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Item 5 of the provisional agenda
Issues relating to agriculture

Views on issues relating to agriculture

Submissions from Parties and admitted observer organizations

Addendum

1. In addition to the nine submissions contained in document FCCC/SBSTA/2016/MISC.1, one further submission was received, on 20 May 2016.

2. In accordance with the procedure for miscellaneous documents, this submission is attached and reproduced* in the language in which it was received and without formal editing.[1]

* This submission has been electronically imported in order to make it available on electronic systems, including the World Wide Web. The secretariat has made every effort to ensure the correct reproduction of the text as submitted.

[1] Also available at <http://unfccc.int/5901.php>.

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SUBMISSION BY
MYANMAR
To
UNFCCC Subsidiary Body for Scientific and Technological Advice 44
on issues related to agriculture in response to SBSTA decision FCC/SBSTA/ 2014/L.14
May 2016

These are views on:

- Identification of adoption measures, taking into account the diversity of the agricultural systems, indigenous knowledge systems and the differences in scale as well as possible co-benefits and sharing experiences in research and development and on the ground activities, including socioeconomic, environmental and gender aspects. *FCC/SBSTA/ 2014/L.14 paragraph 3 (c).*
- Identification and assessment of agricultural practices and technologies to enhance productivity in a sustainable manner, food security and resilience, considering the differences in agro-ecological zones and firming systems, such as different grassland and cropland practices and systems. *FCC/SBSTA/ 2014/ L.14 paragraph 3 (d).*

1. Country Context

Agriculture plays a very important role in Myanmar, it contributes about 30 % of the country's gross domestic product (GDP) and provides employment to approximately 60 % of the population, providing a pathway out of poverty for many. However, high levels of food and nutrition insecurity is common across various states, regions and villages. Myanmar's population and the calorie intake are projected to increase between 2015 and 2050. This necessitates significant increases in agricultural productivity in a resource efficient manner.

Climate change impacts are already adversely affecting the agricultural sector, late or early onset of monsoon season, longer dry spells, erratic rainfall, increasing temperature, heavy rains, stronger typhoons and flooding are some of the challenges faced by farmers in the country, and these have been occurring with greater frequency in the past decade. Future projections also paint a challenging picture, with prolonged and more frequent droughts, changes in rainfall distribution, more storms and other extreme weather events, rising sea levels and salt intrusion, increased and changing pest loads, increased risk of heat and water stresses in cropping and livestock farming.

Taking cognizance of the present and future challenges on the agricultural sector and its implications on the national economy, food security and livelihoods, Myanmar views urgent action in the agricultural sector to be a priority.

2. Adaptation measures, practices and technologies in agricultural systems of Myanmar

Myanmar views adaptation measures (as referred to in paragraph 3 (c)) as the wide range of actions and institutions that raise the adaptive capacity of agricultural systems. These measures are implemented at the policy, planning, investment and institutional levels, and are complemented by agricultural practices and technologies (as referred to in paragraph 3 (d)), which are applied at the field, farm and landscape levels. Both adaptation measures and agricultural practices and technologies need to be applied in tandem in any given country context, to realize outcomes for

climate change adaptation, food security, resilience, and possible co-benefits including gender and social equality, mitigation and environmental benefits.

2.1. Adaptation measures in Myanmar

Adaptation measures of relevance to Myanmar include:

- **Governance, policy frameworks and country readiness**

Myanmar views appropriate governance, policy frameworks and efforts to enhance country readiness to be important adaptation measures. In accordance with this view, Myanmar has mapped out a National Adaptation Programme of Action (NAPA) covering eight sectors, namely: (**i)** agriculture, (**ii)** early warning systems, (**iii)** forests, (**iv)** public health, (**v)** water resources, (**vi)** coastal zones, (**vii)** energy and industry, and (**viii)** biodiversity. Agriculture, early warning systems and forests are given top priority within this NAPA, since the sector is directly vulnerable to climate change, compared with other sectors.

In 2015, Myanmar developed its Climate-Smart Agriculture (CSA) strategy, which provides a framework to transition the agricultural sector in the context of climate change impacts and socio-economic challenges. The strategy envisaged the development of technical, policy and investment conditions to achieve sustainable agricultural development for food security and nutrition through climate-resilient and sustainable agriculture. National efforts to promote CSA are in accordance with regional efforts, and Myanmar committed to apply CSA to contribute to regional food security and environmental protection during the 24th ASEAN Summit in May 2014.

Country readiness to implement adaptation measures in agriculture is also being enhanced. Myanmar's Initial National Communication in 2012, played an important role in this, and helped build institutional, scientific, technical, informational and human capacity at all levels.

- **Local planning**

Myanmar plans to encourage a community-based approach to climate-resilient sustainable agricultural development to complement national level actions. In this regard, Myanmar will pursue a Climate-Smart Village (CSV) approach at the local level. ACSV has the following key features:

Weather forecasts: Linking farmers with weather information and value-added agro-advisories through radio broadcasts, televisions, newspapers and mobile phone voice messages.

Climate-informed safety nets: Using index-based insurance schemes to cover risks associated with changes in rainfall and temperature at different stages of crop growth.

Water management: Practices which enhance the efficiency and productivity of water use in agriculture.

Carbon sequestration: Enhancing soil organic carbon where possible to help mitigate climate change and improve soil fertility.

Nitrogen management: Adopting practices such as leaf-colour charts and site-specific nutrient management to decide on the most appropriate dosage of nitrogen fertilizers.

Energy management: Use of fuel-efficient agro-machineries, conserving energy, and generation of renewable energy.

Knowledge management: Facilitation cross-site visits of farmers for learning and sharing of experiences.

- **Strengthening research and extension services**

The ideal knowledge systems under climate change are agricultural innovation systems that link public and private research, extension and advisory services to generate, manage, blend and

share indigenous and scientific knowledge, while facilitating learning processes and network-based innovation. Myanmar recognizes the need for consistent long-term investment in the development of such knowledge systems. In this regard, our immediate focus will be on strengthening Myanmar's National Agricultural Research and Extension System, to meet the research and knowledge needs created by climate change.

- **Finance**

Public finance alone cannot be relied upon to meet the resource needs of climate change adaptation and mitigation. Strategies of resource mobilization should be identified to mobilize sources other than public funds, such as international and non-state local sources. International mechanisms have been currently developed to support measures to reduce GHG emissions and program for Reducing Emissions from Deforestation and Degradation of Forests (REDD+). In addition to international sources, public-private partnership activities, community-based initiatives, programs of civil society organizations, and corporate funding from the private sector are the other alternative sources for adaptation.

2.2. Agricultural practices and technologies which enhance food security, resilience and productivity in a sustainable manner

In addition to the adaptation measures identified, agricultural practices and technologies need to be applied at the field, farm and landscape levels to enhance resilience, food security and productivity in a sustainable manner. Priority practices and technologies have been identified for the country and are being implemented by the Ministry of Agriculture, Livestock and Irrigation along with its food and nutrition policy initiatives. These include:

Cropping system adjustment: Adjusting the planting calendar by synchronizing with the occurrence of precipitation will likely help farmers cope with increasing climatic variability and temporal water scarcity.

Stress-tolerant crop varieties: Stress-tolerant crop varieties can help cope with biotic stresses (pest and disease) and abiotic stresses drought, flood, salinity, heat). In the Ayeyarwaddy Delta, a range of rice varieties have been introduced for cultivation, including salt-tolerant, deepwater, waterlogged, and submerged rice varieties.

Crop diversification and intensification: In the central Dry Zone, a number of crops are cultivated using crop intensification systems. This includes the mixed/multiple cropping systems and the sequence cropping systems.

Alternate Wetting and Drying (AWD) in rice systems: Alternate flooding and draining of rice fields rather than constant flooding during the course of the production cycle. AWD reduces irrigation water input by up to 38 % and methane emissions by 48%.

Improved water management: This includes improving irrigation systems as well as field level practices to improve water use efficiency.

Crop and Income loss risk management: Development of risk financing instruments and insurance schemes such as remote sensing index-based, weather-based insurance system and crop insurance system.

Conservation agriculture: Combines practices of no-till, retention of crop residues in field and regular fallow periods.

Conservation of crop/species diversity: Utilizing the crop/species diversity to respond to changing climates.

Pest and disease management: Improved pest and disease management to respond to deal with increasing incidence of pest and diseases.

Agro-forestry: Trees on farms to increase resilience of agricultural landscapes, generate additional revenue, improve food security, and increase carbon sequestration.

Integrated crop-livestock management: Combining crop and livestock to enhance resilience and improve livelihoods.

3. Addressing diversity of agricultural systems

Myanmar has various agro-ecological zones with rice as the main crop, cultivated on approximately 50 % of agricultural land. The agro-ecological diversity enables farmers to grow more than 60 different crops which include tropical and temperate varieties. However, while rice and other crops are the backbone of agricultural production, livestock and fisheries provide protein foods and contribute to livelihoods of the rural populations.

Given the huge diversity in Myanmar's agricultural systems, adaptation strategies should be tailored to address specific challenges and contexts. Furthermore, concerns about climate change differ among local and national stakeholders. Results of a stakeholder analysis done by CGIAR CCAFS found that at the national level, rainfall and flooding posts as major impacts of climate change. Meanwhile, at the local level, the most sited impacts of climate change on rice production were heat and drought. Not only are there variations in climate threats, but also in desired information, current preparedness, and institutional capacity. Thus, special attention will be given to site- and user-specific adaptation strategies.

4. Potential role for the Convention in adaptation in agricultural systems

The long-term effects of climatic change will have serious on agriculture and food security, requiring substantive adaptation of agricultural systems over time. Myanmar sees roles for the Convention, SBSTA and for other stakeholders in the following areas:

Capacity building: Capacity building at all levels of implementation is a priority for climate action in the agricultural sector. The Convention can support this pressing need by mobilizing capacity building support through ongoing efforts in this regard. There is also a role for international organizations such as the Consortium of International Agricultural Research Centers (CGIAR) and Food and Agriculture Organization of the UN (FAO), and regional organizations such as the ASEAN Climate Resilience Network and Southeast Asian regional Centre for Graduate Study and Research in Agriculture to support capacity development at various levels.

Gender and social inclusion: Myanmar recognizes the empowerment of marginalized or disadvantaged groups at risk of the short and long term impacts of climate change, and the integration of gender considerations into climate change policy design to be priorities. In this regard, it is our view that the Convention and SBSTA should endeavour to prioritise these topics in any future actions related to the agricultural sector. Particularly, gender references should move beyond considering women as a "vulnerable populations", and move towards emphasis on women as "agents of change".

Technology transfer and knowledge sharing: While Myanmar is investing in research and technology development activities, national efforts are insufficient to meet the needs of progressive climate change. In this context, knowledge on practices and technologies needs to be mobilized from other regions and institutions. The Convention's technology transfer mechanisms could promote technology transfer in the agricultural sector, particularly through the Climate Technology Centre & Network (CTCN). Furthermore, SBSTA can facilitate the sharing of knowledge amongst parties through a web=based platform and associated technical assistance.

The Convention should endeavour to tap into synergies with ongoing initiatives involved in technology transfer and knowledge sharing in the agricultural sector, particularly the Consortium of International Agricultural Research Centers (CGIAR), Food and Agriculture Organization of the UN (FAO), Global Alliance for Climate-Smart Agriculture and WeAdapt, at the global level. At the regional level, the ASEAN Climate Resilience Network and Southeast Asian Regional Centre for Graduate Study and Research in Agriculture are important initiatives to engage with.

Finance: Availability of finance for adaptation actions in the agricultural sector is not commensurate with the importance of the sector to economies of countries such as Myanmar. It is our view that the Convention should mobilize greater funding towards adaptation actions in the agricultural sector, through its financial mechanism.