

# **STAKEHOLDER WORKSHOP**

## **Focus On Tanzania**

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**Second External Stakeholder Workshop,**

**14-15 September 2021**

**13:00 – 17:00 CET**

**14:00 – 18:00 EAT**



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**CLIMATE SERVICES FOR  
INFRASTRUCTURE  
DEVELOPMENT IN A CHANGING  
CLIMATE**

# **OUTLINE**

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- 1. Introduction**
- 2. Selected cases of weather and climate impacts on infrastructure development;**
- 3. Climate Services provided by TMA for infrastructure;**
- 4. Challenges;**
- 5. Strategic Initiatives and enabling environment;**
- 6. Conclusion**

# 1. Introduction

- **Infrastructure Sector is cross-cutting to all other sectors (e.g. Energy, transport, agriculture, mining etc..)**
- **Climate and weather information is of paramount importance to be considered in all levels of National investments/projects.**
- **However, the infrastructure sector is one of climate sensitive sectors, vulnerable to weather and climate variability and climate change;**
- **The vulnerability of the infrastructure is partly attributed to severe weather and climate events associated with tropical weather systems, among other factors;**
- **Climate change has also increased the frequency and magnitude of extreme weather and climate events, including flooding; which have contributed significantly in the destruction of the infrastructure in Tanzania;**
- **Damage of the infrastructure cause loss of life and property in the country;**
- **In view of the prevailing situation, enhancing weather and climate services for infrastructure planning and management is critical for its sustainability and for Disaster Risk Reduction.**

## 2. Selected cases of weather and climate impacts on infrastructure

**Table 2.** Extreme rainfall events and their associated impacts in October 2019.

Event Dates	Station name and Establishment Year and Location	24 hours Rainfall amount (mm)	Rank of the Event	Impacts
09/10/2019	Korogwe Maji (1961) Latitude: 5°9' Longitude: 38°28' Elevation: 259 m	175.9 mm	Highest 24 hours Rainfall for October, and third highest record for all months	7 deaths reported in Bungu, Dindira and Vungo villages in Korogwe District Over 300 families were left homeless after their houses were severely destroyed ( <i>Mwananchi Newspaper</i> , 10th October 2019)
13/10/2019	Tanga (1941) Latitude: 5°5' Longitude: 39°4' Elevation: 49 m	102.3 mm	Sixth highest 24 hours Rainfall for October	The Dar es Salaam to Tanga road was impassable causing transport disruption ( <i>HabariLeo</i> , 14th October 2019)
24/10/2019	Handeni (1928) Latitude: 5°26' Longitude: 38°2' Elevation: 756 m	123.7 mm	Highest 24 hours Rainfall for October	14 people died in Handeni district ( <i>European Civil Protection and Humanitarian Aid Operation (ECHO)</i> , 28th October 2019). 15 bridges were damaged, and about 40 houses collapsed and other 70 houses drowned, Flooded and destroyed bridges leading to disrupted transport between Dar es Salaam and Arusha ( <i>Daily News</i> , 27 <sup>th</sup> October 2019)
11/10/2019	Morogoro (1950) Latitude: 6°50' Longitude: 37°39' Elevation: 526	64.2 mm	Highest 24 hours Rainfall for October	11 people died due to floods, Farms and food crops destroyed ( <i>European Civil Protection and Humanitarian Aid Operation (ECHO)</i> , 16th October 2019)

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Atmospheric and Climate Sciences



Flooding in Dar es Salaam on 26/10/2019



Heavy rain with flooding in Korogwe, Tanga region on 26/10/2019

## 2. Selected cases of weather and climate impacts on infrastructure.....

**Table 1.** Highest 24 hours extreme rainfall events and their associated impacts during MAM 2017, 2018, 2019 and 2020 rainf. season in Tanzania.

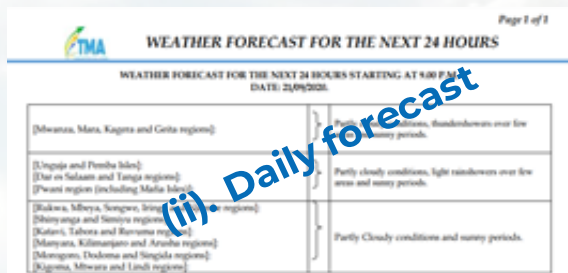
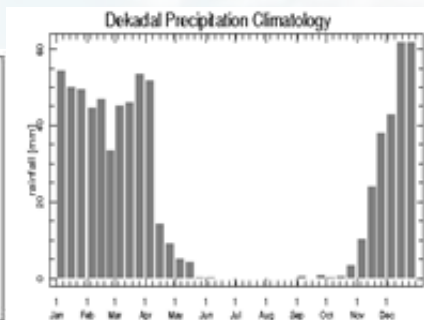
Event date	Station Name and Establishment year and location	24 hours rainfall (mm)	Rank of the event	Impacts
8 May 2017	<b>Tanga</b> Latitude: 5°5' Longitude: 39°4' Elev: 49 m	316.0	1 <sup>st</sup>	7 deaths, 5 injuries, 100 people left homeless, flooded Mkumbaza river and rocks fall destruct roads. (Habari Leo, 10 <sup>th</sup> May 2017; Mtanzania Newspaper, 13 <sup>th</sup> May 2017)
6 May 2019	<b>Pemba</b> Lat: 5.15 Lon: 39.49 Elev: 24 m	181	7 <sup>th</sup>	Flooding, houses destroyed, infrastructure including road and bridge damage
15 April 2018	<b>Dar es Salaam</b> Lat: 6.52 Lon: 39.12 Elev: 53 m	91.3	8 <sup>th</sup>	14 deaths, 9 houses destroyed, over 600 families left homeless and transport lines were shut down due to flooded infrastructure. Dar es Salaam Zonal Police office, 16 <sup>th</sup> April 2018
17 April 2020	<b>Zanzibar</b> Lat: 6°13' Lon: 39°13' Elev: 18 m	202.6	6	Flooding, Destruction of Settlements and infrastructure
27 March 2017	<b>Ilonga</b> Lat: 6.46 Lon: 37.2 Elev: 502 m	105.4	5 <sup>th</sup>	Settlements destructed and hectors of farm field destructed
28 April 2018	<b>Arusha</b> Lat: 3°22' Lon: 36°38' Elev: 1372 m	126.4	4	2 deaths, Roads flooded and transportation difficulties



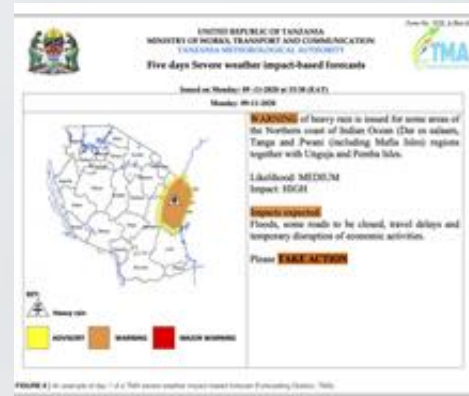
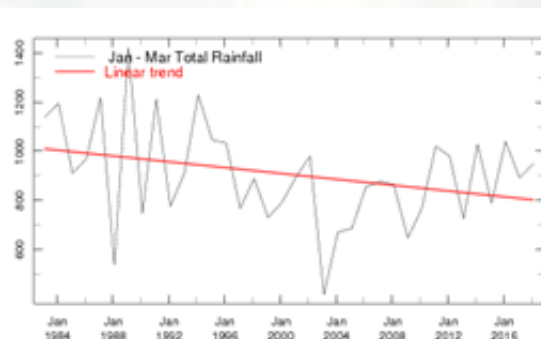
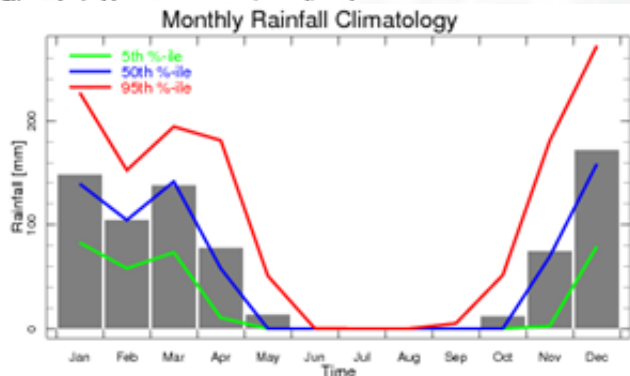
Kiyegeya bridge in Morogoro region eroded by heavy rainfall on 3/3/2020

# 3. Climate Services provided by TMA for infrastructure development

## (i) Climatological information and products for infrastructure planning



## (iii). Five days Impact based forecast



### 3. Climate Services provided by TMA for infrastructure development.....

#### (iv). Seasonal weather forecast with advisories on infrastructure...

TANZANIA METEOROLOGICAL AUTHORITY



CLIMATE OUTLOOK FOR NOVEMBER 2020 - APRIL 2021  
(AS/MID RAINFALL SEASON)



#### (c) Energy, Water and Mineral

Areas expected to receive normal to above normal rainfall are likely to experience an increase of water levels in dams and river flow discharge. This condition may cause river overflow leading to flooding especially in flood prone areas. However, sustainable use of water resources is highly recommended especially for mineral processing, power generation, industrial and domestic use. Moreover, communities are advised to take necessary precautionary measures to avoid adverse impacts that may be caused by **destruction of power transmission infrastructure**. Storage and sustainable use of water resource for future use is also recommended.

#### (f) Local Authorities

**Short periods of heavy rains may cause surface water accumulation, increased surface runoff and flooding leading to destruction of infrastructures**, loss of lives and properties. Local authorities are advised to improve and maintain urban sewerage systems to reduce the impacts of floods. Residences of flood prone areas are advised to take necessary precautionary measures.

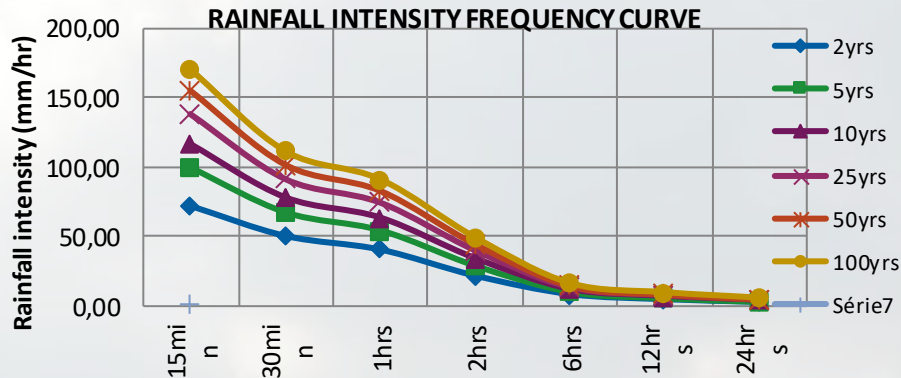
#### (d) Transport

Based on the issued forecast, **transport infrastructure can be impaired** especially over those areas where normal to above normal rainfall is expected. Construction activities related to transport infrastructure may also be affected. Relevant authorities are

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therefore **advised to improve transport infrastructure** and take appropriate precautionary measures to minimize the **impact of heavy rainfall on transport infrastructure and construction activities**.

#### (v) Tailor made products (upon request)





## 4. Challenges

- **Inadequate data to represent some of the locations in the country (eg. Data for impact based forecasting);**

- **Inadequate infrastructure for observation of key weather parameters (e.g rainfall intensity data );**

- **Limited awareness and capacity among users or decision makers on the role, application and contribution of climate information on the sustainability of infrastructures;**



## **5. Strategic Initiatives and enabling environment**

- **Development of the Climate Change Strategy (2012) with an adaptation strategy under the infrastructure sector . The goal is “To have an infrastructure system that is resilient to climate change”;**
- **Enactment of TMA Act no. 2 of 2019 which indicates that integration of meteorological information in designing and planning of structures is mandatory;**
- **Strengthening of “Hydromet section” under new TMA structure to enhance services in the infrastructure section;**
- **Development of the National Framework for Climate Services . Among its pillars include “Observation and Monitoring” and “Research, Modelling and Prediction”;**
- **The Government of Tanzania in collaboration with WMO and Partners has continued to strengthen meteorological infrastructure at TMA.**

## 6. Conclusion

- **Infrastructure is one of climate sensitive sectors vulnerable to climate variability and change;**
- **Enhancing climate services for infrastructure is among the policy level priority;**
- **A good progress has been made by the Government in enhancing climate services to ensure sustainability of infrastructure in the country;**
- **Existing Capacity gaps need to be further addressed for enhanced climate services to the infrastructure sector;**
- **Key areas of intervention include: Institutional and human Capacity building (both providers and users of climate services);**
- **TMA has the enabling environment in place and would appreciate to collaborate with any partner(s) interested in climate services for infrastructure.**

THANK YOU

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