the members of Ma CSV in developing their own CSV regulation:

1. Refer to existing regulations to draft the CSV regulation *(NOMAFSI)*
2. Draft the CSV regulation for Ma CSV *(NOMAFSI + Ma CSV Leader)*
3. Organize consulation meeting to get comments and suggestions from the members of the village *(Ma CSV Leader + community)*
4. Collect comments and suggestions from the local authority staff *(local staff)*
5. Pilot the implementation of the draft regulation *(with support from NOMAFSI)*
6. Finalize and complete the regulation *(NOMAFSI + CSV Leader)*

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Harnessing Rural Radio for Climate Change Mitigation and Adaptation in the Philippines

Rogelio P. Matalang
Philippine Federation of Rural Broadcasters

Introduction

Even at this Digital Age, the old fashioned transistor radio is still the most pervasive medium to reach a critical mass of audience in the countryside. It is an inexpensive way to raise the level of awareness of the rural folks on critical issues such as climate change. It also substantially contributes to behavior change according to Stephanie Theisen (2019).

Preparatory Activities

In mid-2018, the second phase of the pilot rural radio campaign dubbed "Climate Change I-Brodkas Mo!" was implemented, serving as the campaign's intensified follow-up and expansion. After the inception meeting with the newly reorganized PFRB officers, three regional workshops were conducted in Luzon, Visayas, and Mindanao with select active rural broadcasters.

Outputs

Table 1. Summary of broadcast materials produced in Phase 1 and Phase 2.

Language	Canned Interviews	Scripts
Ilocano	36	36
Tagalog	39	39
Visayan/Cebuano	37	36
Ilonggo	26	41
Bicolano	18	-
Sub- total	156	165

Language	Canned Interviews	Scripts	Radio Spots	Jingles
Ilocano	30	30	-	1
Bi-lingual	-	-	-	1
Tagalog	30	30	10	1
Waray/Bisaya	30	30	-	-
Maranao/Cebuano	15	15	-	-
Maguindanao	15	15	-	-
Sub- Total	120	120	10	3

Grand Total:

276 Canned Interviews

285 Scripts

10 Radio Spots

3 Jingle

Table 2. Breakdown of participants in the broadcast production workshops

No. of Participants	Rural Broadcasters	Other media practitioners	Academe	Local Government	others
Luzon	8	2	15	6	1
Visayas	7	2	1	12	4
Mindanao	15	2	0	1	2

TOTAL: **78**

Implementation

The masterlist of PFRB members was used as basis to distribute the ready-to-be-aired (RTBA) materials. Priority was given to the seventy eight (78) participants of the production workshops in the three regions of Luzon, Visayas and Mindanao. Feedback reports were submitted to PFRB Secretariat for compilation prior to submission of final report to CCAFS SEA and Ithe International Rice Research Institute.

Summary and Conclusion

Feedback reports from active rural broadcasters in Luzon, Visayas and Mindanao revealed that the RTBA materials were regularly aired, eliciting comments from listeners, specifically from school-on-the-air enrollees. Aside from listeners of transistor radios, feedbacks and comments from Facebook viewers were noted not only locally but even globally through social media. An Ilocano program of Arthur Urata of DZDA 105.3 FM dubbed "Agrisuttayo" aired every 1:00-2:00 PM (every Monday, Wednesday, and Friday) is being played live through hook up via live streaming by "Radyo Kalugaran" in Hawaii thru the Anchor Sandy Lasquero.

The campaign concluded that CSA practices could be effectively shared to rural folks in the countryside through the radio. This medium can foster behavior change among its listeners by raising the level of their awareness on critical issues such as climate change.

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RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

School-on-the-air on climate-smart agriculture (SOA-CSA) in Cagayan Valley

Marcelo R. Raquepo
Cagayan State University

Introduction

As radio remains a reliable medium for sharing information, a school-on-the-air program discussing climate-smart agriculture was aired over four provinces in Cagayan Valley, Philippines through 14 radio stations. A study was conducted to determine the intermediate outcomes of the radio program. It determined the socio-economic and biophysical characteristics of farmers; ascertained their level of awareness, knowledge, and adoption of climate climate-smart technologies; assessed the intermediate outcomes in terms of yield and income of adopting the CSA for rice technologies; and identified preferred commodities, as well as issues and concerns for future SOA-CSA programs.

Methodology

Problem Conceptualization:
- Finalization of the Research Objectives
- Refinement of the Research Tools

Stakeholders from state universities in Cagayan Valley met several times to fine tune the research topic, specific objectives, and research instruments.

Training of Enumerators:
- Hiring of 12 Enumerators
- Training and Field Practice

Twelve enumerators were trained to gather data using the structured interview guide. Field practice and feedbacking reinforced their training.

Field Survey:
- Conduct of one-on-one Interview with Farmers
- Focus Group Discussion with Farmer Leaders

The enumerators were fielded in the research areas under the supervision of the Research Associates from the state university in the province. Focus group discussions were conducted with farmer group leaders.

Data Encoding and Analysis:
- Encoding Data
- Analysis of the Data

Data were encoded and cleaned before processing using the SPSS software. Descriptive statistics were used to treat the data.

Key outputs

67% of the respondents could recall the information they heard

71% acknowledged the SOA-CSA as major source of their knowledge on climate-smart technologies for rice; though they recognized similarly the contribution of other DA-RFO2 program services

92% considered the information heard useful to them and have influenced them to adopt CSA technologies for rice

93% are aware of the causes of climate change and have much knowledge about them

89% are aware of the effects of climate change and they have much knowledge about them

Majority of the farmers have adequate knowledge about the recommended climate-smart agriculture for rice and they adopt them almost always

*Based on 352 farmer respondents

Emerging Outcomes

96% acknowledge there is an observed increase in farm yield by **19 cavans (1 cavan – 50kg)** as a result of adopting climate-smart agriculture for rice technologies For them, it is considered much.

96% recognize an increase in farm income by **Php18,000.00** as a result of adopting climate-smart agriculture for rice technologies. The increase is considered much.

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Adoption of climate-smart aquaculture (CSAq) in the North Central Coast of Vietnam

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Vietnam Institute of Fisheries Economics and Planning

Rationale

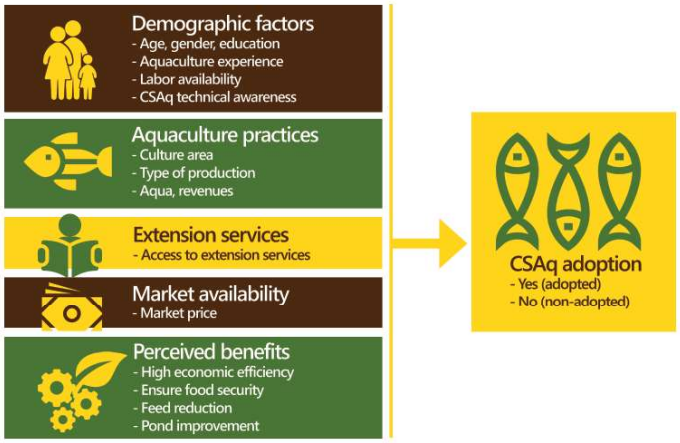
Climate-smart aquaculture (CSAq) with the introduction of the Genetically Improved Farmed Tilapia has practically proven to result in higher adaptation and resilience to climate change. Exploring key factors that influence farmers' adoption behavior is important to guide policy development. This study has therefore been carried out in the coastal communities of North Central Vietnam.

Methodology

The research framework was developed following Kumar (2018) and the probit model used to analyze the farmers' behavior in adopting CSAq. The decision on CSAq adoption is considered a dichotomous variable measured as "yes" or "no" and dependent on various factors including socio-demographic characteristics, aquaculture practices, extension service access, market price, and perceived benefits on CSAq. The probability of CSAq adoption decision is shown as following:

$$P_i = \frac{e^{\beta_0+\beta_i X_i}}{1 + e^{\beta_0+\beta_i X_i}}$$

A total of 200 shrimp farms with and without tilapia integration were interviewed for the analysis.



Key Outputs

The study found six key factors that have statistically significant effects on CSAq adoption decision among farmers in the North Central Coast of Vietnam (Table 1). Economic efficiency is the most important factor (30%), followed by market price (16%), and access to extension system (15%).

Table 1: Estimated results on key factors affecting CSAq adoption decision

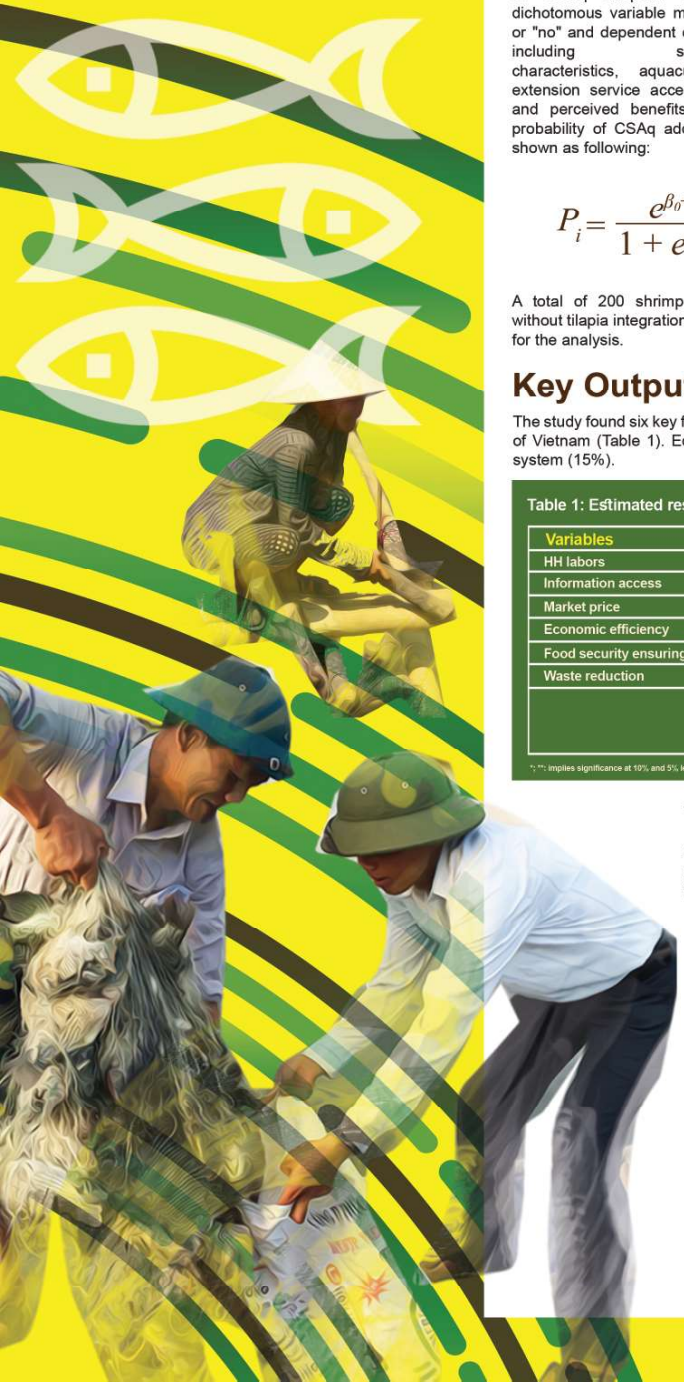
Variables	Code	β parameters	Marginal effect (*dy/dx*)
HH labors	labor	0.177*	0.021*
Information access	inf_access	1.278**	0.149**
Market price	price_inc	1.379**	0.160**
Economic efficiency	eco_effi	2.598**	0.302**
Food security ensuring	food_sur	0.888*	0.103*
Waste reduction	waste_red	1.032**	0.120**
	Pro > Chi2	0.00	
	Pseudo	R20.69	
	LR Chi2	174.99	
	Log likehood	-38.56	

*; **: implies significance at 10% and 5% level

Decision probability increases by 30% on average when the farmers' behavior changes from economic inefficiency to economic efficiency in adopting CSAq. This is consistent with other studies stating that economic efficiency is the first factor considered in the farmers' decision-making process. This can then be related to aquaculture being an important household livelihood in the North Central Coast. When they perceive that CSAq model could bring more revenues than the normal, their adoption probability will increase.

This entails that improving the economic efficiency of CSAq is crucial in expanding the farmers' CSAq application.

Likewise, when farmers perceive that the market price of CSAq products is higher than the price of non-CSAq products, their adoption decision probability increases by 16%. When farmers can easily access CSAq information from the aquaculture extension system, adopting decision probability increases by 5%.



Emerging Outcomes

This study explores the emerging outcomes for scaling out CSAq in the North Central Coast of Vietnam. Economic efficiency, the most important factor driving farmer's CSAq adoption behavior, can be improved through cost reduction, feed use efficiency, CSAq value chain linkage establishment, and disease management, among others. Also, it is necessary to raise the awareness of coastal farmers on CSAq by improving their communication with relevant stakeholders and developing feasible supportive policies to advocate for CSAq scaling out.

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RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

CGIAR CCAFS

CCAFS's Regional Agricultural Forecasting Toolbox (CRAFT)

Sridhar Gummadi
CGIAR Research Program on Climate Change, Agriculture and Food Security - Southeast Asia

Introduction

Regional crop production forecasting is growing in importance in both public and private sectors to ensure food security, optimize agricultural management practices and use of resources, and anticipate market fluctuations. Thus, a model and data-driven, easy-to-use forecasting and a risk assessment system can be an essential tool for end-users at different levels. To address this need, the CCAFS Regional Agricultural Forecasting Toolbox (CRAFT) was developed for gridded crop modeling and yield forecasting along with risk analysis and climate impact studies.

CRAFT is a flexible and adaptable software platform designed with a user-friendly interface to produce multiple simulation scenarios, maps, and interactive visualizations using a crop engine that can run the pre-installed crop models DSSAT, APSIM, and SARRA-H, in concert with the Climate Predictability Tool (CPT) for seasonal climate forecasts. Its integrated and modular design allows for easy adaptation of the system to different regional and scientific domains. CRAFT requires gridded input data to run the crop simulations on spatial scales of 5 and 30 arc-minutes.

The CRAFT application is based on the Microsoft .NET Windows platform and includes a user-friendly client application developed in C# that provides the interface with crop models, CPT, and a MySQL database implementation.

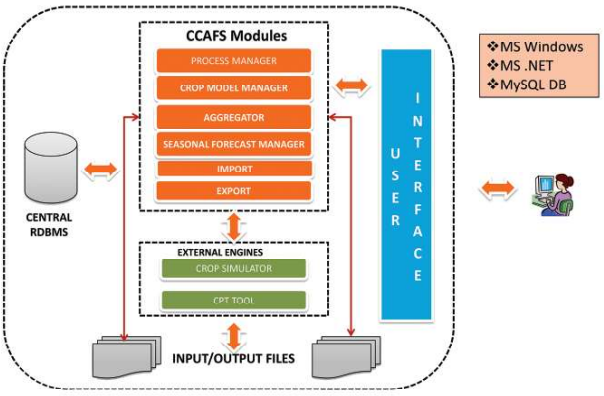
Objectives

To increase the capacity of developing regions in terms of seasonal regional yield forecasting, impacts of climate fluctuations on crop production, and projected impacts of climate change, the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) Program convened a workshop on "Seasonal Weather Forecasts Linked Pre-Harvest Estimates of Crop Production: Methodological Approaches".

The objectives of the training workshop are to:

1. provide the basic concepts of gridded simulations and algorithms used for yield forecasting in CRAFT;
2. describe the toolbox architecture and its main components;
3. present the current version and its main functionality;
4. provide hands-on training on CRAFT; and
5. demonstrate risk assessment and yield forecasting case studies for South Asia and Southeast Asian countries.

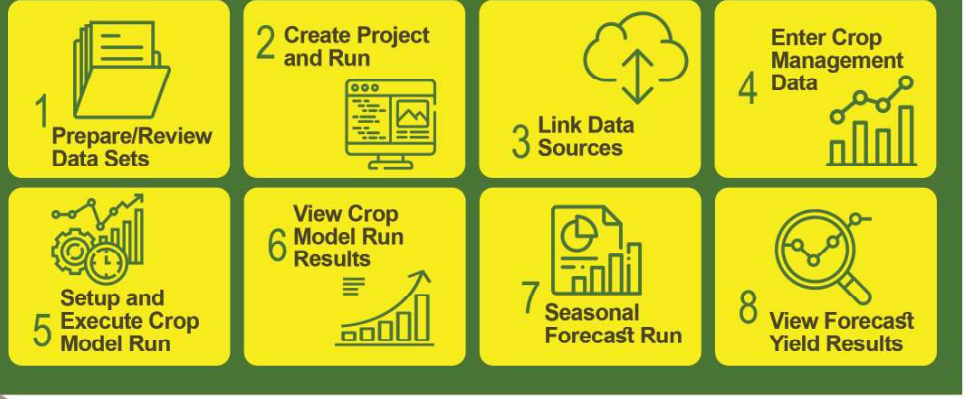
CRAFT Architecture

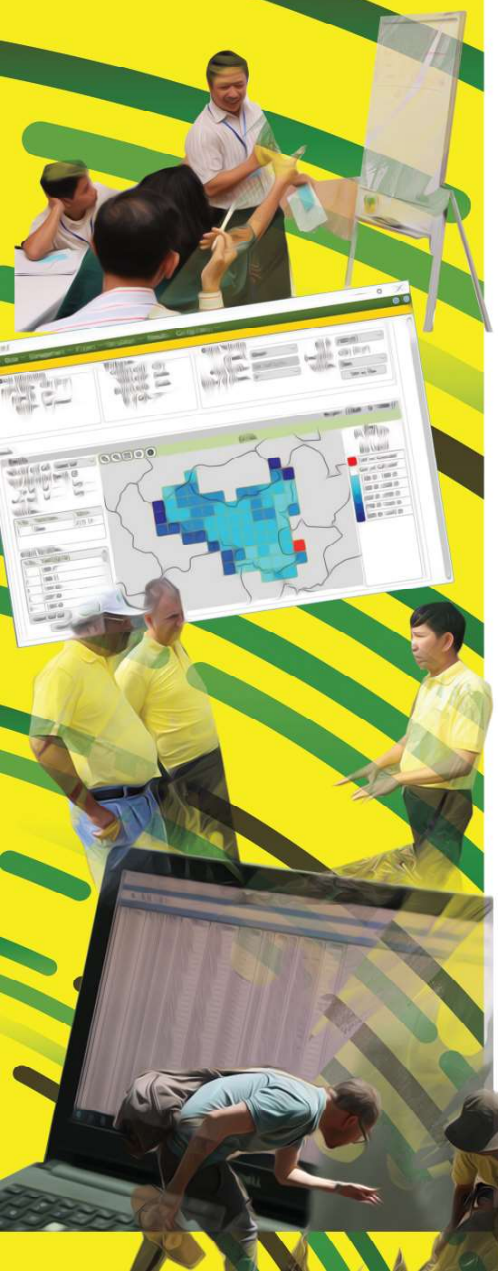


Key Outputs

Participants from the Philippines, Thailand, and Vietnam were introduced to the CRAFT Graphical User Interface, highlighting the capabilities of CRAFT such as within season yield forecasting, risk assessment, and development of adaptation options. Individual country teams calibrated and evaluated crop-specific cultivar coefficients for both DSSAT and APSIM and developed high-resolution spatial data on soil, climate, and crop management practices. Individual teams conducted spatial simulations using CRAFT, with integration of seasonal forecasts, hindcast, spatial aggregation, probabilistic analysis, post-simulation calibration, risk analysis, and climate change impact and evaluation.

Steps: yield forecast run





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RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

Documenting the Application of the Myanmar Climate-Smart Agriculture Strategy

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Introduction

Myanmar has committed to apply climate-smart agriculture (CSA) to contribute to regional food security and environmental protection during the 24th ASEAN Summit on May 10, 2014. The Myanmar Climate-Smart Agriculture Strategy (MCSAS) encompasses the development of technical, policy, and investment conditions to achieve a sustainable agricultural development for food security and nutrition through climate-resilient and sustainable agriculture. Myanmar's CSA strategy aims to be socially, culturally, and politically appropriate, environment-friendly, and economically feasible to promote and attain sustainable agriculture, food security and nutrition, agricultural development, and climate change adaptation and mitigation. Myanmar's CSA strategy also aims to provide context and analysis to international climate negotiators and other stakeholders by identifying options and unpacking issues of interest related to agriculture.

Objective

To assess the relevance of the MCSAS as a guide or reference of donors, non-government organizations (NGOs), international organizations, and government offices in their development/ investment plan or curriculum development in Myanmar

Methodology

Desk review	- policy documents and project documents of relevant ministries, institutions, and organizations
Stakeholder interviews	- Eight government officials from two ministries - Eight personnel from NGOs and development agencies
Case studies	- Farmer Field School Program, Maung Tee Village, Latbutta Township (FAO SLM/GEF Project) - Climate-Smart Village, Htee Pu village, Nyaunng U Township (IIRR)

Results

Strengths

- MCSAS is a systems approach to agriculture
- Recognizes the role and value of stakeholders
- Puts a premium to the importance of the knowledge generation and sharing, which is important in the process of climate adaptation
- Guides capacity-building interventions for further formulation of policy, programs, projects, and action plans related with climate change issues

Weaknesses

- Lacks a provision for implementing mechanisms
- Should have a long-term investment plan
- Need to do implementation and update related with ADS especially in policy
- Should follow Myanmar Sustainable Development Plan
- Should combine action lane and map plan additionally

Opportunities

- Stakeholders can understand overall picture of MOALI climate change policy
- A pertect set of technological transformation for the community
- If MCSAS is link with ADS, implementation will be more efficient
- The review and upgrade of MCSAS consistent with current policy and information, such as Myanmar ADS, MCCP, MCCSMP
- Introduction and integration of MCSAS to community awareness and knowledge, and education for climate change and disaster preparedness
- Systematic observation and research activities, technical/ financial/ expertise support

Emerging outcomes

Policies, projects, investments, and other initiatives that referred to the MCSAS

Climate change and agriculture projects	19	- DoA (4), DAR (8) - MCCA (2), IIRR (2), FAO (1), Cesvi (1), HIMILICA (1)
Policy documents	4	- MOALI (1) - MONREC (3)
Books	7	
Peer review and conference papers	6	
Working papers/ policy series	3	
Thesis	4	

9,970 downloads
of MCSAS document, as per the CG Space database record in October 2019, from the uploaded link of https://cgspace.cgiar.org/handle/10568/69091

- **65M USD** for the five-year project, Climate-friendly Agribusiness Value Chain by DAR and DOA
- **230M USD** for Resilient Communities Development Project by DRR
- Estimated amount of investment in CSA is about **1B USD** from 2016 to now
- Average annual investment is estimated as **150-200M USD** throughout the country, together with some other implementation of cross-cutting issue such as food and nutrition security

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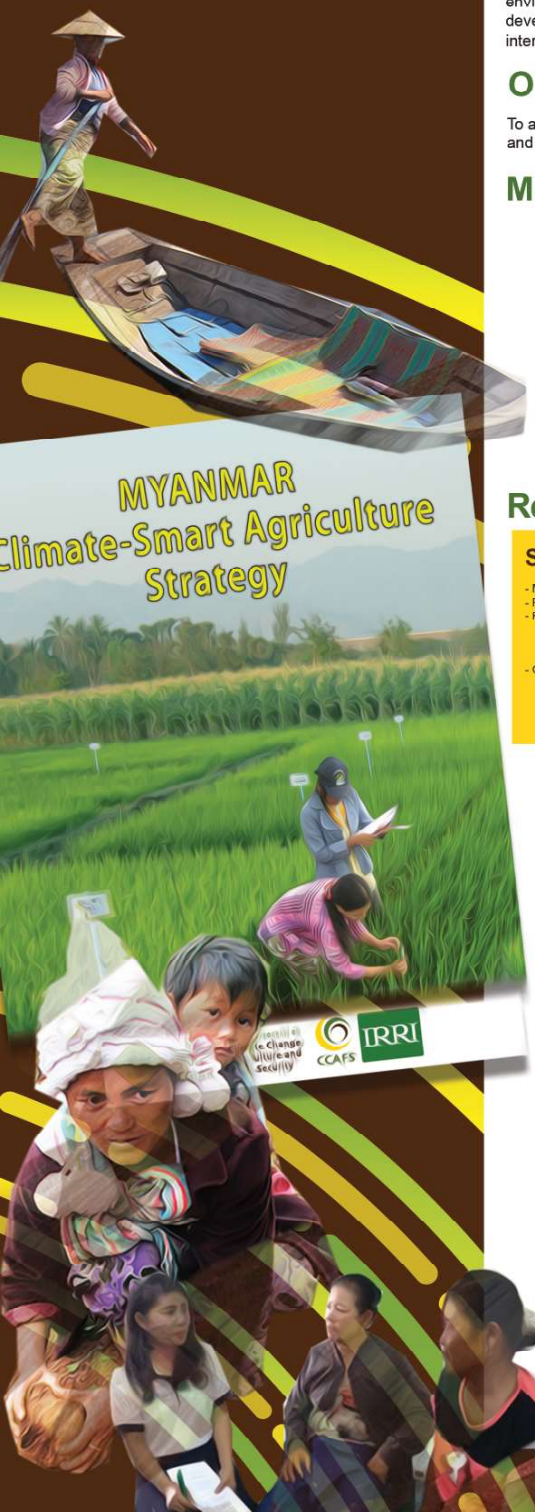

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Establishing Climate-Smart Villages in the ASEAN Region to Improve Food Security and Resiliency in Local Communities

Julian Gonsalves[1] and Rosario B. Bantayan[2]
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Introduction

The Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), in partnership with the International Institute of Rural Reconstruction (IIRR) and the CGIAR Research Program on Climate Change, Agriculture, and Food Security (CCAFS), organized a workshop titled Establishing Climate-Smart Villages (CSVs) in the ASEAN Region to Improve Food Security and Resiliency in Local Communities on 9-13 July 2019 to demonstrate the principles and processes behind the application of climate-smart agriculture (CSA) in communities vulnerable to the worsening impacts of climate change. The workshop consisted of two components, namely: lectures and re-entry action planning activities, which were held at SEARCA Headquarters in Los Baños, Laguna, and a roving workshop that showcased the different CSVs established in the municipality of Guinayangan in Quezon Province, Philippines.

Gathering 12 participants from the ASEAN Climate Resilience Network (ASEAN-CRN), particularly from Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, and Thailand, the workshop aimed to increase the participants' appreciation and knowledge of CSVs and its potential in significantly improving food security in local communities amid heightened risks to agriculture-based livelihood posed by the changing climate.

CCAFS developed the CSV approach to provide context-specific solutions to climate risks at the level of the community or the villages. It is specifically designed to capacitate farmers, especially smallholders, in facing the challenges posed by climate change through experiential learning and to enable them to establish their own CSVs in the future. Model CSV sites have already been initiated in Cambodia, Laos, Myanmar, the Philippines, and Vietnam, which serve as platforms for CSA learning and community-based participatory action demonstrations.

Methodology

The workshop was organized into four modules. To provide participants with the fundamental principles and elements of CSV.

Module 1 focused on its nature as an agricultural research for development (R4D) approach in addressing climate change, food and nutrition security, and livelihood development. Furthermore, participatory tools employed in the Department of Agriculture's Adaptation and Mitigation Initiative in Agriculture (DA-AMIA) villages and the Guinayangan CSV were presented. Experiences in establishing the context of CSV in communities were also discussed.

Module 2 of the workshop featured a panel discussion on the emerging lessons from CSVs in Southeast Asia. The panel was composed of Dr. Leo Sebastian, Regional Program Leader of CCAFS Southeast Asia; Ms. Perla G, Baltazar, Senior Technical Officer of the DA Systems-wide Climate Change Office; and Dr. Julian Gonsalves, Senior Adviser and CCAFS Project Leader, IIRR. This was followed by a presentation on scaling considerations in CSV, which was delivered by Ms. Jana Patricia Koerner, CCAFS SEA Scaling Officer.

Module 3 featured the best practices in CSA through roving workshops to various sites in Guinayangan, Quezon, such as Barangay Cabong Norte (intercropping and other interventions in an upland agricultural system), Barangay Capuluan Tulon, (native pig raising), Barangay Capuluan Central (coastal reforestation and diversification of livelihoods of coastal fishing families), Maulawin Spring Protected Landscape, Barangay Sta. Cruz (agroforestry and crop diversification), National Swine and Poultry Research and Development Center, and the Quezon Agricultural Research and Experiment Station.

Module 4 consisted of a reflection and synthesis session wherein participants shared the best practices in CSA-related work being applied in their respective countries. It also allowed participants to share their experiences and present their re-entry action plans in plenary.

8 Guide steps for setting up a Climate-Smart Village (CSV)

GUIDING PRINCIPLES

Context. In implementing CSA initiatives, context matters. There is no single CSA practice, technology, or service that can address production, adaptation, and mitigation goals in all the different locations and time/period.
Process. The process is as important as the outputs under the CSV approach--from participatory R4D to monitoring and evaluation and up to scaling.
Outcomes. CSVs are established to generate research-based evidences on what CSA options work best.

Based on the experiences of CCAFS and its research partners, here are the practical steps for setting up a CSV in Southeast Asia:

1. Define the purpose and scope of the CSV/s that is/are being established
2. Identify the climate risk in the target area/s
3. Locate a CSV in a small landscape
4. Consult the stakeholders
5. Evaluate CSA options
6. Develop portfolio
7. Scale-up
8. Monitor and evaluate (M&E) uptake and outcome

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The **CGIAR Research Program on Climate Change, Agriculture and Food Security** (CCAFS) is a strategic partnership of CGIAR and Future Earth, led by the International Center for Tropical Agriculture (CIAT). CCAFS brings together the world's best researchers in agricultural science, development research, climate science and Earth System science, to identify and address the most important interactions, synergies and trade-offs between climate change, agriculture and food security. **(www.ccafs.cgiar.org)**

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The CCAFS Regional Program in Southeast Asia (CCAFS SEA) is hosted by the International Rice Research Institute, a member of the CGIAR Consortium.

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