



**Report of the
2nd Special ASEAN Technical Working
Group on Agricultural Research and
Development (ATWGARD) Workshop
on the Promotion of Climate Resilience in
Rice and Other Crops
17 June 2014 | Bangkok, Thailand**

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2nd SPECIAL ASEAN TECHNICAL WORKING GROUP ON
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IN RICE AND OTHER CROPS**

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INTRODUCTION

1. The Special ASEAN Technical Working Group on Agricultural Research and Development (ATWGARD) was held on 17 June 2014 at Rama Gardens Hotel, Bangkok, Thailand.

2. The Meeting was attended by the delegates from Brunei Darussalam, Cambodia, Indonesia, Lao PDR, the Philippines, Thailand, and Vietnam. Representatives from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Indonesia/ASEAN-German Programme on Response to Climate Change (GAP-CC); the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA); the Climate Change, Agriculture and Food Security (CCAFS); and the International Rice Research Institute (IRRI)-Bangkok Office were also in attendance. The list of delegates appears as **ANNEX 1**.

OPENING SESSION

3. Dr. Suwit Chaikiattiyos, Deputy Director General of the Thailand Department of Agriculture (DOA), served as the chairperson of the workshop. He welcomed all the delegates from the ASEAN Member States and partner institutions and provided a brief rundown of the workshop agenda. He likewise requested the delegates for a brief self-introduction.

AGENDA ITEM 1: REVIEW OF PROJECT BACKGROUND AND OBJECTIVES, METHODOLOGY, AND EXPECTED OUTPUTS

4. Dr. Margaret Yoovatana, National Resource Person-Thailand and Policy and Plan Specialist under the Thailand DOA International Agricultural Affairs Group, Planning and Technical Division, provided the delegates an overview of the background, objectives, and methodology of the GAP-CC-funded project “ASEAN Network on Promoting Climate Resilience of Rice and Other Crops”. The project is in support to Thailand DOA’s proposal, “Production Systems Approach for Sustainable Productivity and Enhanced Climate Resilience to Climate Change”, which was presented to the 8th ATWGARD Meeting in Singapore on 13-14 May 2013. It is anchored to the Food and Agriculture and Forestry Vision 2016-2020, and the ASEAN Policy Frameworks: ASEAN Integrated Food Security Framework (AIFS) and the ASEAN Multi-Sectoral Framework on climate Change (AFCC), which are supported by GAP-CC.



5. The project aims to: a) promote a common understanding and facilitate exchange of experiences on climate change and agriculture focusing on rice, maize, and cassava; b) identify successful practices and policies at the ASEAN Member States (AMS) level for tackling climate change related threats that can be promoted and up-scaled; and, c) identify common concerns and capacity needs, and propose regional support strategies and instruments to address issues.

6. She also discussed the regional and national platforms to enhance cross-sectoral know-how and exchange and cooperation amongst relevant institutions, where the initial progress and timeline of the project were also presented. The presentation appears as **ANNEX 2**.

AGENDA ITEM 2: MEMBER STATE PRESENTATION ON CASE STUDIES RESULTS AND FINDINGS

7. The seven (7) national resource persons presented the results and findings of the good practice case studies for climate change adaptation of rice and cassava/maize as well as the identified areas for cooperation, which was conducted in their respective countries. The Brunei Darussalam ATWGARD focal person also presented the initial results of their country case studies.

Brunei Darussalam

8. Mrs. Hajah Suria Zannudin, Senior Agriculture Officer, Department of Agriculture and Agrifood presented on behalf of Brunei. Her presentation, which appears as **ANNEX 3**, is highlighted below:

- Climate change affected areas leading to loss in productivity: water supply for irrigation, shift in growing season, soil fertility, pests and diseases, farming practices, vegetative stage/maturity
- Good practices (production systems): 1) rainfed lowland; 2) irrigated lowland
 - *Rainfed lowland*: use of peat land (zero tillage, recycled nutrients) to lower carbon emission
 - *Irrigated lowland*: The project, “Towards Self-Sufficiency in National Rice Production” in 2009 that aimed to: develop suitable rice area for production, introduce high-yielding varieties, practice of double cropping, development of infrastructure (drainage, irrigation, and roads)
- Challenges: policy makers’ lack of awareness on climate change impacts, climate change studies and monitoring, unclear policy on disaster management

Discussions/Clarifications:

- Brunei is member of the Lowland Rice Research Consortium initiated by IRRI
- No conduct of phenology observation on flowering as of date
- Improved variety of Laila for irrigated lowland, double cropping for high yields
- Good practices in terms of coping with climate change: three-month climate forecasting, planting calendar in accordance to the forecast
- No further study as of date on cropping system to overcome pest infestation but the Integrated Pest Management (IPM) method is being conducted



Cambodia

9. Dr. Men Sarom, National Resource Person-Cambodia and Vice Rector for Cambodia Royal University of Agriculture, presented the initial results and findings of climate change adaptation good practices for rice and cassava. The presentation, which appears as **ANNEX 4**, is highlighted as follows:

- Climate change hazards: flood, drought, salinity, pests and diseases, water scarcity, extreme temperature, land degradation and nutrient depletion
- Challenges: limited public awareness, lack of early warning systems, poor access to irrigation water, and weak national research
- Rice production systems: irrigated lowland and rainfed lowland
 - Rainfed lowland was chosen for the study
 - Great contribution to the economy and country consumption
 - Challenges: vulnerable to climate change
- Cassava production systems: rainfed upland during dry and rainy seasons
 - Rainfed upland was chosen for the study
 - Contributed greatly to country consumption and economy
 - Challenges: vulnerable to climate change
- Some adaptation options: tolerant varieties, water harvesting techniques, alternate cropping systems, nutrient balance, healthy planting materials, integrated farming systems, mulching systems
- Good practices: 1) model farming systems; 2 and 3) use of submergence/drought tolerant varieties; 4) healthy planting materials; 5) contour intercropping
- Identified areas for regional collaboration: expert/staff exchange among the AMS; establishment of ASEAN council of climate change science; establishment of climate change regional center in of the AMS; development of a technical consortium between the AMS who have similar interests in good practice for further refinement and adoption.

Discussions/Clarifications:

- Flood is responsible to 90% of the damages, drought 10%
- Farmers plant receding rice (submergence tolerant, rainfed lowland)
- ASEAN to facilitate participation of Southeast Asian scientists/experts to Intergovernmental Panel on Climate Change (IPCC)
- Importation of health planting materials must be done in the institutional level and not on the farmers' level to avoid boarder issues

Indonesia

10. Dr. Perdinan, National Resource Person-Indonesia and Lecturer/Researcher for the Department of Geophysics and Meteorology at Bogor Agricultural University, presented the initial results and findings of climate change adaptation good practices for rice and maize in Indonesia. The presentation appears as **ANNEX 5**.

11. The highlights of the presentation of Indonesia are as follows:

- Selected crops: rice (lowland production system) and maize (lowland production system)
- Criteria for selection: national production and value, national consultations



- Climate change related hazards: increased extreme weather events (storms, flood, drought, sea level rise; increased respiration, temperature, and humidity)
- Good practices:
 - Rice: crop insurance, farming practices, planting calendar
 - Maize: farming practices (new superior cultivar, relay planting), crop selection and planting calendar, postharvest processes
- Institutional challenges/requirements: insufficient financial support and farmers' technological know-how, lacking government efforts; post-production losses; climate change adaptation considered as a new paradigm
- Identified areas for regional collaboration: availability of extension workers; administration of new varieties for farmers' adoption; local governments' involvement in agricultural programs; construction of "Agrowebinfo"; land status and labor of agriculture; local government promotion of planting calendar; public-private-partnership; lessen post-harvest loss.

Discussions/Clarifications:

- Local government to empower extension workers as a bridge to farmers in the utilization of planting calendar (e.g. through climate field schools)
- Planting calendar system can be used directly via mobile applications and smartphones
- Crop insurance based on indemnity loss is still being piloted – collaboration between the Ministry of Agriculture and a state-owned insurance company
- Crop insurance based on climate index is still at the research stage (between the Ministry of Agriculture, the Centre for Climate Risk and Opportunity Management in Southeast Asia Pasific (CCROM-SEAP), and the local government of Indramayu)

12. After the presentation of Indonesia, the delegates and partner institutions posed for a group photo and proceeded for a coffee break.

Lao PDR

13. Dr. Outhai Soukkhy, National Resource Person-Lao PDR and Head of the Educational Division, Students' Management, Agronomy, Farm Activities and Curriculum Development under the Northern Agriculture and Forestry College (NAFC), presented the initial results and findings of climate change adaptation good practices for rice and maize, which appears as **ANNEX 6**.

14. The highlights of the presentation of Lao PDR are as follows:

- Rainfed agriculture is the most dominant production system in Laos though vulnerable to climate stresses
- Climate change related hazards: floods, droughts, erratic rainfall, extreme weather events, pests and diseases
- Selected crops: rice and maize
- Good practices: alternate wetting and drying (AWD), rice biodiversity, breeding of tolerant varieties, Direct Mulching Crops (DMC), intercropping of maize with legumes
- Recommendations: Wide adoption and strengthening of System of Rice Intensification (SRI), rice biodiversity, and planting calendar; implementation of the Laos National Biosafety Framework; use of cassava leaves and root silages; and, expert exchange among the AMS.



Discussions/Clarifications:

- SRI only appropriate for small areas
- Planting Calendar: good practice being used to address erratic rainfall
- Difficulty in recommending different rice varieties in one field considering the erratic changes in seasons

Myanmar

15. Dr. Khin Lay Swe, National Resource Person-Myanmar and Visiting Research Fellow from the Department of Practice Oriented Area Studies under the Center for Southeast Asian Studies (CSEAS), presented the initial results and findings of climate change adaptation good practices for rice and maize in Myanmar. The presentation appears as **ANNEX 7**.

16. The highlights of the presentation of Myanmar are as follows:

- Climate change related hazards: drought, erratic and low rainfall, seasonal flood, inland salinity
- Selected crops: rice and maize
- Good practice for rice:
 - SRI: reduce water demand, flood and drought resistant
 - Dry seeding: common in areas where there is low rainfall
 - Involvement of the Department of Agricultural Research (DAR): generate profitable cropping systems, provide improved varieties, conduct of plant/mutation breeding
 - *Challenges*: weak capacity of staff, researchers, extension workers; lack of financial support and collaboration among the AMS; resilient varieties to be scaled-up
- Good practice for maize: area and production has been increasing rapidly over several decades due to area expansion and high yield per acre attributed to the adoption of hybrid maize varieties
 - Lowland maize production: collection of cattle feeds, husk compost, cobs residue for bio-fertilizer
 - Upland maize production: timely preparation of growing, fertilizer application, traditional shifting cultivation
 - *Challenges*: insufficient amount and high prices of hybrid seeds, development of water harvesting technology
- Identified areas for regional collaboration: seed development and distribution systems, institutional development and capacity building, water resource management, production technology improvement, good marketing system, cropping practices and patterns for adaptation; agricultural sample surveys to include all zones

Discussions/Clarifications:

- Climate change impacts/adaptation/mitigation systems should be included/strengthened in the national government frameworks
- In partnership with DAR, IRRI has released tolerant varieties (submergence, drought, salinity) are being produced in different DOA research stations for wide-scale distribution/evaluation



- IRRI supported the development of Myanmar Rice Strategy Development Program to be launched in July 2014

17. After the presentation of the Philippines, the meeting proceeded for lunch. The afternoon was chaired by Ms. Myriam Fernando, GIZ/GAP-CC Senior Adviser.

Philippines

18. Dr. Romeo V. Labios, National Resource Person-Philippines and Scientist II-Agronomist of IRRI-Myanmar Office, presented the initial results and findings of climate change adaptation good practices for rice and maize in the Philippines. The presentation appears as **ANNEX 8**.

19. The highlights of the presentation of the Philippines are as follows:

- Climate trends: high temperature, intense rainfall, increase in tropical cyclones
- Series of first national consultative meetings conducted per sector, second national consultative meetings combining all sectors
- Rice production systems chosen for the study: irrigated and rainfed lowland
- Maize production systems chosen for the study: yellow corn and white corn
- Climate-related hazards and good practices for rice:
 - Higher temperature and increase in rainfall during the dry season
 - Good practices: PalayCheck, Palayamanan, AWD
 - Increase in rainfall and intensity during the rainy season
 - Good practices: PalayCheck, Palayamanan, climate-ready varieties
 - Sea-level rise
 - Good practices: climate-ready (saline-tolerant) varieties
- Climate-related hazards and good practices for maize (yellow corn):
 - Higher temperature and increase in rainfall during the dry season
 - Good practices: Site-Specific Nutrient Management (SSNM) for maize, village-type dryer, Sustainable Corn Production in Sloping Areas (SCOPSA)
 - Increase in rainfall and intensity during the rainy season
 - Good practices: SSNM for maize, village-type dryer, SCOPSA
 - Sea-level rise
 - Good practices: SSNM
- Climate-related hazards and good practices for maize (white corn):
 - Higher temperature and increase in rainfall during the dry season
 - Good practices: White Corn for Food, SCOPSA
 - Increase in rainfall and intensity during the rainy season
 - Good practices: White Corn for Food, SCOPSA
- Institutional challenges: include breeding of climate-ready varieties with best management production and post-production practices; documentation studies and researches to strengthen climate change adaptation; gender and climate financing
- Identified areas for regional collaboration: strengthen regional centers and information networks to support climate change initiatives; strengthen South-South collaboration (germplasm exchange among the AMS, capacity building, IT and expert exchange)



Discussions/Clarifications:

- Challenge: no further quantifiable studies on whether these technologies have contributed to a great extent in promoting climate change resilience

Thailand

20. Dr. Margaret Yoovatana presented the initial results and findings of climate change adaptation good practices for rice and maize in Thailand. The presentation appears as **ANNEX 9**.

21. The highlights of the presentation of Thailand are as follows:

- Brief history and background of the Thai proposal
- Climate-related hazards: intense rainfall, extreme heat and cold, floods, and droughts
- Economic evaluation of climate change impact on Thai agriculture: yield, production, and prices are affected
- Focus on promoting climate resilience at the community level; community-driven good practices
- Identified areas for regional collaboration (5 thrusts): 1) research network programmes on climate change assessment/mitigation/adaptation; 2) technology transfer, 3) Human Resource Development programs; 4) institutional support; and, 5) ASEAN Regional Cooperation on Climate Resilience and Food Security
- 12 case of good practices/initiatives among Thai communities identified, some of which include:
 - Strengthening of (hybrid) seed production
 - Multi-stakeholder disaster risk reduction
 - Lifestyle and community's role in promoting climate resilience
 - On-farm measures for reducing climate risks
 - Promotion of climate resilience in highland areas
 - Assessment of climate vulnerabilities and adaptation options in the Greater Sub-Mekong region

Discussions/Clarifications:

- Selection and prioritization of five (5) case studies out of the 12 mentioned will be conducted after the second national consultative meeting
- Revise country case study following the agreed methodology

Vietnam

22. Ms. Do Lien Huong, Junior Reseracher-Vietnam and Project Team Leader of the Strategy and Policy Research Division under the (IPSARD), presented Vietnam's initial results and findings of climate change adaptation good practices for rice and maize, which appears as **ANNEX 10**.

23. The highlights of the presentation of Vietnam are as follows:

- Climate change-related hazards: sea-level rise, high temperature, rainfall fluctuation, extreme weather events



- Good practices for rice: crop-pattern changes (one rice crop into aquaculture, e.g. shrimp), crop timing and use of varieties with short growing duration; AWD
- Good practices for maize: growing of varieties that are suitable, high-yielding, and stress-tolerant; use of quality seeds; proper fertilizer treatment; intercropping with leguminous plants; and, optimal cultivation practices for tropical maize in flat areas
- Institutional challenges: climate change policy mainstreaming at the local level
- List of adaptation measures
- Identified areas for regional collaboration: technical and financial assistance on: water management/irrigation, technology transfer, researches on varieties and crop timing, climate data collection/analysis, fertilizer management, cultivation practices, climate change awareness and adaptation plans; crop insurance, among others.

Discussions/Clarifications:

- AWD in Vietnam has been piloted in An Giang province first, then in Bac Lieu province; direct seedling method is used
- Rice-shrimp farming, while a good practice in Vietnam, is a problem in Thailand

24. After the AMS presentations, Ms. Myriam Fernando reminded the meeting that each of the country case studies must be endorsed by their respective Ministries of Agriculture. She also asked the meeting how the initial results and findings will be utilized to strengthen collaboration among the AMS.

AGENDA 3: PRESENTATION OF CONSOLIDATED FINDINGS: CLIMATE CHANGE HAZARDS, GOOD PRACTICES, AND AREAS FOR REGIONAL COLLABORATION

25. Dr. Felino Lansigan, SEARCA Regional Agricultural Value Chain/Climate Resilience Expert, presented the consolidated results and findings on the following: priority crops, climate hazards, good practices, institutional challenges including implementation issues, and areas for regional collaboration. His presentation appears as **ANNEX 11**.

26. Prior to the second regional workshop, the national resource persons were requested to submit to the regional resource team the initial results and findings of their respective country case studies through a matrix. Dr. Lansigan showed and verified with the national resource persons the consolidated findings, which are highlighted as follows:

- Crop selection:
 - *Rice and cassava:* Cambodia
 - *Rice and maize:* Indonesia, Lao PDR, Myanmar, Philippines, Thailand, and Vietnam
- Climate hazards: temperature increase, erratic rainfall pattern, intense extreme climatic events, sea level rise, floods and droughts, pests and diseases
- Good practices: adaptive planting calendar, improved planting and stress tolerant varieties, technologies to improve water use efficiency, crop diversification, crop insurance



- Institutional challenges on climate change adaptation:
 - Inadequate mechanism for technology transfer through agricultural extension programs
 - Field demonstrations and piloting of climate change adaptation options
 - Sustainable financing
 - Information dissemination of climate change adaptation and technology transfer among the AMS
 - Regional networking and collaboration for action research and development
 - Climate risk management via crop insurance
- Implementation issues and challenges:
 - A regional platform for collaboration, information sharing, and technology transfer through existing regions networks and programs
 - Partnership with local groups
 - Sustainability
- Recommendations and next steps:
 - Promote information sharing and technology transfer of climate change adaptation options
 - Integrate climate change adaptation with other farm production activities
 - Implement capacity building programs
 - Conduct of action research and development (action planning and crop production inputs)
 - Development of a monitoring and evaluation system

AGENDA 4: PLENARY DISCUSSION: RESULTS, SUMMARY OF COMMONALITIES AND DIFFERENCES

27. The seven (7) ATWGARD focal points together with the seven (7) national resource persons shared and discussed issues on the commonalities and differences of the results and findings among their respective national sector studies. Dr. Felino P. Lansigan facilitated the discussion.

28. The highlights of the discussion and agreements on the initial results and findings among the AMS are as follows:

- The regional report will be further refined upon the submission of the country case studies
- Improve the references in each of the country case studies
- Each country case studies must follow the format stated in the methodology, and has to be endorsed by their respective Ministries of Agricultures; need to clarify with Brunei if they will submit a document
- The case studies will serve as attachments to the regional report, which will be submitted to the ATWGARD and subsequently to SOM-AMAF
- Present a consolidated table of proposed regional areas for collaboration for research and development for the ATWGARD since no agenda yet on regional networking has been initiated (only cross-cutting issues and expert exchange)
- Thailand to revise its country case study based on the agreed methodology and format
- Researchable area: quantify contributions of good practices in promoting climate resilience
- Suggestion to identify similarities first (seasons, production systems, etc.) among countries, and draw out good practices from the similarities



- Group common good practices and facilitate a smaller group exchanges between different countries to share, promote, and request support from the national and regional levels; these would make an easy monitoring to quantify the contributions of the common good practices to climate change resilience
- Categorize good practices based on the combination of supporting tools and services for clear recommendations
- Other areas for regional collaboration will not be endorsed only to the ATWGARD but may also be endorsed to other ASEAN Technical Working Groups

AGENDA 5: RECOMMENDATIONS AND NEXT STEPS, AND/OR FOLLOW-UP ACTIVITIES

29. Dr. Felino Lansigan and Ms. Myriam Fernando provided a brief presentation on the recommendations and proposed follow-up activities in agreement with the AMS. The highlights of the presentation and key conclusions derived from the discussions are as follows:

- Third regional meeting to discuss and finalize the regional findings set on November 2014
- Build on the case studies that have been conducted focusing on areas to strengthen regional collaboration
- Long-term post-project support and activities with regard to climate change and the ATWGARD
 - GIZ support: with commitment from the AMS (technical/financing)
 - 1st phase to end at the beginning of 2015
 - Support ASEAN on food security and climate change
 - Based on the assessment, need to focus on implementation gaps, technical know-how and financing
 - Climate Smart Value Chains (2015-2017)
 - ASEAN as a “knowledge-broker”
 - Knowledge sharing and use of CRN as a dialogue platform
 - Entry points for CSA/forestry practices and investment opportunities
 - CRN or specific AMS to the preparation of CSA/forestry investment proposals
 - Partners to include: ATWGARD, ASEAN Sectoral Working Group on Crops (ASWGC), ASEAN Working Group on Climate Change (AWGCC), and other relevant agricultural/forestry ministries in the AMS
- Establishment of the Climate Resilience Network to involve:
 - Capacity building (South-South collaboration)
 - Prioritization of selected adaptation measures where there will be a champion/lead country for a particular option and include other participating AMS
 - Guidelines for implementation (generation of policy briefs, prioritization of R&D activities, mobilization and funding allocation, expert dispatch and technical assistance)
 - Sustainable financing (e.g. public-private partnerships)
- Prepare policy briefs grouping together countries, and basing the policy briefs on the recommendations and suggestions of experiences in those countries and enhancing expertise between them; also facilitate small meetings for AMS who want to work on certain good practices
- Select good practices per crop



- Regional resource team to send a questionnaire to the AMS regarding their selection on their preferred climate change adaptation options
- Draft case studies to be finalized (good practices and recommendations), which will be circulated; deadline is by the end of July
- SEARCA to prepare a regional supplement to be distributed to the ATWGARD together with a questionnaire based on the recommendations

30. The regional resource team gathered a general feedback form from the ATWGARD focal persons and the national resource persons on the climate change adaptation good practices per crop in their particular areas of interest, which they could learn from and incorporate with other AMS.

31. The following good practices on rice per AMS are as follows:

Brunei	Crop calendar, AWD, stress tolerant varieties
Cambodia	Crop diversification, stress tolerant varieties
Indonesia	Crop calendar, crop insurance
Laos	Planting calendar, postharvest technologies and institutional challenges/requirements, crop diversification, marketing issues, Thai smallholder seed production, stress tolerant varieties
Myanmar	Production of climate change resilient varieties, best crop management practices (AWD, SSNM), postharvest technologies
Philippines	Rice shrimp farming, climate change-ready rice varieties, crop diversification, AWD, cropping calendar
Thailand	Cropping calendar, stress tolerant varieties, RIICE technologies
Vietnam	Crop Insurance

32. For maize, the following good practices per AMS are as follows:

Brunei	Corn (special type, for consumption)
Indonesia	Postharvest processing for grain and silage, SCOPSA
Laos	Planting calendar, postharvest technologies and institutional challenges/requirements, crop diversification, marketing issues, Thai smallholder seed production
Myanmar	SSNM, quality protein maize (Quality Protein Maize)
Philippines	Stress tolerant varieties, SSNM, SCOPSA
Thailand	Breeding and seed production of stress tolerant varieties
Vietnam	Stress tolerant and high quality varieties

33. The following good practices for maize were preferred by Cambodia:

Cambodia	Healthy planting materials, contour planting
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34. Ms. Myriam Fernando briefly wrapped-up the conclusions and recommendations gathered from the workshop. Dr. Margaret Yoovatana, on behalf of Dr. Suwit Chaikiattiyos, closed the workshop and expressed Thai DOA's sincere appreciation to the delegates from the ATWGARD, GIZ, SEARCA, and partner institutions.

