

# 14<sup>th</sup> MONSOON FORUM BRIEF



**Bridging gaps in forecast generation and application for enhanced management of resources and risks in economic, development and disaster management sectors**

## THE MONSOON FORUM PROCESS

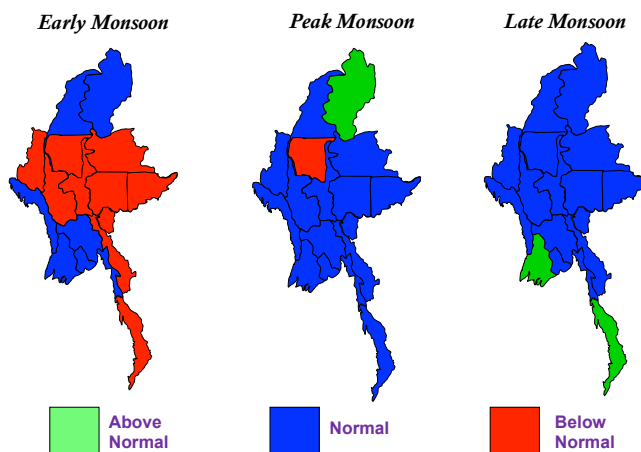
The Monsoon Forum is a cyclical process of generation of user-relevant forecast products by National Meteorological and Hydrological Services (NMHS); assessment of forecast-based potential conditions by users; identification and implementation of strategies for managing potential negative impacts and taking advantage of potential favorable conditions; monitoring how the season progresses and making required adjustments; and sharing of experiences in applying forecasts and providing feedback and recommendations for further enhancing forecast products. The Monsoon Forum further integrates issues and concerns on geophysical risks, making it an integrated multi-hazard platform for short- and long-term preparedness.

## OVERVIEW

The Department of Meteorology and Hydrology (DMH) convened the 14th Monsoon Forum, in Myanmar, on 5-6 May 2015 in Nay Pyi Taw. Hosting 78 stakeholders from various economic, development and disaster management sectors, the Forum:

- Reviewed the 2014-2015 Post-Monsoon Season in terms of patterns of climate and performance of the seasonal/monthly climate outlook and other forecast products
- Obtained feedback from users on their experiences, management decisions, challenges and lessons learnt during the 2014-2015 Post-Monsoon Season; and relevance/ usability of seasonal, monthly, and other forecast products received from DMH during the season
- Received recommendations for further enhancement of forecast generation, translation, communication and application

## General Climate Outlook for the 2015 Southwest Monsoon Season Over Myanmar



**Early Monsoon – May to June; Peak Monsoon – July to August; Late Monsoon – September until Southwest Monsoon withdrawal**

Per analysis of model outputs from various long-range forecast producing centers and analysis of conditions of analogue years, DMH seasonal forecast indicated the likelihood of normal rainfall, during the Early Monsoon

Period, in Kachin, Mon and Rakhine States and in Ayeyarwady, Bago, Upper Sagaing and Yagon Regions; the rest of the country is expected to receive below normal rainfall during the period.

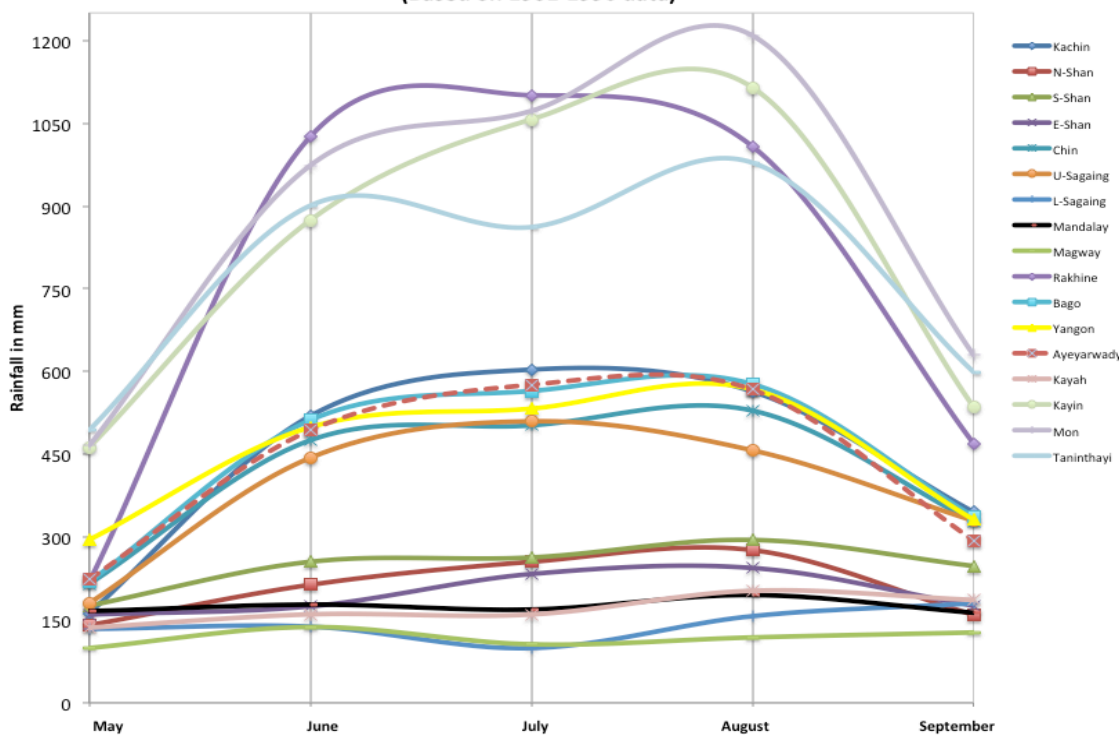
During the Peak Monsoon Period, normal rainfall is expected over the country, except in Lower Sagaing Region where below normal rainfall is expected and in Kachin State where above normal rainfall is likely.

All regions and states are expected to receive normal rainfall during the Late Monsoon Period, except in Ayeyarwady and Tanintharyi Regions where above normal rainfall is probable.

- Presented the seasonal climate outlook, generated by DMH, for the 2015 Southwest Monsoon Season
- Discussed and presented multi-timescales preparedness though sectoral potential impacts outlook and management strategies for application by stakeholders relative to the 2015 Southwest Monsoon Season and sectoral requirements for climate change projections
- Discussed mechanisms for enhancing resources and risks management in

- agriculture, in Myanmar's Dry Zone, through the application of Specialized Expert System for Agro-Meteorological Early Warning
- Discussed mechanisms for enhancing earthquake and tsunami preparedness though integration of ShakeCast and tsunami risk assessment outputs in planning and decision-making, in relevant sectors in Myanmar
- Discussed mechanisms for addressing Monsoon Forum recommendations

**Average Rainfall for Various Areas in Myanmar  
(Based on 1961-1990 data)**



**GUIDANCE FOR SEASONAL FORECAST ANALYSIS**

Analysis of seasonal forecast should be done against location-specific historical data.

Normal rainfall, in seasonal forecast, means  $\pm 20\%$  of location-wise long-term average rainfall (refer to figure on the left). Since different areas in Myanmar exhibit variations in rainfall climatology, normal rainfall values will therefore vary area-wise.

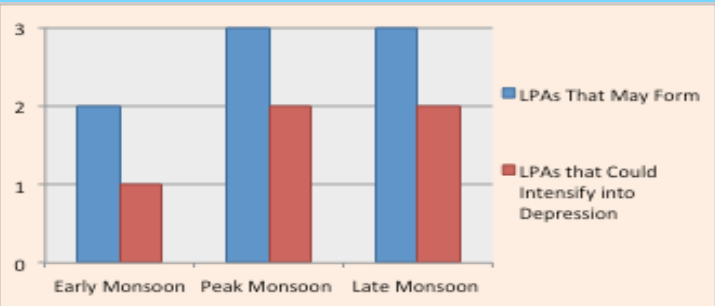
On the other hand, above normal rainfall means  $+21\%$  and above of the average rainfall and below normal rainfall is equivalent to  $-21\%$  and lower of the average rainfall.

Seasonal forecast is best used for planning. Due to uncertainties associated with seasonal forecasts, it should be supplemented with monthly, 10 days and other short-term forecasts, all available from DMH.

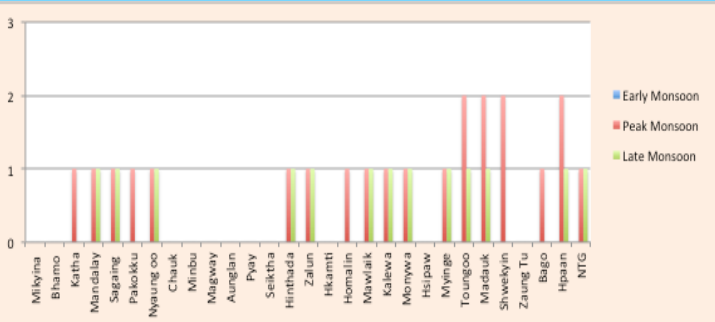
**LIKELY ONSET AND WITHDRAWAL DATES OF THE 2015 SOUTHWEST MONSOON**

The 2015 Southwest Monsoon is likely to establish in Southern Myanmar within 15-20 May; in Deltaic Areas by around 21-26 May; in Central Myanmar within 27-31 May; and in Northern Myanmar by around 1-7 June. It is likely to withdraw from the country by the last ten (10) days of September 2015.

**POTENTIAL BAY OF BENGAL CONDITIONS**



**PREDICTED FLOOD FREQUENCY IN VARIOUS STATIONS**



**WORKING GROUP OUTPUTS:  
POTENTIAL PREPAREDNESS OPTIONS FOR THE 2015 SOUTHWEST MONSOON SEASON**

**Agriculture and Irrigation:**

- Land preparation can be timed with the anticipated monsoon onset
- Early planting of paddy can potentially reduce damage to crops from possible flood that could happen during the peak monsoon, due to probable heavy rainfall
- Reservoir operations can be guided by monsoon onset and general rainfall outlook for the season
- Management of reservoir release / gate operations for ensuring water supply for agricultural areas up to the ripening stage of paddy, even after the monsoon withdrawal dates
- Embankment protection work can be done in delta areas relative to the potential flood conditions during the 2015 Southwest Monsoon
- Water harvesting mechanisms should be put in place in areas with copious rainfall during the Southwest Monsoon but very dry during the rest of the year. Water saved during the Southwest Monsoon, in these areas, could be utilized for various purposes during the Post-Monsoon/Dry Season. In the long-run, storage dams should be established in these areas to take advantage of surplus water during the Southwest Monsoon Season

**Disaster Risk Management**

- Potentially heavy rainfall and resulting floods in some areas, during the season, could cause harm to people, impact on infrastructures, health, environment, water resources, agriculture and food security sectors, among others
- On the other hand, the Southwest Monsoon Season, with significant rainfall anticipated in most areas, could also reduce fire hazards, enhance agriculture cultivation, facilitate better water transport (rivers), etc.
- Public awareness has to be conducted, among broader national and sub-national stakeholders and communities, for preparedness. Various mechanisms for awareness, including television and radio programs, should be tapped.

*Awareness activities/programs should be supplemented with drills, workshops, and trainings to make them more effective*

- *Mechanisms for mobilizing appropriate and location-specific community responses should be put in place. Local governments have to be empowered to take preparatory and mitigation actions*
- *Building of shelters, enhancing evacuation routes, and renovation of embankments should be done prior to the 2015 Southwest Monsoon onset*
- *In anticipation of LPAs and depressions which may develop in the Bay of Bengal and impact on different areas in Myanmar, during the season, search and rescue teams and equipment and relief items should be readied*
- *Coordination plans/mechanisms among government institutions, UN organizations, and international and local NGOs should be in place to facilitate effective and efficient coordination and utilization of resources for when anticipated events occur*
- *In-season monitoring should be conducted; preparedness measures for the Peak and Late Monsoon periods could be adjusted based forecast updates and taking into account experienced climate during the Early Monsoon*
- *Ministries have to be aware of the forecast and potential preparedness/mitigation measures; line agencies could be informed through respective ministries and line departments. UN institutions, the DRR Working Group and NGOs should also be made aware. EOCs of various institutions should be activated for receiving other forecast products, in support of the seasonal forecast, from DMH*
- *The Monsoon Forum has to be downscaled to district, township, and community levels for end-to-end preparedness*

availability during the Post Monsoon/Dry Season

- Provision to stakeholders, by DMH, of updated information on the Southwest Monsoon withdrawal dates
- Regular provision of maximum and minimum temperatures, by DMH, for subsequent 3-4 months
- Densification of observation stations in major rivers (Ayeyarwady, Chindwin, Sittoung, and Bago), to facilitate better water/flood level forecasting
- Provision of support, from various international institutions, for technical and other assistances to DMH, for generation of updated climate change projections
- Expansion/institutionalization, in Myanmar, of the Forecast Application for Risk Management in Agriculture (FARM) School, a capacity building process for enhancing forecast uptake among farmers
- Capacity building of DOA and farmers, in the Dry Zone, in water management
- Access of Department of Irrigation to flood model outputs in DMH, for utilization in water resources management
- Expansion of the collaboration on RIMES-facilitated Specialized Agro-Advisory System, to include Department of Agricultural Research
- Establishment of mechanisms for sending advisories, to farmers and other stakeholders, through SMS system
- Development of mobile application, for disseminating/communicating advisories to broader stakeholders
- Development of video clips/short movies for enhancing awareness among the general population
- General improvements in the end-to-end information communication system
- Availability of agro-met bulletins in DMH website and other media, for enhancing farmers' understanding of forecasts/bulletins
- Development of agro-meteorological calendar (graphic) for guiding farmers' decisions/activities
- Enhanced earthquake and tsunami preparedness through utilization of risk assessment outputs in planning and decision making

## RECOMMENDATIONS

The 14<sup>th</sup> Monsoon Forum has put forward and approved the following recommendations:

- Enhanced data sharing system/mechanism, between DMH and stakeholder organizations (including universities), for planning and implementation of development initiatives, validation processes and research activities
- Installation of more sea level stations along Myanmar's coast
- Further training, for Department of Agriculture (DOA) staff, in utilizing forecast information of various timescales from DMH
  - Training should include staff in line agencies and in DOA offices in Regions and States
- DMH to make available state- and region-wise climatology of rainy days for the country
  - Graphic information should be provided by DMH
- Mechanisms, for addressing unviable traditional perceptions and practices of farmers, should be evolved
- Enhancement of awareness vis-à-vis lightning and storm warning
- Development of information materials on seasonal preparedness and sharing of the same to stakeholders in districts, townships and communities
- Preparedness by General Administration Department (GAD), in the sub-national and community levels, should be enhanced
- Downscaling of Monsoon Forum to all levels (sub-national and community levels) to supplement and complement national decisions. All levels should be sensitized and to be able to facilitate required actions
- Establishment of water harvesting/storage facilities in areas with sufficient rainfall during the Southwest Monsoon, to ensure water

