

## Climate Services for Building Resilience and Sustained Socioeconomic Growth in Tanzania

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### Summary

Climate and weather information services are indispensable for sustainable and resilient socioeconomic development in Tanzania. The National Meteorological Authority (TMA) has made a substantial step in the production and dissemination of climate services for climate risk preparedness and resilience in critical economic sectors. The government should ensure TMA has adequate and decentralized personnel as well as modern climate and weather technologies for accurate and downscaled services. On the other hand, private sectors like NGOs, media, and academia should support TMA by ensuring climate services information are comprehensibly translated and delivered to consumers especially smallholder producers in rural areas who have limited access to modern communication technologies.

### 1. Introduction

Climate change and variability is no longer a story but rather a serious and obvious global challenge (IPCC, 2018). The Intergovernmental Panel on Climate Change (IPCC) examined that the current rate of climate change is leading to changes in the frequency, intensity, spatial extent, duration and timing of weather- and climate-related extremes (UNFCCC, 2018). Due to low capacity in utilizing climate services in poor countries like Tanzania, impacts of climate change are causing significant socioeconomic loss and damage like livestock losses, food insecurity, displacement, cultural losses, economic infrastructure damages and finally, conflict related to these (Hirsch et al., 2017; Mechler et al., 2019b). In the countries with limited adaptation options, provision and utilization of decision-relevant, actionable, and science-based climate and weather information services, is critical to enhance resilience and sustain



maintainable socioeconomic development (URT, 2018). Enhanced access and utilization of climate services would help Tanzania as to realize sustainable development and attain the National vision 2025.

### 2. Climate and Weather Information Services in Tanzania

Tanzania's economy largely depends on climate-sensitive sectors for their socioeconomic development (URT, 2018). It is ranked as one of the highly

#### **Recommendation:**

- *Increase investment in agrometeorology by the government;*
- *More involvement of private sector like NGOs, media, and academia in translating and disseminating climate and weather information to smallholders.*

vulnerable countries to the impacts of climate (Burck et al., 2019). Agriculture, pastoralism, fisheries, infrastructures and natural resources are the key economic sectors currently under high risk of the impacts of climate change (URT, 2012). Agriculture which contributes 25% to the national GDP is made up of at least 80% smallholder farmers and pastoralists

in rural areas who are poor and exposed to climate stressors (URT, 2014). Their vulnerability is contributed by varied issues including limited access to climate and weather information services. Important services like daily weather forecasts, seasonal outlooks and scenario platforms produced by the Meteorological Authority are not in the manner that can help some of the end users especially, smallholders in rural areas.

## 2.1. Institutional Framework for Climate Services in Tanzania

Tanzania’s institutionalization for climate services production and utilization is still inadequate to contribute fully to socioeconomic development (URT, 2018).

**Recommendation:**

- *The government to support TMA*
- *Provide services at small local coverage areas;*
- *Establish Climate information desks at LGA;*
- *Automatic mobile SMS to farmers from telecom companies.*

### 2.1.1. Tanzania Meteorological Authority (TMA)

Operating under the Ministry of Works, Transport and Communications, TMA is the only mandated institution of the United Republic of Tanzania for provision of Meteorological services within the

**Recommendation:**

*Private sector should support the work of TMA climate services utilization among smallholders in rural areas*

boundaries of the country. According to the act establishing this authority (URT, 2019), TMA is the only entity for provision of weather, climate services and warnings for the safety of life and property to the general public and to various users including aviation, agriculture and food security, water resources, disaster management, health and construction industry. It provides weather forecast through radio broadcasts,

**Recommendation:**

- *Increased annual budget allocation for TMA;*
- *Establish Climate information desk at LGA;*
- *Automatic mobile SMS to farmers from telecom companies.*
- *Provide services at small local coverage areas;*

television broadcasts, telephone, e-mail, fax, face-to-face, our website and recently through social media channels like Facebook and Twitter. However, majority of smallholder farmers, pastoralists, and fisheries have no

access to these channels used to deliver climate and weather information services because they are located in remote areas where radio and TV broadcasts are not available.

### 2.1.2. Tanzania Meteorological Authority Act, Cap. 151, 2019

Recently formulated by the parliament after changing the once meteorological agency into a full national

**Recommendation:**  
*Future amendments should consider the role of private sector in climate services*

authority. This act has vested full authority to TMA to be the only producer of climate and weather information services in the country. Other institutions like NGOs have been allowed but with special monetary conditions and guidance from TMA.

### 2.1.3. National Framework for Climate Services 2018 – 2025

In the effort to comply with the global agreements for enhancing climate adaptation through early warning systems and disaster preparedness, Tanzania has formulated an eight-year national framework for climate services. The framework is aimed to facilitate the sustainable provision and consumption of climate services in planning and decision making to reduce threats of climate variability and change to the achievement of development goals (URT, 2018). The framework offers a unique opportunity to enhance resilience to climate variability and change through promoting the use of climate services, providing evidence for the impacts of climate variability and change and bridge the gap between producer of climate services and users. The framework also provides an opportunity for involvement of users in establishing needs, develop appropriate products, identify capacity development requirements and influence direction of observational investments and research efforts.

## 3. Challenges of Climate and Weather Information Services in Tanzania

The major challenges facing effective provision and utilization of climate services include inadequate meteorological infrastructure, inadequate communication facilities with other stakeholders, human resource development and inadequate facilities in weather and climate forecasting (URT, 2018). Inadequate meteorological infrastructure especially characterized by insufficient meteorological observation stations network presents great challenge.

Lack of automatic linkages between TMA and specific climate information users including disaster management institutions, farmers, media and local community at large is also a serious gap while inadequate facilities in weather forecasting due to low investment priority by the government jeopardizes this important sector for sustainable development. Technological backwardness in rural areas where smallholder populations are found is a serious challenge as they have limited access to resources required for receiving climate and weather information services.

#### 4. Impacts of Inadequate Climate and Weather Information Services on socioeconomic development in Tanzania

Smallholder farmers, pastoralists, fisheries, and business especially in rural areas have been suffering

**Recommendation:**

- **A stand-alone national climate change policy required;**
- **Public investments on economic infrastructure should be done with climate consciousness**
- **A regular climate information should be provided and discussed at some district council meetings**

climate stressors in their livelihoods because of low access to climate services which could

guide their decision making. Uncommunicated flooding, droughts, unreliable rain seasons, shifting agroecological zones, and extreme rains in various regions in Tanzania are disastrously affecting food crops and therefore risking food security and the wellbeing of poor citizens.

Recently, dozens of Tanzanians have lost lives in flooding in Tanga, Pwani, Mara, Manyara, Mwanza, Rukwa and Mtwara (20 people in the first week of February 2020) due to unpreparedness.



Important economic infrastructures such as roads all over the country and railways in Morogoro

have been seriously damaged by flooding. These are the results of inadequate climate and weather information services which largely affect infrastructural engineering process as well as adaptation planning.

#### 5. Conclusion

Despite of its operational challenges, the Tanzania Meteorological Authority has shown noticeable work in production and dissemination of climatological and weather information services including early warning systems to ensure resilience and preparedness in the country. However, supplementary capacity building and support to this important institution to have state-of-the-art services is required from both the government and private sectors. The government need to consider TMA as an important organization for ensuring smart and resilient economic development while private sector like Civil Society, Non-Government, and Faith based organizations should support the work done by TMA especially in translating, simplifying, and localizing climate services produced to smallholders across the country.

#### 6. References

Burck, J., Hagen, U., Marten, F., Höhne, N., & Bals, C. (2019). *Climate Change Performance Index: Results 2019*. Retrieved from [https://germanwatch.org/sites/germanwatch.org/files/CCPI2019\\_Results\\_WEB.pdf](https://germanwatch.org/sites/germanwatch.org/files/CCPI2019_Results_WEB.pdf)

Clay, N., & King, B. (2019). Smallholders' uneven capacities to adapt to climate change amid Africa's 'green revolution': Case study of Rwanda's crop intensification program. *World Development*, 116, 1–14. <https://doi.org/10.1016/j.worlddev.2018.11.022>

Hirsch, T., Minninger, S., Wirsching, S., Toroitich, I., Cedillo, E., Hermans, M., ... Ahmed, E. (2017). *Non-Economic Loss And Damage With Case Examples from Tanzania, Ethiopia, El Salvador and Bangladesh* (No. 76; 1st ed.; E. Köhrer, S. Wirsching, & K. Seitz, eds.). Berlin.

IPCC. (2018). *Global warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change,* ( and T. W. Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, ed.). Retrieved from

Intergovernmental Panel website:  
[https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15\\_Full\\_Report\\_High\\_Res.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf)  
f%0D%0A

Mechler, R., Bouwer, L. M., Schinko, T., & Surminski, S. (2019). *Loss and Damage from Climate Change: Concepts, Methods and Policy Options* (J. Linnerooth-Bayer, ed.). Retrieved from <http://www.springer.com/series/15515>

MeteoSwiss, S. (2018). *Designing user-driven climate services. What we can learn from the Climandes project: A checklist for practitioners, scientists and policy makers*. Climandes.

UNFCCC. (2018). *UN Climate Change Annual Report*. Retrieved from <https://unfccc.int/sites/default/files/resource>

/UN-Climate-Change-Annual-Report-2018.pdf  
%0D%0A

URT. (2012). *National Climate Change Strategy. Vice President's Office, Division of Environment*. Dar es Salaam: Vice President's Office, Division of Environment.

URT. (2014). *Agriculture Climate Resilience Plan 2014 - 2019*. Retrieved from <http://extwprlegs1.fao.org/docs/pdf/tan152483.pdf>

URT. (2018). *National framework for climate services 2018 – 2025* (1st ed.). Dar es Salaam: Ministry of Works, Transportation and Communication.

URT. (2019) *The Tanzania Meteorological Authority Act, 2019*, Pub. L. No. 2 (2019).

## Coalition Members

This brief was developed by the National Coalition of Civil Societies on Climate resilience, poverty reduction and Sustainable development in Tanzania

