



SUBMISSION BY

Viet Nam on behalf of

Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, and Thailand as members of the Association of South East Asian Nations (ASEAN)

TO

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on issues related to agriculture in response to SBSTA decision FCC/SBSTA/2014/L.14. These are views on Identification and assessment of agricultural practices and technologies to enhance productivity in a sustainable manner, food security and resilience, considering the differences in agroecological zones and farming systems, such as different grassland and cropland practices and systems.

FCC/SBSTA/2014/L.14 paragraph 3 (d).

1. Introduction and scope of climate-resilient agriculture, forestry and fisheries

In the agricultural sector, practices and technologies which seek to enhance food security, resilience, and productivity in a sustainable manner, is applied both at on-farm and beyond-farm levels. At the farm level, specific management practices for livestock, fisheries, crops, trees or soil and water conservation, as well as household energy management maybe the focus. Beyond the farm level, adaptation interventions can include infrastructure, agricultural extension systems, meteorological services and crop and livestock insurance. Both types of interventions are implemented within rural landscapes and landscape level approaches are becoming increasingly relevant, as a better understanding on realizing synergies and minimizing trade-offs amongst interventions emerge. The ASEAN Member States are of the view that both on-farm and beyond-farm practices and technologies should be considered by the SBSTA, together with approaches for landscape level management. ASEAN Member States consider the interaction between sectors to be important for addressing the challenges faced by the region, and have recently formulated the Vision and Strategic Plan for the Food, Agriculture and Forestry Cooperation 2025 (FAF) to guide the priorities of the region in achieving its goal of economic integrity and resilience in the next 10 years.

2. Priorities for action

A number of agricultural practices and technologies are applied in crop production systems in South East Asia (SEA), ranging from indigenous practices and field-tested crop management measures to knowledge-

based options. These are well documented and have proven positive results to enhance food security, resilience and productivity in a sustainable manner. While the suitability of these practices is location- and situation-specific they may be modified or adjusted to be applicable in other areas with more or less similar conditions. While adopting these practices and technologies, in addition to technical issues, operational and institutional limitations should also be considered. Based on a prioritization and planning process, ASEAN Member States have identified rice, maize and cassava as the staple crops most vulnerable to climate change in South East Asia and prioritize a set of practices and technologies to address challenges faced by these sectors. The ASEAN Member States are of the view that the SBSTA should consider these practices and technologies to be a priority to South East Asia.

a. Stress Tolerant Maize Varieties

Adoption of stress tolerant (drought, flood, saline, pests and diseases) and short/medium duration varieties of maize is a crop management practice of relevance to South East Asia. These improved varieties can potentially help farmers in the region to cope with adverse climate impacts. However, the unavailability of quality seeds of stress tolerant varieties, high seed input cost for the purchase of hybrid seeds, and inadequate access to improved seeds are barriers which deter widespread adoption. There is also a pressing need for training and knowledge transfer to resource-poor farmers. The ASEAN Climate Resilience Network (ASEAN-CRN) in partnership with the ASEAN Technical Working Group on Agricultural Research and Development (ATWGARD) will support the establishment of the ASEAN Maize Seed Improvement and Supply System to address some of these challenges and needs.

b. Stress Tolerant Rice Varieties

Stress tolerant rice cultivars (STR), with greater tolerance to abiotic stresses (i.e. drought, heat, increasing risks from typhoon- and rainfall-induced floods, sea-level rise, and saltwater intrusions) and biotic stresses like pest infestation problems are important to reduce risk and raise productivity in rice systems affected by these type of stresses. The International Rice Research Institute (IRRI) has developed and released several stress tolerant rice breeding lines, which have been validated with National Agricultural Research and Extension Systems (NARES). While actions to scale-up and scale-out these varieties have been taken, a number of technical and institutional challenges limit these efforts. These challenges include: lack of a concerted regional research, development and extension (RD&E) strategy, lack of strong and vibrant seed industry in the region and a common policy on varietal release system from stress tolerant rice. In order to address these challenges, four areas for regional collaboration have emerged, these are a) financial support for development and deployment of new generation stress tolerant rice varieties, b) capacity building, both degree and non-degree training, c) information dissemination, and d) technical expert exchange.

c. Climate informed Agricultural Insurance (including use of Weather Indices)

Small-scale farmers in the region are often trapped in poverty because they are unable or unwilling to make investments in improved agricultural practices because of the weather-related risks associated with these investments. Well designed and targeted agricultural insurance can enable farmers to invest in inputs and technology that can increase their average yields and income, and protect them from suffering losses and slipping into debt. Therefore, the ASEAN Member States consider climate informed agricultural insurance (including use of weather indices) to be a priority in the region. Traditional crop

insurance relies on direct assessment of the loss or damage suffered by farmers, and can often be costly and time consuming. Index-based insurance on the other hand relies on an objectively measured index that is correlated with farmers' losses, rather than actual losses. The ASEAN Member states are of the view that both types of insurance are important to help farmers cope with and prosper in the face of weather-related risks. However, for insurance mechanisms to find widespread application in the region, issues related to access to credible weather data, methodologies to calibrate data, underdevelopment of supporting infrastructure are important.

d. Alternate Wetting and Drying

Alternate Wetting and Drying (AWD), a rice cultivation practice which involves alternate flooding and draining of rice fields during the course of the production cycle is a viable practice for rice-producing countries in South East Asia. AWD offers considerable savings in water use during the rice-growing season without reducing crop yield. It is particularly relevant for farmers using pumped water for irrigation since reduction in water use results in a reduction in costs associated with energy as well. It is estimated that AWD reduces water use by 30%, while also reducing methane emissions by 48%, representing a positive co-benefit. AWD is now being tested and promoted by the national agricultural research systems (NARS) throughout most of the region. In order to scale up application of AWD, greater investments in capacity building as well as more research around its benefits and application is needed.

e. Cropping Calendar for Rice and Maize

Adjusting the planting calendar by synchronizing with the occurrence of precipitation is a practice which is highly relevant to South East Asia. Adjusting the planting calendar in line with the onset of rainfall will help farmers cope with increasing climatic variability and also reduce irrigation water requirement and improve crop yields. This practice is particularly relevant for rice and maize cultivation, since these are the two major crops commonly used for food consumption, feeds, and livelihood activities. The optimal cropping calendar may be determined based on (1) analysis of precipitation data in an area; (2) analysis of crop yield probabilities; and (3) combined analysis of rainfall data and crop yields.

3. Addressing differences in agro-ecological zones and farming systems

It is important that agricultural practices and technologies are matched with suitable contexts including agro-ecological zones and farming systems, but also the social and institutional context. The ASEAN Climate Resilience Network has through national studies in all ASEAN Member States have identified practices and technologies most suited to their contexts, this is represented in the Figure 1. This is a starting point for addressing the differences in context, but needs to be further downscaled to assess the suitability of practices at the farm level.

Good Practices Identified in National Studies									
	BN	KH	ID	LA	MY	MM	PH	TH	VN
1. Rice									
- <i>Alternate Wetting and Drying</i>						x	x	x	x
- <i>System of Rice Intensification</i>				x		x			
- <i>Integrated Crop Management</i>				x		x			
- <i>Crop Insurance</i>			x					x	
- <i>Cropping Calendar</i>	x		x		x			x	x
- <i>Crop Diversification</i>				x		x			
- <i>Optimal Row Spacing</i>			x						x
- <i>Rice Shrimp Farming</i>									x
- <i>Nutrient Management</i>	x				x				
- <i>Stress Tolerant Varieties</i>	x	x	x	x	x	x	x		
- <i>Short-duration Varieties</i>						x			x
2. Maize									
- <i>Improved Varieties</i>			x			x	x	x	x
- <i>Site Specific Nutrient Management</i>						x	x		
- <i>Cropping Pattern / Intercropping</i>			x	x		x			x
- <i>Cropping Calendar</i>			x			x			
- <i>Using Crop Residues</i>			x			x			
- <i>Diversification</i>						x			
- <i>Appropriate Row Spacing</i>			x						x
- <i>Post-Harvest Handling</i>			x	x			x		
- <i>GAP in Sloping Areas</i>							x		x
- <i>Seed Production and Seeding</i>				x			x	x	
3. Cassava									
- <i>Healthy Planting Material</i>		x			x				
- <i>GAP in Sloping Areas</i>		x			x				

Figure 1 Summary of identified and prioritized good practices employed by collaborating ASEAN Member States to enhance climate resilience of rice, maize and cassava

4. Roles for UNFCCC and international community

INDCs from all ASEAN Member States identify food security and increasing the resilience of the agricultural sector to be an adaptation priority. ASEAN Member States are of the view that UNFCCC can play an important role in facilitating the implementation and scaling up of agricultural practices and technologies in South East Asia region as well as in other regions facing similar issues in the agricultural sector. The Convention's role may include supporting cooperation and knowledge sharing amongst parties and relevant observer organizations. Leveraging on existing frameworks of the Convention for capacity enhancement and technology transfer in the agricultural sector. The Convention's financial mechanisms can play an important role by channeling finance to address challenges faced by parties in implementing and scaling up best practices.

ASEAN Member States are of the view that the international community, including the CGIAR Consortium of International Agricultural Research Centers and Food and Agriculture Organization of the United Nations play important roles in addressing the research and technical assistance needs of parties

and efforts should be made to complement these. At the regional level, regional mechanisms for cooperation, particularly the ASEAN Climate Resilience Network has a role to support regional implementation needs.