

# WMO Registration & Irrigation Management System Software



Tista project area, Nilphamari



**Bangladesh Water Development Board (BWDB)**



**Ministry of Water Resources**

## **INTRODUCTION**

The government of Bangladesh has recently initiated Annual Performance Agreement (APA) under Government Performance monitoring System (GPMS) and a record of understanding between a minister representing the peoples' mandate and the secretary of a ministry or division responsible for implementing the mandate. Among the mandatory activities of APA every Departments has to choose and transform one manual service into an e-service by June 2017. With a view to develop institutional capacity through designing and developing a comprehensive work plan for implementing the selected service to an e-service a2i came forward to create a Resource pool and help them make a TOR with service features. in this context one of the services of BWDB that is "WMO (Water Management Organization) registration and Irrigation Management System" has been selected to innovate an e-service system (WMO-RIMS).

## **OBJECTIVE**

Implementation of WMO Registration & Irrigation Management System will enhance work of the Beneficiary by simplifying and speeding-up flow and exchange of information and documents within all related parties.

General objective of such IT system is to enable the Beneficiary to widely increase efficiency of process execution by usage of electronic documents in document creation, registration, exchange, retrieval, validation and archiving with implementation of proper access and security controls.

The Primary Objective is to Design, Develop, Test And Development And Piloting Of WMO Registration & Irrigation Management System for Bangladesh Water Development Board (BWDB).

The following are the Specific objectives of the proposed e-service:

- To provide with the best possible irrigation services to the end farmer so that, the ultimate crop production of the project area increases to the highest level. The e-service will ultimately help to improve the socio economic development of the end people.
- The e-service will faster the survey and data collection, committee formation, Registration Process so that the service delivery will be smooth and efficient.
- The field level information will be received in shortest possible time so that, it can be addressed and can be solved in time especially the infrastructure related issues.
- Develop & Implement a user-friendly, interactive, web-based system for WMO Registration & Irrigation Management for BWDB.
- The system shall provide suitable flexible interactive user-friendly tools to allow collation of inputs from PEs and produce standard reports and disseminate information to stakeholders in a systematic way.

## **PROJECT SCOPE**

The final scope of the project is determined.

The assignment is phased as follows:

**i. PHASE-I: Development, Implementation, Training /Deployment**

Phase	Duration
1	1 (One) Year

**ii. PHASE-II: Piloting, Operations, Maintenance & Support**

Phase	Duration
2	2 (Two) Years

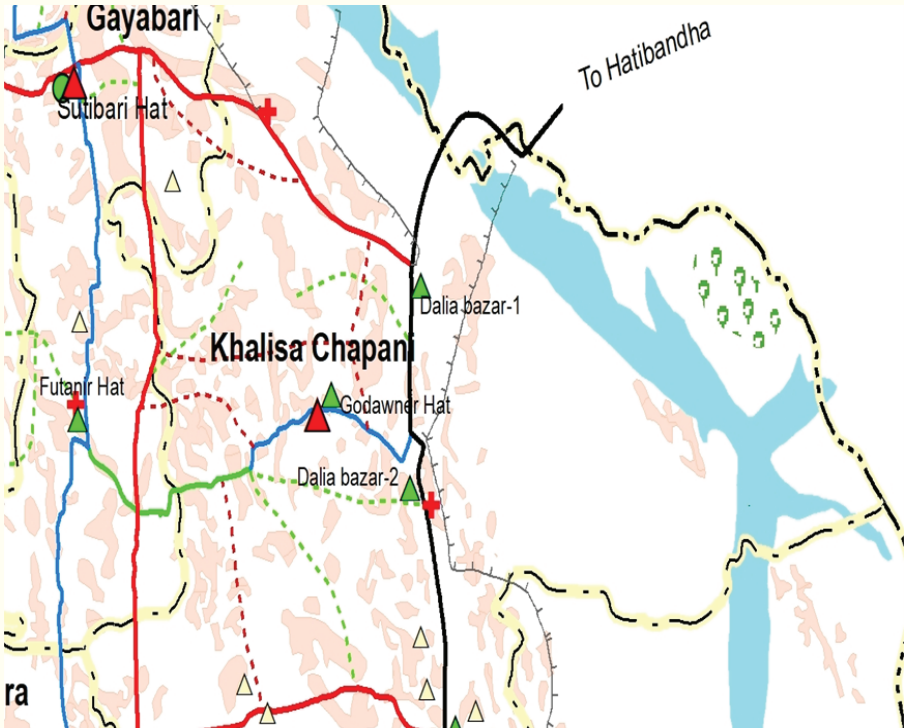
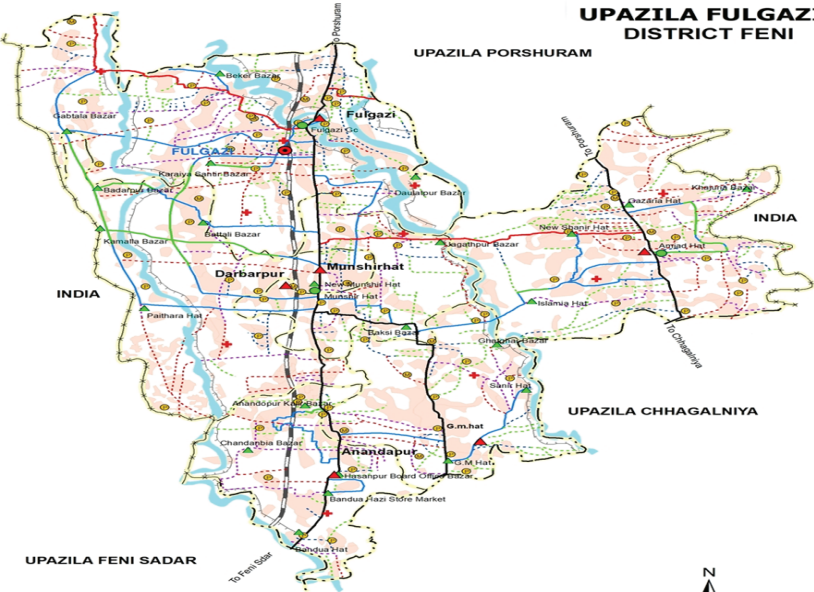
The project started on 8th January 2019.



Piloting of WMO-RIMS is decided in the 02 (Two) following place of BWDB:

- 1. Dalia of Nilphamari District (02 Water Management Associations)**
- 2. Fulgazi of Feni District. (01 Water Management Association)**

**UPAZILA MAP  
UPAZILA FULGAZI  
DISTRICT FENI**



Daliya, Nilphamari



For fulfilling the mentioned objectives, following activities are being performed throughout the project lifecycle.

- Planning House hold Survey of detail farmer's information for WMO formation.
- Collection of Project GIS based Irrigation Area and Hydraulic Structure information
- Assisting in WMO Adhok and Election Committee formation through the developed system
- Arrangement of Election for formation of WMO through the developed system
- Assisting Preparation of by-laws by Executive Committee as per PWMR-2014
- Development WMO Registration Application format for WMO's Registration through the developed system
- Mobile application version of the system development
- Facilitate Sorting, verification, Validation & sending application to Approving Authority through the developed system
- Facilitate Approval of WMO's Registration & Issues of Certificate through the developed system
- Development of Irrigation Water Distribution and Irrigation Service charge system
- Conduct Training Management
- Implement Service Rating
- Develop Complain Management
- Develop Maintenance Schedule for Irrigation Infrastructure
- Providing Computer Hardware for Infrastructure Development
- Conducting Awareness Program (Promotion & Advertisement)
- Provide Operational Support for 02 Years of the developed WMO-RIMS

## Functions & Features of The Developed System

Project & WMO (WMG, WMA, WMF) Information Management				
Sl	e- feature	e- feature description	Action/User	Media
1	Project Profile management	User will input information management (name, code, description, geographical location, cost, time Frame etc.) through web based input PD/SEIXEN Website Form. User may also import project information through Web Service API from existing System	PD/SEIXEN	Website
2	Project Area Wise Irrigation Information Management	User will Input Project Irrigable website Irrigation Information area & Net Irrigated area through Management through web based input form. User will also import these data PD/SE/XEN information through Web Service API from existing System	PD/SE/XEN	Website
3	WMO(WMG, WMF) Database Management	Options to Create/Update/Delete PD/XENIDCE through WMF Database, WMO (WMG, WMA, WMF) O/EO Management member Information Options for report Generation (individual/Collective)	PD/ XENIDCEO/EO	Website

## Module: WMO Formation & Management

Sl	e- feature	e- feature description	Action/ User	Media
1	Committee Management	Creation/Modification/Deletion and Management report generation of <ul style="list-style-type: none"> <li>• WMO ad-hoc Committee</li> <li>• WMO General Committee</li> <li>• Election Committee</li> <li>• Executive Committee</li> </ul>	DCEO/ Farmers	Website
2	WMO	<ul style="list-style-type: none"> <li>• Fixing &amp; boundary setup WMO (WMO, WMA, WMF).</li> <li>• Fixing &amp; list of the Number of WMO</li> <li>• Options to Create WMO</li> <li>• farmers/water uses</li> <li>• Enlistment of House holds</li> </ul>	DCEO/ Farmers	Website/ apps
3	Online Polling Management	<ul style="list-style-type: none"> <li>• Creation of Schedule for election Management</li> <li>• Selling and submission nomination paper through web/mobile app</li> <li>• Shortlist of Nomination Paper</li> <li>• Appeal through web/mobile app</li> <li>• Candidate Finalization and Print Ballot Paper</li> <li>• Organizing and conducting election</li> <li>• Declaration election result and Resolution Generation</li> <li>• Soft copy of the election result and resolution will be forwarded to the EC O2-M Division &amp; DCEO of BWDB</li> </ul>	DCEO/ Farmers	Mobile Apps
4	Auto generated by-laws	<ul style="list-style-type: none"> <li>• Auto generate Draft by-laws laws preparation</li> <li>• Draft by-laws finalization by General Committee through CWM Website system</li> <li>• Online verification of Draft by law approval.</li> </ul>	DCEO/IP EC/PEO/ CWM	Website

## Online Registration

No	e- feature	e- feature description	Action/Us er	Media
1	On-line Application for registration	WMO registration Application submission through online	WMO	Website
2	Application process		DCECO/ PEO/CWM	e-filing (nothi)
3	Verification Checklist Management	Online Verification of applicant (by NID)	DCECO/ PEO/CWM	Notification
4	Online Approved	List will be sent to the authority through e-Filing system and WMO registration approval will be given through e-filing (nothi) system	DCECO/ PEO/CWM	e-filing (nothi)
5	Auto Generated Registration certificate	Registration certificate generated by system (Template)	System	
6	Notification for certificate Collection	After successful registration a notification of registration certificate will be sent through SMS	WMO(farmer)	SMS
7	WMO Online account & members information.	Executive Committee and WMO(WMG,WMA,WMF) all Member in information option for create/update/delete and Report Generation	WMO (farmer)	Website/ UDC
8	Authorized user can download certificate from create from Digital archive by union digital center		WMO (farmer)	Website/ UDC



## Beneficiary Service&IrrigationManagement

Sl	e- feature	e- feature description	Action/ User	Media
1	Member profile management	All Members information (profile) are stored and retrieve through database	DCEO/ Farmer	Website/ UDC
2	Member/user irrigation status	Show Irrigation information status (user, WMG, WMA,WMF, AEO, EO,SDE,DCEO/XEN are higherAuthority) through dash board.	Farmer /user	Dashboard
3	Online training, Training material & schedule Management system	Water management, WMO management and about crop training throughOnline based (off-line, Video ,UDC)Training information Management system	DCEO/ Farmer	Website/ Mobile
4	On-line complain management		farmers / water uses	Mobile/ Apps
5	Service rating	Provision for both way service rating regarding Farmer satisfactory level about the service and management accountability through mobile apps/ mobile, service charge Collection and maintained reporting.	Farmer	Mobile/ Apps

## Irrigation Water Distribution Service

Sl No	e- feature	e- feature description	Action/User	Media
1	Digitally Irrigation water distribution	Digitally manage irrigation data by Prepaid Digital system (DIS) Meter or SMS	XEN/DCEO	Digital Irrigation System
2	Map base Irrigation	GIS Based Mapping of Digital irrigation control	XEN/DCEO/ Farmer	DIS/Website
3	LLP Scheme system	LLP Scheme control Prepaid Digital Meter	XEN/DCEO/ Farmer	DIS/Website
4	Gravitational Scheme	Scheme control	XEN/DCEO/ Farmer	
5	LLP Scheme schedule Management	LLP Scheme Schedule creation/edit/approval from authority	XEN/DCEO/ Farmer	DIS/Website
6	Gravitational Scheme schedule	Gravitational Scheme schedule	XEN/DCEO/ Farmer	DIS/Website
7	Irrigation calendar management	Scheduler for mapping in Irrigation calendar by the user	XEN/DCEO/ Farmer	

পানি বাংলাদেশ  
উন্নয়ন বোর্ড

## Scheduling of Hydraulic Structures & Equipment Maintenance:

This will serve the following features & information:

- Equipment nameplate data (manufacturer, model, serial number, sizing, etc.)
- Specifications, warranty and purchasing information of equipment
- Location and criticality information of the equipment
- Location and criticality information of irrigation equipment
- Warranty management alerts users when work orders are entered for equipment
- Specify multiple meters for equipment to drive preventive maintenance
- Maintenance schedule alerts for the irrigation equipment
- Specify components by equipment and equipment class for failure reporting and analysis
- Cost history and maintenance history view at a glance.

### Mobile application

Mobile application version of the system serves the following features:

- The mobile app capability of displaying system notifications
- It has functionality for registration options for service recipients
- App enables compact view of services for service recipients.

## E-Service System (WMO-RIMS) Integration Features

As a government system or e-Service application, integration with the required and other prescribed national system is very important and essential, Only by proper integration making interoperable, an e-Service application can drive the ultimate citizen benefits with the optimum use of technology from service to e-Service transformation. The integration scopes of this e-Service application are:

Sl No	Name Of The System	Name Of the Organization	Integration stage	Purpose
1	NID	Election Commission Secretariat	WMO DB Management	Verification & Authentication
2	SMS	Telecom Operators	<ul style="list-style-type: none"> <li>• Committee Management</li> <li>• WMO Formation</li> <li>• Online Poling</li> <li>• Application</li> <li>• Notification for Certificate Collection &amp; Billing Information</li> </ul>	Notification
3	e-Filing	A21	Application Process & Approval	Approval
4	Digital Irrigation System	BWDB	Irrigation Water Distribution at LLP scheme	Digital Irrigation Water Distribution ServiceCharge Collection
5	SIMS/SPMMS	BWDB	Project Profile management Project Area Wise Irrigation Information Management	Project Information Geographical Mapping



## Events & Workshops For The System Promotion

The following events & workshops are planned & to be performed for the developed system (WMO-RIMS).

No	Event Title	No of Participants	Duration (Days)	Location
1.	Orientation Workshop	30	05	Feni
2.	Orientation Workshop	30	05	Nilphamari
3.	Workshop Central (Shokez)	100	01	Dhaka
4.	TOT (01 Batch)	12	05	Dhaka
5.	User Training	30	02	Feni
6.	User Training	30	02	Nilphamari
7.	User Training	20	02	Dhaka
8.	Inauguration Event	100	01	Feni
9.	Inauguration Event	100	01	Nilphamari
10.	Service Recipient Sensitization Workshop	50	01	Feni
11.	Service Recipient Sensitization Workshop	50	01	Nilphamari
12.	FLW (Field Level Sensitization Meeting)	30	05	Feni
13.	FLW (Field Level Sensitization Meeting)	30	05	Nilphamari

### User Training

User Training in three places. These are Dhaka, Nilphamari&Feni district.

### Orientation Workshop

Orientation workshop for the developed WMO-RIMS in the two pilotare which are Nilphamari&Fenifor the end users of the system.

Users will consist of farmers, WMO committee members and official members of BWDB pilot area.

### Workshop Central (Shokez)

This specific workshopCentral (Shokez) at Dhaka for the developed WMO-RIMS demonstration in front of BWDB high profile officials, general officials, stakeholders, representative from Government, members from WMO committee etc.

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### **Inauguration Event**

Inauguration event in two pilot areas of BWDB which are Nilphamari & Feni with the presence of farmers, WMO committee members, stakeholders, BWDB officials, Government representatives and others related to it.

### **Service Recipient Sensitization Workshop**

Service Recipient Sensitization workshop in each pilot area of BWDB for service recipients (Farmers)

### **FLW (Field Level Sensitization Meeting)**

FLW (Field Level Sensitization Meeting) in the pilot areas for the farmers.

### **Advertisement & Awareness Activities for the System**

Advertisement & awareness activities for the system (WMO-RIMS) are performed to ensure maximum reach of people these includes:



### **CONCLUSION**

The developed WMO-RIMS is implemented in the pilot areas. Data collection & entry to the system of lands & farmers information of pilot areas are ongoing. Also awareness programs & promotional activities are being implemented in the pilot areas. After the successful run in the pilot areas, the system shall be implemented all over the country.

## OVERVIEW OF WMO-RIMS

The following are some visual overview of the developed WMO-RIMS.

### Menus of the System:

The screenshot shows the WMO-RIMS dashboard. On the left is a dark sidebar menu with the following items:

- ডাব্লিউ.এম.ও
- ড্যাশবোর্ড
- ব্যবহারকারী ব্যবস্থাপনা
  - ব্যবহারকারীর তথ্য
  - ভূমিকা
  - সেউ অনুমতি (এডমিন)
  - সেউ অনুমতি (সুবিধা গ্রহনকারী)
- হাস্টের সেটআপ
  - অঞ্চল ব্যবস্থাপনা
    - উপজেলা
    - বিলাপ
    - জেলা
    - ইউনিয়ন
    - গ্রাম
    - মৌজা
    - জমির ধরণ
    - স্ট্রাইডার

The main dashboard area is titled 'ড্যাশবোর্ড' and includes a language selector (English) and 'WMO Developers'. It features three project status cards: Project (5), Canal (19), and WMO (27). Below these is a chart titled 'গ্রাভিটেশনাল ভিত্তিক পানির চাহিদার লক্ষ্যমাত্রার চার্ট' (Chart of Gravity-based Water Demand Targets). The chart shows the total demand for 2020: '2020 সালের প্রধান খাল ভিত্তিক পানির চাহিদার লক্ষ্যমাত্রা' (2020 Gravity-based Water Demand Target for Main Canals). The total demand is 1,599.65 cusec. The chart is broken down into three categories: 'রোপনের সময়' (Planting time), 'অঙ্গজ বৃদ্ধির সময়' (Vegetative growth time), and 'পরিপক্বতার সময়' (Maturity time).

প্রজেক্ট	বছর	প্রধান খাল
সিলেক্ট করুন	সিলেক্ট করুন	সিলেক্ট করুন

2020 সালের প্রধান খাল ভিত্তিক পানির চাহিদার লক্ষ্যমাত্রা

ক্যাটাগরি	মাত্রা (cusec)
রোপনের সময়	814.6
অঙ্গজ বৃদ্ধির সময়	1,269.7
পরিপক্বতার সময়	1,043.9
মোট	1,599.65

### Dashboard of the System

This screenshot shows the WMO-RIMS dashboard with a different user profile. The sidebar menu includes:

- ডাব্লিউ.এম.ও
- ড্যাশবোর্ড
- কর্মিগণি ব্যবস্থাপনা
- নির্বাহন পরিচালনা
- সেউ ব্যবস্থাপনা
- অফিসের ব্যবস্থাপনা

The main dashboard area is titled 'ড্যাশবোর্ড' and includes a language selector (English) and 'General Committee'. It features three project status cards: 'সিলেক্ট করুন', 'সিলেক্ট করুন', and 'সিলেক্ট করুন'. Below these is a chart titled '2020 সালের প্রধান খাল ভিত্তিক পানির চাহিদার লক্ষ্যমাত্রা' (2020 Gravity-based Water Demand Target for Main Canals). The chart is a stacked bar chart showing the total demand for 2020: '2020 সালের প্রধান খাল ভিত্তিক পানির চাহিদার লক্ষ্যমাত্রা'. The total demand is 1,599.65 cusec. The chart is broken down into four categories: 'রোপনের সময়' (Planting time), 'অঙ্গজ বৃদ্ধির সময়' (Vegetative growth time), 'পরিপক্বতার সময়' (Maturity time), and 'পুষ্পায়নের সময়' (Flowering time).

প্রজেক্ট	বছর	প্রধান খাল
সিলেক্ট করুন	সিলেক্ট করুন	সিলেক্ট করুন

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# Irrigation Management

**ফসলের নাম**

ফসলের নাম সংযোজন

ফসলের নাম:

ফসলের নামের তালিকা

ক্রম	ফসলের নাম	একশন
1	আউশ ধান	<input type="button" value="✎"/> <input type="button" value="✖"/>
2	বোরো ধান	<input type="button" value="✎"/> <input type="button" value="✖"/>
3	ভুট্টা	<input type="button" value="✎"/> <input type="button" value="✖"/>
4	পাট	<input type="button" value="✎"/> <input type="button" value="✖"/>

**চাষাবাদের ধাপ**

চাষাবাদের ধাপ সংযোজন

চাষাবাদের ধাপ:  ক্রম:

চাষাবাদের ধাপের তালিকা

ক্রম	চাষাবাদের ধাপ	ক্রম	একশন
1	রোপনের সময়	১	<input type="button" value="✎"/> <input type="button" value="✖"/>
2	আমজু বুদ্ধির সময়	২	<input type="button" value="✎"/> <input type="button" value="✖"/>
3	পুষ্পায়নের সময়	৩	<input type="button" value="✎"/> <input type="button" value="✖"/>
4	পরিণততার সময়	৪	<input type="button" value="✎"/> <input type="button" value="✖"/>

**চাষাবাদের পরিকল্পনা**

নতুন সংযোজন

প্রজেক্টের ধরন:  টাক্ত

ধানের ধরন:  প্রথম মাস:  সেকেন্ডারি মাস:  ধানের নাম:

রহুর:  মৌসুমের নাম:  ফসল:

মৌসুমের নাম	ফসল	একশন
খরিপ ১	আউশ ধান	<input type="button" value="✖"/>
খরিপ ২	আমন ধান	<input type="button" value="✖"/>
রবি	বোরো ধান	<input type="button" value="✖"/>