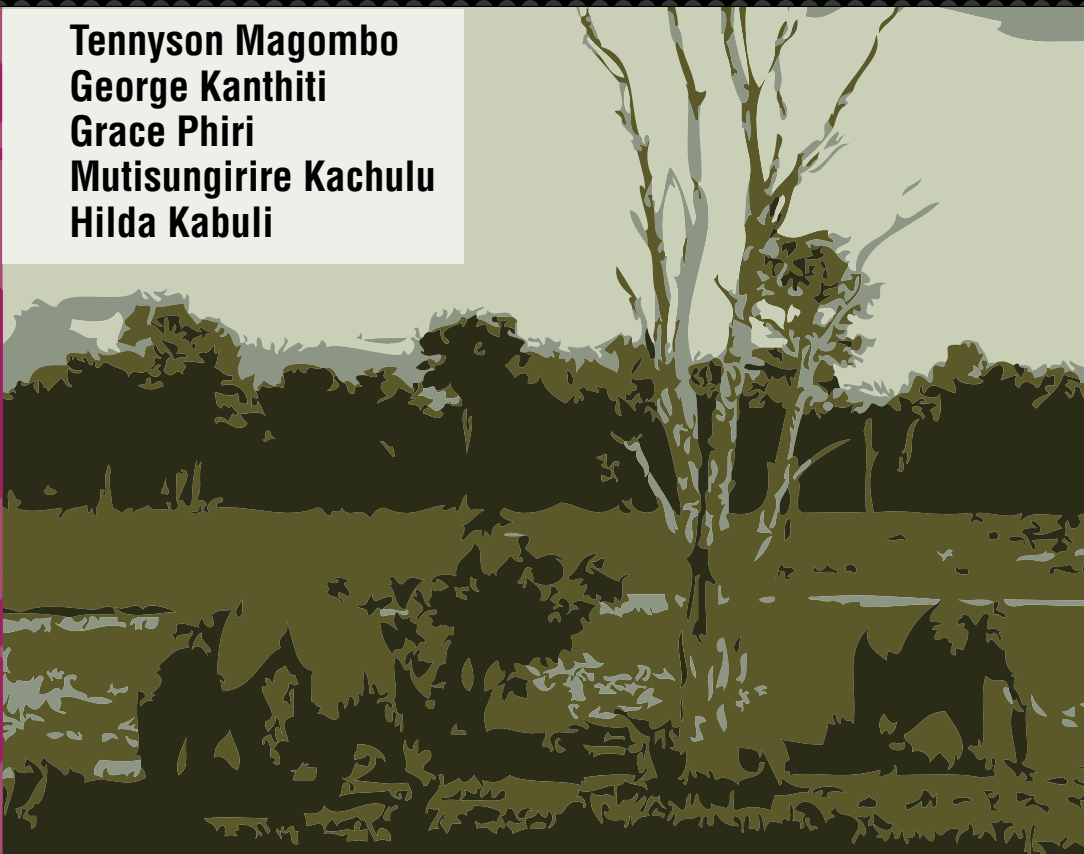




**Incidence of Indigenous and Innovative
Climate Change Adaptation Practices for
Smallholder Farmers' Livelihood Security
in Chikhwawa District, Southern Malawi**

**African Technology Policy Studies Network
POLICY BRIEF No. 36**

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1. Introduction

Prolonged dry spells or droughts and floods as a result of climate change are a serious problem for smallholder farmers in Malawi, because agriculture is their main livelihood strategy. Food shortages and low income levels due to climate change impacts mean inability of farmers to actively participate in the day to day economic activities. Low income levels can also be translated into lack of access to basic needs of life that require to be purchased with money. Farmers that have mainly been affected with this problem are those that have land allocations in the Shire River Valley in Chikhwawa and Nsanje Districts. Understanding of the indigenous and innovative climate change adaptation strategies would assist smallholder farmers, policy makers, civil society organizations and the private sector to design programs that could assist farmers to build resilience against climate change impacts for their sustainable livelihoods. The most pressing question, that this research work tried to address was: What are the indigenous, innovative and emerging climate change adaptation technologies for smallholder farmers' livelihood security in Chikhwawa District, Southern Malawi? This research work, therefore, assessed the incidence of indigenous, innovative climate change adaptation strategies for smallholder farmers' livelihood security in Chikhwawa district, Southern Malawi. Factors that affect adoption of such strategies were also analyzed and discussed.

2. Body

The study revealed that crop diversification, eating a wild tuber plant called nyika (*Nymphaea petersiana*), applying organic manure to agriculture fields, mixed crop and livestock farming; small scale irrigation are the main indigenous climate change adaptation strategies being adopted by households in the study area. The study also shows that household size, landholding size, total annual household income level, access to inputs and output markets, months household had no maize or sorghum as a proxy to food insecurity level, and access to agricultural extension services are the major factors or household characteristics that significantly affect adoption of indigenous climate change adaptation strategies in the study area. It was so clear from the analysis that access to agricultural extension services

strongly and significantly affects the probability of households adopting most of the identified climate change adaptation strategies.

It is evident that among other identified climate change adaptation technologies, eating of a wild tuber plant known as *Nymphaea petersiana* and commonly known as *nyika* came out as the second main indigenous climate change adaptation strategy practiced by about 56% of households in the study area. Market access by a household (where distance to the market was used as a proxy) proved to have a positive effect on the odds ratio that a household eat nyika during hard times when a household had run short of staple and other food crops ($p=0.099$). The shorter the distance to the market the more easier a household have access to the market and the higher the probability that a household would buy nyika from the market and eat where there is no maize, sorghum and other food crops. This also implies that most households get nyika from the market and very few perhaps fetch it from the shire river -a very dangerous venture since a lot of crocodiles are reported in Shire river. Nyika is an aquatic plant, thus domesticating it means integrating aquaculture. Nyika will ensure starch food availability while aquaculture will ensure protein food availability and increased incomes for the household . The fish ponds would also serve as a rain water harvesting technology and conserved water could be used for irrigating other horticultural and field crops for both household food security and income.

3. Conclusion and Policy Options

In terms of policy implications, the identified indigenous climate change adaptation strategies should be promoted by the farming communities, responsible government departments, the donor community, civil society organisations as well as the private sector, if farm families in the study area and other areas in Malawi are to build resilience against climate change impacts and have sustainable livelihoods. The government of Malawi through Ministry of Agriculture and Food security should also improve on the agricultural extension services delivery system and develop messages that aim at promoting adoption of climate change adaptation strategies being identified.

Innovative collective action institutional set ups could be explored so that they assist in reinforcing adopting of good farming practices and influence communal and household's behavioral change in favor of climate change impacts mitigation and adaptation.

Domesticating nyika and recognizing it as a formal food crop would ensure household food security and improved farmer's adaptive capacity to climate change impacts. Domesticating Nyika would also ensure conservation of its genetic resource which currently is at a threat of being over exploited since many people fetch it for food and for the market.



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