Risk and Vulnerability of Agriculture Systems to Different Climate Change Scenarios in Malawi

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3 June 2015
Bonn, Germany
Agriculture in Malawi

• Agriculture in Malawi is:
  • One of the key priority in National Development strategies (i.e. MGDS II, National Vision 2020);
  • 80% population dependent on agriculture 33 % GDP;
  • Sectoral priority in Pillar 1 (Adaptation) of the National Climate Change Policy, mainstreamed into ASWAP and NAPA
  • One of the key priorities in the NAP Process underway

• Significant differences in rainfall and temperature variability across geographical regions in Malawi.
Climate Trends in Malawi

• Malawi particularly prone to adverse climate hazards: dry spells, seasonal droughts, intense rainfall, riverine floods, and flash floods;

• Droughts and floods have increased in frequency, intensity, and magnitude over the past 20 years;

• Significant increasing trends in the frequency of hot days and nights in all seasons;

• Mean annual temperature is projected to increase by 1.1 to 3.0°C by the 2060’s, and by 1.5 to 5.0°C by the 2090s;

• All models consistently project increases in the proportion of rainfall that falls in heavy events in the annual average of up to 19% by the 2090s.
Climate is Key to Vulnerability in Malawi

• Consumption per capita is lower in areas with greater long term climate variability;

• Higher long term mean rainfall (proxy to climate change) is associated with higher per capita consumption and lower vulnerability;

• The greater the deviation from long term mean rainfall pattern experienced in the last season, the more consumption is reduced and vulnerability increased;

• Other significant variables for reducing vulnerability are higher household wealth, and access to institutions such as extension, credit, fertilizer subsidies and social safety nets.
Risk management for a typical Malawian

• Policies to address climate risk need to be tailored to different AEZs
• Information on climate variability available to farmers is an important element of policy performance;
• Policies do not seem to overly affect the incentive to diversify;
• Pro-active risk management critical in both agriculture and climate change policies
Responses towards Sustainable Agriculture

- ASWAp, National Climate Change Policy, Greenbelt Initiatives, etc, outlines sustainable agriculture as key focus areas but:
  - Uptake of sustainable agriculture practices remain low;
  - Fertilizer Uptake is extremely low (around 50kg/Ha arable land);
  - Fertilizer use efficiency average 17 kg maize/kg N₂;
  - Increased incidences of pests and diseases;

- Agricultural yield will remain far below potential;
Addressing Synergies Between Livelihood, Adaptation and Mitigation

• Sustainable Agriculture systems are a profitable in drier areas with greater rainfall variability. In such areas, communities may increase incomes than under conventional systems (food security and adaptation)

• In relatively humid areas, higher yields are coupled with higher Carbon sequestration coefficients (food security and mitigation)

• Initial production costs of sustainable agriculture systems require incentives at smallholders’ level.
UNFCCC Processes and Agriculture

• Need for more on-the-ground evidence on the resilient practices with respect to the observed climate variability;
• Enhance the availability of information on climate variability generated from localized models (emphasizing gender);
• Actively engage the agriculture sector in the NAP Process;
• Support for means of implementation of agriculture and food security related projects in Climate Funds;
• Technological advances are critical for agriculture to become more resilient, e.g. improved cultivars, resource use efficiencies;
• Incentives are critical in the initial phases of implementation with long term programs.
Thank You