

**CAREI** SOUTH ASIA



# SOUTH ASIA HYDROMET FORUM CLIMATE SERVICES WORKSHOP

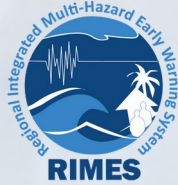
Country Presentation: Overview of Climate Services in South Asia

**MYANMAR**

**TIN MAR HTAY, Deputy Director  
Department of Meteorology and Hydrology**

# OUTLINE OF PRESENTATION

- 1.Current Status of Climate Services
- 2.Forecast Products and Delivery
- 3.Sectoral Advisories and Applications
- 4.Tools, Platforms and Data Use
- 5.Capacity and Gaps
- 6.Expectation from SAHF CS WG



**CARE** | SOUTH ASIA

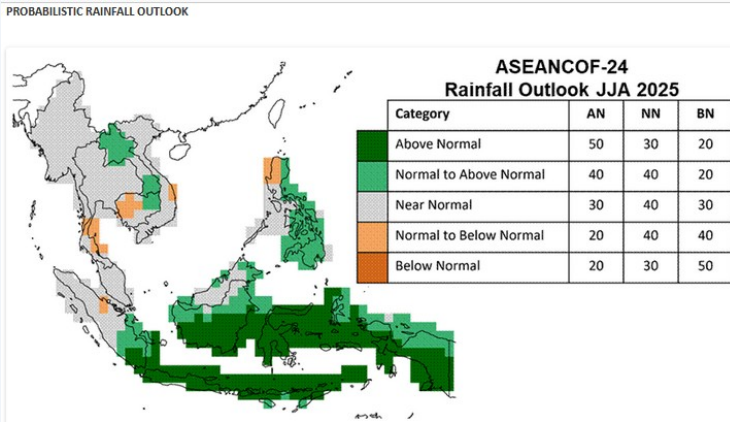
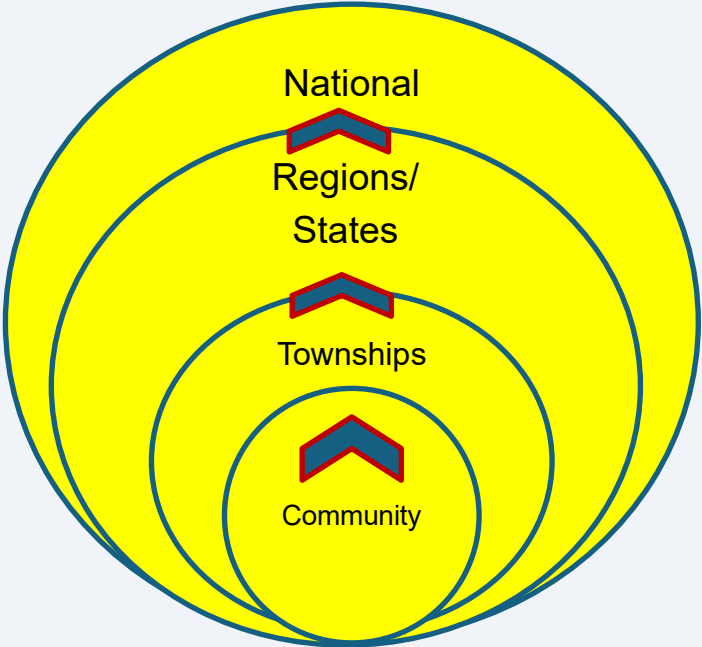


# CURRENT STATUS OF CLIMATE SERVICES

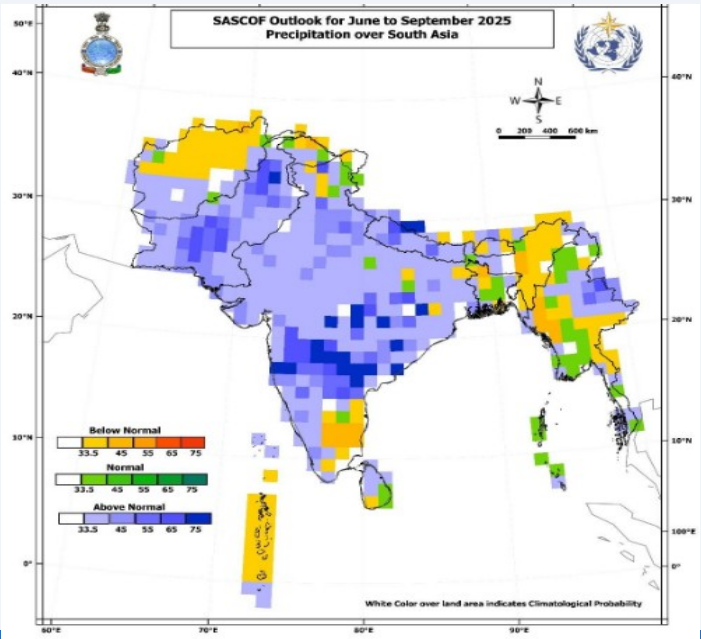
- **Overview of institutional setup for climate services**
- Department of Meteorology and Hydrology (DMH) issue General Weather Outlook for Southwest Monsoon and Northeast Monsoon Season.
- DMH issue Seasonal forecast twice a year and Monthly forecast every month of 28<sup>th</sup>.
- Monsoon Forums were convened as a platform where users and information provider meet and exchange the information and prepare for the season
- National Monsoon Forum is held in twice a year in Nay Pyi Taw .
- The Department of Meteorology and Hydrology calculated the Myanmar Climate Projections for two scenarios (RCP 8.5 High Emissions & RCP 4.5 Intermediate Emissions).
- Myanmar has ratified the Paris Climate Agreement and published its Nationally Determined Contribution (NDC) in 2016. Myanmar's NDC identifies extreme weather events, sea level rise, flooding, and drought as the most significant threats it faces from climate change.
- The Department of Meteorology and Hydrology - DMH under the Ministry of Transportation and Communication analyzed hydrometeorological indicators which revealed that Myanmar's Climate is changing and also support the projected climate change information for the Myanmar Climate Change Strategy and Action Plan (MCCSAP).



● National Monsoon Forums/Climate Outlook Forums at national or subnational scale



- Regional Climate Outlook Forums are one of the vehicles for developing user-driven products and services and communicating those to users at regional and national scale.
- The outlooks generally include probabilistic predictions of seasonal mean rainfall, surface air temperature and other weather parameters, as well as the likely evolution of key drivers of seasonal climate variability relevant to the region such as the El Niño/Southern Oscillation (ENSO).



- **Interactions with the user sectors before or after the Monsoon Forums**

- **Improve Forecast Accuracy:**

By reviewing past forecasts and gathering feedback from users, the forum helps improve the quality and reliability of future weather and water level predictions.

- **Enhance Disaster Preparedness:**

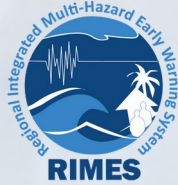
The forum's discussions and recommendations contribute to better preparedness for potential extreme weather events and natural disasters.

- **Promote Climate Change Adaptation:**

By addressing the long-term impacts of climate change, the forum helps stakeholders adapt to changing monsoon patterns.

- **Strengthen Coordination:**

The forum fosters collaboration and coordination among various stakeholders involved in monsoon-related activities.



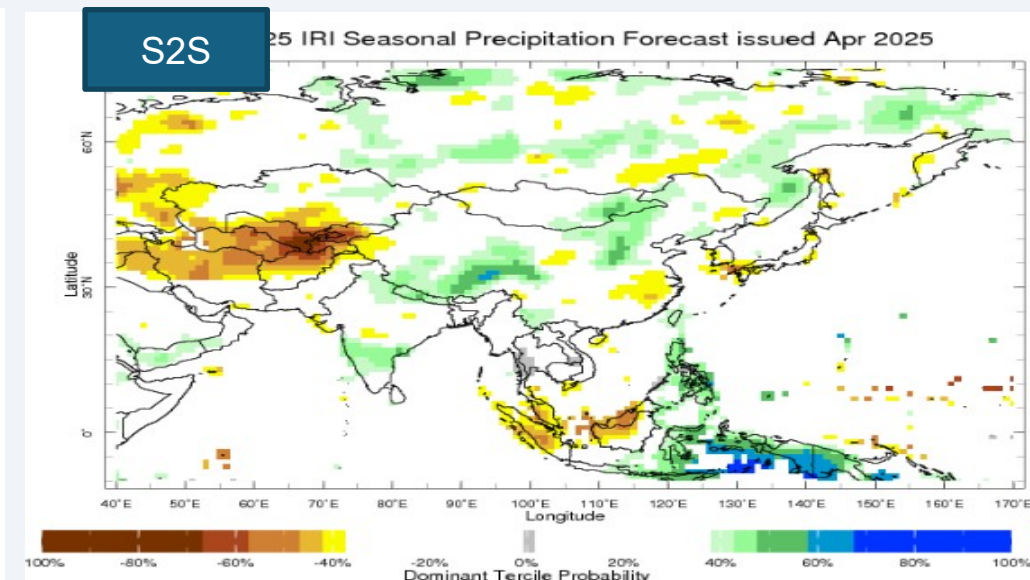
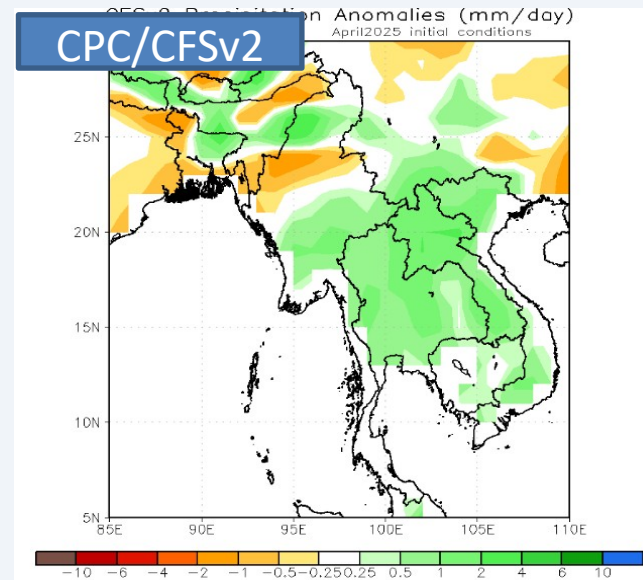
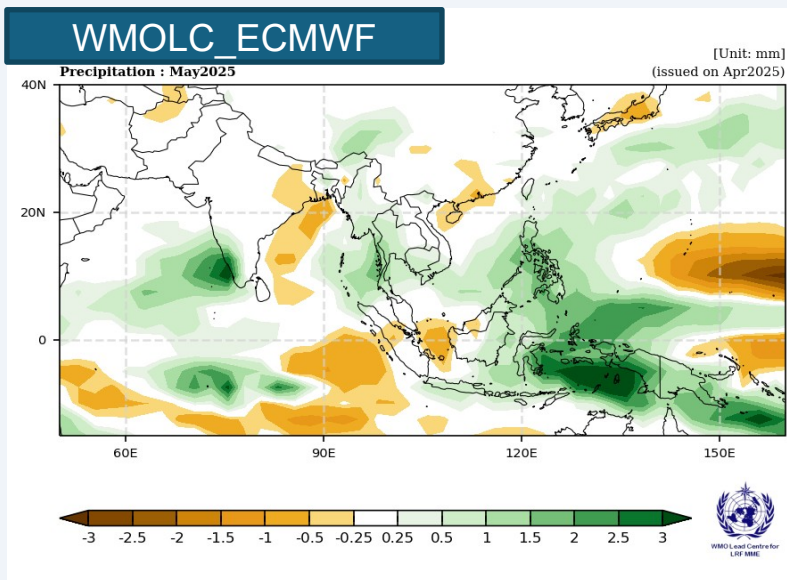
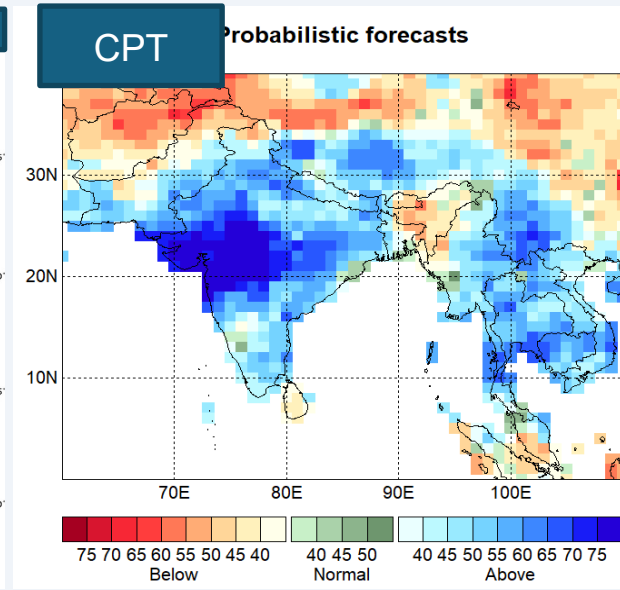
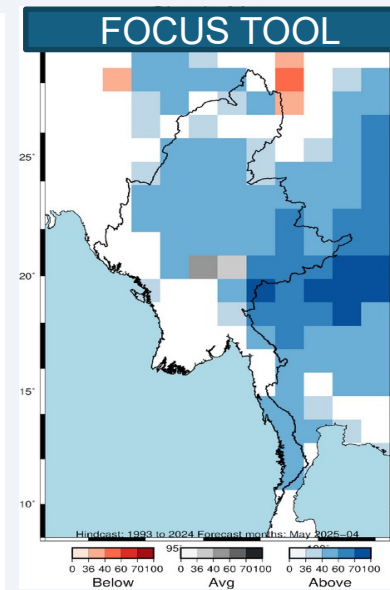
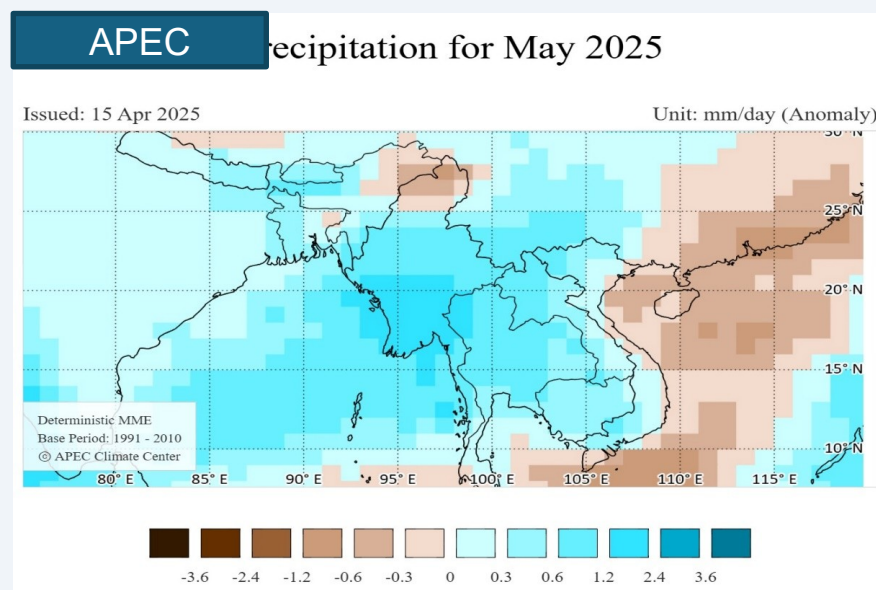
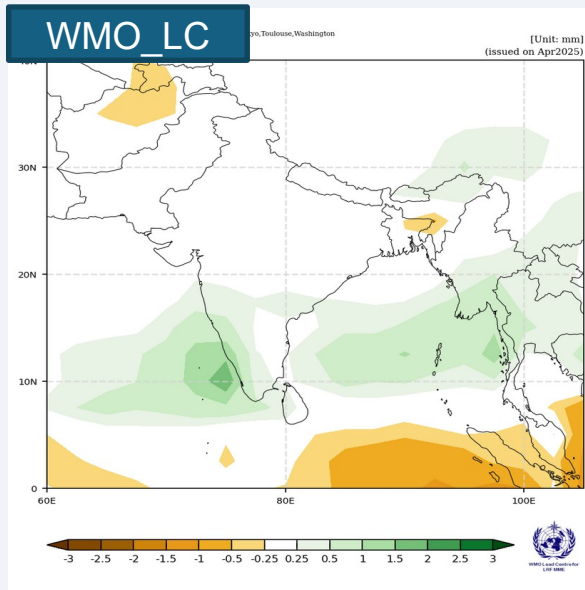
**CAREI** SOUTH ASIA



# FORECAST PRODUCTS AND DELIVERY

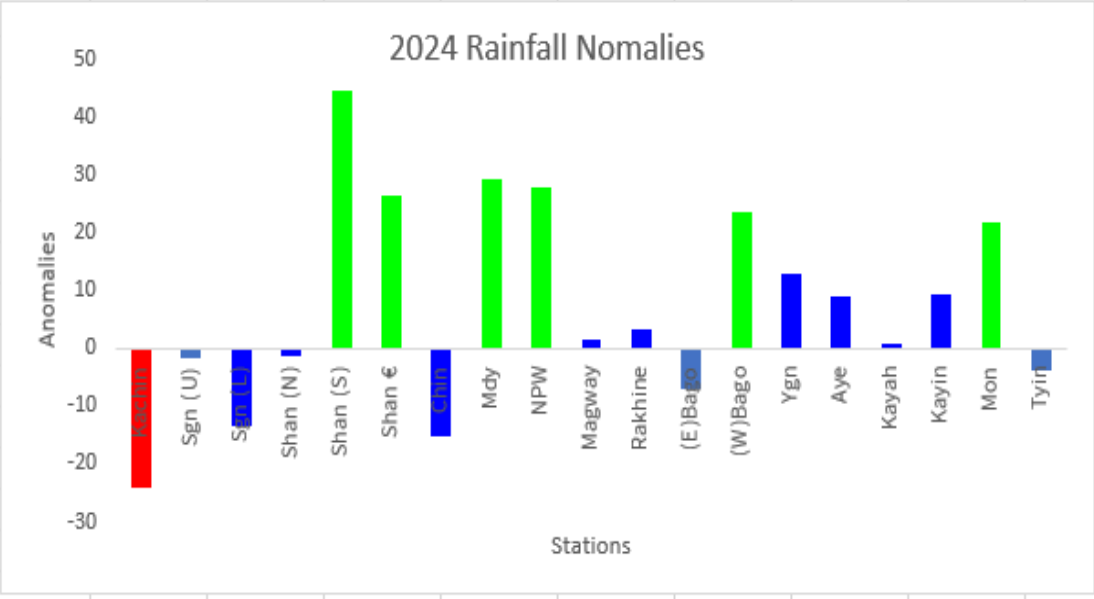


- Major climate products and services currently produced (e.g., seasonal forecasts, S2S, long-term projections) and shared with the users

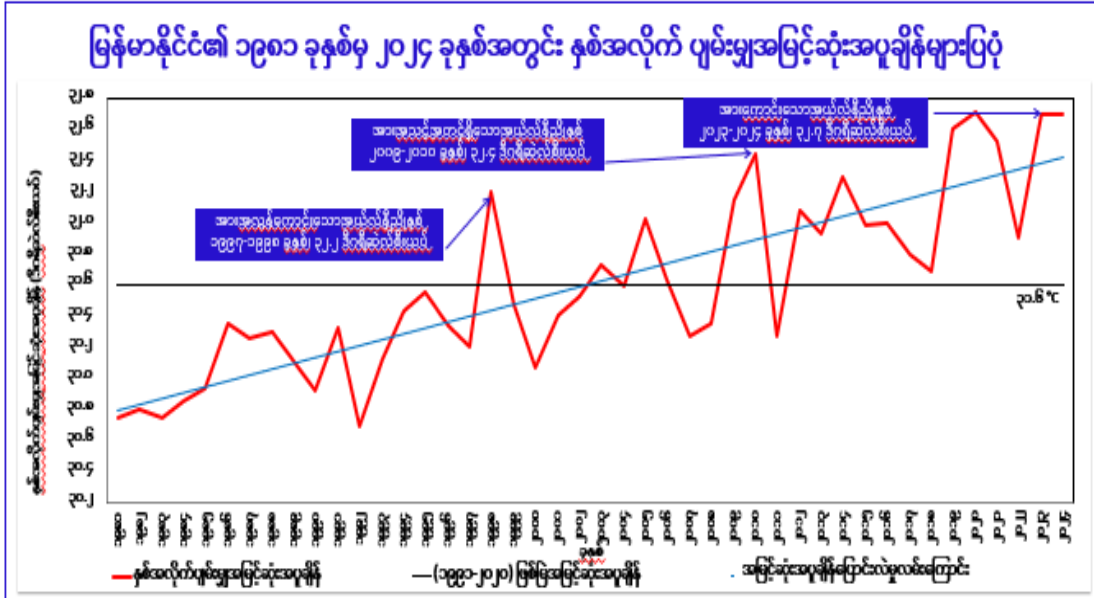
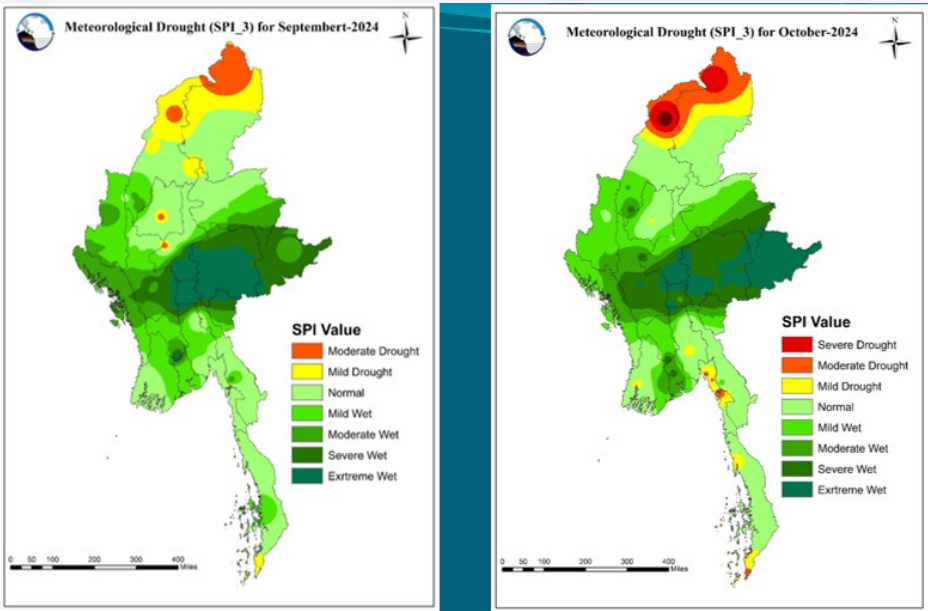




- Customized advisories for various user sectors generated based on these products (e.g., drought/flood indices, heat stress, rainfall anomalies)



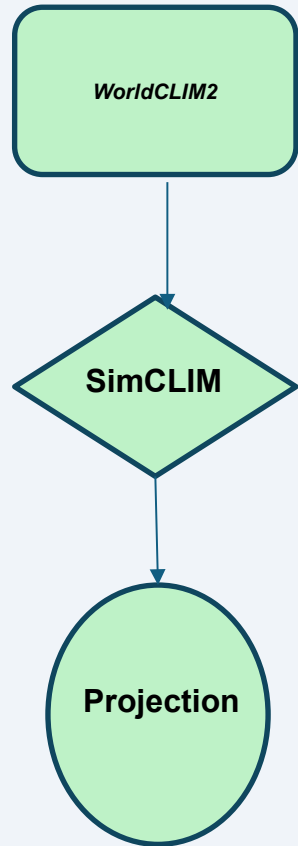
The 2023-2024 strong El Niño event resulted in a new record Max temperature of 48.2 degrees Celsius in Chauk Township, Magway Region in 2024, making it the highest temperature ever recorded in Myanmar. The 1997-1998 very strong El Niño event had an average annual maximum temperature of 32.2 degrees Celsius, the 2009-2010 moderate El Niño event had an average annual maximum temperature of 32.4 degrees Celsius, and the 2023-2024 strong El Niño event had an average annual maximum temperature of 32.7 degrees Celsius.



DMH uses the Rainfall Anomaly Method, SPI and RDI methods. During the rainy season of 2024, from May to October, the intensity of drought was severe in Khamti and Mandalay, while Myittha, Bhamo, Putao, Homalin, Katha, Shwebo, Ye U, Monywa, Sagaing, Nyaung U, Ramethin, Kyaukse (Lunkyaw), Chauk, Minbu, Magway, Sittwe, Kyaukphyu, Maubin, Ye, Bilin, Thein Zayet, Myeik and Kawthaung experienced mild to moderate drought.

- Examples of application of these products

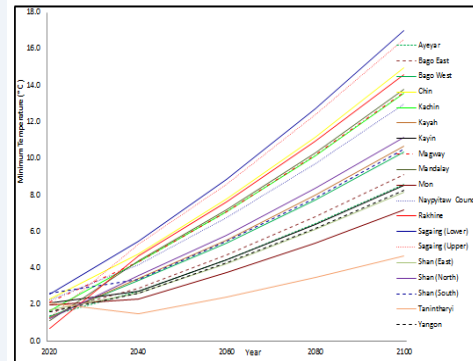
## Future Climate in Myanmar



The Department of Meteorology and Hydrology calculated the **Myanmar Climate Projections for two scenarios** (RCP 8.5 High Emissions & RCP 4.5 Intermediate Emissions). Climate variables include: **Maximum and Minimum temperatures (°C), and Precipitation (mm)**. Future developments include calculations for Sea Level (m). **Baseline: WorldCLIM2 datasets, 1981-2010**

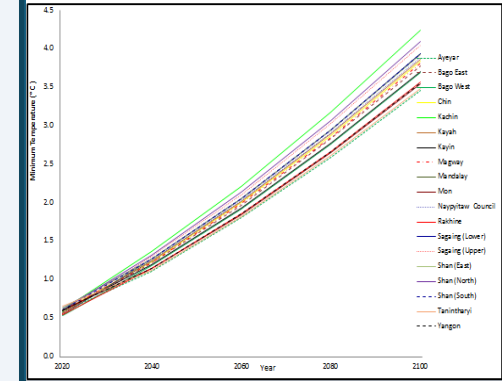


Climate Scenario Change from Baseline –Precipitation (% Departure ) RCP 8.5

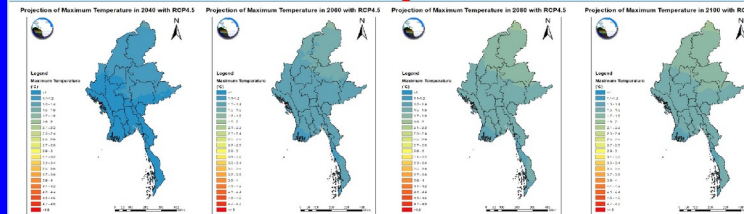


There is **high confidence\*** that **warming** is very likely to continue across Myanmar. Relative to the baseline period of 1981-2010, the annual cycle change in maximum temperature can go up to around 1.6°C (RCP 4.5) / 2.3°C (RCP 8.5) by 2060 and around 1.7°C (RCP 4.5) / 4.3°C (RCP 8.5) by 2100. **Consensus among climate models**

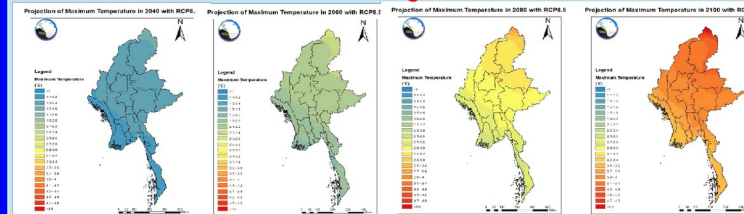
Climate Scenario Change from Baseline Maximum Temperature Anomaly(°C) RCP 8.5



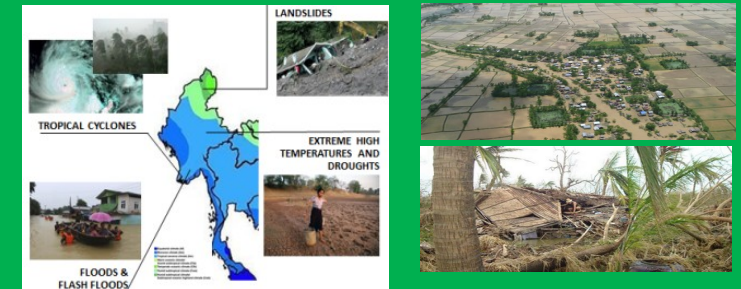
Climate Scenario Change from Baseline RCP 4.5



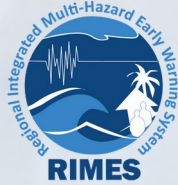
Climate Scenario Change from Baseline RCP 8.5



## MORE FREQUENT AND INTENSE EXTREME EVENTS (Moderate Confidence)



From the observations made on the past, the on-going and future climate changes will have many consequences in Myanmar, mainly on the economic, productive, social and environmental sectors



**CAREI** SOUTH ASIA



# SECTORAL ADVISORIES AND APPLICATIONS



- **Types of advisories issued (agriculture, water, health, etc.)**

#### Agro-Met Dekad Forecast for Agriculture

- Maximum temperature condition
- Minimum temperature condition
- Mean temperature condition
- Relative humidity condition
- Evapotranspiration condition

#### Flood Advisories for Irrigation, Water Utilization Management

It is especially alert to the people who settle near the river banks and low lying areas in Homalin and Bago Townships, to take precaution measure and to stay away from the flood-prone areas in time if the water level will rise.

#### Health

- No more suggestion for Health sectors but we issue Significant Day temperature and Significant Night temperature.

- **Types of advisories issued (agriculture, water, health, etc.)**

### Agriculture

- Prepare for auxiliary seeds and rice as there is potential flood in mid and late monsoon
- Farmer representatives from Dry Zone has decided to select standing type groundnut (one sequence) for cropping

### Irrigation, Water Utilization Management

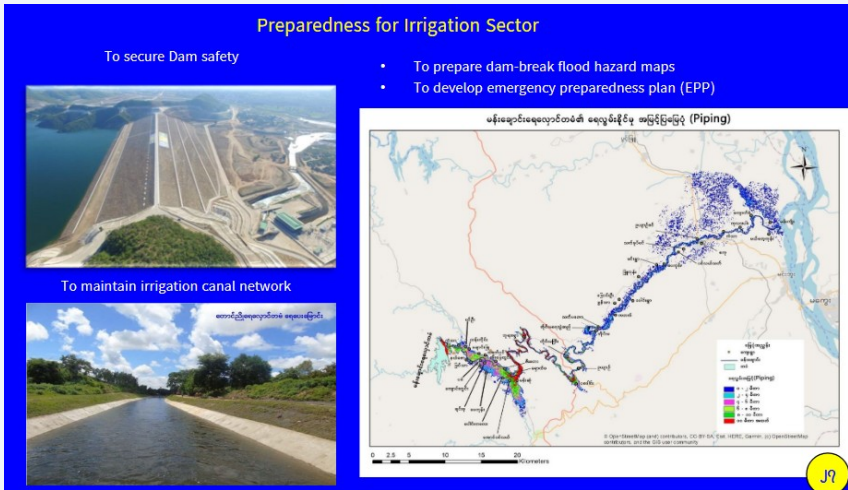
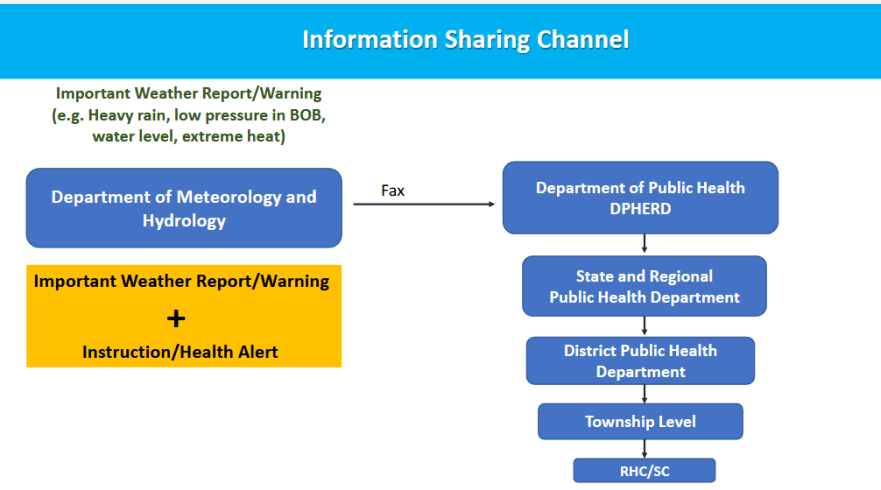
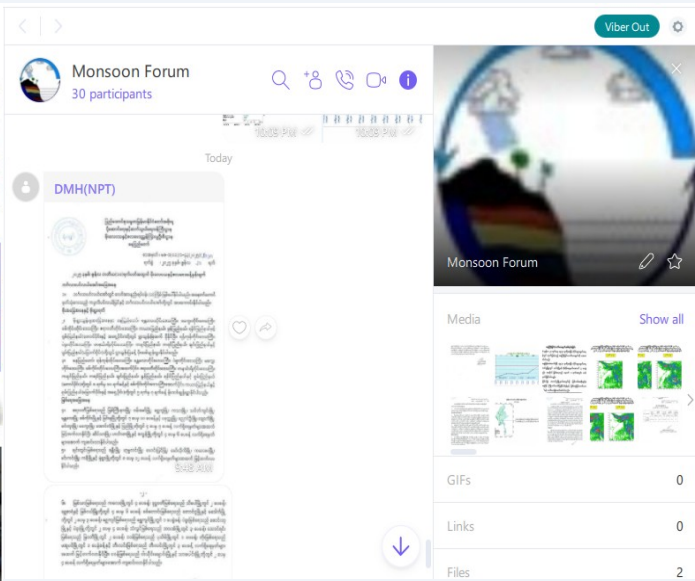
- The monsoon outlook generated by DMH will be used in calculation of Dam/reservoir inflow and flood management as well as in dam water storage, outflow and safety precaution.
- Evaporation data and forecast (monthly, 10 days and daily) is required for water utilization management as the evaporation forecast is necessary for water utilization and Reservoir management
- Flood frequency forecasts will be used in maintenance plan for flood control dyke and gate and their operation.

### Health

- Will monitor 10 days and monthly maximum temperature forecast as they observed many cases related to heat stroke
- Need heat index warning in Summer to prepare for health response and provide advisories to public



• Whether advisories are tailored to user needs or co-developed with sectors




**ICT အသုံးပြု၍ ပညာပေး လုပ်ငန်းများ ဆောင်ရွက်ခြင်း**

- ❖ Open Call Center – 1.3.2017
- ❖ Call center - hotline- +95-01- 2399555, +95- 0673- 410139
- ❖ Website - [www.doa.gov.mm](http://www.doa.gov.mm)
- ❖ Facebook page - <https://www.facebook.com/moali.update.33>
- ❖ Viber – +95-09-764000841
- ❖ e- library
- ❖ Farmer channel
- ❖ Mobile applications
- ❖ Information section




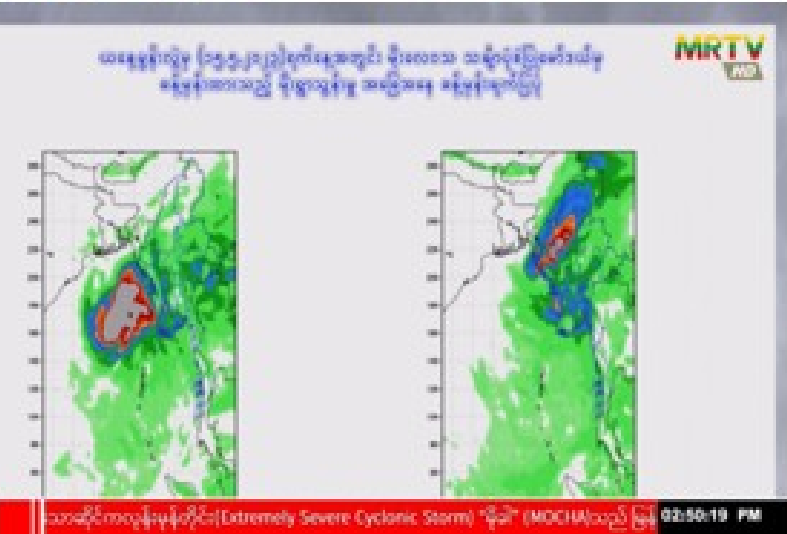
• How forecasts are applied in planning or decision-making by government/sector agencies



DEPARTMENT OF METEOROLOGY & HYDROLOGY

မိုးလေဝသနှင့် ရေစာအာဏာကြီး






သတိပေးချက် (သတိပေးချက်အားဖြင့်) မိုးလေဝသ သတိပေးချက်အားဖြင့်  
မိုးလေဝသ သတိပေးချက် အချက်အလက် အချက်အလက်

သတိပေးချက်အားဖြင့် (Extremely Severe Cyclonic Storm) "ဖိုခါ" (MOCHA) သည် မြန် 02:50:19 PM

မြန်မာနိုင်ငံတော်

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်



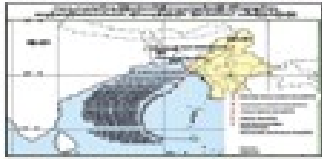
ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော် ဝန်ကြီးချုပ် ဦးစီးဌာန၊ ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော် ဝန်ကြီးချုပ် ဦးစီးဌာန၊ ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော် ဝန်ကြီးချုပ် ဦးစီးဌာန

SAHJ 2025

FOR THE SECRETARY OF MINISTRY

Extremely Severe Cyclonic Storm Warning, No 22, 2023

22 May 2023, 12:00 MYT Today



The Bay of Bengal off the coast of India

Rice, edible oil provided to evacuees from storm

High tide and strong wind will cause damage to crops and buildings. People should evacuate to safe places.

Cyclone Warning

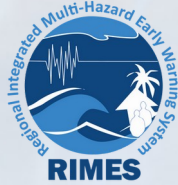
MOCHA is an extremely severe cyclonic storm. It is likely to cause heavy rain, strong winds and storm surge. People should evacuate to safe places.

MOCHA is an extremely severe cyclonic storm. It is likely to cause heavy rain, strong winds and storm surge. People should evacuate to safe places.

MYANMAR Daily Weather Report

22 May 2023 at 12:00 pm

MOCHA is an extremely severe cyclonic storm. It is likely to cause heavy rain, strong winds and storm surge. People should evacuate to safe places.



**CAREI** SOUTH ASIA



# TOOLS, PLATFORMS AND DATA USE

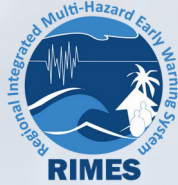
- National platforms/tools used for climate services (e.g., digital portals, DSSs, toolkits)

Ongoing activities- Data portal/ Web Portal for Agro-met services

We have to use mobile Application

- Use of regional data sources like SASCOF, CORDEX products  
CORDEX data are used for Myanmar climate change Projection
- Integration of local observational or indigenous knowledge, if any  
Sometime / emergency Case – contact to Local government





**CAREI** SOUTH ASIA



# CAPACITY AND GAPS

- Technical or institutional capacities currently in place

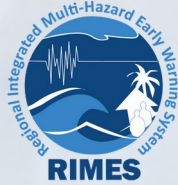
Need Capacity Building

- Key gaps or challenges (e.g., modeling capacity, user engagement, communication, funding)

Update Scenario, Funding from Donor Partner

- Areas where regional cooperation or training is needed

National and Disaster Areas



**CAREI** SOUTH ASIA



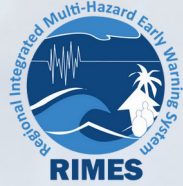
# EXPECTATIONS FOR SAHF CS WG



- Key areas for collaboration through the CS WG (e.g., co-development, data sharing, capacity building)

Challenges – real time data

- What support the country expects from the CS WG and partners  
Training /capacities Building
- Suggested priorities for inclusion in the regional work plan  
Need Pilot project



**CAREI** SOUTH ASIA



# THANK YOU!