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Climate Change,
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CGIAR
Science for a food-secure future

The **CGIAR-R4D** on **Climate Change** in Vietnam and Southeast Asia

CONFERENCE HIGHLIGHTS



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Executive Summary

To exchange learnings in strengthening the research for development (R4D) on climate change towards achieving a climate-resilient Southeast Asia (SEA), the CGIAR Research Program on Climate Change, Agriculture and Food Security in Southeast Asia (CCAFS SEA), in cooperation with the ASEAN Climate Resilience Network (ASEAN CRN), GIZ, and the Ministry of Agriculture and Rural Development of Vietnam, organized the conference, "The CGIAR-R4D on Climate Change in Vietnam and Southeast Asia." Held 28 November 2018 at the Melia Hotel in Hanoi, the conference convened key stakeholders to discuss the role of R4D in combatting the threats of climate change and to explore areas of collaboration among countries and other relevant actors to achieve climate resilience in the region.

Representatives from various CGIAR centers and research programs, international and regional organizations, national agencies and research institutes from various ASEAN countries, academe, local governments, non-governmental organizations, and farmer groups gathered to: discuss the CGIAR R4D activities on improving climate resilience in agriculture and on supporting the mitigation targets of Southeast Asian countries; share the tools used and developed by CGIAR in conducting R4D on climate change that national partners

use in their own R4D efforts; and identify policy recommendations and areas of collaboration with countries and other relevant stakeholders.

From the panel discussions, the following points were highlighted:

- Climate change adaptation among countries in SEA should follow a landscape-based approach, integrating climate information services and safety nets, early warning systems, access to climate-smart services, educational initiatives about climate change, and community-based adaptation practices. Several types of adaptation technologies and practices in agriculture include sustainable water use, capacity building, crop management, livestock management, and soil management.
- Mitigation strategies in Southeast Asia can revolve on REDD+, sustainable forest management, and carbon sequestration management. These can also be integrated into the Nationally Appropriate Mitigation Actions (NAMAs) of the countries, together with their policies and technologies on low-emissions agriculture and the development of greenhouse gas (GHG) quantification methods and measurement, reporting, and verification (MRV) systems.



- CGIAR had an extensive R4D portfolio to tackle climate change concerns covering policies, climate-smart technologies and practices, low emissions development, climate information services, and gender and social inclusion. Various tools were also developed by the different CG centers and CRPs to study climate change and agriculture and to provide solutions to these concerns. These activities and tools must be harmonized to generate greater impacts.
- These climate change adaptation and mitigation (CCAM) programs and tools could be aligned with the ASEAN Multi-Sectoral Framework on Climate Change. The Framework consists of four key activities: (1) integrating CCAM into national development policies; (2) collaborating with relevant actors to implement CCAM initiatives; (3) enhancing communication and engagement among the region; and (4) implementing the CCAM initiatives through a multi-sectoral framework. Sustainable collaborations would enable the countries in SEA to address climate change and ensure food security for the next generations.
- ASEAN CRN aimed to develop a regional plan to contribute to the implementation of Nationally Determined Contributions (NDCs)—the countries' written commitment to the Paris Agreement. To ensure collaboration among relevant actors in SEA, CGIAR, through the ASEAN CRN, can help in facilitating the discussions on climate change and its impacts on the forestry, agriculture, and fisheries sector.
- Specifically, CGIAR-generated knowledge can be integrated into R4D programs by starting at the NDCs, National Action Plans (NAPs), Sendai Framework for Disaster Risk Reduction, and the Sustainable Development Goals (SDGs) then focus on local resilience and incremental adaptation afterwards. The CGIAR and ASEAN countries can strengthen their collaborations by utilizing their capacity building initiatives for transparency, the Koronivia Joint Work on Agriculture, and by leveraging national agriculture networks to tackle resilience on food systems.



Introduction

Southeast Asia is a rich region in terms of natural resources and cultural heritage. Mostly comprised of developing nations, the region's economic and social development is fast rising. However, with the advent of climate change, the region is being confronted by the impacts of climate-related disasters. As a highly agricultural region, the increased incidence of drought, flooding, and sea level rise in the last decade resulted in USD 14.5 billion worth of crop and livestock production losses (FAO, 2017).

To address this urgent concern, the Consultative Group on International Agricultural Research (CGIAR) conducted various R4D interventions to promote food security and achieve climate adaptation and mitigation goals. For several decades, CGIAR, through its centers and research programs (CRPs), was able to bring significant contributions in reducing poverty, improving food and nutrition security for health, and conserving natural resources and ecosystem services in the region. For instance, the CRP on Rice (RICE), led by the International Rice Research Institute (IRRI), developed and promoted drought- and flood-tolerant rice varieties and water-saving technologies for rice production (i.e., alternate wetting and drying) that are now widely used across SEA. The CRP on Fish Agri-food Systems (FISH), led by WorldFish, implemented initiatives on sustainable aquaculture and supported small-scale fisheries in Cambodia, Indonesia, Myanmar, Philippines, and Vietnam. Meanwhile, the CRP on Roots, Tubers and Bananas (RTB), led by the International Potato Center (CIP), worked on developing highly productive, climate risks-resilient, and consumer-acceptable crops, such as cassava in Southeast Asia. Lastly, a prime example of CGIAR support on regional policy development was the

technical guidance provided by the World Agroforestry Centre (ICRAF) on the drafting of the Strategic Plan of Action of the ASEAN Cooperation on Food, Agriculture and Forestry.

To emphasize its efforts in addressing climate change, the CGIAR implemented its research program on Climate Change, Agriculture and Food Security (CCAFS) with the leadership of the International Center for Tropical Agriculture (CIAT). CCAFS aims to generate evidence and support the adoption of climate-smart agriculture (CSA) policies, practices, and services, which will help in alleviating poverty, increasing gender equity, and supporting sustainable landscapes. Since its inception in SEA in 2013, CCAFS has served as a platform for collaboration among the CGIAR centers. Through the leadership of the various centers such as CIAT, ICRAF, and IRRI, seven Climate-Smart Villages (CSVs) were established across SEA to serve as multisectoral platforms for testing technological and institutional options for climate change adaptation and mitigation in agriculture. The CSVs in Southeast Asia served as convergence points of different interventions that were implemented by CCAFS-funded projects, other CGIAR projects, and other development projects that operate in the villages. As an





integrative project of the CGIAR, CCAFS Southeast Asia also collaborated with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), International Food Policy Research Institute (IFPRI), International Livestock Research Institute (ILRI), International Water Management Institute (IWMI), and WorldFish in implementing R4D activities in its priority countries, such as Cambodia, Laos, Myanmar, Philippines, and Vietnam.

To complement CCAFS efforts, other CRPs are actively conducting R4D activities in SEA to tackle the other cross-cutting issues concerning food security and climate change. For example, the CRP on Policies, Institutions, and Markets (PIM), led by IFPRI, conducted food systems assessment and scenario analysis to provide technological solutions and policy recommendations to the concerned sectors in Indonesia, Laos, Myanmar, Philippines, Thailand, and Vietnam. Moreover, the CRP on Forests, Trees and Agroforestry (FTA), led by the Center for International Forestry Research, helps governments in developing climate policies and practices to reduce deforestation and mitigate climate change, most especially in the priority countries of Indonesia

and Vietnam. Through the coordination of ILRI, CCAFS also collaborated with the CRP on Agriculture for Nutrition and Health (A4NH), on the surveillance and early-warning systems for climate-sensitive diseases in Vietnam and Laos. With these significant R4D outputs and outcomes produced from the successful collaboration among CGIAR centers and CRPs, together with international and local partners, stakeholders must showcase and evaluate the research products and processes that transpired.

With the recent establishment of the ASEAN Economic Community, relevant and strategic R4D activities should be conducted to help the region in: coping with climate change; sustaining national and regional food and nutrition security; enhancing competitiveness in agriculture; and strengthening regional integration. The research focus now should be on: scaling CSA technologies and practices to address the impacts of climate-related risks; improving accessibility of decision-makers and farmers to climate information services; developing climate index-based crop insurance as a major risk mitigation strategy for smallholder farmers; promoting resilient and low emission food systems and landscapes for improving food and nutrition security; and elevating the quality of agricultural products to meet international standards. As SEA countries also need support in meeting their commitments to various international climate change and related treaties, work should be done in: mainstreaming CSA in government agriculture policies and programs; strengthening national capacity in formulating innovative CSA strategies and approaches; and harmonizing MRV systems among SEA countries to capitalize on global carbon markets as a region.

Through this conference, we brought



together all the key stakeholders to discuss and exchange learnings to meet the following objectives:

- To share with partners the CGIAR R4D activities on improving climate resilience in agriculture and on supporting the mitigation targets of SEA countries;
- To share the tools used and developed by CGIAR centers and programs in conducting R4D on climate change that national partners may use in their own R4D; and
- To identify policy recommendations and areas of collaboration with countries and other relevant stakeholders to strengthen R4D on climate change towards achieving a climate-resilient SEA.

Panel Discussions

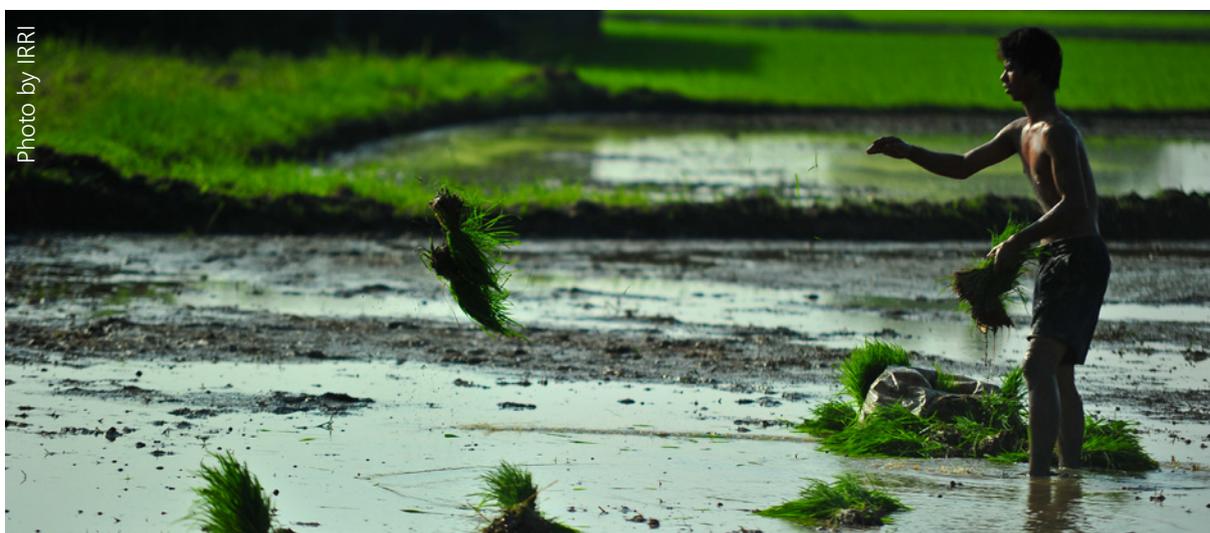
Panel Discussion 1:

CGIAR supporting SEA countries improve climate resilience and achieve their climate mitigation targets

CSA, as a centrepiece of CGIAR R4D on climate change, promotes higher productivity, climate resilience, and mitigation goals. To improve the resilience of farmers and livelihoods in

the region, CGIAR implemented R4D activities to promote locally-adaptive CSA technologies and practices. Through its centers and CRPs, CGIAR evaluated various innovative technologies and practices and climate-smart services for farmers, decision support tools for policy makers, and innovative communication and extension approaches. Meanwhile, in supporting countries to achieve their mitigation targets, CG centers and CRPs: provided assistance in the development of NAPs for agriculture sector and the evaluation of potential opportunities to scale-up Nationally Appropriate Mitigation Activities (NAMAs); developed and tested low emission development (LED) technologies; and conducted studies on reducing greenhouse gas emissions in crop production, aquaculture, and livestock, among others. In this session, the successful climate-smart technologies and services developed and implemented through the various CGIAR initiatives were showcased. In line with the Nationally Determined Contributions (NDCs) and NAPs for agriculture sector, this session also tackled the work done by CGIAR in implementing researches to improve emission reductions; identifying priorities and options for LED; and scaling of CSA practices and policies.

Panel Discussion 2:





Tools, Maps, Models, and Data: Assessing the methodologies for R4D on Climate Change

Effective and innovative tools enabled CGIAR to implement successful research interventions in agriculture and climate change. For instance, in implementing the CSV project, CCAFS developed and employed participatory action research methods and tools to promote CSA among farmers, a few of which include Community-Based Adaptation, Participatory Scenario Planning, Participatory Land-Use Planning, and Photovoice. Decision-support tools (i.e., climate-related risks maps and adaptation plans/CS MAP, Mitigation Options Tool) were also developed to help governments and other stakeholders address climate-related concerns. The discussion focused on how CGIAR R4D tools were used to understand the interrelations between climate impacts, food systems, and livelihood strategies at the community, national, and regional levels. Moreover, the ways to optimize the utilization of the tools developed for farmers and governments in their decision making on agriculture (productivity and food security, livelihood improvement, and climate change adaptation and mitigation) were determined.

Panel Discussion 3:

Research-informed policies towards climate-resiliency: Recommendations from CGIAR

CGIAR, through its centers and research programs, served as the “think tank” for various government and related institutions in terms of agriculture and climate change research in the region. With support from CGIAR, the Vietnam government, for example, was able to integrate CSA options in their nationwide rice restructuring plan. Under the Vietnam Sustainable Agricultural Transformation program, IRRI led the implementation of the country’s rice restructuring plan by improving farming practices and value chains, promoting institutional development, and supporting sustainable rice-based systems. In the Philippines, CIAT supported the Department of Agriculture’s Adaptation and Mitigation Initiative in Agriculture (AMIA) program to establish climate-resilient communities across the country. Through CCAFS, CGIAR has also provided technical support in drafting the NDC and NAPs for the agriculture sector. In this panel discussion, the actions on how CGIAR-generated knowledge and initiatives can be integrated into the regional, national, and local policies and R4D programs were discussed.



At a regional scale, the ASEAN Climate Resilience Network with support from CCAFS and the Food and Agriculture Organization of the United Nations Regional Office for Asia and the Pacific (FAO RAP), was able to include the agriculture sector in the processes of the United Nations Framework Convention on Climate Change (UNFCCC). For the first time, ASEAN put forward the ASEAN Common Positions on Agriculture with CCAFS drafting the submission based on regional priorities, and were instrumental in pushing for the landmark decision on agriculture at UNFCCC. Efforts to continue this engagement and the cooperation were discussed.

Roundtable Discussion:
Collaboration and partnerships for climate change R4D: The prospective in Southeast Asia

Through partnerships, CGIAR was able to implement collaborative research and leverage resources. CGIAR, through its centers and CRPs, is working with national government partners to integrate CGIAR-generated information and knowledge into national policies and strategies (i.e., Strategic Plan of Action of the ASEAN Cooperation on Food, Agriculture and Forestry, Myanmar CSA Strategy), and to co-develop R4D programs and activities aligned with the CGIAR research agenda and the countries' national priorities. Working closely with the priority countries, CGIAR, through CCAFS, supported initiatives for piloting and scaling CSA in Cambodia, Laos, Myanmar, Philippines, and Vietnam. This session looked into areas for further collaboration with SEA countries and the ways to fully integrate the CGIAR R4D on agriculture and climate change initiatives in the region.



Program

Time	Activity	In-Charge
08:00–08:30	Registration	
08:30–08:50	Opening Program Welcome Remarks Opening Remarks	Leo Sebastian, CCAFS SEA Le Quoc Doanh, Vice Minister MARD Vietnam
08:50–09:00	Group picture	All participants
PLENARY SESSION		
Panel Discussion 1: CGIAR supporting SEA countries improve climate resilience and achieve their climate mitigation targets Chair: Rex Navarro, PAJ/CCAFS		
09:00–09:05	Introduction of the topic and panelists	
09:05–09:45	Lead Paper Presentation 1: Lead Paper Presentation 2:	Pham Quang Minh, ASEAN/ Imelda Bacudo, ASEAN CRN/GIZ Dao The Anh, VAAS
09:45–10:00	Coffee/tea break	
10:00–11:20	Comments by panelist 1	Leo Sebastian, CCAFS
	Comments by panelist 2	Reiner Wassmann, RICE
	Comments by panelist 3	Pham Thu Thuy, FTA
	Comments by panelist 4	Diego Naziri, RTB
	Comments by panelist 5	Hu Suk Lee, Livestock
	Comments by panelist 6	Huynh Thi Thanh Tuyen, A4NH
11:20–11:50	Open Forum (Q&A)	
11:50–12:00	Conclusions by the chair and co-chair	
12:00–13:00	Lunch	

BREAKOUT SESSION 1		
Panel discussion 2: Tools, Maps, Models, and Data: Assessing the methodologies for R4D on Climate Change Chair: Nguyen Quang Tan, ICRAF; Venue: Thang Long Ballroom		
13:30–13:35	Introduction of the topic and panelists	
13:35–13:50	Lead paper presentation: Better understanding of the interactions between ecosystems and small farms under changes: Roles of Tools, Maps, Models, and Data	Attachai Jintrawet, CMU
13:50–14:20	Comments by panelist 1	Peter Laderach, CCAFS
	Comments by panelist 2	Reiner Wassmann, RICE
	Comments by panelist 3	Sridhar Gummadi, CCAFS
14:20–14:40	Open Forum (Q&A)	
14:40–14:50	Conclusions by the chair	
14:50–15:15	Coffee/tea break	



BREAKOUT SESSION 2 Panel discussion 3: Research-informed policies towards climate-resiliency: Recommendations from CGIAR Chair: Pham Thu Thuy, CIFOR; Venue: Function Room 7		
13:30–13:35	Introduction of the topic and panelists	
13:35–13:50	Lead Paper Presentation:	Beau Damen, FAO/ Imelda Bacudo, ASEAN CRN/GIZ
13:50–14:30	Comments by panelist 1	Godefroy Grosjean, CCAFS/CIAT
	Comments by panelist 2	Sam Mohanty, RTB/CIP
	Comments by panelist 3	Keith Wiebe, PIM/IFPRI
	Comments by panelist 4	Elisabeth Simelton, FTA/ICRAF
14:30–14:50	Open Forum (Q&A)	
14:50–15:00	Conclusions by the chair	
15:00–15:15	Coffee/tea break	

PLENARY SESSION Roundtable Discussion: Collaboration and partnerships for climate change R4D: The prospective in Southeast Asia Moderator: Pedcris M. Orenco, SEARCA; Venue: Thang Long Ballroom		
15:15–15:20	Introduction of the topic and panelists	
15:20–15:35	Highlights of the previous discussions	
15:35–16:00	Comments by panelist 1	Zarni Minn, Myanmar
	Comments by panelist 2	Yiyi Sulaeman, Indonesia
	Comments by panelist 3	Chay Bounphanousay, Laos
	Comments by panelist 4	Maria Victoria Espaldon, Philippines
16:00–16:15	The ASEAN CRN Agenda	Margaret Yoovatana, Thailand
16:15–16:45	Open Forum (Q&A)	
16:45–16:55	Conclusions by the chair	
16:56–17:10	Closing Program	
18:00–	Dinner	



Conference Highlights





Opening Program

Dr. Leo Sebastian giving the welcome remarks. Seated from L-R: Dr. Albert Lieberg (FAO Representative to Vietnam), Dr. Le Quoc Doanh (Vice Minister, Ministry of Agriculture and Rural Development), and Philippine Ambassador Noel Servigon

Welcome Remarks

Dr. Leo Sebastian

Regional Program Leader

CCAFS SEA

- This conference would convene key stakeholders to explore R4D opportunities to combat climate change and to build potential collaborations among CGIAR centers, national programs, and other relevant sectors. Specifically, the conference would present CGIAR R4D activities on climate resilience in agriculture and on mitigation options for Southeast Asian countries; share the CGIAR tools used to conduct R4D on climate change with national partners; and identify policy recommendations and areas of collaboration with countries and other relevant stakeholders.
- For the ASEAN region, this conference served as a platform to discuss how climate change adaptation and mitigation will be integrated into the regional and national development plans of Southeast Asian countries. This is to ensure food and nutrition security in the national and regional levels; enhance agricultural competitiveness; and strengthen ASEAN regional integration.
- Climate-smart technologies and practices were presented by CGIAR experts, together with the tools developed by CGIAR for farmers and governments. Such tools were dedicated for agricultural productivity, food security, livelihood improvement, and climate change adaptation and mitigation.
- The CGIAR aims to strengthen its partnerships to implement collaborative research and mobilize resources. It could also work with its partners and stakeholders that were present in the conference to develop more effective R4D activities aligned with the CGIAR research agenda and the ASEAN countries' national plans.





Vice Minister Le Quoc Doanh delivering the opening remarks. Seated from L-R: Dr. Albert Lieberg and Dr. Leo Sebastian

Opening Remarks

Dr. Le Quoc Doanh

Vice Minister

Ministry of Agriculture and Rural Development

- The agricultural economy of Vietnam grew this 2018, highlighted by the country's exports in the Southeast Asian region and elsewhere. However, climate change proves to be the biggest threat to Vietnam's agriculture. Its impacts were already observed and experienced in various parts of the country. The Vietnam government had focused on its climate response. For instance, each province has a specific response to climate change.
- Research institutions and the international community also contributed to climate response. For example, CCAFS worked with the Department of Crop Production to develop and design shift of cropping patterns and proposed adjustments to crop production patterns in the Mekong River Delta.
- Vietnam highly appreciated this support from CCAFS, other CGIAR centers, and other countries. It hoped to deepen the discussions with its partners to enhance its climate response (adaptation and mitigation) especially that El Niño is projected to come back in 2019.
- After the opening remarks, the CSA Country Profile of Vietnam was handed over to Vice Minister Le Quoc Doanh.





Ms. Imelda Bacudo

Plenary Session 1

Panel Discussion 1 CGIAR supporting SEA countries improve climate resilience and achieve their climate mitigation targets

Chair: Rex Navarro, CCAFS SEA

Lead Presenters: Dao The Anh, Vietnam Academy of Agricultural Sciences (VAAS) and Imelda Bacudo, ASEAN CRN/GIZ

Panelists: Leo Sebastian (CCAFS), Reiner Wassmann (RICE), Pham Thu Thuy (FTA), Diego Naziri (RTB), Huynh Thi Thanh Tuyen (A4NH), and Hu Suk Lee (Livestock)

Lead paper presentation 1: ASEAN Multi-Sectoral Framework on Climate Change: Agriculture and Forestry towards Food Security (AFCC) and ASEAN Cooperation in FAF (2016-2025) by *Imelda Bacudo, ASEAN CRN/GIZ*

- The AFCC has four components: (1) integration of climate change mitigation and adaptation strategies into the economic and social development policy framework; (2) cooperation on the implementation of adaptation and mitigation measures; (3) strengthening of national and regional knowledge sharing, communication and networking on

climate change and food security; and (4) development of a more comprehensive multi-sectoral strategic framework and a roadmap for implementation.

- Cross-sectoral issues in agriculture hampered the development of the framework. Still, progress was already observed in various agricultural sub-sectors. For the crop sub-sector, two action programs are existing to address climate change and other shocks. For livestock, activities fall on Strategic Thrust 3, which include sustainable productivity improvement and natural resources management, including livestock impact on the environment and climate change. For the fisheries sector, the focus is on R4D investments on climate-smart aquaculture; good aquaculture practices; and sound management and maintenance of coastal, mangrove, and other natural resources.
- Current partnerships in ASEAN that tackle climate change include the ASEAN-German Programme on Response to Climate Change: Agriculture, Forestry and related



ture production to GHG emissions
 tion into strategies for agriculture



Dr. Dao The Anh

sectors (GAP-CC/FOR-CC) and the ASEAN-Swiss Partnership on Social Forestry and Climate Change (ASFCC).

- In the next few years, such partnerships will be maintained and strengthened to enable ASEAN countries to better respond to climate change. At the same time, resources will be mobilized to launch climate change-related initiatives for the agriculture sector. These will be complemented with recommendations for agriculture ministry-level officials to strengthen collaborations against climate change.

Lead paper presentation 2: The Mitigation and Adaptation Needs of ASEAN Countries and Vietnam by *Dao The Anh, VAAS*

- To implement climate change adaptation and mitigation strategies in Southeast Asia, innovative technologies and

practices must be identified not only to enhance the resilience of communities against climate change but also to reduce the contributions of agriculture to GHG emissions.

- Climate strategies will be crucial for the Southeast Asian region—one of the fastest growing regions in the world in terms of urban growth and population—that depends on agriculture as one of its major sources of income and employs 46% of the population.
- About 115 million hectares in Southeast Asia are cultivated for major agricultural crops such as rice, corn, palm oil, and natural rubber. Majority of these agricultural lands is rainfed. Irrigated croplands only accounts for about 17% of the total lands.
- “The rising frequency and intensity of weather extremes related to climate change has resulted in a wide array of risks and vulnerabilities that necessitated urgent attention and actions.”
- Climate change adaptation among countries in SEA may follow a landscape-based approach that includes climate information services and safety nets, early warning systems, access to climate-smart services, educational initiatives about climate change, and community-based adaptation practices. Several types of adaptation technologies and practices in agriculture include sustainable water use, capacity building, crop management, livestock management, and soil management.



- Mitigation strategies in Southeast Asia can revolve on REDD+, sustainable forest management, and carbon sequestration management. These can also be included in the NAMAs of the countries, together with their policies and technologies on low-emissions agriculture and the development of GHG quantification methods and MRV .
- In the context of Vietnam, the Mekong River Delta is one of the most vulnerable regions to climate change. To address this issue, there are several short-term adaptation options already in place: adjusting cropping pattern, adjusting seasonal structure and erosion control (for upland), changing of cropping patterns, selecting crops that are better suited to a changing climate for different ecological regions, and paying more attention to sustainable land and water management.
- Long-term adaptation options for the agricultural sector include research in agricultural technologies, including switching cropping patterns, crossbreeding, and modernizing cultivation techniques; developing new crop-livestock systems and crop diversification systems; designing agricultural incentives and setting up insurance measures/policies to mitigate climate risks; and developing early warning systems against climate risks and pests and diseases.
- The mitigation initiatives of Vietnam for agriculture are aligned with NAMAs, NDCs, and NAPs, among others. These include alternate wetting and drying, system of rice intensification, improvement of dairy cow and non-dairy cow diets, midseason drainage in rice cultivation, shifting from double-rice or triple-rice into rice-shrimp systems, and introduction of biochar, among others.
- Vietnam's NDC include an unconditional commitment of 8% emission reduction by 2030 relative to business-as-usual scenarios. The commitment can reach up to 25% depending on international support through bilateral and multilateral cooperation.
- Vietnam also joined the "4 per 1000" initiative last 21 June 2018 to increase soil organic carbon stocks by "4 per 1000" or 0.4% annually. This initiative aims to maintain organic matter in soils and improve their carbon sequestration potential to ensure food security and mitigation of climate change. It needs policies and institutions to mobilize farmers, implement relevant practices, and initiate research on soil carbon storage, among others.

Comments by the Panelists for Panel Discussion 1

Reiner Wassmann, RICE:

- We must combine our forces, make coordinated actions, and clarify to donors our goals and targets. Governments must continue to bring agricultural technologies, practices, and services to farmers.
- There must be more efforts to integrate gender, policies, nutrition, etc. on the programs.
- We are too optimistic. We must be realistic on our targets. We need to



rely on our research to address the issues in the region.

Pham Thu Thuy, FTA:

- We must bring what is happening on the ground to the national levels

Diego Naziri, RTB:

- One of the keys to address climate change is to choose crops that are better suited and will thrive under more erratic climatic patterns.
- RTB is conducting research on how to utilize roots and tubers in climate change adaptation and mitigation. Research include reducing GHG emissions through roots and tubers and the use of wastes as animal feed.

Huynh Thi Thanh Tuyen, A4NH

- Climate change affects health and nutrition. In this regard, more research must be conducted to know the effects of climate change on food systems.
- Collaboration among all sectors must be forged and strengthened starting from agriculture to food systems to develop scientific databases.
- Scaling R4D initiatives in other countries must also be explored.

Leo Sebastian, CCAFS

- CCAFS is only the main research program, but other CGIAR Centers and CRPs also tackle climate change. In Southeast Asia, CCAFS SEA engages most of the CGIAR centers operating in the region.
- CCAFS conducts R4D activities under its four flagship programs (FP). FP1 focuses on priorities and policies for climate-smart agriculture; FP2 develops climate-smart technologies and practices while FP3 deals with low-emissions development; FP4 focuses on climate services and safety nets. Gender and social inclusion transcend the four flagships to address gender-specific issues and call on the women and youth to participate in CSA activities.
- In 2019, FP1 will discuss policy imperatives for the region's food systems under climate change; FP2 will develop and scale gender-sensitive CSA options and will specifically address climate-related water stresses; FP3 will focus on low-emissions rice production in deltas and other intensive rice-growing areas; and FP4 will explore innovative climate information services.
- CCAFS will continue to develop practical and innovative CSA options that address context-



L-R: Dr. Reiner Wassmann, Dr. Leo Sebastian, Dr. Pham Thu Thuy, Dr. Diego Naziri, Dr. Hu Suk Lee, and Ms. Huynh Thi Thanh Tuyen



specific issues and pursue outcomes that it can scale to wider areas.

Hu Suk Lee, Livestock

- ILRI's contributions included risk maps, prediction models, and health research partnerships in Vietnam. A few challenges that arose from their activities included a lack of surveillance systems and a lack of resources on implementing tools.
- The project presented was, "Surveillance and early warning systems for climate sensitive diseases in Vietnam," which ran from 2015-2017. The sampling areas covered five provinces, with 385 samples of swine urine and sera collected per province. Maize samples were also collected, this time, from six provinces. A survey on the knowledge, attitudes, and practices of 551 people was also conducted.
- The project produced nine international peer-reviewed papers, three research briefs, 18 conference presentations/posters, and one book chapter, among others.

Highlights from the Open Forum of Panel Discussion 1

- One of the gaps among CRPs is the lack of link with nutrition outcomes as consequences of climate change on agriculture. Specifically, overnutrition and under-nutrition are problems in SEA. CGIAR already has projects on the effects of climate change on nutrition. This is also considered already in the ASEAN level.

- All CRPs and CGIAR Centers are working together. In SEA, we are building and strengthening collaborations with national partners to gather relevant data and in turn explore further agriculture, food security, and other sectors. Still, the CGIAR, its centers and research programs, are "not the end of the story."
- Other relevant actors and stakeholders such as the universities must also be tapped in climate change adaptation and mitigation efforts. Also, non-CGIAR efforts are already existing in Southeast Asia such as the ASEAN-Swiss Partnership on Social Forestry to deal with regional issues.
- CGIAR is working with partners at all levels, from institutions down to the individual level. Alongside this kind of working environment, it explores value chain-food system in the region. In fact, IFPRI will conduct a value chain-food system analysis for Southeast Asia.
- We may start at the village level to test how we can make our interventions effective. We should now veer away from the "shot gun" approach to make effective interventions.
- In terms of developing climate-smart varieties, the challenge will be on combining traits, which may delete those that can still be relevant for climate actions.
- More CCAFS works can be launched in Thailand since the country had been providing to CGIAR.





Dr. Attachai Jintrawet

Breakout Session 1

Panel Discussion 2

Tools, maps, models, and data: Assessing the methodologies for R4D on Climate Change

Chair: Nguyen Quang Tan, ICRAF

Panelists: Reiner Wassmann (RICE), Peter Laderach (CCAFS), and Sridhar Gummadi (CCAFS)

Lead Presenter: Attachai Jintrawet, Chiang Mai University (CMU)

- Tools, maps, models, and data can be useful to analyze the interactions between ecosystems and small farms. In this regard, the Thailand Research Fund-PA Network was implemented in 2015. It follows a systems approach that involves understanding research and conducting management and prediction researches and systematically engages smallholder farmers in the country. The Network originated from the Decision Support System that was implemented in Thailand in 2002.
- The end goals of the Network are efficient resource utilization,

poverty reduction, and environmentally friendly production and consumption systems.

- Using the Network, data was analyzed to gain understanding and manage the limited resources of Thailand. This proved to be a transformational approach, which veered away from the traditional bureaucratic system being implemented before.
- Alongside these approaches, there must be a development of the R4D culture in the “chemical and organic” and “analog and digital” landscapes. Countries must invest in human resources for them to develop skills that will forward collaborative efforts at various levels. Moreover, project implementers must learn how to evaluate, learn, and evolve based on the results of their initiatives.
- This is part of another step to the current evolution in agricultural systems and information and communications technologies. This evolution had already seen the development of opportunities





L-R: Dr. Peter Laderach, Dr. Reiner Wassmann, Dr. Attachai Jintrawet, and Dr. Sridhar Gummadi

and methodologies in agriculture, followed by the system modelling and simulation approaches. Currently, we are at the Big Data phenomenon and the "Internet of Things." It will now be up to the next generations how they will utilize these transformative technologies and approaches to achieve food security under the new climate conditions.

- A system of political wills is needed to localize temporally and spatially the tools, maps, models, and data in agriculture. Together, these can help countries and organizations understand the interactions that are transpiring between ecosystems and smallholder farms.

Comments by the Panelists for Panel Discussion 2

Peter Laderach, CCAFS:

- The cost-benefit analysis tool looking on CSA is a user-friendly online tool for practitioners that was used in the AMIA program of the Philippine Department of Agriculture (DA).
- CIAT's vulnerability assessments were also used by DA and by the International Fund for Agricultural

Development and World Food Program in Vietnam.

- The marginal abatement curves were used to measure investments and the amount of emissions reduced with these investments. They were applied in the NAMAs in Latin America and Vietnam as well. However, experts and scientists usually had no time to check the uptake of these tools; hence, we should be more opportunistic and engage with governments. We need continuous engagements to utilize these tools.
- These tools and models are all published in journals and other technical publications. Still, they were not enough. The language and actionability of these tools and the outputs they produce should be digestible by all users at all levels.

Reiner Wassmann, RICE:

- The ORYZA is a model developed by IRRI to simulate growth and development of rice in various types of lands. However, this model also has its limitations. Models must be designed as simple and user-friendly as possible.



- The rice crop manager mobile application is an example of a simple but informative tool that farmers can use to get advices.

Sridhar Gummadi, CCAFS:

- Models are evolving; hence, we should be able to identify and select only the relevant data for our activities.

Highlights from the Open Forum of Panel Discussion 2

- Crop insurance can be a climate adaptation tool if we derive data interaction and identify where the tool can be applied.
- Crop modelling can provide accurate information to farmers, which will help them respond to climate change impacts.
- Climate forecasts may not be able to predict crop easily. Their usefulness depends on how they are interpreted. We should develop a range of yield instead.
- Pests and diseases are location-specific and there is no specific way to integrate them in the crop simulation models. What we can

do is try those models in many environments. However, we should choose our models wisely; our needs and the resources available must be considered. We should also remember that models are starting points of discussions and explorations only. In other words, they are at best complementary tools for our climate actions.

- When investing in CSA, initiatives can be categorized as non-regret measures or good agricultural practices. Regardless of category, we should continue our dialogues with the governments to develop effective initiatives. The key now is harmonizing these different data sets to make them understandable for the non-specialist next users. Harmonizing should be our next target because an “ultimate modelling framework” is hard to achieve.
- We should spend more time acquiring “hard” data to contribute in our efforts to promote precision agriculture.
- The CAM links various technologies together: crop simulation model, climate data, among others.



The panelists of the Breakout Session 1 answering questions during the open forum.





Breakout Session 2

Panel Discussion 3 Research-informed policies towards climate resilience: Recommendations from CGIAR

Chair: Pham Thu Thuy, CIFOR

Panelists: Imelda Bacudo (ASEAN CRN/GIZ), Godefroy Grosjean (CCAFS/CIAT), Sam Mohanty (RTB/CIP), Keith Wiebe (PIM/IFPRI), and Elisabeth Simelton (FTA/ICRAF)

Lead Presenter: Beau Damen, FAO

- The risk of climate-related impacts results from the interaction of climate-related hazards with the vulnerability and exposure of human and natural systems. In this regard, disaster risk reduction and management and adaptation and mitigation activities are socio-economic processes that influence both drivers and impacts of climate change
- Resilience in agriculture simply means being able to respond to these risks. However, resilience has now transcended the agriculture sector. As a response, policies and programs about climate resilience

in agriculture and other vulnerable sectors are already in place.

- Using a human systems perspective, in terms of migration, people are going to non-farming jobs, which means non-farming income must be considered as well in research on agricultural technology adoption. Children of farmers no longer adopt farming technologies and practices because they are not looking forward to farming anymore.
- Agriculture policy has limited role as a driver of change in the sector. R4D, on this matter, can inform policy by looking at farmer access to finance, agricultural and rural infrastructures, and environmental standards that can bring benefits to farmers.
- In this regard, an enabling environment must be created to promote economic growth in an environmentally sustainable manner and provide both men and women access to livelihood options for them to take initiatives and control their lives. Basic infrastructures that lower transaction costs to participate in markets must also



be created. The private sector and markets must be tapped as well, if possible. The private sector, specifically, accounts for the bulk of farm and economy-wide investments. Moreover, the poor and marginalized sectors in the cities and countryside must be considered since they cannot use their voices in the markets due to low purchasing power.

- With a “systems” view (broader view), policy can create an enabling environment.
- CGIAR-generated knowledge can be integrated into R4D programs by starting at the NDCs, Sendai Framework for Disaster Risk Reduction, and SDGs then focusing on local resilience and incremental adaptation afterwards. Throughout this process, the requirements to achieve a transformational system change must be considered as well.
- The CGIAR and ASEAN countries can strengthen their collaborations by utilizing the capacity building initiative for transparency, the Koronivia Joint Work on Agriculture, and by leveraging national agriculture networks to tackle resilience on food systems.

Comments by the Panelists for Panel Discussion 3

Imelda Bacudo, ASEAN:

- Speaking as a representative of the ASEAN CRN—a knowledge exchange platform on climate change adaptation and mitigation exists, which connects the policy makers in the ASEAN region.

- SEA countries must pursue transformative actions building on cross-sectoral efforts.
- The economic community of ASEAN looks at growth as a priority; beyond that, the nature of ASEAN is a “community of all sorts” and not really a research organization. CGIAR and FAO must work with ASEAN to develop transformative actions.
- Still, the ASEAN has already embarked on monitoring the SDGs concerning agriculture, forestry, and other related sectors. It has also agreed to explore the Koronivia Joint Work on Agriculture.
- These developments are clearly a few steps to ensure food security in Southeast Asia amid the impacts of climate change.

Elizabeth Simelton, ICRAF/FTA:

- Agroforestry possesses a good potential to achieve the Nationally Determined Contributions.
- Still, agroforestry is not apparent in the Contributions of Southeast Asian countries. This is due to policies being crafted by separated institutions. Climate change is also usually on the ministry of environment. If there is no institution for agroforestry, there will be no budget line. Moreover, if there is no land use for agroforestry, there will be no data and statistics to justify the existence of the field in the policy and institutional levels.
- Agroforestry can take the following roles in achieving the NDCs:
 - Transition to reforestation
 - Economics of systems; converting monoculture to perennials
 - Recovery from disasters





L-R: Mr. Beau Damen, Dr. Godefroy Grosjean, Dr. Sam Mohanty, Dr. Keith Wiebe, Dr. Elisabeth Simelton, and Ms. Imelda Bacudo

Keith Weibe, IFPRI:

- Looking beyond agriculture is good. The challenge now is how do we explore the future? We need to understand the past, learn from it, and analyze data to develop an evidence-based policy.
- In thinking about the future, we can adopt a mixed methods approach using qualitative and quantitative methods. Through this design, socio-economic and political relationships must be considered, not only the biophysical aspect of climate change.
- Another challenge is how to maintain and strengthen engagements among relevant actors and how to communicate the results of our work for them to be influential and meaningful.

Sam Mohanty, CIP/RTB:

- Policies are ideally a response to climate change impacts. The challenge today is integrating climate change into the policies.
- Resources must be also considered in developing countries.

Godefroy Grosjean, CIAT/CCAFS:

- Transaction cost is another major issue being often neglected.
- In terms of scaling, the main problems are information and training; institutional barriers; and economic barriers. We do not really consider the costs of transformation.

Highlights from the Open Forum of Panel Discussion 3

- There is a need for partners and experts to formalize the efforts and scale in various levels.
- Among the issues in the ASEAN region is convincing governments to include climate change and nutrition on their plans and priorities, which already include agricultural productivity and farmers' income. Another problem here in Southeast Asia is institutionalization. We have very volatile governments in the region. This is more of a political issue. How can we operate in an environment where changes in government structures are common?
- We have less leverage, so we need



to mobilize local institutions and local think tanks, then encourage them tell their governments what to do, so the ownership is on the country; Local institutions and sub-national governments must convince their national governments in adopting R4D on agriculture.

- These efforts require a combination of conducting science and building evidence, as well as sensing the electoral feels and getting “champions.” In other words, there should be pilots. Also, we need to utilize social media; we cannot ignore social media anymore.
- The reason why the CGIAR research programs were established is to “force” the CGIAR Centers to work together.
- Conferences and fora are more neutral platforms that can be explored to start discussions.
- For scientists to be relevant in decision-making processes, they must be credible in terms of the quality of their works. They must also consider the timing of

conducting scientific endeavors and synthesizing knowledge. In terms of policies, we often have too much information in them.

- The role of scientists is to synthesize knowledge to make them accessible and understandable to policy makers and other key actors. They must also involve other key actors to be more inclusive. Moreover, to be legitimate in decision-making, scientists must know the context very well, build sustainable long-term relationships with the countries and organizations and governments in those countries. Scientists must also note the way they act. They are there to show “the ways from points A to B;” they are map makers. The policy-makers are the navigators.
- When we craft policies, evidence is not the only driver; the governments and their institutions also influence policy making.
- Collaboration is easier said than done because it is difficult to bring people together. CCAFS and related platforms can facilitate these potential collaborations.



The panelists of Breakout Session 2



28 November 2018 | Hanoi, Vietnam



L-R: Dr. Zarni Minn, Dr. Yiyi Sulaeman, Dr. Chay Bounphanousay, Dr. Maria Victoria Espaldon, and Dr. Margaret Yoovatana

Plenary Session 2

Roundtable Discussion

Collaboration and partnerships for climate change R4D: The prospective in Southeast Asia

Chair: Pedcris Orenco, Southeast Asian Regional Center for Graduate Study and Research in Agriculture

Lead Presenter: Dr. Margaret Yoovatana, Senior Policy and Plan Specialist, Department of Agriculture, Ministry of Agriculture and Cooperatives, Thailand
Panelists: Chay Bounphanousay (Laos), Yiyi Sulaeman (Indonesia), Zarni Minn (Myanmar), and Maria Victoria Espaldon (Philippines)

- The objectives of the ASEAN CRN are to develop a regional plan to better contribute to the pre-2020 NDC planning and implementation process; forward climate change discussions into the forestry, agriculture, and fisheries sector; and build and strengthen partnerships among key actors in Southeast Asia.
- National Action Plans are synthesized into five areas: governance, adaptation, mitigation, finance, and monitoring. Governance focuses on identifying options to improve coordination among civil society organizations

in the region, engage the private sector, and regional exchanges on climate change monitoring in the agriculture sector. For Adaptation, the best CSA practices for smallholder farmers are being identified, together with risks on agricultural adaptation planning and implementation. Mitigation, meanwhile, focuses on exchanges among SEA countries about low-emissions development in agriculture and forestry.

- In terms of finance, there are already investments in the pipeline stated in the countries' NDC. Consolidating these planned investments falls on the ASEAN CRN command and GIZ and will be supported by FAO, CIAT, and CCAFS. Monitoring will involve identifying policy indicators and tools to manage ecosystem-based adaptation measures.
- To better prepare to the current and impending impacts of climate change, the ASEAN is looking to: scale finance to support implementation; improve technology access; enhance capacity for implementation, measure progress; and support actions at various levels.



Dr. Margaret Yoovatana delivering a presentation on the ASEAN Climate Resilience Network

- Key message: we should not stop after the research; let us continue to develop climate actions; research must be translated into actions to be useful.
- Bounphanousay: We need to develop projects together, which means we must involve the farmers, the end-users of climate information. How can knowledge be transferred to the farmers then? It is difficult. Some farmers are not willing to change their practices.

Other Highlights of Plenary Session 2

- Many interesting models were already developed. Still, we should go beyond these models and publications and strive to transform them into actions relevant to the situations on the ground.
- Resilience can be integrated in climate change plans and projects in the ASEAN region through policies.
- The best mechanisms to scale CSV at various levels are to provide technical and scientific assistance to governments, tapping scientists, and developing and utilizing early warning systems and risk maps.
- Minn: We should be relying on the next generation to take these actions. For now, we need to look at the role and contributions of education on our climate actions.
- Sulaeman: We still need risk maps and platforms for communication and engagements to better respond to climate change. The CSA practices mentioned today must be institutionalized.
- Espaldon: CSVs serve as social learning platforms for us. Establishing CSVs is enriching due to the lessons that emerged from our experiences and interactions. CCAFS, in my observation, is a product of the many interactions we conducted to address climate change in Southeast Asia. To better respond to climate change, we need to harness the various information today; information is a major currency. Knowledge management then is significant in climate actions, together with the convergence of media. More concerted efforts should be conducted.
- The 4Cs or “Communication, Coordination, Cooperation, Collaboration” is an approach that the ASEAN can follow to forward its climate actions. This can be viewed as a step-by-step process wherein all climate actions start with communication among relevant actors. This can be followed by coordination and cooperation, which can lead to sustainable collaborations that will drive climate actions forward.





Closing Program

Closing Remarks

Dr. Sebastian, CCAFS SEA

- We can work in many areas where CGIAR can better respond to the concerns of the ASEAN. The 4Cs Approach can be complemented with the “iPhone” concept, i.e., our technologies and practices that we will promote should be multi-functional and easy to use.
- Such approach and concept can help us convince the navigators—the policy makers—to use our tools and other services. Still, policy is not just about science, correct results, and good recommendations. Politics, timing, and relationships all influence policies in any regions in the world. In this situation, the map makers—the scientists—must also be smart communicators. We will need more resources and dialogues with our partners and stakeholders to fully implement our plans.



Dr. Leo Sebastian wrapping up the conference



List of Participants

CGIAR Centers		
1	Andrew Jarvis	International Center for Tropical Agriculture
2	Godefroy Grosjean	International Center for Tropical Agriculture -
3	Huynh Tanh Tuyen	Asia Regional Office
4	James Giles	
5	Miguel Lizarazo	
6	Pablo Imbach	
7	Peter Laderach	
8	Vinh Le Bui	
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11	Rowena Valmonte-Santos	International Food Policy Research Institute
12	Keith Wiebe	
13	Hu Suk Lee	International Livestock Research Institute
14	Lennart Wortering	International Maize and Wheat Improvement Center
15	Sam Mohanty	International Potato Center – Asia Regional Office
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25	Elisabeth Simelton	Viet Nam Country Office
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33	Arnaud Costa	
34	Vu The Thuong	Centre for Sustainable Rural Development
35	Tim Straker-Cook	CUSO International
36	Vu Ngoc Anh	Embassy of Ireland
37	Beau Damen	FAO Regional Office for Asia and the Pacific (FAO)



38	Albert Lieberg	FAO Vietnam Country Office
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50	Chay Bounphanousay	
51	Phetmanyseng Xangsayasane	
52	Yiyi Sulaeman	Indonesian Center for Agricultural Land Resources Research and Development
53	Mohammad Hariz Bin Abdul Rahman	Malaysian Agricultural Research and Development Institute
54	Zarni Minn	Ministry of Agriculture, Livestock and Irrigation, Myanmar
55	Nyo Mar Htwe	Yezin Agricultural University, Myanmar
56	Hector Tabbun	Department of Agriculture - Regional Office 2, Philippines
57	Rogelio Matalang	Federation of Rural Broadcasters, Philippines
58	Rex Navarro	Philippine Agricultural Journalists
59	Noel Servigon	Philippine Embassy in Hanoi
60	Jose Santiago Olaguera	
61	Vicky Espaldon	University of the Philippines
62	Alice Ferrer	
63	Attachai Jintrawet	Chiang Mai University, Thailand
64	Vinit Atisook	Department of Agriculture, Thailand
65	Margaret Yoovatana	
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67	Tran Van Lung	Climate-Smart Village (My Loi CSV)
68	Nguyen Van Tai	Climate-Smart Village (Tra Hat CSV)
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75	Vu Hoang Yen	Department of Agricultural Economics, Ministry of Planning and Investment



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78	Le Dinh Hoa	Ha Tinh Provincial Farmer Union
79	Nguyen Thi My Phung	IRRI-VNSAT Project
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93	Jana Korner	
94	Nguyen Duc Trung	
95	Dinh Kim Dung	
96	Eisen Bernardo	
97	Thelma Paris	
98	Nguyen Chi Kien	
Local Media		
99	Phan Hau	Bao Thanh Nien
100	Pham Trung Hieu	Vietnam Agriculture Newspaper
101	Tran To Nhu	Vietnam News Newspaper
102	Nguyen Lan Anh	Truyen hinh nhan dan
103	Mai Anh Tuan	Truyen hinh nhan dan
104	Pham Thi Lan Phuong	Interpreter
105	Bui Nguyet Anh	Interpreter





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