AGRO-METEOROLOGY ADVISORY BULLETIN

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Prepared based on weather forecast received from NCHM

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The National Center for Hydrology and Meteorology has released the outlook for rainfall and temperature for summer season (June to September 2023) on 31 May 2023. The outlook integrates the consensus outlook of the South Asian Climate Outlook Forum (SASCOF-15) held from 17-29 April 2023, outlook from Regional Integrated Multi-hazard Early Warning System for Africa and Asia (RIMES), outlook from World Meteorological Organization (WMO) and global producing centres from international sources. The assessment of the college of astrology, Pangrizampa has also been integrated into the national outlook.

Forecast

Rainfall: Bhutan's summer rainfall is most likely to be below normal. Normal is the average summer (JJAS) rainfall of Bhutan from 1996 to 2021.

Temperature: Bhutan's summer temperature is likely to be slightly above normal. Normal is the average summer (JJAS) temperature (maximum and minimum) of Bhutan from 1996 to 2021.

Under such scenerio, Bhutan may experience significant increase in intra-seasonal variability, impacting both the frequency and distribution of rainfall. This heightened variability in the pattern of rainfall distribution could emerge as a challenge in the agriculture sector of the country leading to more incidence of droughts.

In a year with drier conditions, it is essential to have a contingency plan for the agriculture sector in place to mitigate the impact on crops and ensure the sustainability of agricultural practices. Here are some key steps to consider when developing a contingency plan for drier conditions:

The Agrometeorology Program of the Agriculture Research and Innovation Division (ARID) under the Department of Agriculture underscores the following contingency plan to manage weather aberrations mainly agricultural droughts and extreme weather events.

1. **Water Management**

- Assess the available water sources and prioritize their usage.
- Implement efficient irrigation techniques such as drip irrigation or sprinkler systems to minimize water wastage and improve water use efficiency.
- Monitor soil moisture levels regularly and adjust irrigation schedules accordingly.
- Consider investing in water conservation measures such as rainwater harvesting or water recycling systems.

2. **Crop selection and planning**

- Promote the cultivation of drought-tolerant and heat-resistant crop varieties.
- Encourage farmers to diversify their crops and opt for shorter-duration crops that require less water.

- Rotate crops strategically to balance water requirements and reduce the risk of depleting soil moisture.
- Consider intercropping or companion planting techniques that enhance water efficiency and create microclimates.
- Contact Agriculture Research and Development Centres for information on suitable cropping patterns and planting schedules to optimize water usage.

3. Soil health and conservation:

- Enhance soil organic matter by using compost, cover crops, or green manure to improve soil moisture retention.
- Wherever possible practice conservation tillage methods such as no-till or minimum tillage to reduce evaporation and preserve soil moisture.
- Mulch the soil surface with organic materials to reduce moisture loss, weed growth, and conserving moisture.

4. Crop Protection and Pest Management:

- Monitor crops for signs of drought stress and take necessary measures to mitigate the impact.
- Provide timely information and training on pest and disease management to minimize crop losses.
- Encourage the adoption of integrated pest management practices to reduce reliance on chemical pesticides.

5. Crop management and agronomic practices:

- Adjust planting schedules to take advantage of the available moisture or based on the weather forecast issued by NCHM.
- Monitor crop growth stages closely to determine the optimal time for irrigation or other interventions.
- Implement efficient pest and weed management strategies to minimize competition for limited water resources.

6. Knowledge, Capacity Building, Information and Technology

- Conduct trainings and sensitization workshops to educate farmers about climate-resilient agricultural practices.
- Provide access to updated weather forecasts, early warning systems, and climate information to help farmers make informed decisions.
- Foster knowledge-sharing platforms and farmer networks to exchange experiences and best practices for coping with similar climatic challenges.
- Explore crop insurance options or risk-sharing programs to safeguard against potential losses.
- Utilize precision agriculture technologies like remote sensing, soil moisture sensors, and weather-based irrigation scheduling to optimize water use.
- Seek expert advice and guidance from agriculture extension centres, Agriculture Research and Development Centres, or the Agrometeorology Program of the Department.

ADVISORY: A contingency plan should be adaptable and flexible. Relying solely on the seasonal forecast from NCHM is not recommended; instead, it is beneficial to use the seasonal outlook along with the short-range and medium-range weather forecasts issued by NCHM in order to enhance the accuracy and reliability of the overall weather analysis.

In addition, kindly note that the seasonal forecast is subject to inherent uncertainty and therefore short term localized micro-climatic cannot be ruled out.

Please ensure to stay informed and regularly monitor the weather advisory for any updates or changes

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