

# WEBINAR

## "ENGAGING AND EMPOWERING YOUTH IN EARLY WARNING SYSTEMS FOR FLOOD AND DROUGHT RESILIENCE"



**3 MAY 2023**  
**14:00 - 15:15 CEST**



- Learn more about:**
- Engagement of Youth in EWS
  - The "EW4ALL" Initiative
  - And the New 2023 Youth-Lead Competition



**YOUTH-LEAD**



# AGENDA

01



Cyrille Honoré, Director of  
Disaster Risk Reduction of  
WMO

Opening and  
EWS4ALL

How to use social networks for  
levering Youth awareness of early  
warning systems

Camilo Gonzales,  
Stockholm Environment  
Institute Latin America  
Center



02

03



Graziela Olua - Indonesia  
Agency for Meteorology,  
Climatology, and  
Geophysics

Raising Awareness on  
Inclusive EWS in Papua

Open Mapping in enhancing  
disaster preparedness and Early  
warning systems

Erick Tamba -  
YouthMappers



04

05



Erica Pém – Water Youth  
Network

Contest on Early Warning Systems  
for flood and drought resilience



**YOUTH-LEAD**



Before to start...



# Opening Remarks



# UN Early Warnings for All Initiative

3 May 2023

**Mr. Cyrille Honoré**

Director of the Disaster Risk Reduction, MHEWS Office  
and Public Services Branch

Deputy Director of Services Department  
World Meteorological Organization



# Biggest Global Risks 2023 - 2033

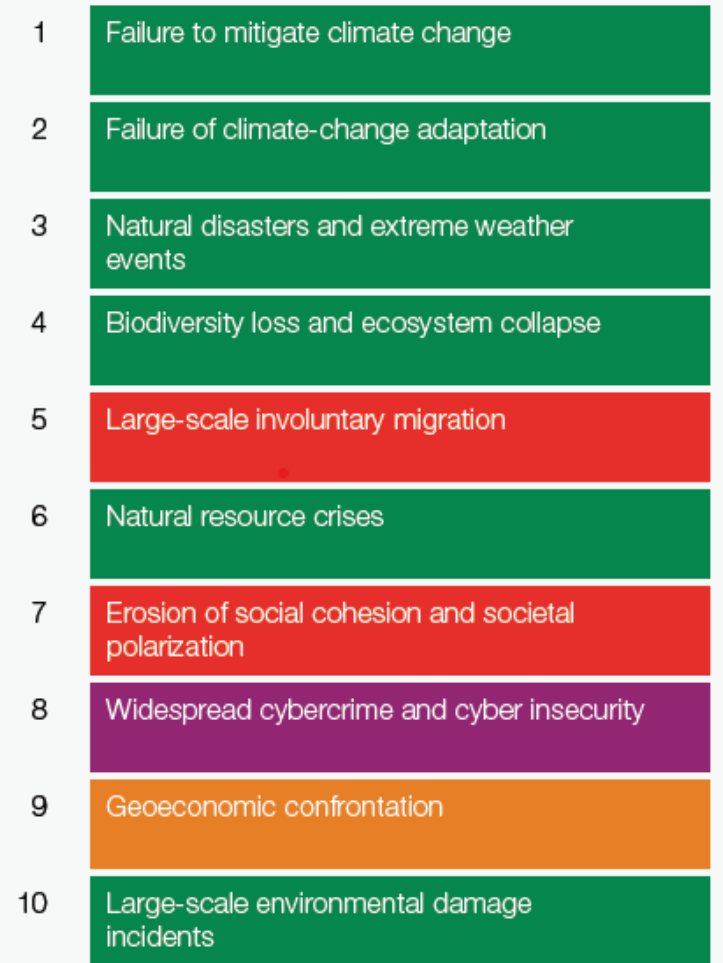
WMO strategic priority:

“Enhancing preparedness and reducing loss of life, critical infrastructure and livelihood from hydrometeorological extremes”

## 2 years



## 10 years



Risk categories

Economic

Environmental

Geopolitical

Societal

Technological

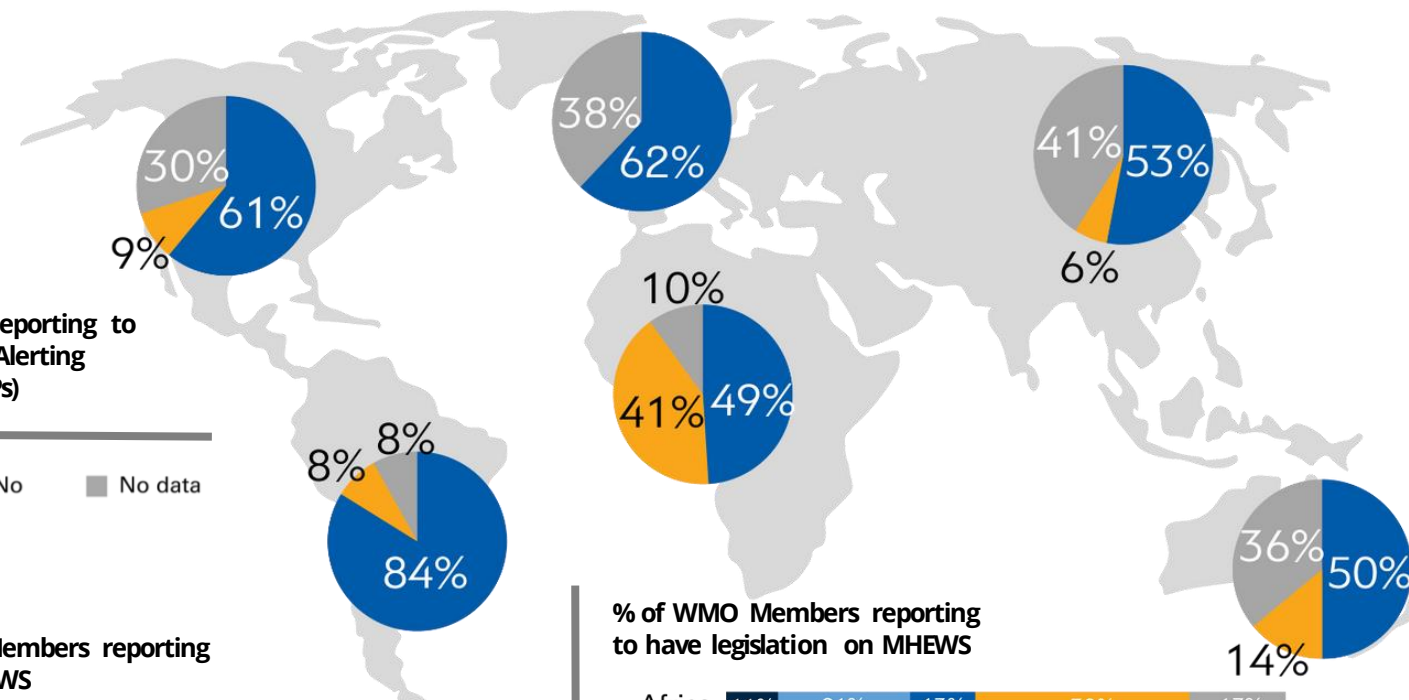


Source: WEF 2023

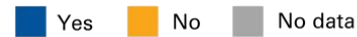
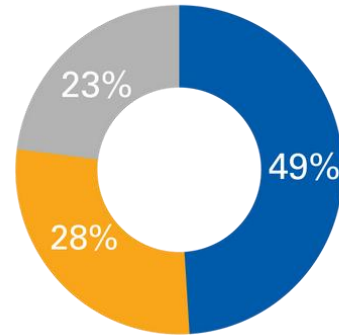
# State of MHEWS Globally

An enhanced WMO data collection campaign shows significant MHEWS gaps remain globally (WMO Performance Monitoring System since March 2022)

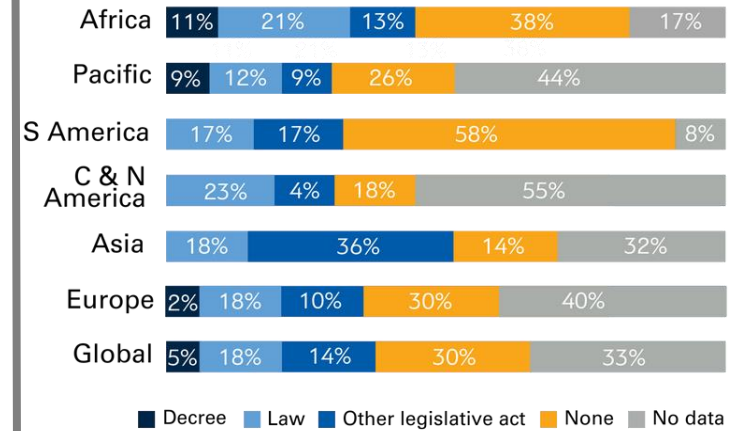
% of countries reporting to have Standard Alerting Procedures (SAPs)



% of WMO Members reporting to have MHEWS



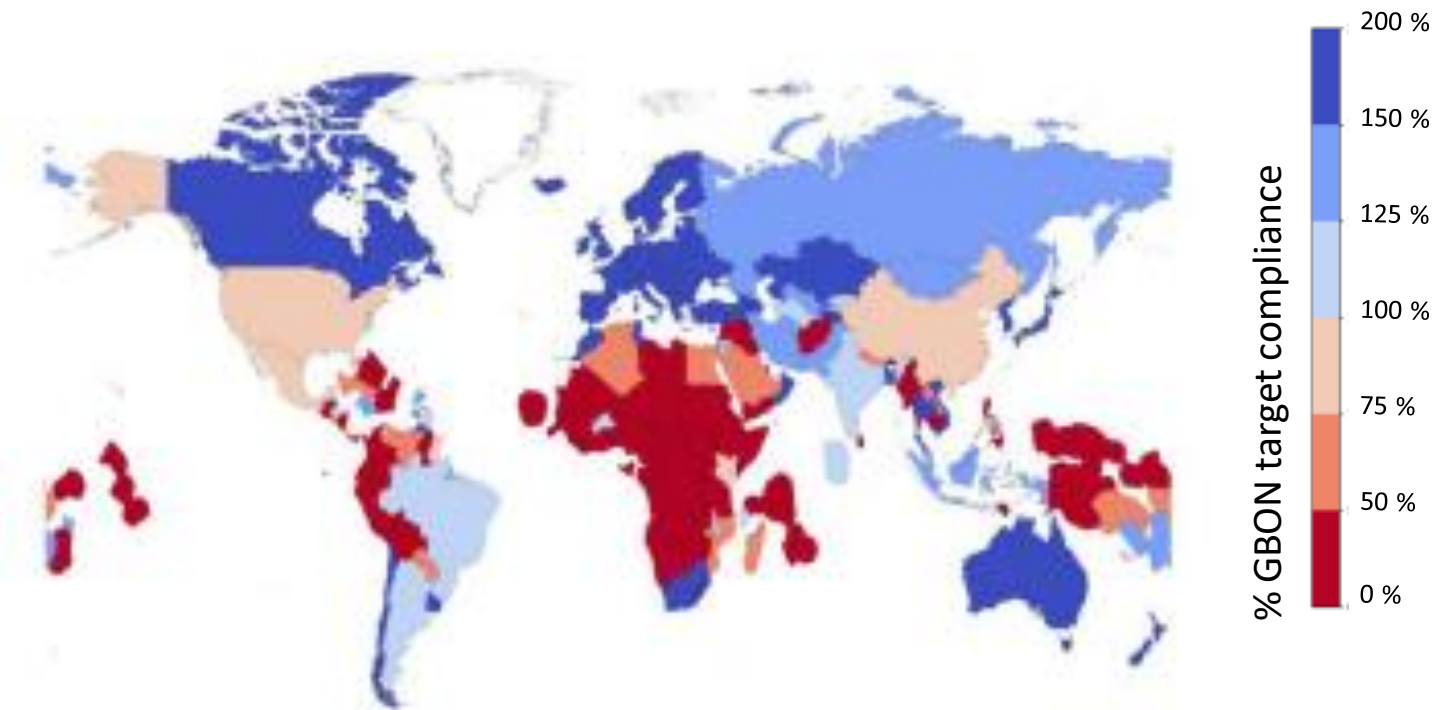
% of WMO Members reporting to have legislation on MHEWS



# Early Warning Gaps Remain Globally

Significant gaps remain in vital underpinning observations, especially in Africa, Small Island Developing States (SIDS) and Least Developed Countries (LDCs)

## Surface Reporting Density



Stations reporting 30% of GBON requirements at least 60% of time in Jan 2022





# Early Warnings for All Structure and Objectives

## Pillar 1

### Disaster risk knowledge

Systematically collect data and undertake risk assessments

- Are the hazards and the vulnerabilities well known by the communities?
- What are the patterns and trends in these factors?
- Are risk maps and data widely available?

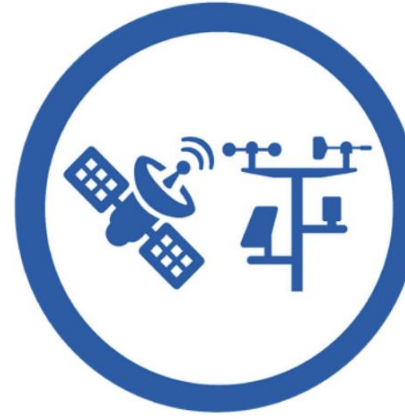


## Pillar 2

### Detection, observations, monitoring, analysis and forecasting of hazards

Develop hazard monitoring and early warning services

- Are the right parameters being monitored?
- Is there a sound scientific basis for making forecasts?
- Can accurate and timely warnings be generated?



## Pillar 4

### Preparedness and response capabilities

Build national and community response capabilities

- Are response plans up to date and tested?
- Are local capacities and knowledge made use of?
- Are people prepared and ready to react to



## Pillar 3

### Warning dissemination and communication

Communicate risk information and early warnings

- Do warnings reach all of those at risk?
- Are the risks and warnings understood?
- Is the warning information clear and usable?



# EARLY WARNINGS FOR ALL

The UN Global Early Warning Initiative for the Implementation of Climate Adaptation

Executive Action Plan  
2023-2027

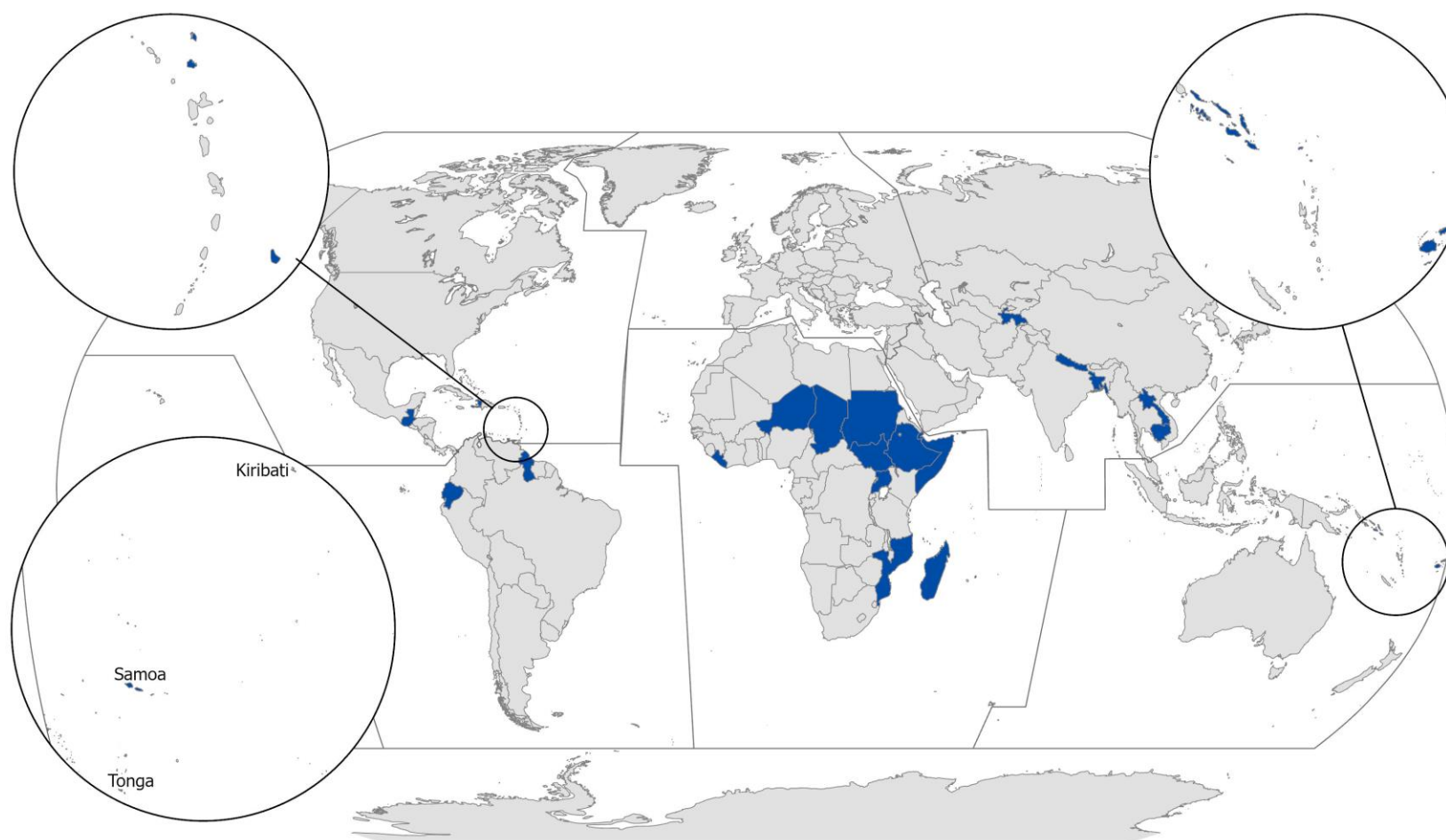
Available at WMO [online library](#)

Launched on Monday 7 November at COP 27,  
received huge support

[Early Warnings for All Action Plan gets overwhelming backing at COP27](#)



WATER  
CHANGEMAKER  
AWARDS



<b>RAI(13)</b>	Chad	Comoros	Djibouti	Ethiopia	Liberia	Madagascar	Mauritius	Mozambique	Niger	Somalia	South Sudan	Sudan	Uganda
<b>RAII(6)</b>	Bangladesh	Cambodia	Lao People's Democratic Republic	Maldives	Nepal	Tajikistan							
<b>RAIII(2)</b>	Ecuador	Guyana											
<b>RAIV(4)</b>	Antigua Barbuda	Barbados	Haiti	Guatemala									
<b>RAV(5)</b>	Fiji	Kiribati	Samoa	Solomon Islands	Tonga								

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.



## Early Warnings for All Country Roll Out

### Joint roll-out activities in a first cohort of 30 countries

- Multi-stakeholder consultation workshop
- Focus on strengthening coordination across sectors and scales
- Identification of immediate technical support requirements
- National roadmap and financing strategies via national focal points
- Initial pillar implementation and capacity-building
- Common monitoring framework (30+)



# Thank you



# HOW TO USE SOCIAL NETWORKS FOR LEVERING YOUTH AWARENESS OF EARLY WARNING SYSTEMS

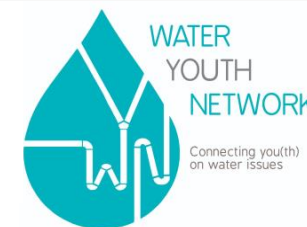
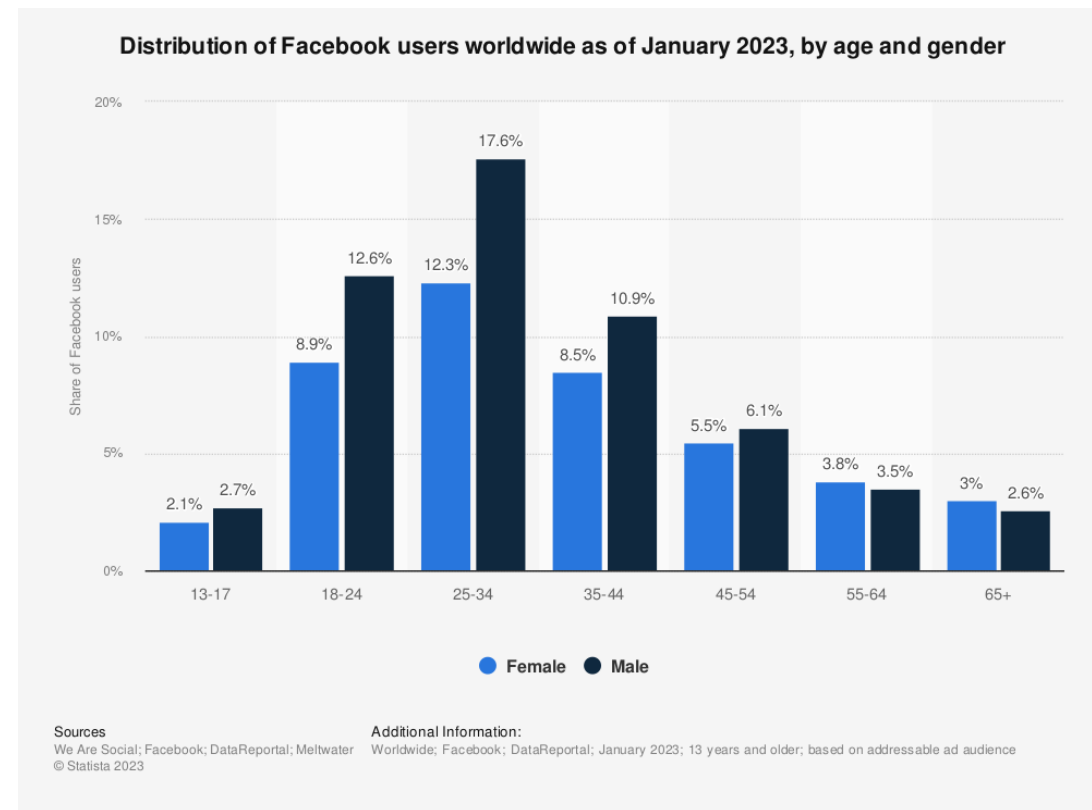
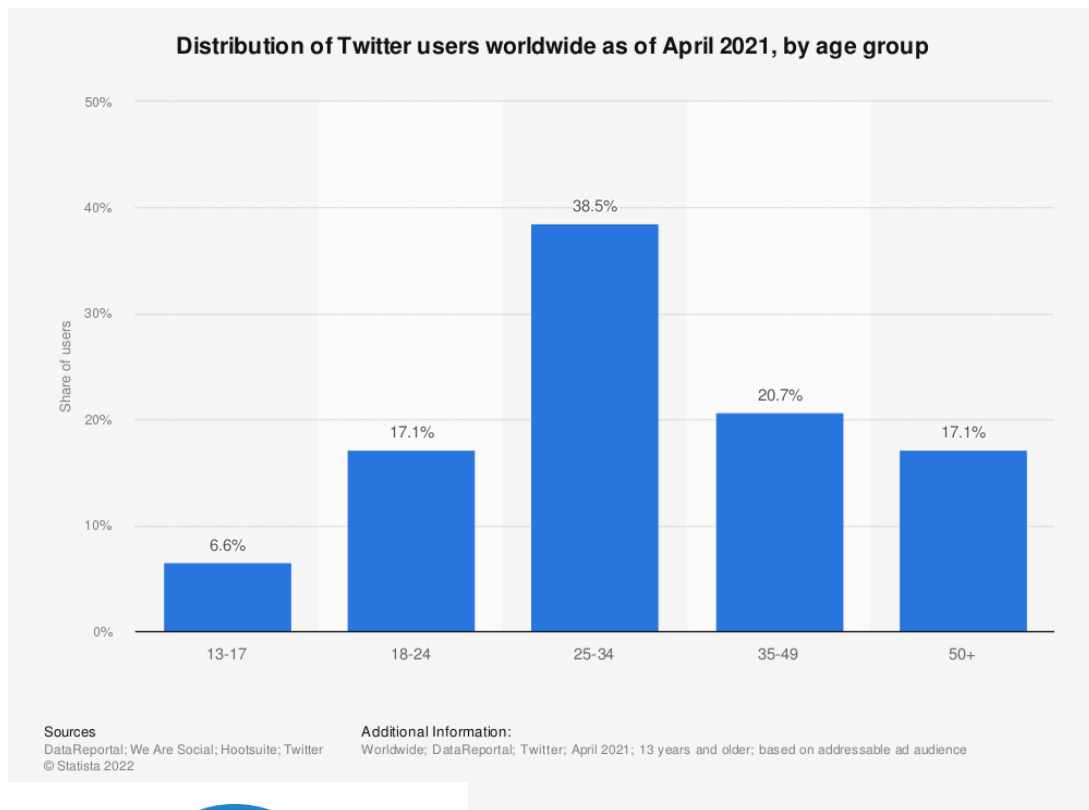
Camilo Andrés González Ayala  
Stockholm Environment Institute - LA



# Social Media Users

As of December 2022, Twitter's audience accounted for over 368 million monthly active users worldwide (S. Dixon, 2022)  
 Around 52% users are in the 18 – 34 years old group.

Facebook had 2.963 billion monthly active users in January 2023, placing it 1st in our ranking of the world's most 'active' social media platforms. Around 50% users are in the 18 – 34 years old group.



**LightSpeed** @Mr\_\_\_Scorpion · Jun 17, 2019  
 #ChennaiWaterScarcity Scenes of the dried up Thirur  
 Chembarambakkam, Perumbakkam and Korattur lake  
 All major reservoirs supplying water to Chennai dry up  
 bit.ly/2WLKzwZ  
 #தவிக்கும்தமிழ்நாடு  
 Show this thread



**María José Mollinedo Landa** @MariaJoseMolli1 · Aug 9, 2021  
 Así luce el río Choqueyapu cerca al Cementerio Jardín. A su paso las  
 personas no frenan su contaminación.

**Adv\_zarak** @adv\_zarak  
 Group of 20 persons including female and children is stuck at  
 Kumrat, please share this video so anyone takes notice and starts the  
 rescue operation. 🙏  
 #swat #flood #FloodinPakistan #help #ViralVideo #kumrat #Kalam  
 #Bahrain

737 views 0:06 / 0:08





# Hypothesis



Use of Sentiment Analysis (NLP) gathering data from social media, that complement the characterization, real-time monitoring, modelling and forecasting in a watershed (EWS)



# Previous Work

## Murphy et al. (2014)

Application of NLP and NER in Colorado River Basin using information from public media.

Found the interactions between actors and water management systems.

## Zhang et al. (2018)

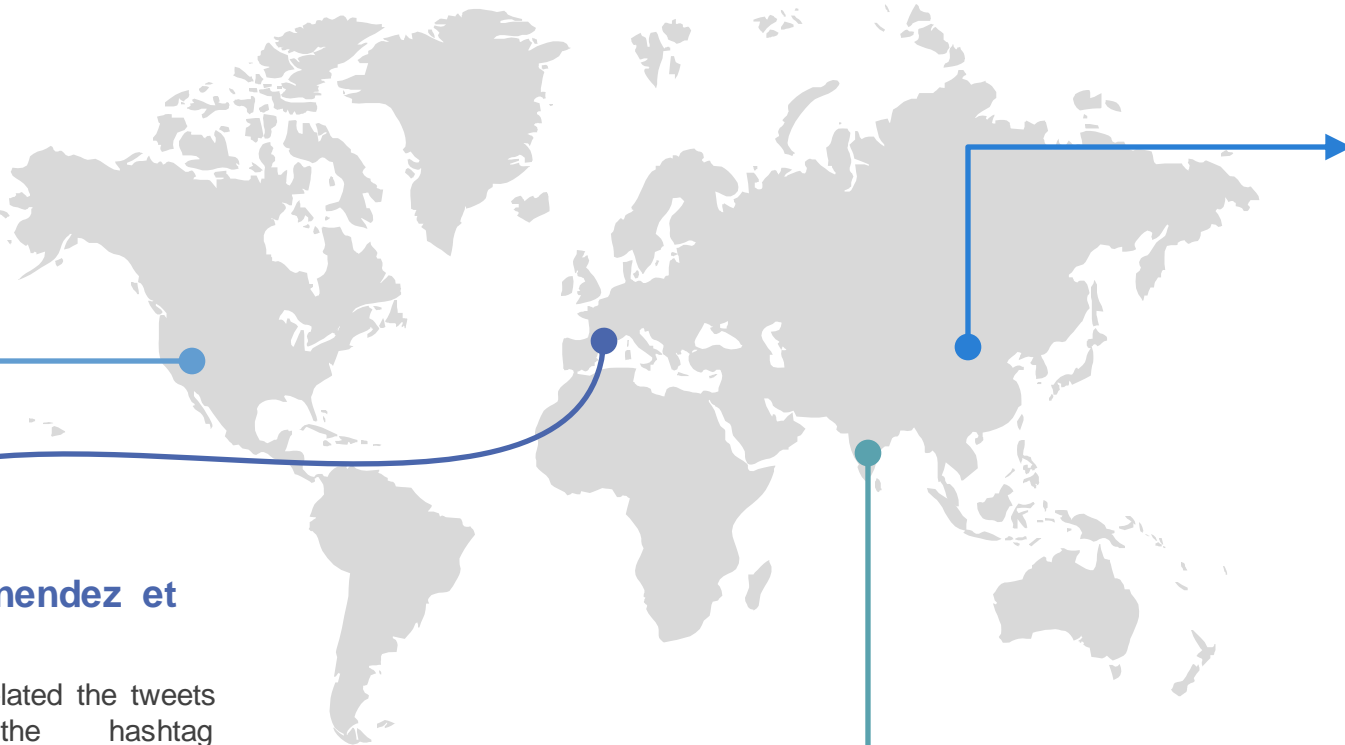
Monitored public opinion about the STNWTP in China to determine the degree of support for the water conservation project in different regions.

## Reyes-Menendez et al. (2018)

Classified and related the tweets found in the hashtag #WordEnviromentDay on Twitter, for the year 2018, with the 17 SDGs and grouped them according to the sentiment value found on text.

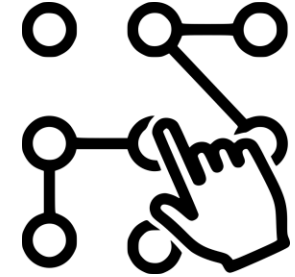
## Xiong et al. (2020)

By Sentiment Analysis, classify the topics from greatest to least concern in the twitter community related to the Water Shortage Crisis of 2019 in Chennai, India.



# Why using Sentiment Analysis on Social Media for EWS

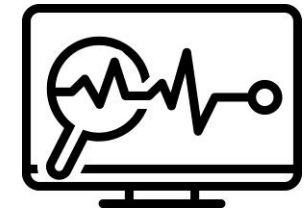
By monitoring social media, Sentiment analysis can help identify patterns in the public's response to these events, such as the level of concern, the perceived severity of the event, or the effectiveness of response efforts.



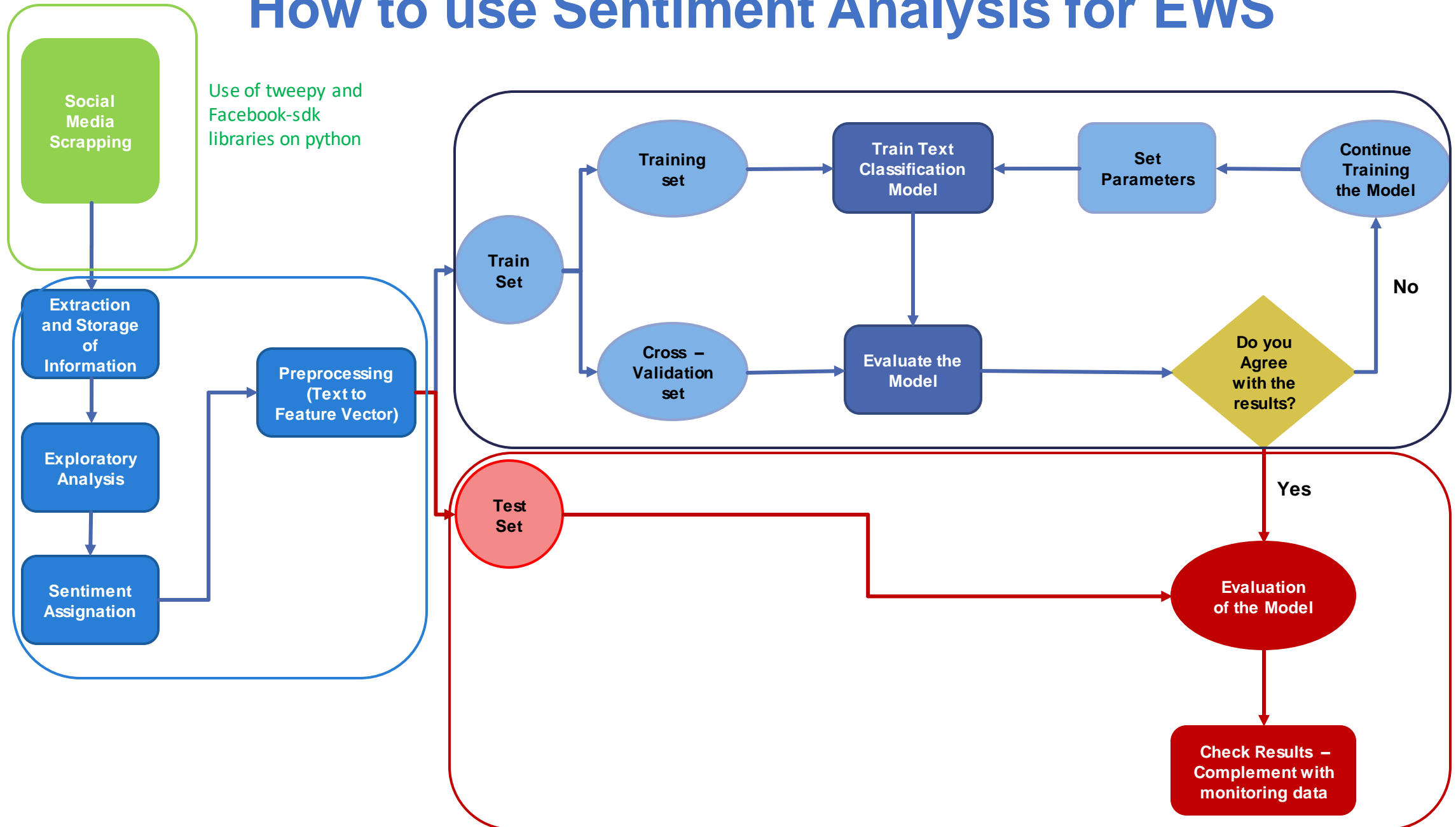
Help identify public opinions and emotions related to water-related hazards or emergencies. Users may be more likely to share information about the event, as well as their thoughts and feeling about it (Citizen Science)



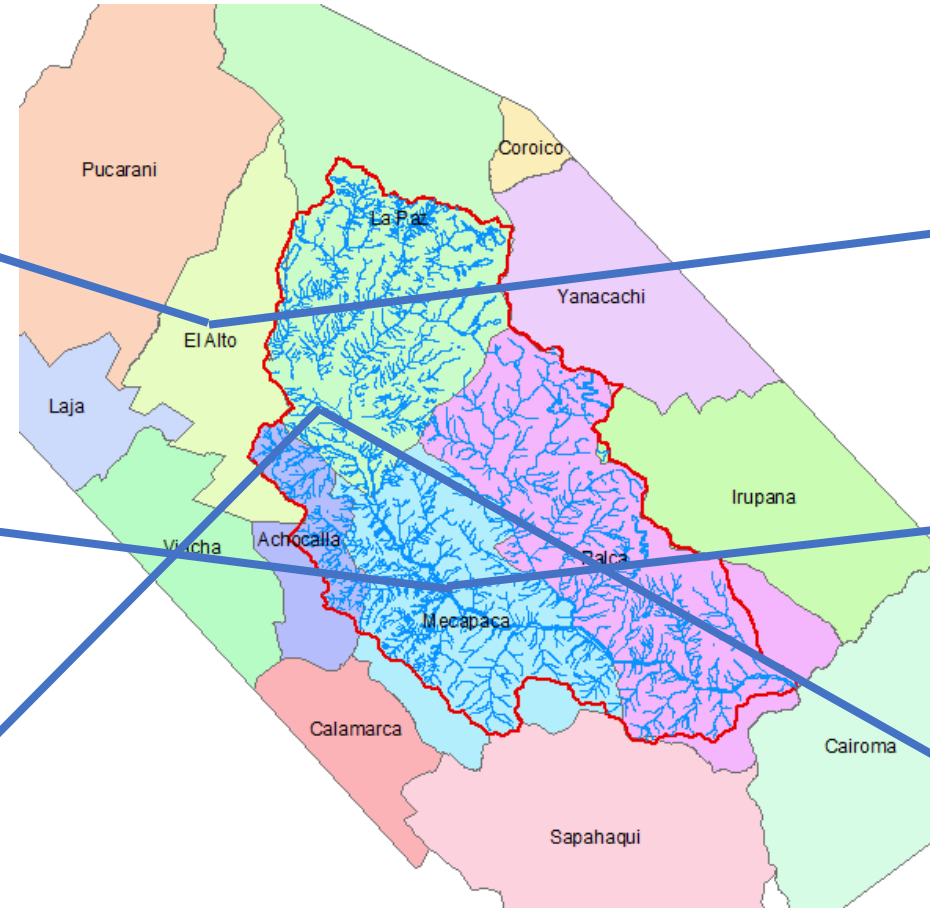
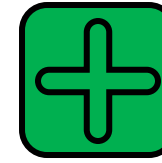
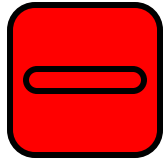
Help identify emerging issues related to water resources that may not have been previously identified through traditional data sources or monitoring systems



# How to use Sentiment Analysis for EWS



# La Paz Choqueyapu River Basin Case Study Results



el alto	
Drinking_water	141
Emergency	138
Rationing	137
Risk	125
Sanitation	115

Mecapaca	
Risk	45
Crop	40
Emergency	38
Landslide	38
Overflow	37

río achocalla	
Landfill	35
Landslide	34
Leachate	28
Trash	22
Rish	20

el alto	
Drinking_water	109
Investment	79
Rationing	73
Sanitation	67
Emergency	64

Mecapaca	
WWTP	16
Drinking_water	15
Trash	15
Landfill	14
Investment	11

río achocalla	
Landfill	5
Dumpsite	4
Landslide	4
Sewage	3
Contamination	3



# Lessons Learned and Conclusions

- Sentiment analysis on social media can complement traditional early warning systems for water resources by providing additional real-time insights into public perception and behavior related to water-related events and issues.
- Hashtags and data scrapping techniques can enhance data collection #BogotaRiver #WaterAutorithies #Location. It is fundamental that decision-makers stablish hashtags users could use to report an emergency.
- Decision-makers and local governments should guarantee access to internet on those areas that tend to be at risk.
- Privacy will always be a concern. Local authorities must guarantee that data will be collected only for publications related to the emergencies.
- Social media monitoring tools may require human interpretation and contextualization to generate useful insights for decision-making and response.



# Thanks for your attention!

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[camilogonzaleza12@gmail.com](mailto:camilogonzaleza12@gmail.com)



# AWAKE Youth Project "Awareness and Knowledge about Early Warning"



**YOUTH-LEAD**







**Child-Centered Preparedness**  
7-15 years old



**People with disability- Centered Preparedness**



**The Four Learning Style**  
Visual, Reading & Writing, Auditory and Kinesthetic



# Output

## 01 COLLABORATE WITH STAKEHOLDERS

- INITIATE PENTA HELIX COLLABORATION



## 02 ORGANIZE LEARNING MATERIALS

- PRODUCING SONG, GAMES, COMICS, AND VIDEO

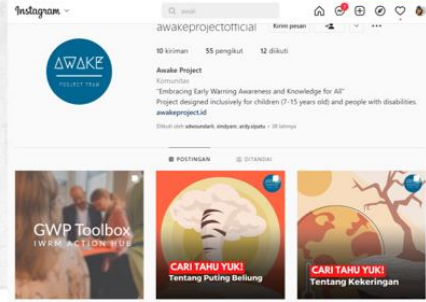


## 03 VISITATION

- COLLABORATE AND HELD TRAINING FOR CHILDREN AND PEOPLE WITH DISABILITY



# Learning Materials



## Comic

## Media

### AWAKE

Awareness and Knowledge About Early-warning

### Contact Us

- +62 822 3822 7238
- [www.awakeproject.id](http://www.awakeproject.id)
- [awakeprojectteam@gmail.com](mailto:awakeprojectteam@gmail.com)
- @awakeprojectofficial

## Song and Choreography about flood and landslide preparedness



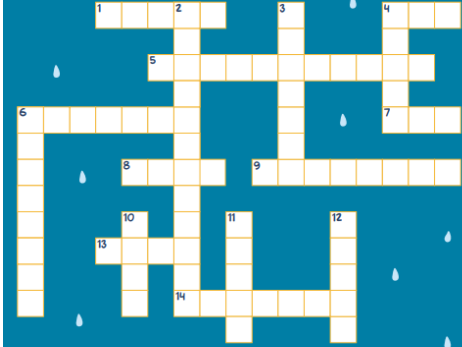
## FINDING WORDS

Let's get to know the weather's elements from the box below!

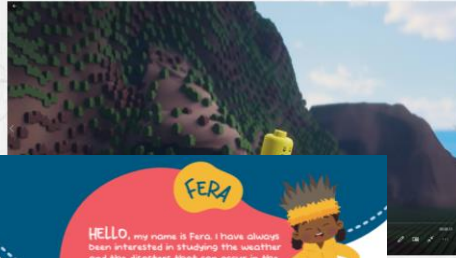
C T E M P E R A T U R E R E R F B G H R  
 H C Z U W O E P Y H V I X N W M Y M  
 U A M F Y O F B F X J C L O U D S X  
 M N A W I N D Q G E K Y T N Y N D R  
 I V W Y R M V C B N W I E Y V S H Y  
 D J I Y N W R L M R K C B I V L H Q  
 I J Z Q Y E V A P O R A T I O N E P  
 T A P Q U A C T L V F G Q N Y B K T  
 Y I P R E C I P I T A T I O N G E X  
 Z S U N S H I N E F L Z Q U A N B F  
 R Z X O W G W U A K A Q O P R L S H  
 U F S F A I R P R E S S U R E L E F

- Wind
- Clouds
- Precipitation
- Humidity
- Sunshine
- Evaporation
- Air Pressure
- Temperature

We are almost there! Now, help Atmos and Fera to finish this Crossword Puzzle!



## Video

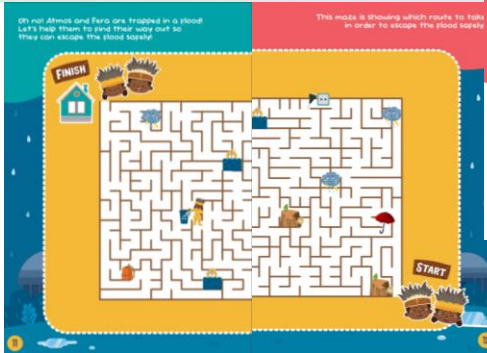


### FERA

HELLO, my name is Fera. I have always been interested in studying the weather and the disasters that can occur in the neighborhood where I live. I want to be smart so I can teach my family and friends to always be alert before a disaster strikes.

### ATMOS

Hi! my name is Atmos. It is always fun to help others. This time I want to learn how to save myself during a disaster so that I can save the people I care about.

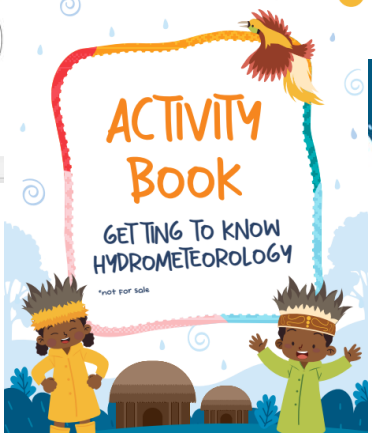


## PAIRING THE PICTURES

After knowing the elements of the weather, can you help us pairing the pictures below with the appropriate responses? Good luck!



How prepared are you? Let's test it by playing this snake and ladders game!



## Before "AWAKE Project"



Papua, 2016



## After "AWAKE Project"



Papua, 2022



**"IF KIDS CAN NOT LEARN THE WAY WE TEACH,  
MAYBE WE SHOULD TEACH THE WAY THEY LEARN"**



# Tanzania: YouthMappers for enhancing disaster preparedness and early warning response



Erick Tamba Mnyali



**YOUTH-LEAD**



MAPPING FLOOD PROTECTION

ZONES AND EVACUATION

ROUTES TO IMPROVE RESPONSE

CAPABILITIES



01

INTRODUCTION

02

OBJECTIVES

03

METHODOLOGY

04

RESULT

04

CONCLUSION



# 01

# INTRODUCTION

In developing countries, Lack of effective disaster response capabilities to floods events is linked to outdated maps and insufficient data that address risks and vulnerability challenges in local communities.

In this context people at risk, rescue teams as well as other stakeholders have little or no understanding on evacuation routes and safe areas before and during flood events





02

# OBJECTIVE

The main objective is mapping Flood protection zones and evacuation routes to improve preparedness and response capabilities to flash floods in local communities in Morogoro municipality and Ifakara Town Council.

The specific objectives include:

1. Field and remote community data gathering
2. Flood protection zones and evacuation routes mapping using GIS techniques
3. Project findings dissemination through workshops to stakeholders



# METHODOLOGY

03

1. Using open-source remote mapping technique to map the unmapped population from satellite imagery
2. Using open-source tools to collect ground truth data on flood experience
3. Using HEC RAS model to develop a steady flow model for the Lumemo river and mapping flood inundations
4. Using network analysis technique to determine the shortest route to evacuation center



04

# RESULT

1. MORE THAN 30,000+ buildings and 150+KM roads around the study

• area.

2. Over 6000 field datasets collected

3. Flood inundation map successfully developed

4. Evacuation route was designed



# REMOTE MAPPING

30,000+

buildings



150+ Km

roads

#12751  
Mapping Roads in response to Flash Floods in Ifakara Town Council, Tanzania  
SMCoSE YouthMappers chapter which is based in Sokoine University  
49 total contributors  
Beginner Mapper

#12752  
Mapping Buildings in Response to Flash Floods in Ifakara Town Council,  
SMCoSE YouthMappers chapter which is based in Sokoine University  
79 total contributors  
Beginner Mapper

#12760  
Mapping Buildings in Response to Flash Floods in Morogoro Municipality,  
SMCoSE YouthMappers chapter which is based in Sokoine University  
65 total contributors  
Beginner Mapper



# FIELD DATA COLLECTION

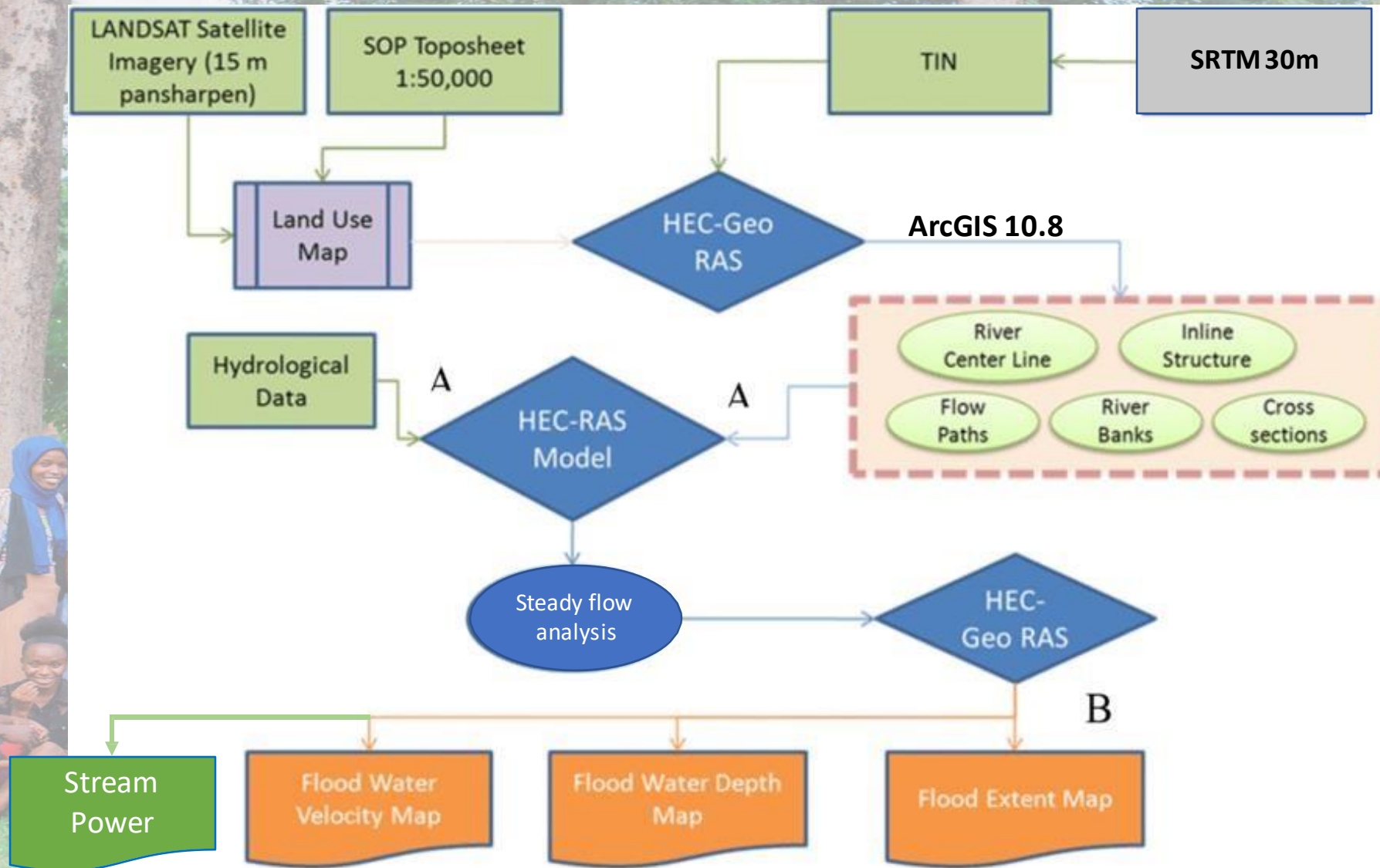
70%

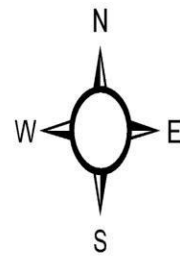
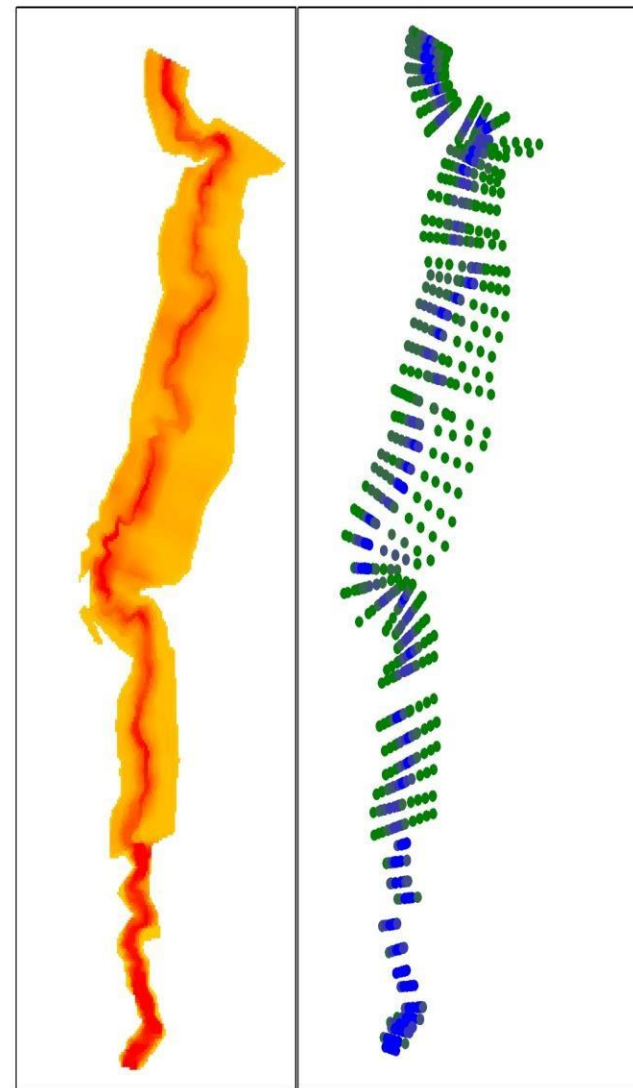
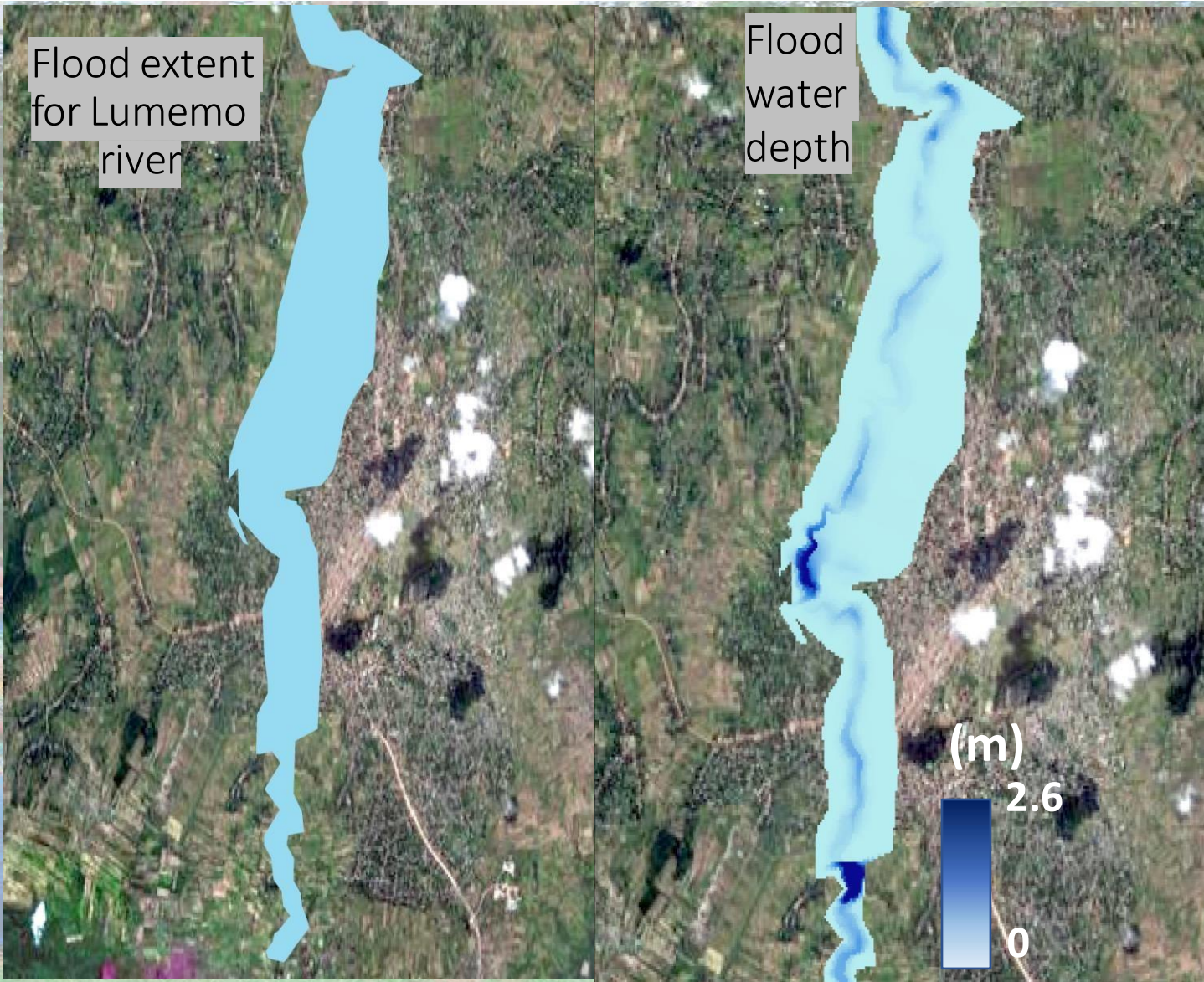
Households surveyed in the study site experienced floods in the last three years

## Legend

- No Floods
- Yes Floods





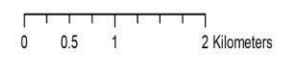


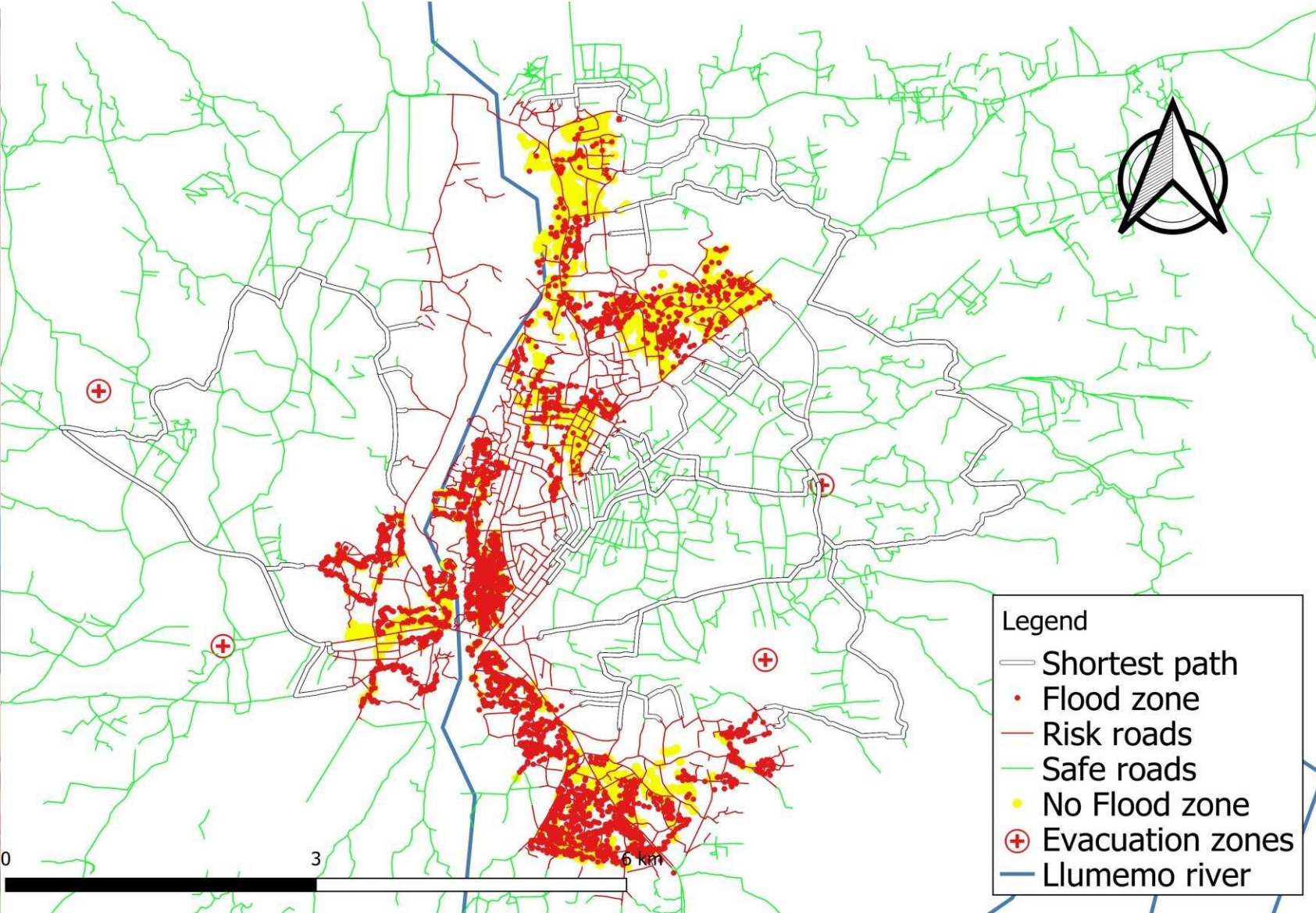
**Legend**

**Velocities**

**Velocity**

- $\leq 2.566000$
- $> 2.566000$  AND Velocity  $\leq 4.852000$
- $> 4.852000$  AND Velocity  $\leq 7.222000$
- $> 7.222000$  AND Velocity  $\leq 10.640000$
- $> 10.640000$  AND Velocity  $\leq 40.188000$







# EQUITY AND INVOLVEMENT

- Geographical citizen science
- Community inclusiveness (Gender and Marginalized)
- Youth



# SUSTAINABILITY

- Synergies
- Knowledge Transformation
- Partnerships



## LESSONS LEARNED

Open-source geospatial tools have proved to be reliable and effective in the collection of Community-based data to address challenges and solutions in our local communities hence to enhance data-based decisions in Africa; organizations should see the need to involve decision makers so that our local communities can thrive in climate-related challenges such as floods.

Youth are the future and, in our projects, they have proved to be capable, energetic, and innovative in conducting projects that can not only address challenges but also change the perceptions of decision makers on how to address and solve climate-related disasters in our communities.



Explore > Case studies > Tanzania: YouthMappers for enhancing disaster preparedness and early warning response

● Case studies

# Tanzania: YouthMappers for enhancing disaster preparedness and early warning response



# WHAT'S THE APFM, IDMP AND WYN YOUTH LEAD PROJECT COMPETITION?


It is a competition that aims to collect and identify innovative water and climate solutions that **MINIMISE** the negative impacts of hydroclimatic extremes and **MAXIMISE** social, economic, and environmental benefits.



**YOUTH-LEAD**



# Goals of the Competition



Inspire action **1**

by providing practical insights on overcoming challenges that motivate actors to develop new water and climate solutions



Build bridges **2**

between the water and climate communities






Accelerate change **3**

through scaling up and replicating innovative solutions



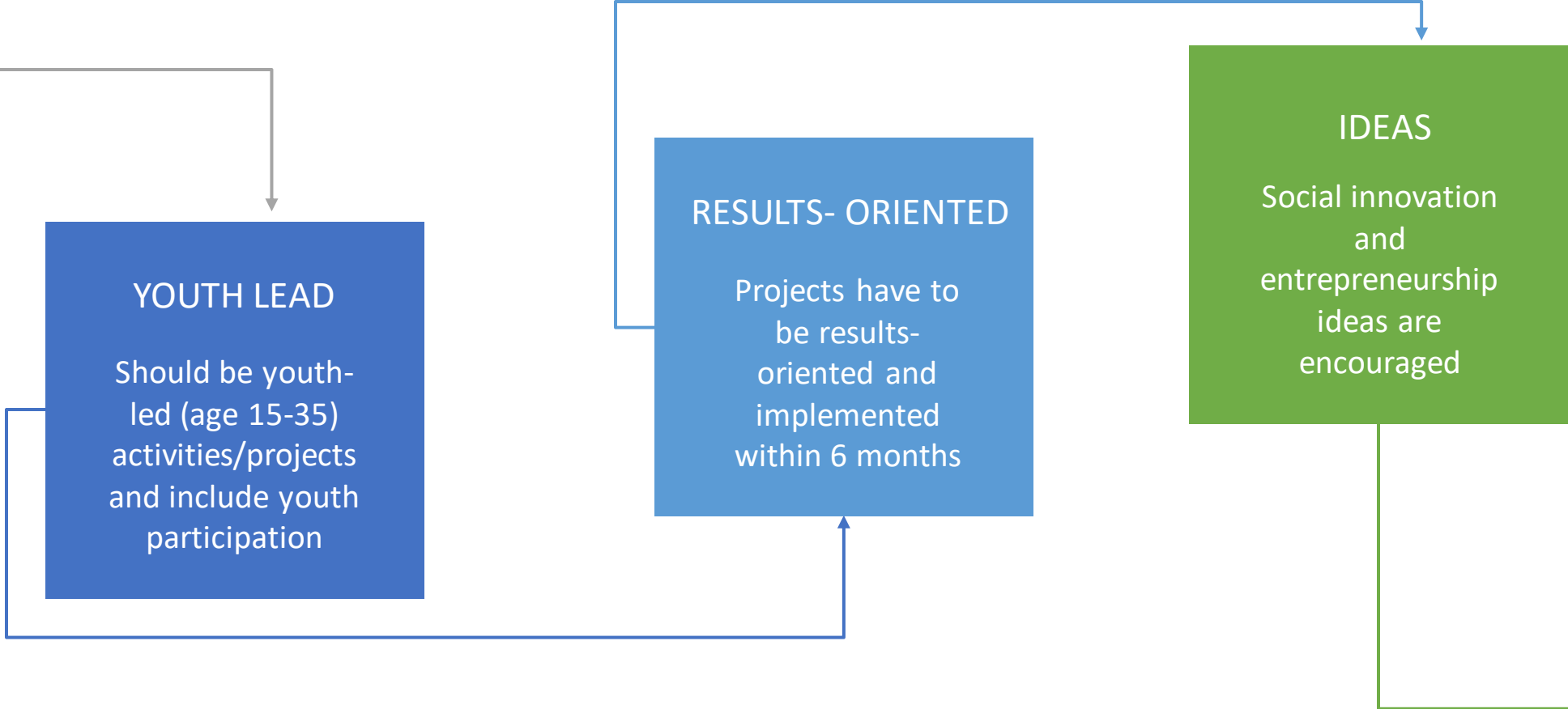
# Themes of the 2023 Youth lead Competition

The main theme of the 2023 competition is about **Early Warning Systems for flood and drought resilience**. One, several or all of the following themes should be addressed:

 <p><b>Disaster risk knowledge</b> Systematically collect data and undertake risk assessments</p> <ul style="list-style-type: none"><li>• Are the hazards and the vulnerabilities well known by the communities?</li><li>• What are the patterns and trends in these factors?</li><li>• Are risk maps and data widely available?</li></ul>	 <p><b>Detection, observations, monitoring, analysis and forecasting of hazards</b> Develop hazard monitoring and early warning services</p> <ul style="list-style-type: none"><li>• Are the right parameters being monitored?</li><li>• Is there a sound scientific basis for making forecasts?</li><li>• Can accurate and timely warnings be generated?</li></ul>
 <p><b>Preparedness and response capabilities</b> Build national and community response capabilities</p> <ul style="list-style-type: none"><li>• Are response plans up to date and tested?</li><li>• Are local capacities and knowledge made use of?</li><li>• Are people prepared and ready to react to warnings?</li></ul>	 <p><b>Warning dissemination and communication</b> Communicate risk information and early warnings</p> <ul style="list-style-type: none"><li>• Do warnings reach all of those at risk?</li><li>• Are the risks and warnings understood?</li><li>• Is the warning information clear and usable?</li></ul>



# Eligibility Criteria





# Eligibility Criteria

**RESEARCH IDEAS / PROJECTS**

From the National Meteorological and Hydrological Services, Disaster Management, university students/researchers and other related fields are encouraged

**SUBMISSION**

Submission can be done by any individual/youth-lead organization/teams of young professionals

**WOMEN LEAD**

Women-lead projects are encouraged



# Timeline

Submission deadlines are as followed:



Video

Shall be submitted



Concept Note

Is accepted



Live Pitch

To the jury



Implementation

Of the project



# Thank you for your kind attention

## Any questions??



# Join Menti question

Go to **menti.com** and put  
the below code:

**8473 8099**

Or scan the code

