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Full-value chain Optimised Climate User-centric Services for Southern Africa

STAKEHOLDER WORKSHOP
Focus On Tanzania

Second External Stakeholder Workshop,
14-15 September 2021
13:00 – 17:00 CET
14:00 – 18:00 EAT

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Sarah Emerald Osima (PhD) is a Tanzanian, employed with Tanzania Meteorological Authority from 1995 to date. She served at different levels where she was promoted according to the working experiences and education levels from Meteorological Assistant to Principle Meteorologist, Climate scientist and currently, as Manager Environment and Research. She attended Bachelor and Master Degrees in Meteorology at Russian State of Hydrometeorological University, St. Petersburg, and PhD studies at the University of Cape Town and Danish Meteorological Institute.

Dr. Osima attended numerous international conferences and workshops in Africa, United States of America, United Kingdom, Italy, Finland, Sweden, Germany, Denmark, China and New Caledonia. She also contributed to the development of various government documents and reports including NDC's and National Climate Change Strategy Responses. She authored several articles including the "Projected Climate over the Greater Horns of Africa under 1.5 and 2 °C Global warming level", 2018, a paper which was among those cited by the special reports of the IPCC, 2018). She was also a volunteer lecturer at the University of Dar Es Salaam and currently supervising a PhD student at the University of Dodoma

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CLIMATE SERVICES FOR ENERGY

Outlines

- Introduction
- Tanzania Meteorological Authority (TMA)
- Weather Stations
- Research Collaboration
- Challenges
- Areas of Improvement and Conclusion

1. Introduction

Climate services for energy is very important as the sector is highly vulnerable to climate change impacts According to the IPCC AR6 Global warming level above 1.5/2 ºC (Paris, 2015) will triggle the hydrological cycle. Which will results in to increase in frequency of extreme climatic events (floods and drought) and this will affect both energy infrastructures and distribution plans.

Therefore energy sector needs to develop resilience to climate change impacts through technological solutions, proactive climate design considerations, flexible management practices as well as preventive emergency preparedness and response measures.

For example in the year 1999/2000, 2002 and 2005 the country experienced prolonged drought conditions which almost made the country to be dark due to the frequencies of power outage which highly impacted the social economic activities (Kijazi & Reason 2005, World Bank 2005).

2. Tanzania Meteorological Authority

- According to the United Republic of Tanzania, Act No.2 of 2019, TMA is responsible for the provision of weather and climate services for all sectors include agriculture, water, health and energy. The authority is also responsible for issuing early warning on severe weather and climatic events.

2. Weather stations

TMA Weather stations include 29 Synoptic, 12 Agromet, 16 Rainfall pH, AWS and 3Weather Radar. Weather parameters which can support/source renewable energy include solar radiation and wind.

Tanzania has entered in World's record after its two weather stations Bukoba (started in 1893) and Songea (started in 1908) found with high-quality records of meteorological observations of more than 100 years and these stations were recognized as centennial observing stations.

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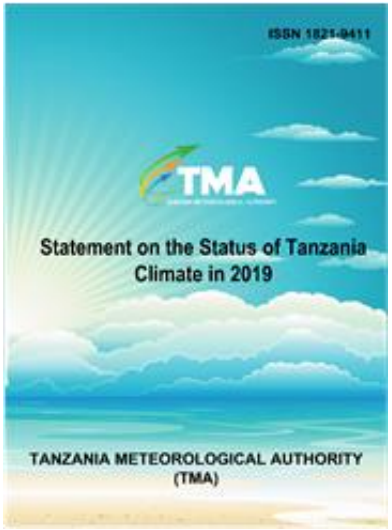
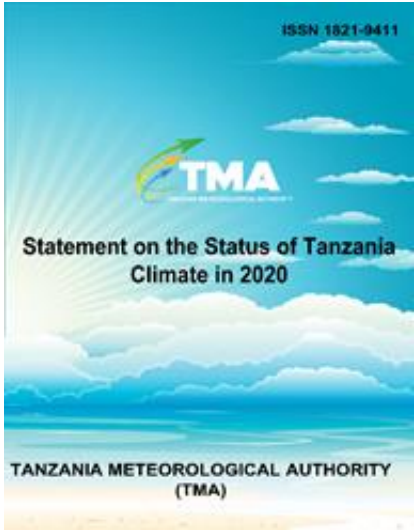
3. Research and collaborations

- TMA continuously produce Annual Climate Status of the Country the information mostly needed for the decision makers, government reports, researchers and contributes in the Annual Global Climate State under WMO guide.
- TMA conducts research on weather, climate and related applications and
- TMA collaborates with other institutions such as Energy, Health, Environment (Vice President's Office), Disaster management (Prime Minister's Office) and Universities in research activities and development project reports of the country including development of National Determined Contributions, National Climate Change Strategy and other international organization including IPCC/UNFCCC

Climate Statement state of Tanzania.





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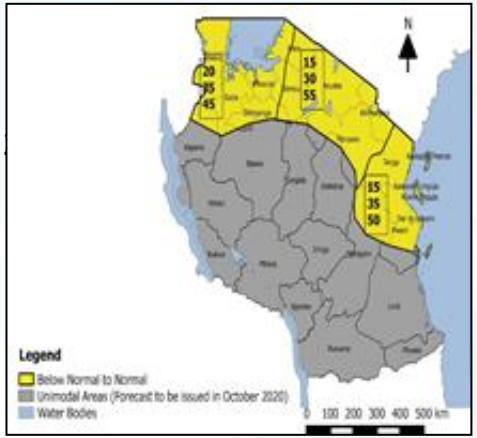
4. Challenges

OND 2020 RAINS OUTLOOK VS OUTCOME



Most of the climate parameters are very essential to the energy sector in an extent that their variability and changes may affected the production of energy

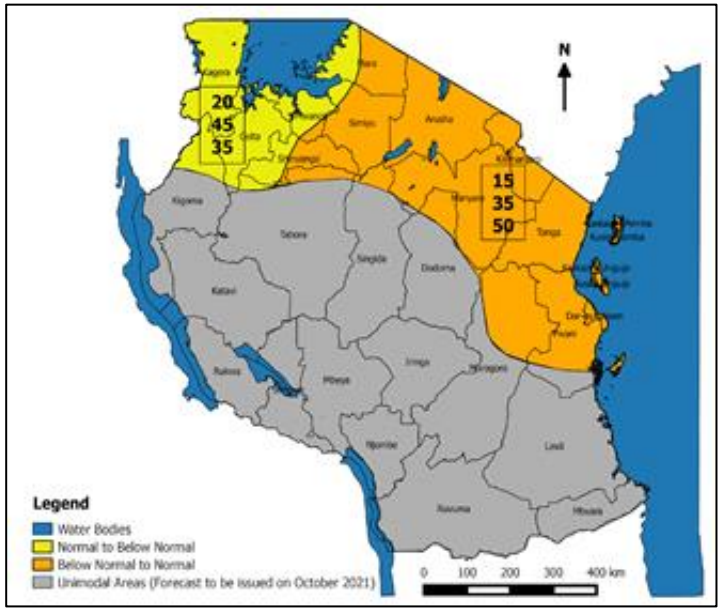
But lack of limited resources for building and sustaining capacity to provide climate services to energy sector over the developing countries has been reducing the efficiency of energy sector on development

Factor affecting the value of climate services

Forecast accuracy; led time; forecast type (e.g., probabilistic vs. deterministic) ;

Accuracy=87.0% when the extremes are included

Case study: OND Seasonal Outlook 2021/2005



Statement
Vuli rains are expected to be below normal to normal and characterized by prolonged periods of dry spells, poor start in the third and fourth weeks of October 2021 with poor distribution in many areas
.

Impact to energy sector: decrease in water levels in rivers, reservoirs and decrease in aquifer recharge is likely to occur. Therefore, less energy production is expected from hydropower source, mineral production will decrease especially for gold production from small scales miners.

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Challenges of provision of climate services for energy

TMA is responsible for providing early warning information for Energy services in the country however the institution has limited resources for building and sustaining capacity to provide climate services which include:

1. Building Offices (house) and tools to manage the bulk amount of data
2. TMA is still working intensively in data digitization however in most cases only few parameters were digitized (esp. rainfall and temperature).
3. Since the monitoring of weather and climate is a continuous process the system is yet to be modernized

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5. Areas of improvement to support climate services for energy

Capacity building

-Weather and Climate data collection and archive need to be modernized i.e Improved system of data collection to data bank
- Human capacity(know how)

Data rescue

Need of data rescue system of already data in hard copies

Expansion of weather stations

Acquisition of weather stations both AWS and Manned stations

Institutional Capacity

Need of Climate Data Bank house as currently the institution still renting the house (limited space to store data and working env)
- Energy sector need to develop climate resilience to cl

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THANK YOU

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