www.repoa.or.tz

No PB 20/2024 December 2024

REPOA Brief

Enhancing smallholder tomato farmers' adaptive capacity through access to and uptake of climate change information in Tanzania

By Peter Onauphoo Siyao & Evaristo Eliakim Sanga

Key Messages

- Aligning dissemination of climate change information to the needs of farmers through the appropriate channels of communication is necessary for enhancing climate change adaptation.
- Regular provision of education and training on climate change increases smallholder farmer's adaptive capacity to respond to the threats caused by climate change.
- Establishing climate change information centres, community libraries, telecenters and local meteorology stations plays a pivotal role in facilitating the dissemination of crucial climate change information to local farmers for fostering adaptation to climate change.
- Repackaging of climate change information according to farmer's needs is imperative for addressing the challenges brought up by climate change climate.
- Recruitment of adequate number of agricultural extension agents at the village levels is crucial for enhancing access to vital climate change information for strengthening the adaptive capacity of smallholder farmers.

Introduction

Climate change poses great risks to the well-being of communities through increased frequency and intensity of severe weather events such as droughts, floods and landslides. The necessity to address the negative impacts of climate change in the context of sustainable development is highlighted in the agenda 2030, goal 13.3 which calls for all nations to take urgent actions to combat climate change and its impacts through awareness creation. Smallholder farmers in Tanzania are affected by the negative impacts of climate change caused by their low adaptive capacity and the ability of the country to integrate its responses to climate change-related issues into national and sectoral policies which are still at the infant stage as well as to design, implement and enforce climate change responsive policies. There is also notable inadequate information on climate change caused by low public awareness of the impacts of climate change (URT, 2021a); insufficient capacity and resources for the implementation of adaptation, coping and mitigation strategies aimed at curbing the negative impacts of climate change.

Effective access to and uptake of climate change information enhances the adaptive capacity of rural smallholder farmers leading to higher agricultural production and improvement of livelihoods. However, access to the timely, relevant and current climate change information has continued to be a challenge for smallholder tomato growers. Climate change information received by farmers is not consistently delivered through accessible mechanisms and sometimes it is normally delivered too late to allow appropriate responses, or is not accompanied by a recommended courses of action (Jalango et al., 2020).This policy brief investigates factors that influence access to and uptake of climate change information by smallholder tomato growers, and the key strategies for improving access to and uptake of climate change information by smallholder tomato growers.

Data for this policy brief was obtained through questionnaires and semi-structured interviews with key informants including experienced tomato growers, agricultural extension officers,

environmental officers, ward leaders, village leaders and elderly people. The interviews were conducted in Iringa and Morogoro regions for the period between February and April 2022. Questionnaire and interview questions focused on factors influencing access to and uptake of climate change information by smallholder tomato farmers in Iringa and Morogoro Regions, types and sources used by smallholder farmers to get information about climate change, key barriers and strategies for improving access to and uptake of climate change information by smallholder farmers in Tanzania.

Findings

Alignment of climate change information delivery to farmers' needs through preferred communication channels.

Climate change risks are aggravating already intense pressures on agricultural production caused by rapid population growth. To address these risks, Tanzania developed a National Climate Change Strategy (2012-2017) (URT, 2012), National Environmental Policy (URT,2021a) and National Climate Change Response Strategy (2021-2026) (URT, 2021b) which guide the integration of climate change in sectoral policies and plans. In addition, it has developed a portfolio of national climate policies and incorporated climate considerations into various policies (Pardoe et al., 2017).

However, the dissemination of climate change information is not well addressed. Interviews with key informants in tomato growing areas revealed that climate change is not taken with strong emphasis despite the negative impacts it poses. Farmers further noted that, climate change is not taken as a critical agenda for discourse. Therefore, there is a need of putting in place a policy framework that will align the dissemination of climate change information to the farmers' needs through the most preferred and accessible channels of communication.

Provision of accurate and timely climate change information to farmers

A lack of credible and timely information to support decision-making processes is a limitation for farmers to access and uptake climate change information for enhancing their adaptive capacity. Furthermore, farmers have limited capacity to engage with climate change agents and scientific researchers. This implies that lack of information restricts improvement in knowledge, understanding and skills needed in helping farmers to cope with the impacts of climate change and undertake strategic adaptation measures (Agrawala and Aalst, 2008). This policy brief, therefore, emphasizes on the need for the timely provision of reliable and research-based scientific information on climate change for awareness creation on the appropriate adaptation strategies. Furthermore, there is a need for the Tanzania Meteorological Agency (TMA) to provide accurate, complete, timely and locality-specific information (URT, 2021b) to help farmers to cope, adapt and mitigate against adverse impacts associated with climate change.

Establishment of climate change information centres, community libraries, telecentres and local meteorology stations

The inadequacy of climate change information centres, community libraries, telecentres and localized meteorology stations is a constraining factor for farmers access to and uptake of information on climate change for adapting to the negative impacts of climate change. Authors like Mapfumo et al. (2016) and Tarchiani et al. (2017) have acknowledged the need to establish meteorological centres to facilitate the provision of information on climate change to local farmers.

Central and local government authorities should therefore design a vibrant information communication strategy which will improve the communication of information on climate change to farmers. Such strategy may include the establishment of community information centres, community libraries, telecentres, localized meteorology stations and climate change information centres for enabling farmers' access to and uptake of climate change information for awareness creation. Furthermore, local meteorology station managers should develop mobile phone applications (apps) which will enable them to be connected to farmers for quick dissemination of climate change information.

Repackaging of climate change information based on farmers' needs

Farmers perceive scientific information on the weather as unreliable and untimely and thus they use indigenous knowledge to predict weather arrays. Climate change information generators such as agricultural extension agents, researchers and meteorology experts should therefore repackage and disseminate climate change information that will fit farmers' needs.

Provision of education and training on climate change issues to smallholder farmers

Access to and uptake of climate change information by smallholder farmers is constrained by multiple barriers such as low level of understanding of climate change and technical language used in communicating it. Education increases a literacy level of smallholder tomato growers, which in turn will enable them to understand climate change issues, and thus increased ability to device appropriate adaptation strategies. Educated farmers are expected to actively search, grasp and apply information about climate change as compared to none-educated farmers (Deressa et al., 2009; Muema et al. ,2018). The government should therefore educate and train farmers on climate change-related issues for enabling them to interpret the technical contents of climate change information and how to convert them into achievable actions.

Employing more agricultural extension agents at village levels

Access to and uptake of climate change information by smallholder farmers is constrained by the inadequate number of village agricultural extension agents at the grassroots. Furthermore, the inadequacy of resources impedes the ability of agricultural extension agents to carry out their functions efficiently and effectively. For example, inadequate financial resources restrict extension agents to travel to rural settings to educate farmers through meetings, workshops and to carry out demonstrations and field experiments on new agricultural technologies.

Conclusion

The impacts of climate change on agriculture have severe repercussions on economic activity, livelihoods, and food production, particularly in agriculture-dependent societies in our country. Adaptation strategies to such impacts are of paramount importance. Since climate change is an unobtrusive and complex issue, which most people must learn about it from communication media such as print media, television, radio, mobile phones and social media, this policy brief emphasises that government should establish a climate change information flow system using these media for awareness creation.

Policy Recommendations

The government and other development stakeholders should

First, plan and implement approaches that build adaptive capacity for smallholder farmers through access and uptake of climate change information. Understanding farmers' information needs will facilitate the repackaging of climate change information that fits the needs of the farmers.

Second, establish climate change information system that will enable climate change information generators to send different types of messages with regards to climate change to smallholder farmers through channels such as TV, radio, print media, social media, community outreach and mobile phones or whichever is more popular and affordable.

Third, agricultural extension services are of significant importance, and thus local government authorities should ensure agricultural extension services are in the footsteps of the smallholder farmers.

References

Access to Information Act, No. 31 of 2016

Pardoe, J., Conway, D., Namaganda, E., Vincent, K., Dougill, A. J., & Kashaigili, J. J. (2018). Climate change and the water–energy–food nexus: insights from policy and practice in Tanzania. *Climate Policy*, *18*(7) : 863-877.

Mapfumo, P., Mtambanengwe, F., and Chikowo, R. (2016). Building on indigenous knowledge to strengthen the capacity of smallholder farming communities to adapt to climate change and variability in southern Africa. *Climate and Development*, *8*(1), 72-82.

Nachmany, M. (2018). Policy brief Climate change governance in Tanzania: challenges and opportunities. Grantham Research Institute on Climate Change and the Environment: London, UK.

Tarchiani, V., Rossi, F., Camacho, J., Stefanski, R., Mian, K. A., Pokperlaar, D. S., ... and Adamou, A. S. (2017). Smallholder farmers facing climate change in West Africa: decision-making between innovation and tradition. *Journal of Innovation Economics Management*, *24*(3), 151-176.

URT (United Republic of Tanzania) (2012). National Climate Change Strategy (NCCS) (2012- 2017). The Vice President's Office – Environment Division.

URT (2021a). National Environmental Policy 2021. Vice President's Office Division of Environment, Government Printer, Dodoma. Tanzania

URT (2021b). National Climate Change Response Strategy (2021-2026). Vice President's Office, Division of Environment, Government Printer, Dodoma. Tanzania

REPOA Resource Centre

Our Resource Centre provides a good environment for literature research, quicker, easier access and use of knowledge and information. It has full internet connection for online library to support Master's & PhD candidates, researchers and academicians with free access to latest journals, books, reports, webcasts, etc.

Tuesday to Thursday from
10:00am to 1:00pm,
2:00pm to 05:00pm.

Friday
10:00am - 01:00pm

The online library https://www.repoa.or.tz opens 24 hours a day.

REPOA HQs
157 Migombani/REPOA streets,
Regent Estate, PO Box 33223,
Dar es Salaam, Tanzania.
Tel: +255 (22) 2700083
Cell: +255 78 455 5655
Website: https://www.repoa.or.tz
Email: repoa@repoa.or.tz

Branch Office
2nd Floor Kilimo Kwanza Building 41105,
Makole East, Kisasa,
Dodoma, Tanzania