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# SUMMARY FOR POLICYMAKER

## CLIMATE SERVICES: Come in out of the Rain

**BASELINE STUDY OF THE CONTRIBUTION OF CLIMATE SERVICES  
TO THE ADAPTABILITY OF SMALLHOLDER END USER IN FOUR  
SELECTED DISTRICTS OF TANZANIA**



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### BASELINE STUDY OF THE CONTRIBUTION OF CLIMATE SERVICES TO THE ADAPTABILITY OF SMALLHOLDER END USER IN FOUR SELECTED DISTRICTS OF TANZANIA

#### SUMMARY

##### Impact of Climate Change and Awareness

Smallholders' livelihoods in Tanzania are being affected by the climate. Unpredictability of rainy onset and cessation, prolonged drought conditions, coastal erosion from sea level rise, inundation and salt water intrusion in fresh water aquifers, increasing temperatures, storms, and splash flooding were frequently reported as the major climatic challenges affecting respondents' livelihoods (farming, fishing, and livestock keeping) productivity in all project districts (Bagamoyo, Chalinze, Pangani, and Lushoto). The community's understanding of these challenges (48–60 percent) has been improving in conjunction with local coping mechanisms, but it still needs to be raised. Awareness is a critical first step for adaptation activities and the development of climate-resilient communities.

##### The way to adaptation: Climate Services and Indigenous Knowledge on weather forecasting

Climate Services (CS) improve community climate resilience. Due to a paucity of ICT, access to CS via convention channels is limited (TV & radio). It is suggested that CS be disseminated using SMS-based methods to enhance its accessibility.

The level of understanding of Indigenous knowledge (IK) forecasting varies greatly between districts (33–70%). Indigenous knowledge (IK) about weather forecasting in the local area can provide information about the local climate. Integrating IK predictions into CS can improve its utility (timely, area-specific, and dependable CS). The community's climate resilience can be increased by incorporating IK into CS. Local IK on weather forecasting was discovered in the districts examined. Nonetheless, IK is in danger of being disoriented. It is necessary to develop strategies and policies to maintain and conserve IK.

#### HIGHLIGHTS FOR POLICYMAKER

##### Key Recommendations

###### Easy Access

New easy accessible dissemination channels  
(SMS & Community Radio)

###### Integrate IK

Integrate Indigenous knowledge (IK) to Climate Services (CS) to increase useability and downscaling

###### Conservate IK

Conservate, document and transfer indigenous knowledge (IK) to prevent loss

##### Methodology & Background

The approach aims to provide a realistic picture of the status of Climate Services in Tanzania to inform projects and policies on Climate Services. The study covered 4 districts (Bagamoyo, Chalinze, Pangani, Lushoto) in Tanzania

The primary data collection was based-on Interviews (329 households), Key Informant Interviews ( 16 district technical officers and Focus Group Discussions ( 8). The data was analysed with the Statistical Package for Social Science (IBM SPSS 24). The data collection was complemented by observations and literature review.

*The integration of indigenous knowledge (IK) into Climate Services (CS) is key to get downscaled and useable forecasts.*

### INSIGHTS FROM BAGAMOYO (TZ): INCREASING ADAPTABILITY



#### IMPACT



**AWARNESS**

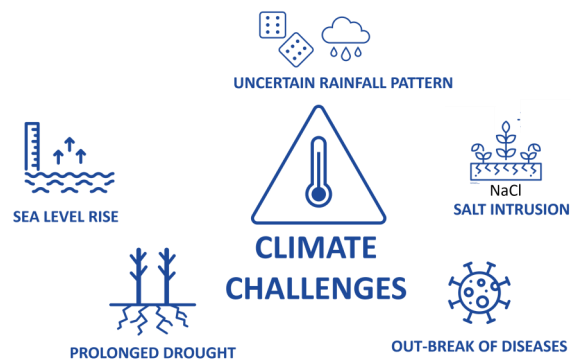
**60 %** are aware of impacts of climate changes

**MOST AFFECTED LIVLIHOOD ACTIVITIES:**

-  Farming
-  Livestock keeping

#### CLIMATE CHALLENGES

The communities in Bagamoyo reported the following climate related challenges:





- SEA LEVEL RISE
- PROLONGED DROUGHT
- UNCERTAIN RAINFALL PATTERN
- CLIMATE CHALLENGES
- OUT-BREAK OF DISEASES
- SALT INTRUSION

#### USEFULNESS

In Bagamoyo, 70% of respondents said that TMA's climate information was useful. However, 10% of respondents still dislike the service since it lacks generality and is not location specific. Traditional weather forecasting information was only rated as reliable by 10% of those surveyed.

**ACCESS**

**ACCESS TO CLIMATE INFORMATION**

-  RADIO & TV: 83 %
-  STORYTELLING: 17 %

#### CLIMATE SERVICES

#### INDIGENOUS KNOWLEDGE (IK)



**AWARNESS & USE OF IK**

**33 %** are aware of traditional

33 % are aware of traditional weather forecasts. Elderly, religious people downplayed IK on the ground that its working related to superpowers/witchcraft. This could limit use of IK.

*Elders are the main source of Indigenous Knowledge (IK) on weather prediction.*


### INSIGHTS FROM CHALINZE (TZ): INCREASING ADAPTABILITY

**IMPACT**



**LIVLIHOOD PRODUCTION**

**48 %**



Of smallholder in Chalinze report decrease in livelihood (farming & live-stock) production in the past 3 years .

### CLIMATE CHALLENGES

The communities in Chalinze reported the following climate related challenges:



Poor harvest and food insecurity

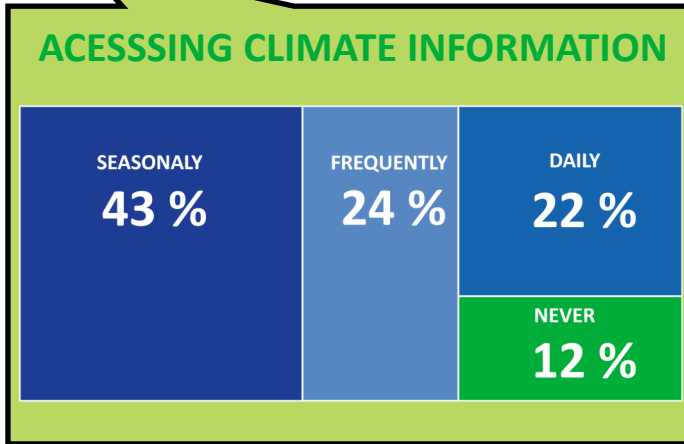
PROLONGED DROUGHT

**CLIMATE CHALLENGES**

OUT-BREAK OF DISEASES

### USE OF CLIMATE SERVICES

Most smallholder farmers (77 %) use rainfall and flood information, only 13 % use temperature and drought information to inform their livelihoods practices. Most receive weather information via TV & Radio (63 %). Around 22,3 % receive climate services via Farm SMS (Phone). Only 11 % receive the information from directly from their neighbours. Only 34 % stated the information distributed by TMA is useful.



**CLIMATE SERVICES**

**INDIGENOUS KNOWLEDGE (IK)**



**AWARNNESS & USE OF IK**

**52 %**

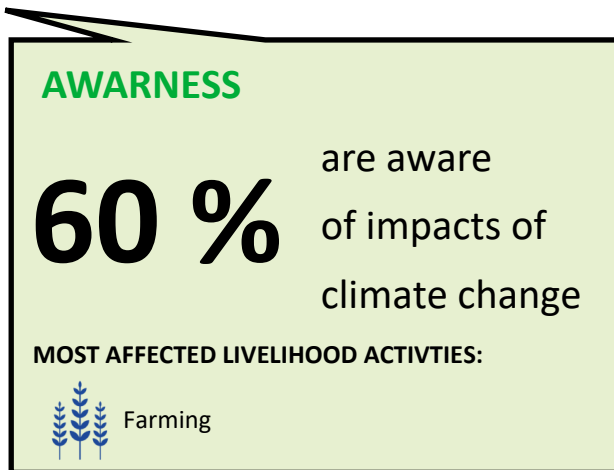
are aware of traditional weather forecasts, Elderly, religious people downplayed IK on the ground that its working related to superpowers/witchcraft.

*Elders are the main source of Indigenous Knowledge (IK) on weather prediction.*

CONTACT: contact@cantz.or.tz This Factsheet highlights key insights from the study: Climate Services: Come in, out of the rain (2022) , More: www.cantz.or.tz/news

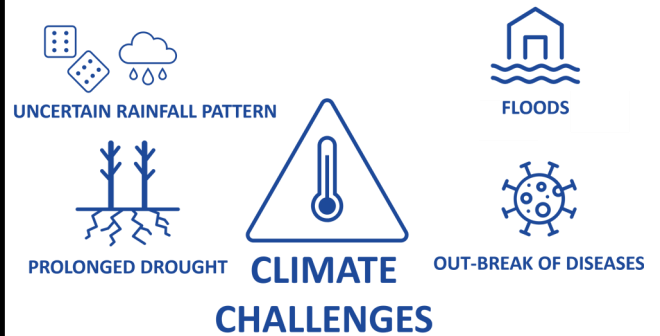
### INSIGHTS FROM LUSHOTO (TZ): INCREASING ADAPTABILITY

#### IMPACT

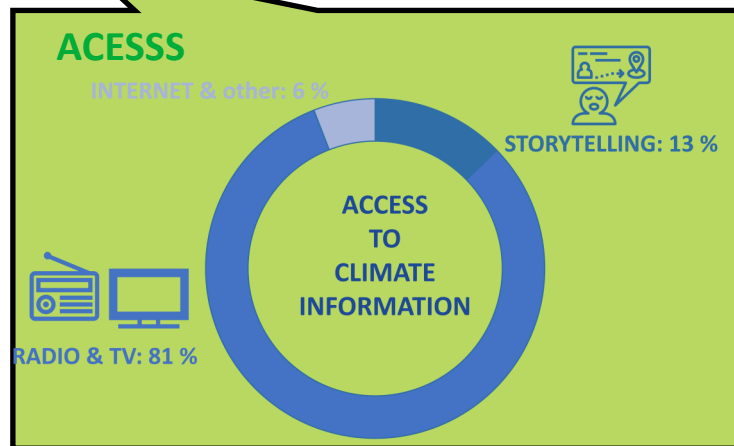
#### CLIMATE CHALLENGES

The communities in Bagamoyo reported the following climate related challenges:



#### USEFULNESS

In Lushoto 71.5 % of the respondents stated that the climate information disseminated by TMA is useful. The climate information is used to inform different livelihood activities: sowing time, crop choice, farm preparation. Respondents reported insufficient downscaled forecasts.

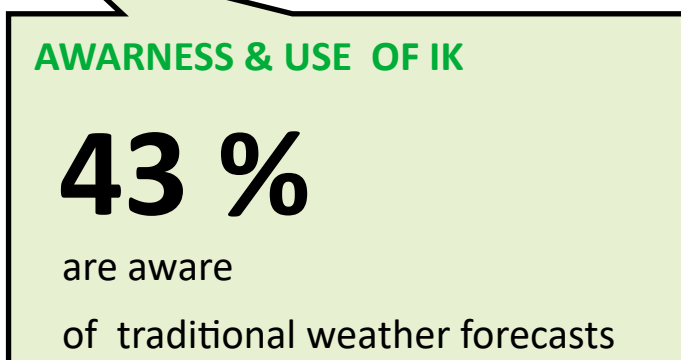


#### CLIMATE SERVICES



*Elders are the main source of Indigenous Knowledge (IK) on weather prediction.*

#### INDIGENOUS KNOWLEDGE (IK)





CLIMATE ACTION NETWORK  
Tanzania

# PANGANI

## FACTSHEET

### INSIGHTS FROM PANGANI (TZ): INCREASING ADAPTABILITY

IMPACT

#### LIVLIHOOD PRODUCTION

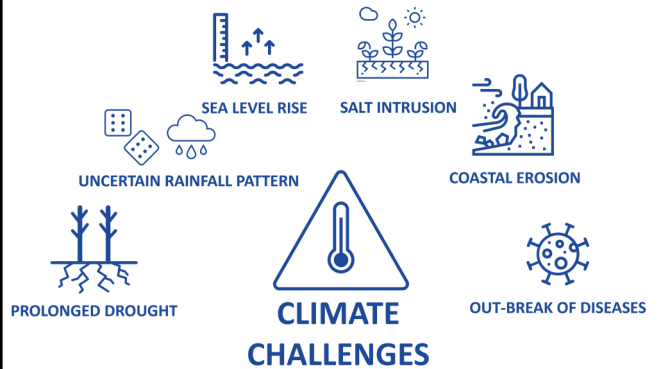
58 %



Of smallholder in Pangani report decrease in livelihood (farming & livestock) production in the past 3 years.

#### CLIMATE CHALLENGES

The communities in Bagamoyo reported the following climate related challenges:



#### USEFULNESS

Most of the respondents (76 %) claimed that information provided by elders (IK) are more reliable compared to TMA. Respondents mentioned the reliability IK information based on its realistic, timely and area specific compared to that of TMA which covers wider areas (mostly zone-based) and not area specific (not downscaled.)

#### ACCESS

DON'T KNOW: 7 %



CLIMATE SERVICES

#### AWARNESS & USE OF IK

77 %

are aware of traditional weather forecasts

IK forecast are Perceived as timely, area specific and realistic by smallholders (fishers).



KNOWLEDGE (IK)

INDIGENOUS



THIS FACTSHEET WAS DEVELOPED IN SCOPE OF A PROJECT FUNDED BY BREAD FOR THE WORLD.

THE FACTSHEET HIGHLIGHTS KEY INSIGHTS FROM THE STUDY: CLIMATE SERVICE: COME IN OUT OF THE RAIN



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## Reading the writings on the walls: IK-based forecasting

### OBSERVATION

#### Observing Nature

Traditional weather forecasting based on Indigenous knowledge (IK) normally uses specific indicators for specific weather and climatic events. The local weather is assessed and predicted by observing indicators like birds, animals, insects, stars and wind.



*„When I spot a groups of heron birds diving in a certain reef that’s the sign of reef fish migration so I go for them and set my fishing gear at that ground“* **Fisher from Pangani**

Selection of traditional weather prediction signs and indicators for fisheries communities in Pangani district

Indicator	Sign(s)	Weather prediction indication
Driver bird in the ocean	birds diving for fish	indicates sensation of rain season
Ants	carrying food stuff	sign of hunger in next season
Grasshoppers	increasing in fields	predicts moderate rains to start

#### Reading the signs

The indicators are interpreted by indigenous knowledgeholders mainly elders. Based on their experience the IK knowledge holder interpret the signs to predict upcoming weather conditions for the local community.

IK is passed on mainly orally with in families and communities.

### Challenges

#### Don't loss your mind

The conservation and transition of indigenous knowledge (IK) on weather forecasting is threatened by various factors including and not limited to:

- **IK transmission to young generation:** IK used to be passed on mainly orally and by storytelling. The knowledge transfer is interfered various factors.
  - ⇒ **Rural-urban migration,** loosen social bonds to pass on IK
  - ⇒ IK is **associated** by some churches **to witchcraft**
- **Disappearance of flora and fauna indicators:** IK forecasting is based on observation of change and behaviour of flora and fauna. Due to climate change, deforestation, and other factors the loss of biodiversity threatens the foundation of IK forecasting.



### STRENGTHEN CLIMATE SERVICES: INCREASE CLIMATE RESILIENCE

LESSONS LEARNT



#### CLIMATE SERVICES DISSIMINATED BY THE TANZANIAN METEOROLOGICAL AUTHORITY (TMA)

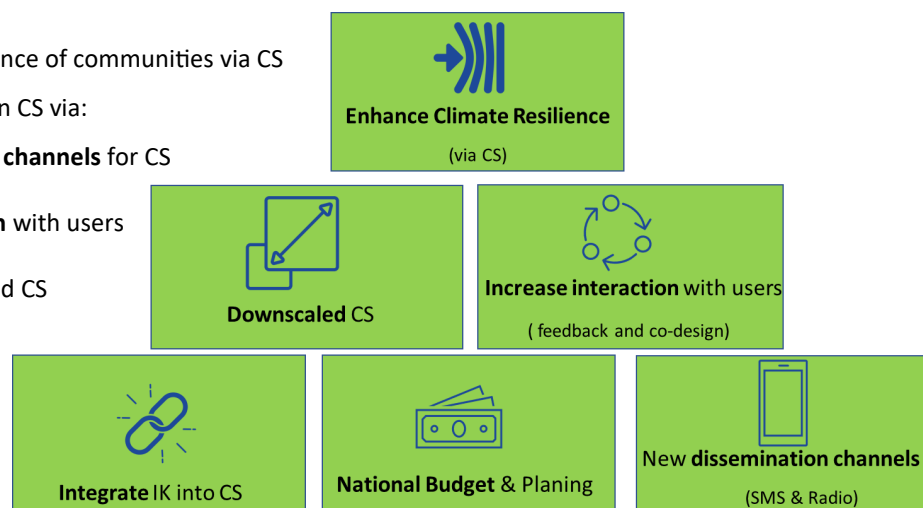
- **Limited interaction**
  - ⇒ Limited interaction and engagement between government (TMA) & traditional forecasters
  - ⇒ Limited interaction between government and users
- **Limited access**
  - ⇒ lack of ICT lead to lack of up-take of climate information disseminated over conventional channels (TV & radio)
- **Limited downscaling and useability**
  - ⇒ Users need and wish more downscaled and useable Climate Services (CS) to use the knowledge more effectively for adaptation activities
- **Indigenous knowledge (IK) enhance useability of climate services (CS)**
  - ⇒ The integration of indigenous knowledge (IK) into Climate Services (CS) is key to get downscaled and useable forecasts.

#### To the TMA

To enhance Climate Resilience of communities via CS

The TMA should strengthen CS via:

- New **dissemination channels** for CS
- **Increase interaction** with users
- **Budget** for enhanced CS
- **Downscaled CS**
- **Integrate IK** into CS



#### To the Communities

- **Enhance and maintain transition of IK** to young generation
- **Raise awareness for importance of IK** ( especially for the youth)
- **Enhance understanding of CS** and climate change challenges



RECOMMENDATIONS