



# Agro-Meteorological Information Systems Development Project



Department of Agricultural Extension  
Ministry of Agriculture



THE WORLD BANK

## **Background:**

Bangladesh is a disaster prone country and it is frequently affected by flood, drought, and tropical cyclones. Bangladesh is likely to be one of the most vulnerable countries of the world in the event of climate change. Despite the susceptibility of Bangladesh to weather and climate extremes, the country's hydro-meteorological information, early warning and seasonal advisory related information is beyond to reach the farmer. There is an opportunity to provide reliable Agro-Meteorological information to farming community effectively. Agro-Meteorological information for sustainable agricultural development is needed to disseminate information to the farmer in their understandable language to plan their farming activities more efficiently.

WMO had organized a technical seminar in 2012 regarding climate services in Bangladesh. National and foreign expert's participation in the seminar identified three key areas to develop and disseminate Agro-Meteorological services. They are:

- 1) Development of Agro-Meteorological observation by joint collaboration of meteorologist and agriculturist, providing medium and long term seasonal forecast and advisories, development of Agro-Meteorological forecast and climate services.
- 2) Development of timely and rapid dissemination mechanism to deliver reliable Agro-Meteorological services.
- 3) Capacity building of all stakeholders to use Agro-Meteorological information by training and developing a feedback mechanism from the end users.

According to the suggestion of WMO and with the financial support of The World Bank, "Bangladesh Weather and Climate Services Regional Project (BWCSR)" was approved by the Government of Bangladesh in February 2017. Bangladesh Meteorological Department (BMD), Bangladesh Water Development Board (BWDB) and Department of Agricultural Extension (DAE) will jointly implement the project. Now Three organizations are implementing the project by three separate DPPs.



Department of Agricultural Extension under the Ministry of Agriculture is implementing “Agro-Meteorological Information Systems Development Project (Component C of BWCSR).

**Project Duration: July 2016 to June 2021**

**Objectives of the project:**

**Overall Objective:**

Overall objective of this project is “to strengthen the capacity of the Government of Bangladesh to deliver reliable weather, water and climate information services and improve access to such services by priority sectors and communities”.

**Specific objectives of the Project are:**

- To disseminate Agro-Meteorological services to farmers in order to increase agricultural productivity and assist farmers in coping with weather and climate extremes.
- To provide support to establish a science-based Agro-Meteorological information system to develop appropriate information and products.
- To deliver Agro-Meteorological information through a number of dissemination mechanisms that will provide the agricultural sector with a decision support information system to mitigate climate-related agricultural production risks.
- Strengthening of capacity at different levels to enable the development and effective delivery of climate information services to the agricultural sector.

**Activities:**

**Sub-Component C.1: Establishment of the Bangladesh Agro-Meteorological Information System (BAMIS)**

**A. Setting up a Comprehensive web-portal for BAMIS at DAE**

- Improved Agro-Meteorological services to farmers.

- Development of suitable backup system and archiving of information.

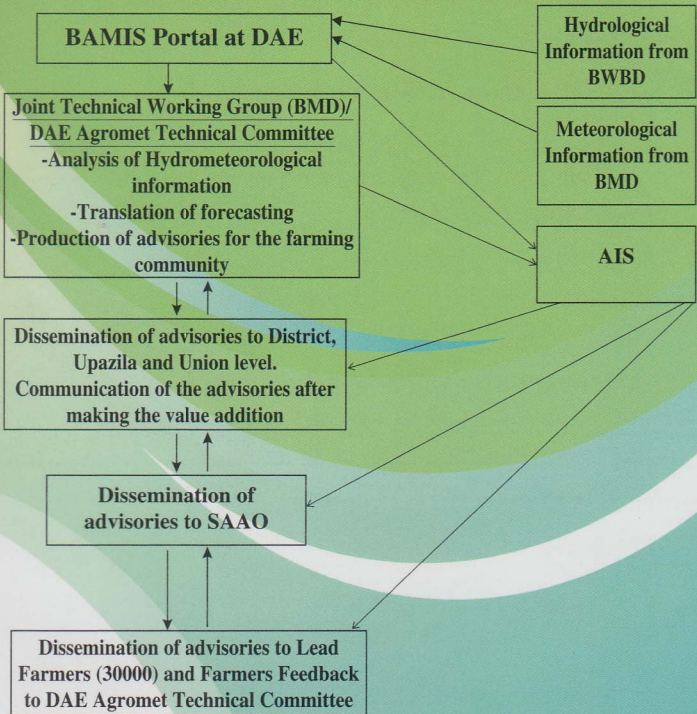
### B. Development of BAMIS infrastructure

- Necessary hardware, software, and other technological components to create and maintain an effective and sustainable BAMIS.

### C. Development of upazila level Agromet databases

- Digitization of historical and current agricultural data on the land holdings crops/cropping systems cultivated by farmers, average crop yields in different upazillas.
- Integration of AWS (Automated Weather Station) weather and agricultural data and compilation of Agro-Meteorological databases for 487 upazillas.

### FLOW CHART OF PROJECT ACTIVITIES



### D. Agromet data analysis and future scenario development

- To develop computations for rainfall, maximum and



minimum air temperatures, rainfall probabilities, and combine them with the upazilla databases to prepare crop suitability maps for different agro-climatic zones.

- Development of Agro-Meteorological products for decision support including selection of optimal planting time, irrigation, pesticide application, crop harvest, pest outbreak etc. based on expected climate conditions.

### **E. Development of advisories**

- Establishment of a science-based Agro-Meteorological information system to develop appropriate information and products.
- To generate information and products to be used by the farming communities.
- To help farmers to make strategic decisions such as planting when adequate soil moisture is present or forecasted, harvesting before damaging extreme weather events such as flash flood, monsoon flood, river flood, coastal flood, heavy rainfall, hail storms etc. and implementing crop protection measures when risk of pests and diseases is elevated.

### **F. Risk mapping of climate vulnerable areas**

- Development of climate risk vulnerability maps for all 487 upazillas to identify the areas at risk and vulnerable members of the community.

## **Sub-component C.2 Training, Capacity Building, Project Management and Monitoring and Evaluation**

### **A. Training/ Workshop**

- Training of Officers, Staff and farmers.
- Organization of workshops/seminars on BAMIS, Agro-Meteorological data analysis and development of products.

### **B. Study tours/ exposure visit**

- Organization of short term training and exposure visits to appropriate institutions and organizations abroad.

### **C. District and local level workshops and training for farmers on Portal tools**

### **D. DAE Agromet Technical Committee**

- Formation of DAE Agromet Technical Committee with the participation of experts from DAE, BMD, BWDB, BARI, BRRI, BJRI and BSRI.
- Formation of District and Upazilla Agromet Technical Committee

### **E. Project management**

- Formation of PIU at DAE.
- DAE, BARI, BRRI, BJRI, BSRI operational activities.

### **F. Monitoring and Evaluation**

- Monitoring and Evaluation activities.

## **Sub-Component C.3: Agricultural Disaster Risk Management through Agro-Meteorological information dissemination**

### **A. Assessment of farmer's needs for weather and climate services**

- Baseline survey for a detailed assessment of farmer's needs for weather and climate services.

### **B. Installation of Agro-Meteorological display boards and Handheld Automatic Rain Gauges (ARGs) at the Union Parishads**

- Installation of Analog Agro-Meteorological display boards and Handheld ARGs at the Union Parishads for provision of Agro-Meteorological information for the farmers.

### **C. Establishment of kiosks**

- Establishment of Agro-Meteorological touch screen kiosks in 487 upazillas with data display screens, computers and printers in the Upazilla Agriculture Offices.
- The kiosks will allow users to navigate information on a



number of aspects including current weather data, Agro-Meteorological advisories, crop cultivation practices, agriculture inputs, crop diagnostic kit, crop management time table, farm machinery, market information etc.

#### **D. Establishment of Regional and District Agromet Service Room:**

- Regional Agromet Service room in all 14 regions AD, DAE offices.
- District Agromet Service room in all 64 districts DD DAE offices.

#### **E. Development of mobile apps**

- Development of farmers friendly mobile Apps which can give them instant access to information and communication such as current weather, expected weather and the related impacts on crop growth and development and advice on controlling any emerging pests and diseases etc.

#### **F. Organization of roving seminars**

- To raise the awareness of the farming communities regarding crop, weather and climate, and climate change projection and its impacts.
- To help farmers for better understanding- how weather and climate information can be used to improve decision making on their farms.
- DAE, AIS, BMD and BWDB will interact directly with farmers to describe the use of BAMIS decision support tools and solicit the feedback from farming communities to improve the tools.

#### **G. Feedback from farmers**

- Collection of information on the utility of the Agro-Meteorological advisories and products.
- To Assess the feedback from farmers on the utility of the Agro-Meteorological advisories and products which they have received.
- To Conduct Feedback Assessment at the end of each of

the following years in order to ensure appropriate changes are made to improve the Agro-Meteorological advisories and products to meet the needs of farmers.

### **Benefit of the Project**

- Technical assistance and support for more effective production and dissemination of Agro-Meteorological advisories and products for the extension staffs and farming community.
- Forecasts for both short-term operational decisions and long-term strategic planning at the farm level.
- Improved communication about future weather and climate events – daily, weekly and seasonal weather forecasts and climate updates prepared for mass media.
- Support in selection of appropriate cropping pattern, irrigation management, integrated pest and diseases management etc.
- Advisories for the farmers and extension staffs to select favorable time for transplantation, crop harvesting, crop crashing, crop drying, crop preserving, crop marketing, applying fertilizer and pest control elements etc.
- Early warning will help the farmers to reduce crop loss due to natural disaster.
- Advisories will be able to reduce other negative result from agriculture activities like possibility to sweep extra fertilizer and pesticide to surface water and affecting the ecosystem.

**Agro-Meteorological Information Systems Development Project  
(Component-C of BWCSR)**

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