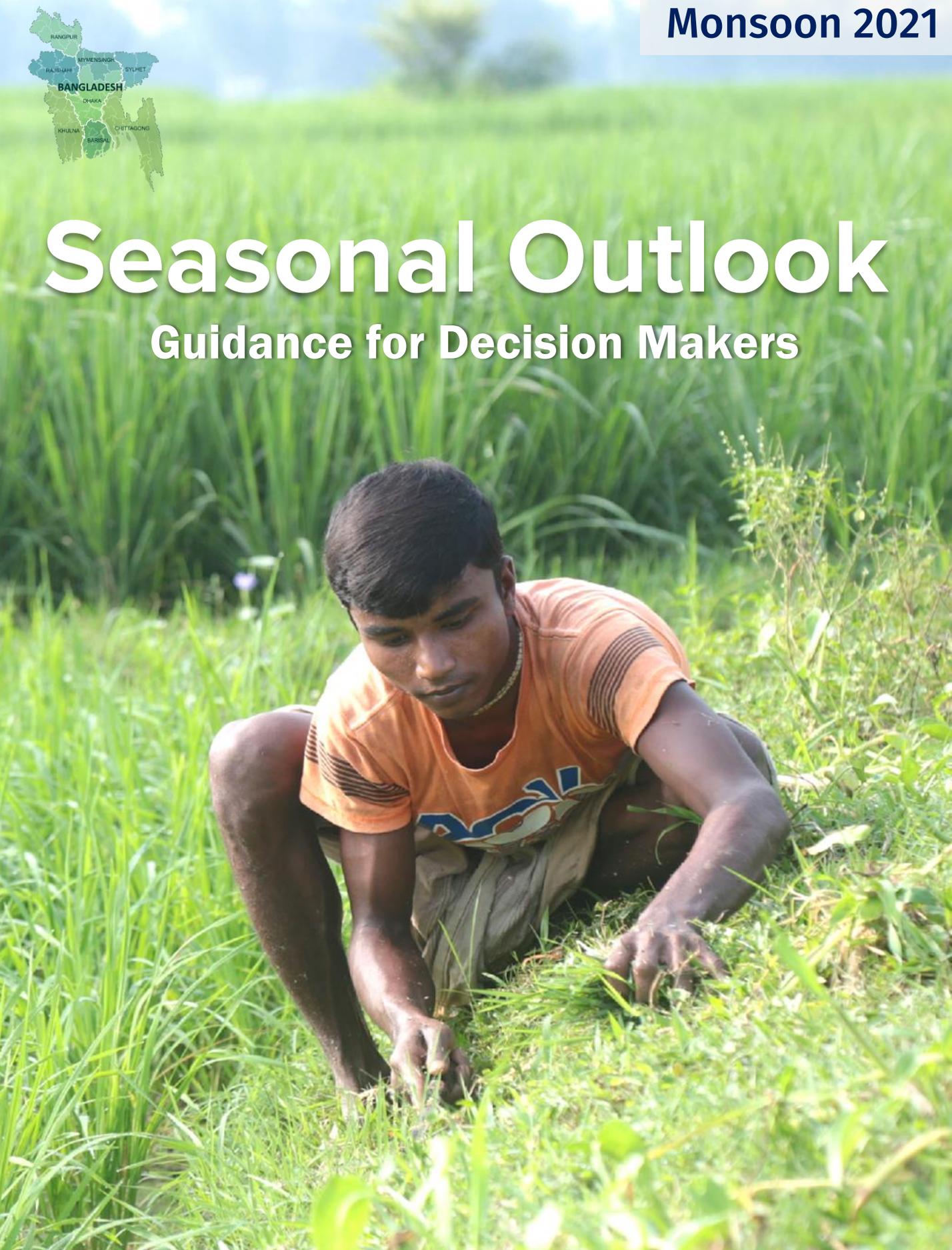




Seasonal Outlook

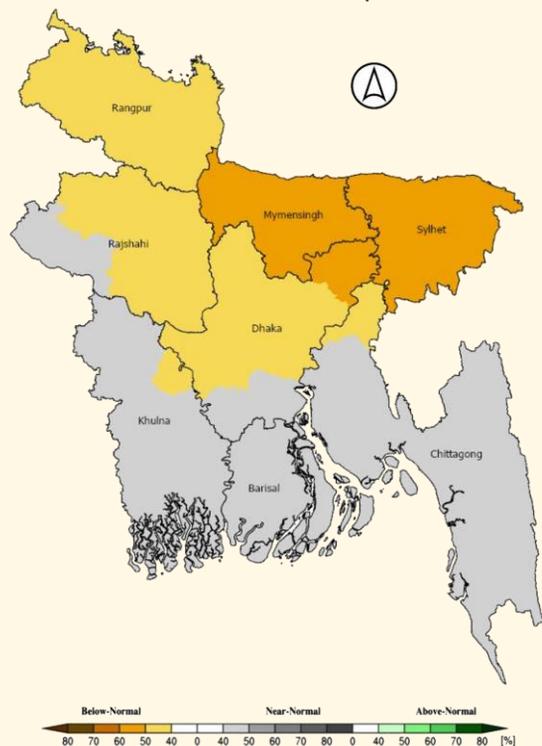
Guidance for Decision Makers



Summary

June - September 2021

Rainfall of June-September 2021



As per the available climate model outputs, below normal rainfall is expected in Sylhet and Mymensingh divisions (light to dark brown shaded area). Rainfall may be slightly below normal over Rangpur, Rajshahi, Dhaka and adjoining districts. Normal rainfall may be experienced at some places of Khulna, Barishal, Chattogram and its adjoining areas (light grey shaded area).

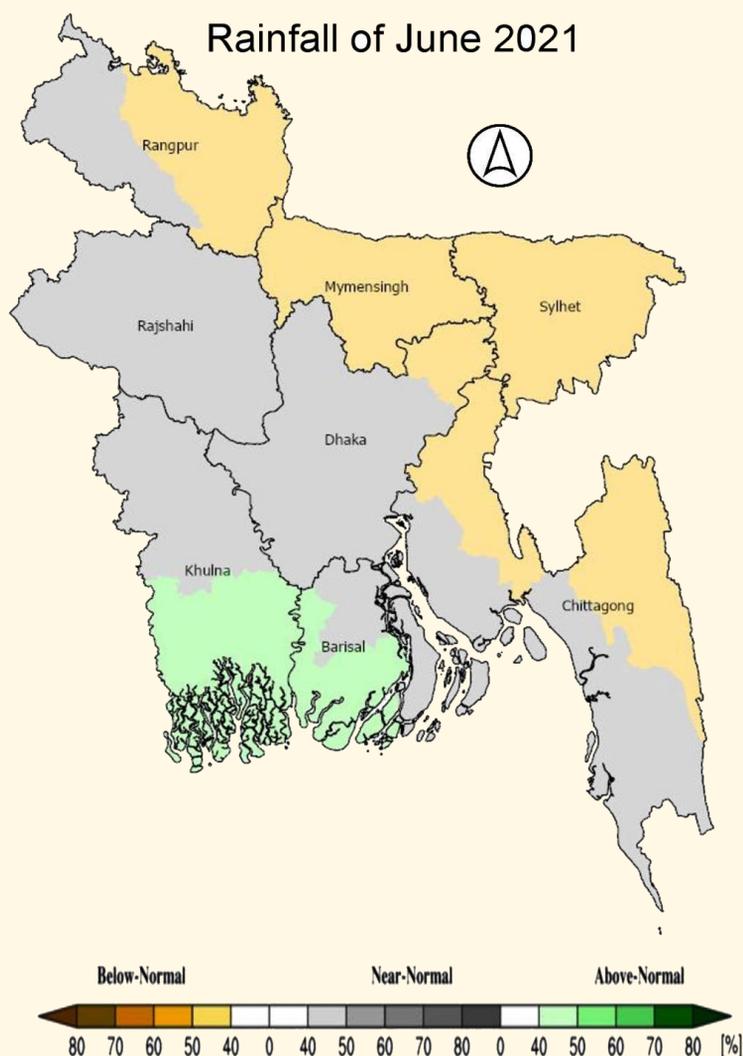
Temperature of June - September 2021



Available climate model outputs suggest that the temperature is likely to be near normal over Rangpur, Mymensingh, Sylhet, Barishal and adjoining areas. during this period. It may be above normal at other parts (light to dark brown shaded area) of Bangladesh.



Rainfall Outlook for June



Considering the available climate model outputs, rainfall is likely to be below normal over northeastern part (eastern part of Rangpur division, Mymensingh, Sylhet and northeastern part of Chattogram division) (light brown shaded area), above normal over most parts of Khulna and Barishal divisions (light green shaded areas) and near normal over rest of Bangladesh.



Rainfall Outlook for July



Available climate model outputs suggest that the rainfall is likely to be near normal over Rangpur, Mymensingh, Sylhet divisions and their adjacent areas (light grey shaded area). Rainfall is likely to be near normal at other parts of (dark grey shaded area) Bangladesh.



Rainfall Outlook for August

Rainfall of August 2021



Available climate model outputs indicate that the rainfall is likely to be near normal over Rangpur, Mymensingh, Sylhet divisions and their adjacent areas (light grey shaded area). Rainfall is likely to be below normal over other parts (with brown shaded area) of Bangladesh.



Rainfall Outlook for September

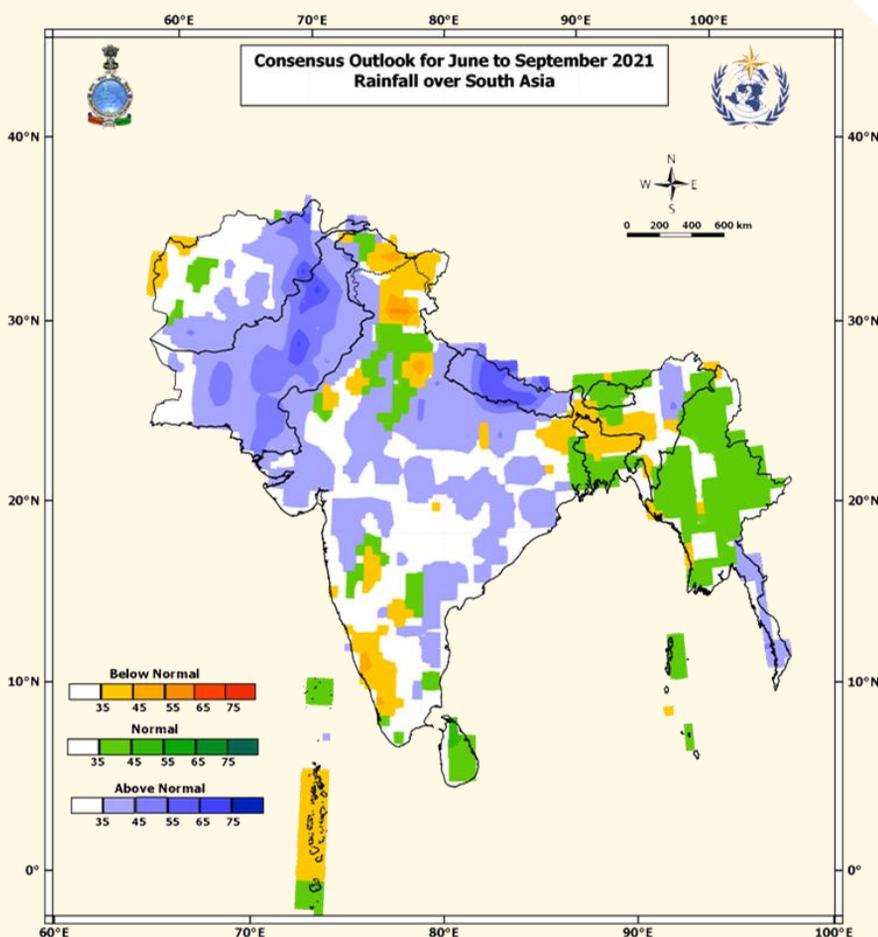
Rainfall of September 2021



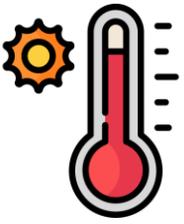
Available climate model outputs indicate that the rainfall is likely to be below normal over Sylhet and Mymensingh divisions (brown shaded area). Rainfall is likely to be near normal over other parts (light grey shaded areas) of Bangladesh.



Regional Outlook for the 2021 Southwest Monsoon Rainfall over South Asia

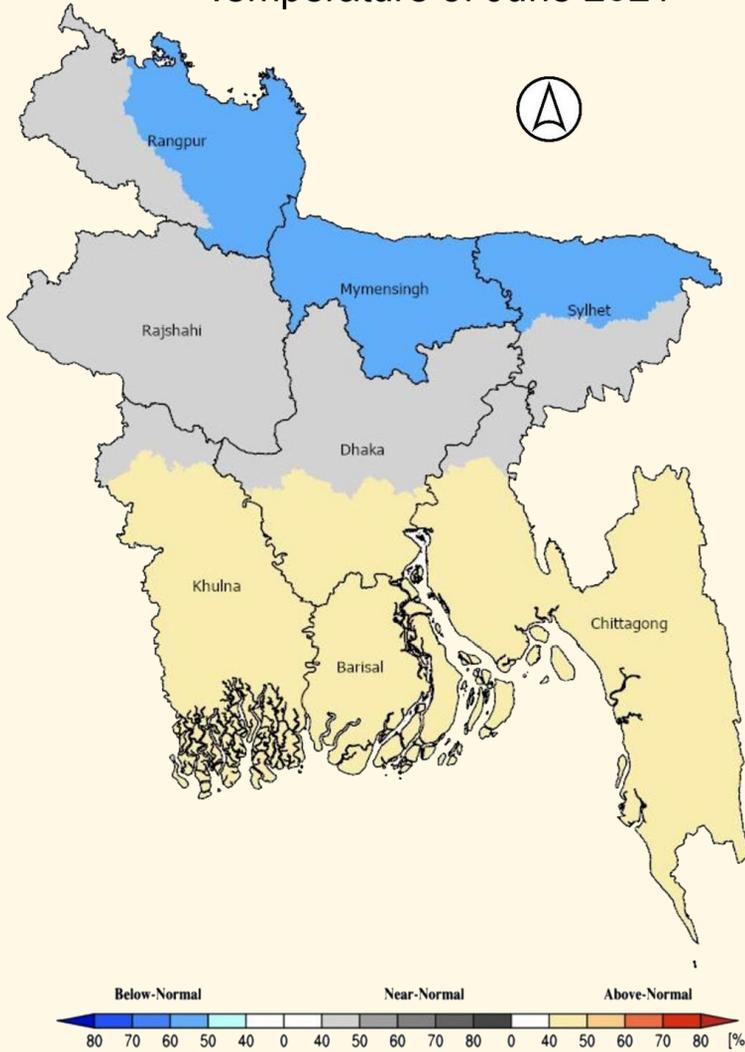


The outlook suggests that the rainfall for the season as a whole is most likely to be normal during the 2021 southwest monsoon season (June – September) over most parts of South Asia. Above normal rainfall is most likely over northwest and some region along the foothills of Himalaya. However, the seasonal rainfall over land areas around the north Bay of Bengal, extreme northern part of the region and some south western areas of the peninsular India is most likely to be below normal. The seasonal rainfall is most likely to be normal over the remaining areas.

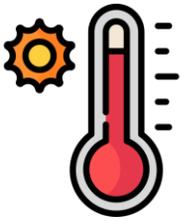


Temperature Outlook for June

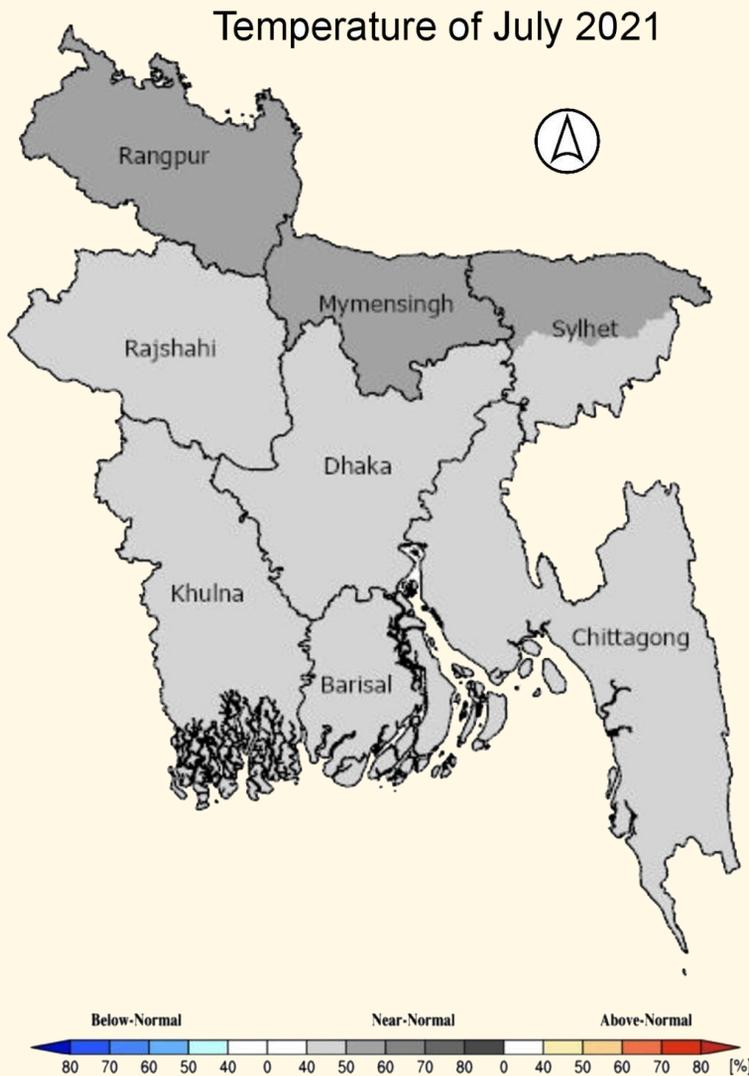
Temperature of June 2021



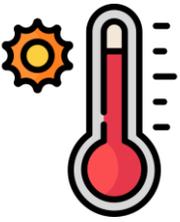
Considering the available climate model outputs, it is expected that the temperature is likely to be below normal over northern regions of Bangladesh (light blue shaded area), near normal over north central regions (light grey shaded area) and above normal over southern regions (light brown shaded area) of Bangladesh.



Temperature Forecast for July



Considering the available climate model outputs, it is expected that the temperature is likely to be normal over northern regions of Bangladesh (grey shaded area), near-normal over rest of the Bangladesh (light grey shaded area)

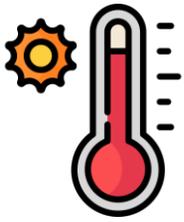


Temperature Forecast for August

Temperature of August 2021

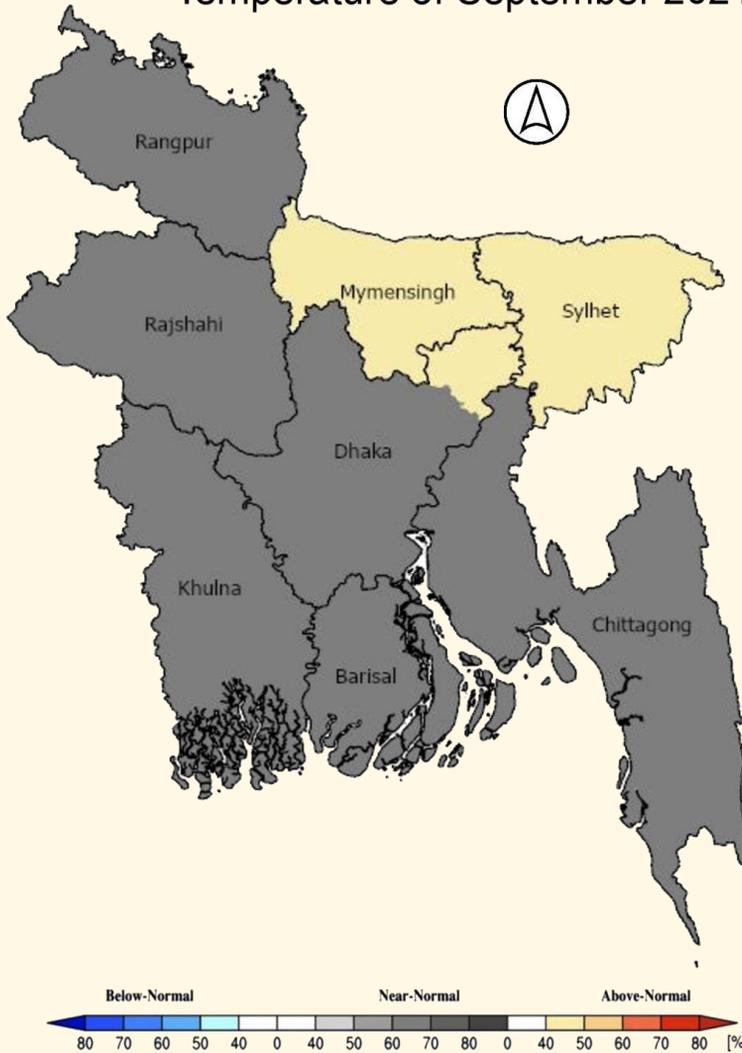


Considering the available climate model outputs, it is expected that the temperature is likely to be above normal over all parts of Bangladesh (light brown shaded area).



Temperature Forecast for September

Temperature of September 2021



Based on the available climate model outputs, it is expected that the temperature is likely to be above normal over northeastern part of Bangladesh (light brown shaded area) and nearly normal at other parts (grey shaded area) Bangladesh.



Advisory



Agriculture

- Use the BAMIS portal(www.bamis.gov.bd) and mobile app, contribute to the development in agriculture by regularly collecting and utilizing the necessary information specially from National, District and Special Bulletins.
- Selection of preferred site for seedbed preparation: Choose Open and high land with less chance of submergence due to flood water.
- If rain water persists, arrange for a floating seedbed (Barisal, Jhalokati, Gopalganj, Kishoreganj, Netrokona) or dapog system. Community based Aman rice seedbeds may be raised on higher places to avoid impact of heavy rainfall and flooding.
- Dig a mini pond close to the main field so that water harvesting of rainwater can be made and the water may be used during the dry conditions.
- Drain out excess water from the crop field. To prevent water stagnation in the seed bed, construct channels around the seed bed for drainage.
- Clean the irrigation channel for draining out extra water from the field.
- Raise the bund around the crop field.
- Hold on all agricultural operations like transplanting, application of irrigation, fertilizers, pesticides etc. during rainy days.



Advisory



Livestock

- Collect the mobile numbers of the veterinary Surgeon/Upazila Livestock Officer/Veterinary Medical team for emergency purposes.
- Repair any leakage in the roof, improve the drainage system and prevent the floor from being slippery. Feed should be kept dry to protect from mold growth and spoilage. Stock straw/dry roughages and prepare silage before monsoon for feeding during potential scarcity of fodder due to heavy rain or flood.
- Deworm animals on a regular basis, groom/keep the animal body clean to prevent tick infestation, cut bushes around the animal shed and take necessary measures to reduce flies and take extra care of udder to prevent dairy animal from mastitis
- Try to keep the animal's hoof clean and dry to prevent hoof rotting disease. Take measures to prevent coccidia in poultry in this season. Rearing poultry, goat and sheep on a slatted floor is better during the rainy season.
- Grazing animals should be moved to a safer place immediately when signs of an impending storm, such as towering thunderheads, darkening skies, lightning, and increasing winds, etc. are observed.
- Take all necessary preparatory measures for sudden floods. Ensure clean drinking water during floods.



Advisory



Water Resources and Floods

- In the seasonal scale the outlook for flood cannot be specified. The expected intensity, timing and location may vary. For this reason, the flood probability of Brahmaputra river may be shifted to Teesta river. To accommodate these scenarios, users should access and understand the periodic warning and advisories issued at short and medium range by both BMD and FFWC for prediction of flood besides seasonal outlook.
- The users may continue research and validation for determining impact on water resources in Bangladesh for irrigation planning and agricultural management based on monsoon outlook especially for areas expecting below normal rainfall. At the same time, users should follow the 15 days discharge forecast information in the 3 major rivers which will provide information to the users on availability of surface water and need for supplementary irrigation.
- FFWC issues a daily flood warning bulletin which has 3-5 days lead time with reliable accuracy. The trend forecast of flood is quite satisfactory for 5 days lead time. 10-day medium range forecast information and advisories as well as 15-day discharge forecast issued by FFWC-RIMES joint initiatives are very much useful for the agriculture sector during the monsoon for major crops (e.g. Aman, Jute).
- Short and medium range flood forecasts are now widely disseminated by IVR, voice message, voice call. Stakeholders may take the advantage of these services by engaging themselves in the network.



Advisory

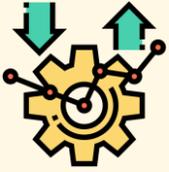


Health Sector

- Vector borne diseases like **Dengue, Chikungunya, Zika** may increase in the monsoon season. Moreover, foodborne diseases may also increase during this monsoon.
- For vector borne: Destruction of breeding places of Aedes mosquito. Fogging for mosquito rest/breeding place destruction.
- For Waterborne: Avoidance of taking rotten foods. Purification of water after flood/cyclone. WASH related health hygiene should be maintained.
- If intermittent rainfall spell is forecasted, alert people for dengue outbreak.
- Fungal infection & skin infection may increase in monsoon. Extra care should be taken in this regard.
- In urban areas, stagnant water drainage systems should be improved to prevent diarrheal disease.
- People should be made aware to avoid throwing plastic/garbage on the street.
- Health advisory should be disseminated through.



Advisory



Disaster Risk Management

- Follow short term and medium range forecasts from BMD and FFWC to monitor extreme events besides seasonal forecasts. Review contingency plan according to the forecast
- Districts along the Brahmaputra-Jamuna river system should closely monitor flood forecasts and alert communities in case of flood early warning



Annex

Division wise Climatology of Monthly Rainfall (mm)

Division	June	July	August	September
Dhaka	345	364	345	277
Chittagong	590	720	590	312
Barishal	482	518	482	315
Mymensingh	394	436	394	335
Khulna	298	340	298	276
Rangpur	396	416	396	407
Sylhet	634	579	634	407
Rajshahi	299	354	299	296

Climatology of Monthly Mean Temperature (°C)

Division	June	July	August	September
Dhaka	29	29	29	29
Chittagong	29	28	28	29
Barishal	29	29	29	29
Mymensingh	29	29	29	29
Khulna	30	29	29	29
Rangpur	29	29	29	29
Sylhet	28	29	29	29
Rajshahi	30	29	30	29



Interpretation of climate outlooks

In general, the climate outlooks are presented in two different way. But first we need to explain Normal. Normal in climate terms is the Long Period Average (LPA) of the rainfall over a location using 30 years or more of rainfall data (measured at a station). The average is considered as the “Normal” rainfall for the region. And seasonal climate outlook is to estimate if the season will have more than Normal, less than Normal rainfall or equivalent to normal rainfall.

Forecast methods:

1. Deterministic: Deterministic forecast explains the percentage (%) departure from the Normal. If we expect 20% or less than Normal rainfall, we call it be Below Normal, if we expect 20% or more, we can it Above Normal and anything within the $\pm 20\%$ is called the Near Normal rainfall for the season.

2. Probabilistic: The probabilistic approach explains the possibility (chance) of a certain amount of rainfall happening. For example, what is the chance of the season to be Below normal, or Normal or above Normal. If we say 45% Below normal, 30 % Normal and 25 % Above Normal. There is highly likely chance for the season to be Normal to Below Normal with a combined (75%) chance.

Important Note

Below Normal rainfall does not indicate there will be no or less extreme rainfall events. There can be high intensity rainfall within short period of time followed by extended dry spells which may still sum up as Below Normal for the month. Users are advised to follow short and medium range forecast of BMD to keep track of extreme weather events.

This document is published as an outcome of the 13th National Monsoon Forum of Bangladesh. The Monsoon Forum is an established institutional mechanism between the Bangladesh Meteorological Department (BMD) and other mandated warning institutions in the country like the Flood Forecasting and Warning Center (FFWC), and their stakeholder sectoral institutions, for regular dialogue vis-à-vis generation and applications of user-driven multi-timescales, multi-hazard risk information. Through an iterative process that is built on the monsoon for ensuring sustainability, the Monsoon Forum provides opportunities for sectoral stakeholders to seasonally review their forecast-based, anticipatory preparedness plans and implementation thereof, and how these could be improved in subsequent season(s); and for BMD and FFWC to constantly evolve/tailor forecasts/warnings to suit user requirements.

