

MALAWI SUBMISSION ON ISSUES RELATED TO AGRICULTURE

This submission is made by Malawi on issues related to agriculture in response to the invitation by SBSTA to make submissions based on paragraph 2 of its conclusion contained in document FCCC/SBSTA/2013/L.20 on current state of scientific knowledge on how to enhance the adaptation of agriculture to climate change impacts while promoting rural development, sustainable development and productivity of agricultural systems and food security taking into account the diversity of the agricultural systems and the differences in scale as well as possible adaptation co-benefits.

Preamble

Agriculture in Malawi is the key sector to food security, economic growth, and wealth creation. More than 80 per cent of the country's population is directly or indirectly employed in the agricultural sector, which also accounts for nearly 90 percent of foreign exchange earnings and 39 per cent of gross domestic product (GDP). Two main sub-sectors are recognised - the smallholder sub-sector that contributes more than 70 per cent, and the estate sub-sector that contributes less than 30 per cent to agricultural GDP (GoM, 2007). The Smallholder subsector cultivates food crops while estates focus on high value cash crops for export.

Despite the importance, the agriculture sector faces a number of challenges including i) over dependence on rain fed farming system ii) limited absorption of improved technologies iii) weak private sector engagement, and iv) lack of investment capacity in mechanization. About 99 per cent of Malawi agriculture land is under rain fed cultivation and 69 percent is cultivated by the smallholders. Smallholder farmers cultivate small and fragmented land holdings under customary land tenure with yields lower than those in the estate sector. In addition, smallholders and rural populations in particular face a plethora of production and market constraints, poor access to information as well as serious lack of public services in rural areas which adversely affect their welfare and employment opportunities. Beside these challenges, Malawi is susceptible to the impacts of climate change and has experienced extreme weather events, such as droughts and floods, which have negative impacts on production. This makes adaptation a priority area, as climate change impacts disproportionately affect those least able to bear them.

While climate change negatively affects the agriculture sector, Malawi recognizes that agriculture activities also contribute to GHG emissions. The Second National Communication for Malawi indicates that the sector produced significant non-CO₂ emissions. The total emissions consisted of 49 Gg of CH₄ mainly from enteric fermentation (30 Gg) and rice cultivation (15 Gg). The other emissions consisted of 7 Gg of N₂O from agricultural soils, 2 Gg of NO_x and 72 Gg of CO from prescribed burning of savannah and field burning of agricultural residues. Thus, while the country recognizes the great need for adaptation in the agriculture sector, promotion of mitigation through better agriculture practices to reduce GHGs emissions is equally acknowledged. However, gaps still exist in data collection, expertise to analyse the data, and lack of local or regional models.

As a country, there is increased recognition of sustainable agricultural land management to enhance soil-water conservation, improve fertility and reduce vulnerability of the sector to the impacts of climate change. Agricultural carbon sequestration can help increase agricultural productivity and enhance farmers' capacity to adapt to climate change. Increased soil carbon improves soil structure,

with corresponding reduction in soil erosion and nutrient depletion. Soils with increased carbon stocks retain water better, thereby improving the resilience of agricultural systems to drought. These positive biophysical impacts of soil carbon sequestration lead directly to increased crop, forage, and plantation yields and land productivity. However, technical support in monitoring and verification of the increased storage and the permanence of the carbon sequestration need to be improved.

Vulnerability and Adaptation

In the efforts to address the challenges of climate change in agriculture, the government developed its NAPA that highlights some of the adaptation activities being implemented in agriculture such as promotion of conservation agriculture and agro forestry, rainwater harvesting, crop diversification, irrigation, livestock production and sustainable land resource management, improved early warning systems, recommended improved livestock breeds, and improved crop and livestock management practices. Droughts and floods are the major climatic hazards affecting the fisheries sector, and have been responsible for the declining, or even drying up, of water bodies resulting in low fish production and loss of biodiversity. The proposed interventions include: (i) fish breeding to restock the lakes, rivers and dams, (ii) improving knowledge and understanding on how temperature profiles in the lake disrupt fish breeding and survival, (iii) establishing climate observations or monitoring systems on Lake Malawi, and (iv) mainstreaming climate change into fisheries strategies.

Malawi has a lot of inadequacies in its agriculture sector and systems such as paucity in the science and knowledge of current and future impacts of climate change on agriculture, weak institutional and inadequate technical capacities, limited technological innovation and low adoption as well as poor infrastructure. While the interventions proposed in the NAPA could make a difference among vulnerable communities, they remain limited in scope. The lack of technical and financial support remains a challenge to up-scaling the interventions.

Priority Areas that SBSTA should address

Despite efforts that the government is undertaking in building capacity to enhance existing scientific knowledge, there are gaps that relate to three major areas that needs strengthening. These include;

1. Research & Development

- Strengthening national technical support in modeling and downscaling of Global Circulation Models to regional and national scales to enhance current and future understanding of the impacts of climate change on agricultural production.
- Assessment, development and identification of research & technological options, tools, methods and practices for agricultural adaptation and adaptation co-benefits.
- Improving the application of tools and methods for measuring climate change adaptation co-benefits in agricultural systems.
- Continuous assessment of vulnerability and impacts of climate change on food security across different climate zones, shared watersheds, ecosystems and land uses is very important for Malawi.

2. Information and Knowledge Management

- Improving the national systems for agricultural data collection and development of research using scientific and technical platforms to accelerate vertical and horizontal sharing of

- information and provide advice on adaptation research priorities and needs such as management of risks and tools for development.
- Support documentation that will enhance integration of indigenous and traditional knowledge and Scientific based knowledge
 - Reviewing the adequacy of current climate change data, information, and analysis systems to support decision-making in the agricultural sector will be of significant importance to Malawi.
 - Strengthening of national and local institutional capacities to generate, package and communicate climate information, products and support services for different end users;

3. Technology Development and Transfer

- Strengthening national and regional research programs through international cooperation to improving cultivars that will adapt to climate variability and change, improving conservation technologies and practices to enhance resilience to climate variability and change in agriculture.
- Promoting the development and transfer of relevant adaptation technologies and practices and their adoption.

The IPCC will soon release the Working Group I report, “The Physical Science Basis” of its Fifth Assessment Report as such it will be useful if IPCC could highlight its current findings relevant to agriculture in its report.