

Climate-Smart Agriculture in Southeast Asia **NOTES**



RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security



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A photograph of a smiling man, likely a farmer, wearing a green long-sleeved shirt and a green bucket hat. He is holding a basket of fresh green tea leaves. The background shows a lush green tea plantation with rows of bushes. A decorative graphic of a green and yellow arc is overlaid on the top left of the image.

**Global climate
program drills down
on climate-smartness
in Southeast Asian
agriculture**



Diversified cropping systems with crops of higher and economic values are effective measures in rendering the natural resources sustainable. Photo shows a tea farmer in Ma Village.

Global climate program drills down on climate-smartness in Southeast Asian agriculture

by Bernadette Joven (CCAFS-IRRI) and Amy Cruz (CCAFS-ICRAF)

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Researchers and partners of CCAFS Southeast Asia revisited the basics of climate-smart agriculture during the annual progress reporting and coordination meeting.

Climate change is most talked about in Southeast Asia as its impacts have been crippling economies and livelihoods of people, especially in rural areas where they depend heavily on agriculture.

The following questions thus need to be answered: How can farmers better cope with climate change impacts through climate-smart agriculture (CSA)? What are the available climate-smart practices and technologies that work on the ground? How can best-fit CSA technologies and practices be widely adopted by farmers and provided with policy and technical support?

The CGIAR Research Program on Climate Change, Agriculture and Food Security in Southeast Asia (CCAFS SEA) sought to address these questions in more concrete terms during its 2nd Annual Progress Reporting and Coordination Meeting held between 30 November and 2 December 2016 in Hanoi, Vietnam.

“As in Phase 1, CSA is the centerpiece of CCAFS in tackling climate change in agriculture,” said Leocadio Sebastian, Regional Program Leader for CCAFS SEA, during the opening session. He furthers that the program aims for farmers and communities to practice climate-smart technologies with improved resilience to climate risks while producing food sustainably in ways that reduce carbon footprint.

In 2015, CCAFS SEA brought together its research partners to improve coordination and increase synergies among the projects and CSVs during the first coordination meeting. This year,

researchers focused on sharing their theoretical and/or applied research results — successful or otherwise.

Hans Bissdorf of LuxDev and consultant to the International Fund for Agricultural Development (IFAD) commented, “It doesn’t matter whether the contribution of science is big or not. But science is important and it should contribute towards an end.”

Updates on cross-cutting themes, such as monitoring and evaluation, gender and social inclusion, and communication, were also shared. This brought the participants to reflect on other possible ways to better contribute to CCAFS SEA’s outcome targets.

Ronnie Vernooy from Bioversity International emphasized that the regional projects have a good balance between producing outputs and ensuring their usefulness to the people and communities with whom the researchers are working with.

CCAFS SEA has been supporting climate change projects across the region and in three focus countries namely, Vietnam, Laos, and Cambodia—considered climate hotspots—in partnership with CGIAR Centers, country governments, research and academic institutions, non-government organizations, and other local partners.

Since 2014, CCAFS SEA has been overseeing six Climate-Smart Villages (CSVs), which are testbeds of climate-smart agriculture practices and technologies. Tested and validated practices and

technologies in these CSVs are to be outscaled (i.e. wider dissemination among farmers and across landscapes) and upscaled (i.e. policy uptake).

Central in the meeting were the work plans for 2017 and the development of a clear framework for collaboration. These discussions are necessary as the CCAFS program transitions to Phase 2.

Dr. Sebastian also stressed that as the CCAFS program transition to Phase 2 from 2017 to 2022, the research program will be more integrating across other research programs, building on the lessons and experiences of Phase 1, with the end view of catalyzing positive changes towards CSA, food systems and landscapes.

Lini Wollenberg, lead of CCAFS Flagship on Low Emissions Agriculture, stated, “The level of activity and extent of gain in knowledge among the projects being implemented in the region is remarkable. All these demonstrate a running start for Phase 2 of the capacity of the regional program to produce better outcomes.”

As the planning meeting was brought to a close, Nguyen Hong Son, Director General of the Crop Production Department of Vietnam’s Ministry of Agriculture and Rural Development, conveyed his appreciation of CCAFS’ critical role in the development of agriculture and rural areas in the country amidst climate change. He ended by restating his continuing commitment to CCAFS SEA and CGIAR Centers in implementing collaborative projects in Vietnam.



Thac Ba lake provides livelihood to Ma Village through aquaculture and fishing.



Photo: L. Sebastian (CCAFS)

One of the assessment surveys conducted for the gender study of Srijita Dasgupta in Tra Hat CSV, Vietnam. Addressing gender issues is needed in climate change adaptation and mitigation.

Inclusion: A strategy for addressing climate change in Vietnam

by Amy Cruz (CCAFS-ICRAF)

Climate change impacts men and women farmers differently, thus, need-based interventions should be determined for optimum benefit.

Farmers from different countries have been observing unusual increases in temperature and reduced rainfall, and the farmers from the Tra Hat Climate-Smart Village (CSV) in southern Vietnam are no exception.

These changes in the climate often have negative impacts on farming livelihoods, especially livestock and rice production. Crop losses due to climate change, coupled with non-climatic factors such as increased costs of farm inputs, mean low or even negative returns for the farmers.

Despite the recognized importance of strategies to increase farmers' resilience, a study conducted by Srijita Dasgupta of the University of Copenhagen found that Tra Hat did not have any long-term adaptation strategies.

This implies that village farmers are more exposed to risks with the absence of clear-cut measures to increase their adaptive capacities both to climatic and non-climatic factors. Lack of access to information on climate-smart agriculture, lack of access to markets, and the

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Community pond restoration in Cambodia provides water for a hundred families

by Eam Dyna and Fiona Emdin (WorldFish)

Local community members are working to address water management issues in Rohal Suong, Cambodia, through the restoration of two community ponds.

In rural villages in Cambodia, community ponds provide water for domestic use, livestock, irrigation and home gardens. In Rohal Suong, however, water from community ponds have reduced significantly. The ponds have become increasingly shallow, and extreme temperatures (40-41°C), particularly during the dry season of

2016, have aggravated the situation, according to the Ministry of Water Resources and Meteorology. When villagers need the water most, ponds have often completely desiccated.

With support from the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), the community people and village leaders have mobilized to rehabilitate two community ponds, which are important water sources in the village.

In April 2016, the commune and district authorities, as well as the provincial Fishery Administration Cantonment, approved the community pond rehabilitation. People and resources were mobilized to begin the restoration. Both ponds were dug wider and deeper and were left to be filled during the monsoon rain season. Then the rains came, later than usual, but were sufficient to fill the Boeung Voer pond with rainwater.

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Inclusion...from p.4

exploitation of middlemen likewise hinder the farmers from fully adapting to climate change.

Analysing the livelihood activities of male- and female-headed farming households through gender lens, the study found that female-headed households had slightly more diversified livelihood activities, with at least one off-farm income source to augment their on-farm activities, compared to male-headed households. However, female-headed households remain vulnerable as they faced more constraints, such as no land entitlement, lack of access to formal credit facilities, lack of access to training programs and heavier workloads. Strategies for communities to address climate change

An integrated strategy addresses the basic need of farming households for food security and improves their adaptive capacity and the mitigation potential of their farming systems. Communication tools, especially initiatives involving information and communication technology and early warning systems, would help farmers identify measures to help them cope with changes and enable them to make informed decisions. Mobile phones and the internet could be maximized to bring the needed information to farmers. Aside from checking the weather and climate advisories, farmers could also use these media to check the prices of their commodities and link them to markets.

To strengthen the rice value chain, the government and other local associations should nip in the bud exploitative middlemen. Strong

Community...from p.4

In addition to the wet season rains, floodwaters from the nearby Sangker River and the Tonle Sap great lake inundate the area. For 2016, however, the overland floodwater was greatly reduced, hence, not enough to fill the school pond. To adapt to this unexpected circumstance, the committee and village members decided to marshal their resources to pump rainwater from nearby paddy lands to store in the pond.

“Working together to plan and restore our ponds has brought our community closer together,” said Dol Hun, Chief of the School Association. In November 2016, villagers planted trees and deep-rooting grasses around both ponds. The trees provide shade to the water and the surrounding land to reduce surface temperatures and subsequent loss of water through evaporation. In addition, the roots of the trees and grasses are meant to hold the soil in place, preventing surface erosion as well as the breakdown of the pond walls.

cooperatives and organized farmers groups could help farmers penetrate the ‘big’ markets that could offer better income.

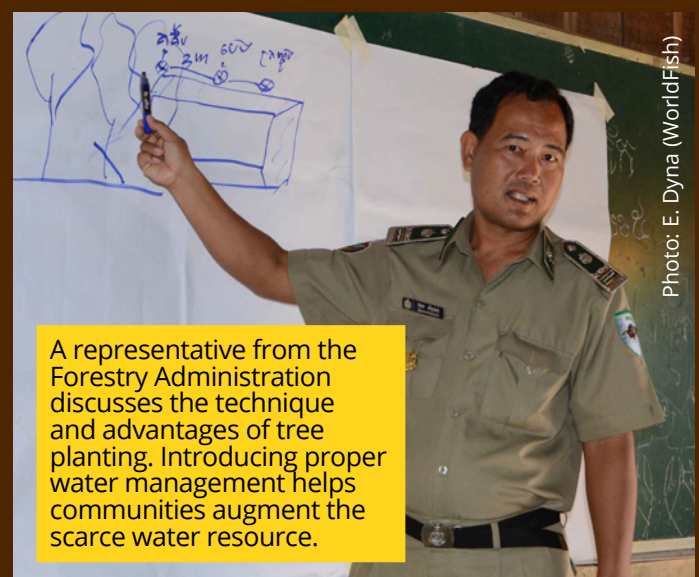
In particular, female-headed households could be helped by providing needs-based training programs, including those that are targeted especially to women. As women farmers usually focus on livestock production as additional sources of household income, training sessions on this would be helpful.

“It is also important that men and women are trained in ways that they are able to understand the content and later apply the lessons learned on the field,” stated Dasgupta. In addition, training the women on better household budget management could help reduce risks and vulnerabilities of farming households.

Encouraging female heads of households to join women’s unions would be an avenue to provide them with the knowledge and skills on different income generation activities. Processing produce from their farms into handicrafts of food items for sale could further augment their incomes. Aside from providing information, cooperatives would help the women reach the markets better.

Households could also contribute towards a community climate fund, which can provide additional financial support, especially during severe or unforeseen weather events.

All these recommendations hope to improve the livelihoods of farming households in Tra Hat, as well as in other areas. One must keep in mind that different groups have different needs, thus a targeted approach would be more appropriate.



As Rohal Suong enters the next dry season, both ponds stand ready to provide much-needed water to about 100 families in the community for household consumption, livestock, vegetable gardens, and fish trap.



Photo: Le Thi Tam (ICRAF)

Local government officials from the Philippines examine the farming system of orange, drip irrigation and *Arachis pinto* in My Loi, Vietnam. The exchange visit is an effective way to share information on CSA.

“Please share!” – Social learning leads to greater adoption of climate-smart agriculture

by Le Thi Tam (ICRAF) and Maria Cristina Lorenzo (IIRR)

Local government officials from Vietnam and the Philippines agree that social learning is important in increasing the scale of climate-smart agriculture.

“We experience different changes in climate, from drought to storms and flooding to cold spells,” said Mr. Ho Van Thai, a farmer from My Loi village, Ky Son commune, Ha Tinh province, Vietnam. These climate-related events are what smallholder farmers in Southeast Asia have to face with.

Climate-smart agriculture (CSA) helps improve the farmers’ climate resilience and at the same time, maintain or increase productivity and mitigate climate change. The World Agroforestry Centre (ICRAF) Vietnam and the International Institute for Rural Reconstruction (IIRR) have been looking at upscaling local adaptation processes in Vietnam and the Philippines.

As a platform for exchanging insights on implementing and increasing the scale of CSA practices, representatives from the local government of the municipality of Guinayangan in Quezon province, Philippines, and ICRAF and IIRR researchers visited My Loi in December 2016. Government officials, researchers and farmers

discussed different issues such as hazards that the communities experience. The group also visited farms which implement different CSA practices in My Loi. This is the third exchange visit between My Loi and Guinayangan under the project.

Different experiences, different strategies

The representatives from My Loi shared that they are exposed to various disasters including drought, dry winds, storms, tornadoes and cold spells. CSA practices, such as intercropping, agroforestry and use of improved animal sties, have been implemented to reduce the negative impacts of hazards. On the other hand, Guinayangan experiences long dry seasons and typhoons. Although the municipality has fewer hazards, these can be more intense and lead to great damage.

In addition, according to Mayor Isaac Cesar of Guinayangan: “Many farmers do not own the land they are cultivating which limit the practices they can implement.” The government would have to coordinate with the Department of Agrarian Reform to address this issue. This is however less of a problem in Vietnam, as farmers have access to land for annual cropping or more diverse home gardens and forestry.

Apart from the difference in climate hazards and agrarian issues, the two communities also differ in their farming systems. For example, Guinayangan has many coconut plantations and coastal communities are engaged in capture fishery, while My Loi focuses on acacia monocultures, peanuts and small-scale livestock production.

However, when it comes to addressing climate change, both communities rely on weather forecasting for farm decisions and on implementing appropriate practices. They also plant trees on sloping lands, although the farming system of mostly acacia monocultures in My Loi may be less sustainable compared to that in Guinayangan with fruit, timber and fodder trees. If not managed well, the clear-cutting of acacia in My Loi will cause soil erosion and flash floods in the downstream area.

Tackling climate change with the same approach

Participants of the cross visit agreed that a participatory approach through social learning plays an important role in increasing the scale of CSA. Social learning in their contexts is a process that engages the different partners in the upscaling and outscaling of CSA practices. Interested farmers are first trained by the researchers and technicians on the practices. Those who implement these practices form groups to share their experiences and provide support to one another.

To reach out to other farmers, the communities hold farmer field days and exchange visits. In My Loi, information sources like posters, loudspeaker system, local and national television are put up. The posters and loudspeakers disseminate

weather and climate information, agro-advisories and instructions for implementing CSA practices, influencing farmers' curiosity and willingness to adopt CSA. The media, on the other hand, has encouraged farmers from other villages, communes and provinces to come to My Loi, and ask about vermiculture and buy worms.

Aside from using a bottom-up approach, the local government is also involved through developing programs to support CSA adoption. Ms Le Thi Thao of the Department of Agriculture and Rural Development in Vietnam commented that CSA practices could be integrated into their provincial and district programs, which can reach more farmers and communities.

In Guinayangan, an automated weather station linked to the Municipal Disaster Risk Reduction Office informs the Municipal Agriculture Office (MAO) regarding the 10-day weather outlook. The MAO then formulates and posts a cropping advisory. Recently, the MAO developed a seasonal advisory which is blasted through text messaging to the farmers. They are also planning to put up posters of the seasonal climate advisories for specific crops in 10 impact areas.

The whole process enables visiting farmers and leaders to actually witness CSA practices being implemented on the ground and interact with the farmers who have adopted the practices. This increases trust and encourages CSA adoption. Through social and interactive learning, the participants look forward to the active involvement of the local government and farmers in implementing, disseminating, and monitoring CSA practices. This work is supported by the CGIAR Research Program on Climate Change, Agriculture and Food Security.



Local government officials from the Philippines discuss disasters with local officials from My Loi, Vietnam. They found that Guinayangan and My Loi address disasters in similar ways.

Photo: Trinh Quang Thoai (Vietnam National University of Forestry)



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This newsletter is produced by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) in Southeast Asia.

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), led by the International Center for Tropical Agriculture (CIAT), brings together some of 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 tradeoffs between climate change, agriculture and food security. www.ccafs.cgiar.org.

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Photo by Georgina Smith, CIAT