Promoting Early Warning Systems for Minimizing and Addressing Loss & Damage "How to accelerate EWS in Asia Pacific countries?" 10<sup>th</sup> December 2023 At Japan pavilion, COP28 DUBAI EXPO CITY 114E

> Loss and Damage and Early Warning System in Thailand

> > Teerapong Laopongpith Director of Climate risk assessment section, Climate Change Adaptation Division, Department of Climate change and Environment (DCCE) Thailand









Thailand's Climate Change Impact

National Adaptation Plan (NAP)

Early Warning System in Thailand





### The 2011 Great Flood

The worst flooding in five decades spread over 65 provinces, mainly in the North and Central regions, including a large part of Bangkok.

- 815 deaths (with 3 missing) and over 13 million people were affected
- 21,000 sq. km. of farmland was submerged
- 10,000 of homes, factories and businesses inundated.
- The total damages to the

### El Niño, La Niña and Water Storage

#### EL NINO AND LA NINA CLIMATE PATTERNS

 Opposing climate patterns in the Pacific Ocean that impacts weather, wildfires, ecosystems and economies worldwide

#### EL NINO Warming of ocean surface

Known as "Little Boy" or "Christ Child" because it typically peaks in December



 Each event lasts 9 months to a couple of years, occurring every 2 - 7 years. A La Nina usually follows 1 or 2 years after an El Nino

LA NINA Cooling of ocean surface Called "Little Girl", "El Viejo" or "anti-El Nino"







# the impacts of El Niño on the agricultural sector in 2023





Thailand has recorded temperatures over **45°C** for the first time ever.

History was made on the 14th April 2023 in Thailand, as temperatures sky-rocketed to 45.4°C in Tak, nearly a whole degree higher than the previous national record set in 2016 in Mae Hong Son Province in the far north.

Amount

44.2°C

44°C

43.6°C

43.5°C

43.5°C

43.2°C

42.9°C

42.8°C

42.8°C

42.7°C

42.7°C

42.6°C

42.6°C

6 areas in Thailand are ranked among the hottest in the world.

Script courtesy of Michael Holden of Relay Weather. Data courtesy of Ogimet

### Projected precipitation trends in Thailand: RCP4.5



Source: RU-core

on)

### Iational Adaptation Plan (NAP)

#### VISION

"Thailand is resilient and adapt to the impacts of climate change to achieve sustainable development"



THAILAND'S NATIONAL ADAPTATION PLAN



Establish the climate resilience into the national development

MISSION

Enhance capacities and awareness at all level

2

Develop database, research, knowledge, and technology



### Guidelines/Measures of Early Warning System in NAP

#### Human Settlement & Security

Develop accurate, accessible, and up-to-date disaster warning and situation reporting mechanisms covering all city types, comprehensively connected to other warning systems with full accessibility Water Management groups.

- Develop a system for water forecasting and reporting
- Build disaster-watch networks in risk areas by strengthening capacities of the general public, from the household to national levels

Develop surveillance and forecast systems for climate change related health impacts.



#### **Agriculture & Food Security**

Develop an early warning system for the agricultural sector which is accurate, easily accessible, timely, and linked effectively with other early warning systems.

#### Tourism

Build tourism -related disaster surveillance and early warning systems that are fully connected and integrated with other warning systems and create networks in response to climate change.

#### Natural Resources

Establish forest -fire prevention networks in risk areas with communities' participation by increasing their capacities on the prevention and control c 9 est



Preventive Measures and Guidelines to Mitigate the Impact of Disasters Resulting from Climate Change.

13 Measures for rainy season by Office of the National Water Resources

Flood Drought Storm Landslide 10 Measures for drught indry season by Office of the National Water Resources

Gidelines for water management using Nature-based Solution (NbS)

Preparechess for managing disasters in the public sector

Commity Based Disaster Risk Management (CBDRM)

Cantemessues for disaster situations

The public relations process involves informing with the public to provide warnings about disasters before, during and after their occurrence.

The National Disaster Prevention and Mitigation Plan (2021-2027)





### **Early Warning System in Thailand**



There installed areas Broadcasting Tower ignals.

There are 674 broadcast towers installed in communities in risk-prone areas to receive and distribute signals.



It is Real-time notification on approaching disasters in area through the installation of a smartphone application. TDA will provide you with area-specific disaster early warning message and instruction right on smartphone. This way, people in high-risk areas can prepare and protect inselves before a disaster comes.

### **Early Warning System in Thailand**

## THAI DISASTER ALERT Real-time disaster alert application

The "THAI DISASTER ALERT" application will notify you when disasters may occur in the provinces you select.

If you would like to know more details, just click to view the details in the application. The system will keep the details of the disaster alert, so you can view the previous disasters, and there is a menu that shows a map of Thailand.

Moreover, there is a menu that provides hotline phone numbers of many agencies to get information from in case of an emergency or a disaster.



You can press to select a province on the map to see alerts for a specific province.



In addition, if you would like to change the province to receive a disaster alert for, it can be edited at any time.

If there are disaster-prone areas, the map will clearly show a color bar in that province.



### **Early Warning System in Thailand**

National Hydroinformatics Data Center (NHC) **48** government Integrate information form **48** agencies

Hydro and Agro Informatics Institute developed National Hydroinformatics Data Center (NHC) to become the center in integration of national water resources information including aerial, statistic, water situation, and national water resources management researches to maximize benefits in managing water resources





Station Mame	Location	Basin	Time	Water Level (m MSL)	Bank Level (m MSL)	%Qmax	Situation
ONE039 Ranot canal	Songkhla Province	Songkhla Lake Basin	15:50 น.	1.51	1.18	113.46	Overbank Flow
CHR005 Chiang Saen	Chiang Rai Province	Northern Mekong river basin	15:50 น.	356.15	364.75	9.77	Critically low water

### Early Warning System in future

### **Cell Broadcast**

**Sy Salad is inving** the adoption of the Cell Broackast system as an additional channel for distributing messages and warnings to citizens through sending mbile messages without requiring the download of any applications. Which will undergo a pilot test in the Bangkok area on January 15, 2024.



### **Vey advantages**

1. The system can broadcast alerts to all mobile phones at once through cell towers, eliminating the need for specific phone numbers. This ensures a convenient, rapid, and targeted process, particularly for a specific area. (It can be delivered quickly to millions in seconds).

population. Emergency alert will reach anyone with a cell phone regardless of subscriber or location of subscription.

3. Cell broadcast will work in disasters and will not cause network congestion or overload. Emergency alerts are transmitted on a dedicated channel that is independent of normal usage.

4. It does not violate citizen privacy





### Department of Climate change and Environment Ministry of Natural Resources and Environment The Royal Thai Government

