Agrometeorological Activities in Bangladesh

The Bangladesh Agrometeorological Advisory Service System, initiated in 2017 with funding and active support from the World Bank (WB), has demonstrated significant progress in enhancing climate-resilient agricultural practices. Key developments under this initiative include the formulation of Agrometeorological Advisory Service (AAS) bulletins at both district and national levels, the issuance of specialized advisories during extreme weather events, and the establishment of a multi-institutional collaboration involving the National Agromet Committee, Bangladesh Meteorological Department (BMD), Bangladesh Water Development Board (BWDB), and other relevant organizations. A major milestone achieved under this project is the development of the Bangladesh Agrometeorological Information System (BAMIS) portal (www.bamis.gov.bd), which serves as a central platform for disseminating weather forecasts and AAS bulletins. These bulletins are produced through a joint effort between BMD and BWDB, while sub-seasonal forecasting is being tested experimentally for agrometeorological applications.

Currently, 43 weather observatories installed by BMD are operational and integrated into the advisory system. Additionally, Agrometeorological Departments have been established at two leading agricultural institutions—Bangladesh Agricultural University (BAU) and Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU)—to advance research and capacity building in agricultural meteorology. As part of this initiative, 30,000 farmers from 15,000 farmers' organizations have been selected for participation in the advisory network. The Department of Agricultural Extension (DAE), under the WB project, has enhanced district and upazila-level infrastructure by deploying meteorological instruments such as TABS rain gauges, kiosks, weather boards, and designated agromet rooms. District- and upazila-level focal persons facilitate data collection and dissemination through BAMIS, ensuring real-time access to meteorological insights.

The dissemination of agrometeorological information is achieved through multiple channels, including SMS alerts, digital display boards, community radio, and kiosks, enabling timely advisories for farmers. Additionally, Sub-Assistant Agricultural Officers (SAAOs) conduct weekly visits to 12 farmer groups, providing direct guidance based on meteorological data sourced from BMD and BWDB. Given that Bangladesh's agricultural production system

is highly susceptible to extreme weather events, leading to recurrent crop losses, the generation of timely and scientifically informed advisories has become imperative. The integration of advanced meteorological tools and data-driven advisory services, facilitated by WB assistance, aims to mitigate crop damage, enhance resilience, and contribute to national food security. Furthermore, structured training programs have been developed for DAE officers, Sub-Assistant Officers, and farmers, incorporating specialized training modules that are regularly updated and implemented to strengthen agrometeorological capacity at various levels.

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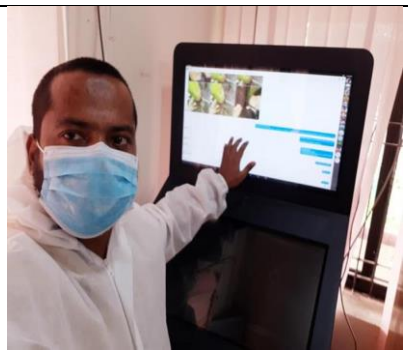
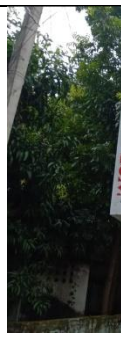


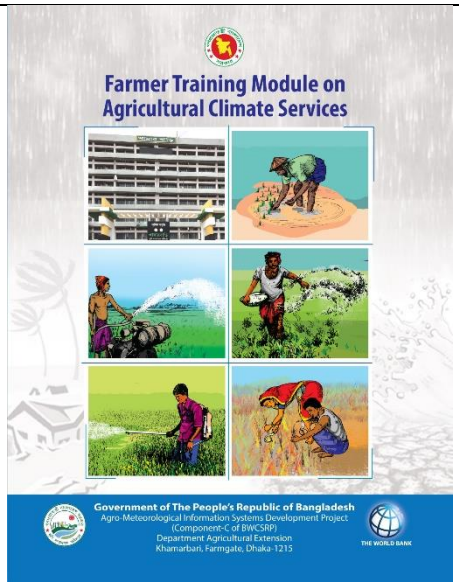
Kiosk

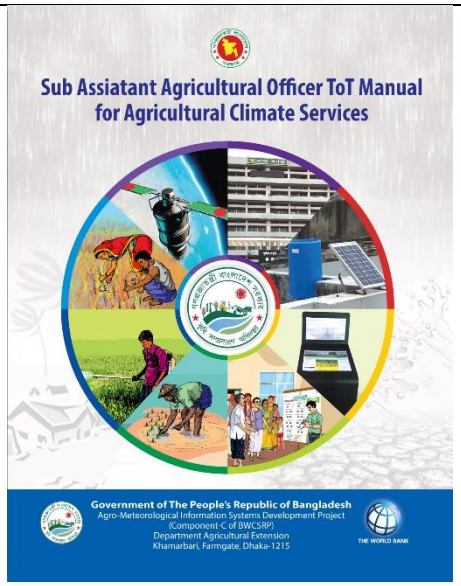
Community Radio



Digital Dis

Different dissemination channels for communication agromet advisories to the farmers





Different Training modules developed by the Department of Agricultural Extension,

Different Management system of of Extreme Events in Bangladesh

Flash flood Guidance system

Advancing Agrometeorological Services in Bangladesh

Efforts to enhance agrometeorological services in Bangladesh have led to significant advancements in flood and drought monitoring, real-time data collection, and the dissemination

of critical weather-based advisories. A key development in flood management includes rainfall threshold analysis in flash flood-prone pilot areas, supported by the establishment of real-time rainfall monitoring stations in Sylhet and Cox's Bazar. Additionally, a web-based flash flood guidance and dissemination system is being developed, utilizing high-resolution numerical weather prediction models such as the Weather Research and Forecasting (WRF) model for three-day forecasts and the European Centre for Medium-Range Weather Forecasts (ECMWF) for ten-day projections.

The Flood Forecasting and Warning Center (FFWC) of the Bangladesh Water Development Board (BWDB), under the Ministry of Water Resources (MoWR), collaborates with the Department of Agricultural Extension (DAE) under the Ministry of Agriculture to jointly issue flood forecasts and agrometeorological advisories during flood-prone periods. Meanwhile, drought conditions are monitored through the Standard Precipitation Index (SPI) on a weekly and monthly basis, providing crucial insights for agricultural planning and water resource management.

A major initiative in this domain is the **Bangladesh Agro-Meteorological Information Portal (BAMIS)**, a dynamic online platform developed under the Agro-Meteorological Information Systems Development Project (Component C: BWCSRP). Managed by DAE, BAMIS serves as a central hub for disseminating agrometeorological data and services to various stakeholders, particularly farmers. The portal integrates meteorological data from the Bangladesh Meteorological Department (BMD) and hydrological data from BWDB. After thorough translation and validation by the DAE Agromet Technical Committee, this information is disseminated to 30,000 lead farmers and linked to other key stakeholders, including agricultural extension officials.

The **Bangladesh Agro-Meteorological Information Portal** offers a range of services, including:

- Comprehensive weather and climate data across Bangladesh
- Regularly updated agrometeorological advisories—64 district-specific bulletins issued twice a week and one national advisory released weekly
- Agromet information on crop-weather interactions, pest and disease risks associated with weather conditions, control measures, and crop-weather calendars

- Development of agro-meteorological products, including satellite-based tools for supporting tactical and strategic decision-making
- Dissemination of agrometeorological and hydrological forecasts and advisories through multiple channels, facilitated by the Department of Agricultural Extension (DAE) and Agriculture Information Service
- Information on extreme weather events to enhance preparedness
- Special agrometeorological advisories tailored for livestock, poultry, and fisheries
- A structured farmer feedback mechanism to improve service relevance and effectiveness

This integrated approach ensures that Bangladesh's agricultural sector is better equipped to mitigate the adverse impacts of extreme weather, optimize resource management, and strengthen food security through climate-smart decision-making.