



Tracking Effective Indigenous Adaptation Strategies on Impacts of Climate Variability on Food Security and Health of Subsistence Farmers in Tanzania

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The African Technology Policy Studies Network (ATPS) is a multi-disciplinary network of researchers, private sector actors and policy makers promoting the generation, dissemination, use and mastery of science, technology and innovation (ST&I) for African development, environmental sustainability and global inclusion. ATPS intends to achieve its mandate through research, capacity building and training, science communication/dissemination and sensitization, participatory multi-stakeholder dialogue, knowledge brokerage, and policy advocacy.



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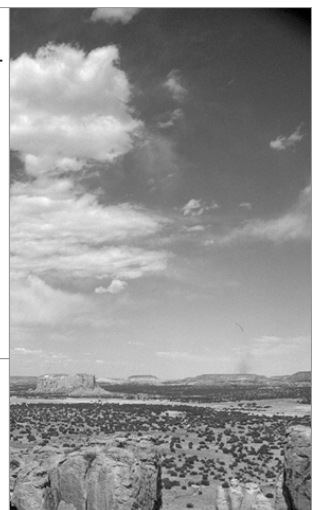


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1. Introduction

This brief addresses a number of policy related questions regarding effectiveness of indigenous adaptation strategies on impacts of climate variability on food security and health of subsistence farmers in Tanzania. The policy issues that are addressed in this brief include:

- > Climate change and coping strategies by communities in selected areas of Tanzania
- > Coping strategies to the impacts of climate variability;
- > Behavioral changes towards climate change adaptation measures at individual and institutional levels in the country;
- > Capacity building to the communities on climate change issues and information
- > Effects of climate change on food security;
- > Effects of climate change on human health and livestock

2. Key Issues Based on the Policy Questions

2.1 Climate change and coping strategies by communities in the case study areas

Unpredictable rainfall patterns and amount as well as extended droughts have been referred to as the main indication of climate change in Mpwapwa and Lushoto districts. All respondents interviewed in this study agreed that climate change is a reality in their areas. Several indicators of climate change in the two agro-ecological zones reported by communities include prolonged drought, unpredictable rainfall, changed pattern of rainfall, food shortage, poor pasture regeneration, and human and animal emerging diseases. Drought found to be the most identified indicator linked to climate change in both districts.

2.2 Coping strategies to the impacts of climate variability in the case study areas

In these two districts where research was conducted, as a way to counteract impacts caused by climate variability and climate change, local communities have developed strategies to sustain their living. Such measures include traditional terracing (matuta), destocking, tree planting, traditional food preservation methods, drilling traditional wells, construction of locally based water reservoirs (Nkunisa), mixed cropping and crop diversification.

2.3 Behavioral changes towards climate change adaptation measures at individual and institutional levels in the study area

Climate change and variability has impact on communities' social well being. Community representatives interviewed indicated that majority of the people in the respective areas have changed their living and working behaviors. Issues that have been indicated to have changed include feeding of livestock around water sources, reduced free grazing on farms, eating one type of food, growing drought resistant crops, mixed cropping and crop diversification. Community representatives interviewed indicated a number of strategies that have been instituted by the local government in their respective districts. These include awareness creation on water source conservation, proper land use planning, environmental education, food storage, research on crop diseases; awareness on the need to reduce livestock herd (destocking), village environmental bylaws as well as improvement of traditional irrigation systems. As such, these strategies if well applied by communities may result in improving proper use of natural resources in the respective agro-ecosystems where climate variability and climate change has a lot of negative impacts to the societies in these ecosystems.

2.4 Capacity building to the communities on climate change issues and information

Community representatives interviewed in the case study areas indicated a number of climate change related information dissemination approaches as a capacity building strategy to communities on climate change and climate variability to include mass media (radio and television), traditional groups, village meetings, artist works, seminars and teaching environmental education in primary schools.

2.5 Effects of climate change on food security

Communities in the respective districts indicated effects of climate change to food security to include occurrence of more crop pests and diseases and poor crop harvests which is caused by poor rainfall and reduced soil fertility. Respondents in the two districts indicated pests and diseases to have more effects on food availability.

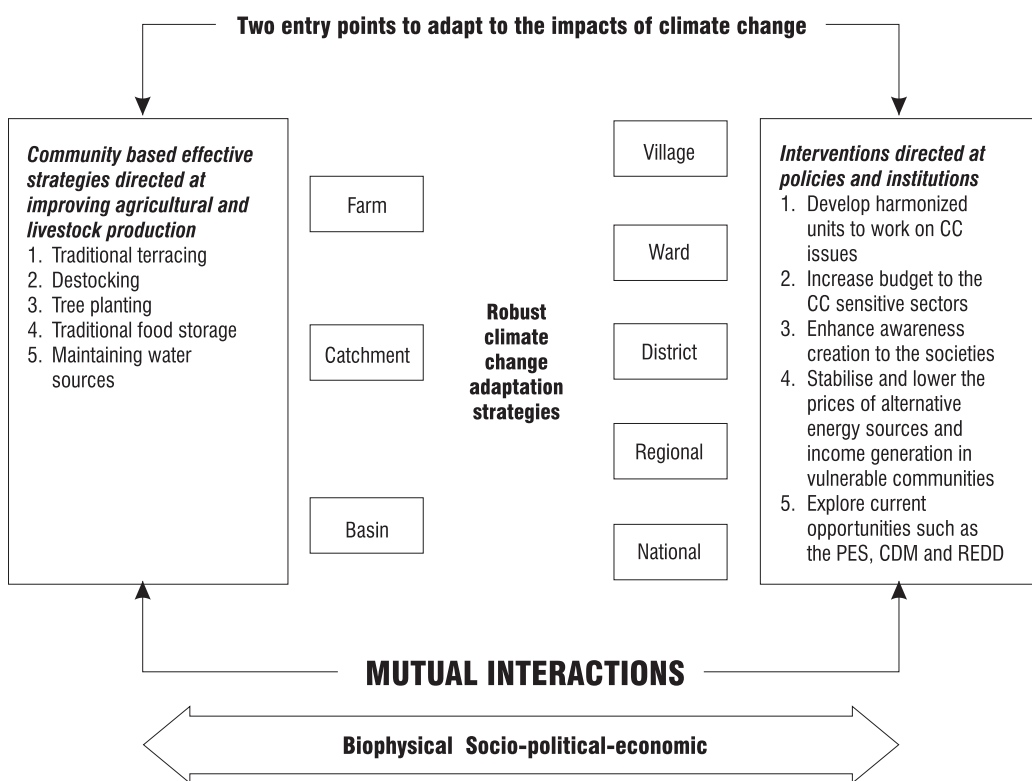
2.6 Effects of climate change on human health and livestock

In the two agro ecological systems 99.5% and 98% of respondents in Lushoto

and Mpwapwa districts respectively indicated to have experienced effects of climate change on human health and livestock. Issues linked with climate change include death of livestock due to lack of drinking water, pests and diseases. Pests and diseases were mentioned to highly effects on human health and livestock.

3. Conclusions and policy options

From the findings obtained in this study, to aid decision making on ensuring that the impacts of climate change and climate variability is reduced to the communities, a framework (adapted from Descheemaeker, et al 2009) with two entry points of mutual interactions, as shown below, is recommended.



The first entry point in the framework is through strengthening local communities' effective coping strategies that has been indicated to work better and that the communities in the respective agro-ecological systems have indicated to work better. This will help in improving the resilience of the ecosystem towards climate

variability. Practices such as traditional terracing, destocking, tree planting, traditional food storage, drilling of traditional wells and constriction and maintaining of traditional water reservoirs as well as crop diversification will help the communities in different agro-ecological systems to cope with the impacts of climate variability and climate change and this will also reduce vulnerability to different societies in different ecosystems.

The second entry point in the framework is on the interventions geared to influence policy and institutions that are dealing either direct or indirectly with the impact of climate change and climate variability be improved. Main issues such as providing evidence based scenarios of the impact of climate change to the policy makers, developing a harmonized unit to work on issues related to climate change, lobbying for increased budget to the climate change impacted sectors, i.e. agriculture, forestry and health, enhancing awareness creation to the societies, stabilizing and lowering the prices of alternative energy sources, provision of alternative income generation to the communities in different agro-ecological zones, exploring current opportunities such as the Payment for Ecosystem Services (PES) and carbon market through the Reduced Emission from Degradation and Deforestation (REDD) will help communities in different agro-ecological systems to reduce degradation hence improving the quality of ecosystems which will have impacts to the reduced impacts of climate change to the livelihoods of the communities in different agro-ecological zones of the country.

Policy recommendations for building climate change resilience at local and national levels

Integration of indigenous technologies that communities in the respective areas are applying in different local plans and national developmental plans.

Formation of a platform for different stakeholders dealing with issues related to climate change to facilitate wider circulation of the effective technologies that farmers and livestock keepers have indicated to work better. Moreover, the platform will also assist in lobbying for more research to improve the effective traditional technologies and integrate them with the modern technologies that will help farmers and livestock keepers cope with the impact of climate change and climate variability in different ecosystems in the country.

Local institutions should be strengthened or formed where such institutions are not available to work with farmers in the respective agro-ecological zones to build capacity to farmers and livestock keeper to develop robust are resilient strategies that will help the respective communities towards coping with the impacts of climate change in the country.

Developing suitable alternative income generating activities in these communities in order for the community members to cope with the impacts of climate variability and climate change in the respective agro-ecological zones.

At the national level, there has to be special efforts to develop a systematic longer term climate change adaptation strategies that should be integrated in the national plans that will help the state to help its people to cope with the impacts of climate change and climate variability.



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