Climate Change and Malawi

Environmental Affairs Depart

United Nations
Framework Convention on
Climate Change

Main Focus

- How is climate change affecting Malawi?
- Warning: no pictures included

Context

- Malawi is an agro-based economy with the agricultural sector accounting for about 42% of GDP and 81% of export earnings with tobacco alone contributing about 67% to the country's export receipts.
- Other major crops include tea, coffee, maize and rice.
- Agriculture is primarily based on rain-fed production.
- Access to water for irrigation is limited due to topography and cost limitations.
- Subsistence agriculture is focused on maize, although some cassava, rice and millet are grown in some parts of the country.

Context contd

- The country has heavy reliance on wood for household fuel, tobacco curing and for charcoal with biomass energy contributing to 88.5% of the total energy demand.

- 98% of electricity is from hydropower, and almost all of that is from one river, the Shire River, in the southern part of the country.

- Shire River itself flows out of Lake Malawi – flow rates are heavily dependent on water levels in the Lake, while some rivers flowing directly into the Shire also contribute to flows (and problems with flooding)

Context contd

- Several large rivers feed the lake – flow very variable, heavy siltation, this year, very low flows in these rivers despite being in the rainy season

- Lake Malawi fluctuates over time, and lately levels have dropped significantly, posing a threat of no flows into the Shire in the near future if conditions in the Lake Malawi basin continue

- Spatial aspects of the water flows complex, and main specific features (physical and otherwise), aggregate to cause serious impacts, e.g., when one major tributary has too much water, when it joins the Shire almost at a right angle, it blocks flow of the main Shire channel, causing water to backup upstream and then flooding

Climate Change impacts

- Changes in climate evident from the late 1990s to the present

- Most significant are changes in the start, length and quality of the growing season, increased frequency and intensity of climate-related disasters, esp prolonged droughts and flooding, sometimes in the season in the same areas

- Heavy downpours, accompanied by strong winds, also leading to flash floods, e.g. the serious floods this season, including in Lilongwe here, a few kilometers west of here

Impacts … contd

- Many indirect impacts, with complex relationships with many non-climatic factors
- The weakening global markets and global price of fuel has huge impacts on export markets for Malawi agro-productions, and huge costs for transport to international markets given Malawi is land-locked
- Crop pest and disease outbreaks e.g. locust, army worms, Panama disease for banana, impacting on crop production

Major gaps in knowledge

- Numerous gaps – mainly related to capacity (technical and financial) to observe and conduct scientific research to inform management and policy

- The spatial patterns of rainfall are important for individual farmers in specific geographic areas – whether they get rain, and how much (too little, to much), but largely undocumented

- Future weather and climate will always be uncertain and unpredictable – tools and approaches to deal with this largely out of reach, e.g. future risk management largely ad hoc

- Just how various systems (physical, sectors, drivers, etc) interrelate with others largely unquantifiable – analyses and assessments just haven't developed the tools or started to apply best available scientific methods for this

Popular myths

- Malawi has abundant water in Lake Malawi etc that should be used to irrigate extensively: some potential for expansion but lots of tradeoffs
- Land degradation is the main cause of all problems to do with water flows in the basins especially the Shire River, which in turn affects electricity generation: All over Africa and in fact all over the world, hydroenergy production is being severely affected by multiple factors, specially to do with changes in the climate
- Problems with water flows can be solved by planting trees: trees are beneficial and necessary to create forest cover that will be have great ecosystem benefit, but … the problem is more complex
- Further forest reduction due to charcoal production can be solved by policies alone, or by increasing electricity production
- Population growth is more serious than climate change

In closing

- Climate change is happening and has been for last two to three decades
- The adverse impacts that Malawi is facing appear consistent with those of other countries in the region – several flooding and related damages in the cities also happening in other countries in the region; severe shortages in runoff causing severe reductions in hydro-electric generation also happening all over Africa and the world
- Poor research and systematic observations, limited technical capacity all affecting how much can be known and addressed on climate change
- Climate change affects all development priorities, activities and goals – important to address it in a very integrated manner with development efforts – assessment that simply looks at climate factors and how their changes will affect obvious systems, insufficient.

THANK YOU VERY MUCH
ZIKOMO KWAMBIRI !!!

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