



**West Bengal
Forest Department**

PROJECT COMPLETION REPORT



**E-MONITORING OF PLANTATION & RMD ARCHIVE
(WEB APPLICATION & ANDROID MOBILE APPLICATION)**

Date: 11/11/2021

Submitted By:
Innova Unified Management Services (P) Ltd.

E-MONITORING OF PLANTATION



PROJECT PROFILE

1. Project NIT NO: 1/E-TENDER/MONITORING SOUTH DMU/2020-21 (2ND CALL), DATED: 16.12.2020

2. Project Title: E- MONITORING OF PLANTATION (EMP)

3. Implementing Team:

Team Leader:: Mr. Indranath Basu

Sr. Developer: Mr. Chotton Manadal & Mr. Ananga Samanta

Programmer: Mr. Newton

Mobile App. Developer: Mahammadul Kabir

Designer: Subham Paul and Mrs. Amrita Das

Field Investigator: Mr. Kuntal Nag

4. Project Commencement: February 2021

INTRODUCTION

To effectively assess and evaluate the progress of plantation, the role of monitoring of the plantation is vital and helps to provide a deep insight.

Monitoring of Plantation is a long-term process and evaluation is done by comparing the data collected physically within a span of 5 years. To effectively collect, process, and analyse this huge data, West Bengal State Monitoring Wing introduced a Web & an Android Mobile Application.

The Android mobile app is available in Google Play store, which will allow Plantation Monitoring Range Officers to fill in all the details related to the plantation directly from the Plantation location. Along with location, plant species and other plantation monitoring parameters, the web application is also enable the users to upload the KML files directly to the Cloud Server.

ACCESS URL:

The web application can be accessed from the below URL:

<https://monitor.wbfdpj.org/>

Mobile Application:

The Android mobile application can be downloaded from Google Play Store.

Application name: Plantation Monitoring- WB



Plantation Monitoring- WB

OBJECTIVE

- To physically monitor and document the status of plantations under various afforestation schemes under State Plan, CAMPA, JICA etc.
- To evaluate the survival, vigour of planted seedlings and general health of plantations carried out quantitatively as well as qualitatively through standard scientific method with photographic evidence.
- To prescribe ameliorating measures for revival of otherwise damaged plantation.
- According to the contemporary global trend, the carbon sequestration or Carbon Di-oxide Removal (CDR) appears to be the essential tool to mitigate or reverse global warming where the essentiality of high-tech monitoring of plantation would be felt necessary.

MONITORING METHODOLOGY

The new methodology was approved by PCCF (HoFF), West Bengal is to evaluate the plantations through modern technique holistically, objectively, and comprehensively across 10 parameters with due weightage to these parameters considering their importance.

The new methodology paved the path to introduce new modern technologies.

All these ten parameters have been divided into three broad Categories:

- Conformity Parameters- 4 nos. 12 points (Confirming to the Working Plan & other prescriptions)
- Execution parameters -4 nos. 20 points (Process of raising the Plantation)
- Performance Parameters-2 nos. 68 points (Result of the Plantation)

PROPOSED NEW APPROACH AND METHODOLOGY: QUALITY INDEX			
		PARAMETERS	WEIGHTAGE
1	CONFORMITY	Legal status of the land	3 points
2		Source of seed & status of Nursery	3 points
3		Maintenance of Plantation journal along with regeneration map	3 points
4		Planting Pattern	3 points
5	EXECUTION	Site suitability and choice of species	5 points
6		Mechanism to protect the plantation	5 points
7		Timely completion of prescribed plantation activities	5 points
8		Inspection intensity of superior officers	5 points

9	PERFORMANCE	Average Survival percentage	51 points
10		General Health of the seedlings	17 points
		TOTAL	100 points

GRADING OF PLANTATIONS:

Based on above parameters, the plantations will be graded as below:

Excellent	85% and more
Very Good	71% - 85%
Good	46% - 70%
Average	31% - 45%
Poor	15% - 30%
Very poor	<15%

E-MONITORING OF PLANTATION- EMP (WEB & MOBILE APPLICATION)

The EMP application is deployed to monitor the plantations across the state under various schemes. It will help to effectively collect, process, and analyse the huge data of all plantations done under any government schemes and bring more transparency.

THE APPLICATION:

- User friendly and information rich interface.
- Expeditious for internal users
- Scalable & Robust
- Intelligible for general users
- Secure

A REAL-TIME SYSTEM

- Real Time tracking of every information entered in EMP.
- Real-Time Inspection and Monitoring of Plantation Sites.

DEVELOPMENT TOOLS

- **Web Application:** This web based centralised solution is developed using the powerful coding tools Php 7.2 , Java Script & AJAX. Database tool MariaDB 10.
- **Mobile Application:** The Android mobile application was developed by using Kotlin & Java in Android-IDE – A complete Android development environment.

USER ACCESS CONTROL

User Access Control is the integral part of EMP. In E-Monitoring of Plantation role and access can be given to view, authorise and edit monitoring records. Stake holders are:

- Monitoring Division-Range Officer
- Monitoring Division- ADFO
- Monitoring Division- DFO
- Admin

EMP- ANDROID MOBILE APP

FEATURES OF MOBILE APPLICATION

- Query & View Planation Journal
- Create Plantation Journal (If Planation Journal is not available)
- Record GPS Co-ordinate during Monitoring
- Auto Calculate no of sample plots
- Generate monitoring Forms depending on desired monitoring year
- Update Observations
- Update Form 2
- Evaluate monitoring data Realtime
- Instant Calculation of Survival Percentage
- Submit Monitoring report

DATA COLLECTION USING EMP- MOBILE APP

EMP mobile application enables to collect very detailed data from the field directly in predefined formats through multiple stages. Every Plantation Site data will include basic information of physical location along with species details with multiple GPS points of the monitoring plots. These monitoring data collected using the EMP- Mobile application sync real-time with the EMP- web application for authorisation, processing & generation of reports.

EMP- WEB APPLICATION

FEATURES OF WEB APPLICATION

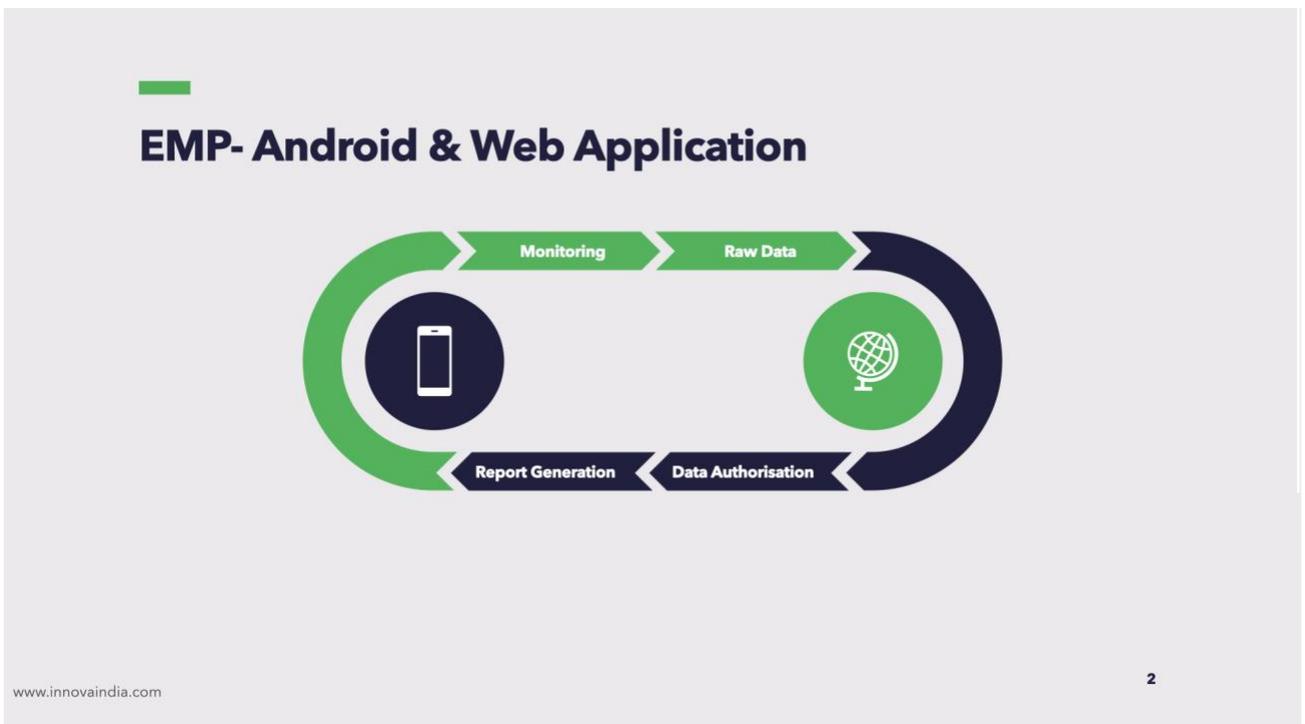
- Master module
- Launch Monitoring module
- User Management Module
- Plantation Journal
- Monitoring Data Evaluation & Authorisation Module
- Generation of Planation wise Quality Index & Weightage Calculation
- MIS Report Module

MIS REPORTS:

The below list of MIS reports can be generated and downloaded in excel from the MIS module of the EMP-web application:

1. Division wise Weighted Survival Percentage - 1st Year
2. Division wise Weighted Survival Percentage - 3rd Year
3. Division wise Weighted Survival Percentage - 5th Year
4. Division wise Weighted Performance Score - 1st Year
5. Division wise Weighted Performance Score - 3rd Year
6. Division wise Weighted Performance Score - 5th Year
7. Scheme & Category wise 1st year plantation based on WSP & WPS
8. Scheme & Category wise 3rd year plantation based on WSP & WPS
9. Scheme & Category wise 5th year plantation based on WSP & WPS
10. Inter Circle Performance Based on Weighted Performance Score- 1st Year
11. Inter Circle Performance Based on Weighted Performance Score- 3rd Year
12. Inter Circle Performance Based on Weighted Performance Score- 5th Year
13. Division Wise Performance - 1st Year
14. Division Wise Performance - 3rd Year
15. Division Wise Performance - 5th Year
16. Detail Monitoring Data- 1st Year
17. Detail Monitoring Data- 3rd Year
18. Detail Monitoring Data- 5th Year
19. Plantation wise WPS calculation
20. Plantation wise WSP calculation
21. Monitoring Status Report

APPLICATION FLOW



EMP- Android Application

Purpose

The eMonitoring of Plantation or EMP Android Application is the primary input method to update the monitoring parameters from the field.



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EMP- Android Application

Features

- Query & View Plantation Journal
- Create Plantation Journal (If Plantation Journal is not available)
- Record GPS Co-ordinate during Monitoring
- Auto Calculate no of sample plots
- Generate Form 3A
- Update Observations
- Update Form 2
- Instant Calculation of Survival Percentage
- Submit live Monitoring Data

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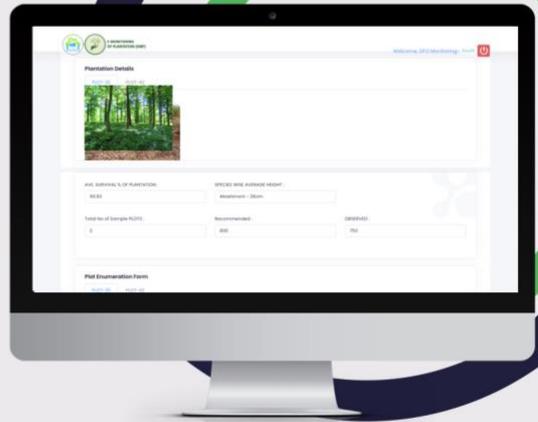


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EMP- Web Application

Purpose

The eMonitoring of Plantation Web Application is the data processing & analysis engine. Raw data received from the mobile application is processed in web application to draw various reports.



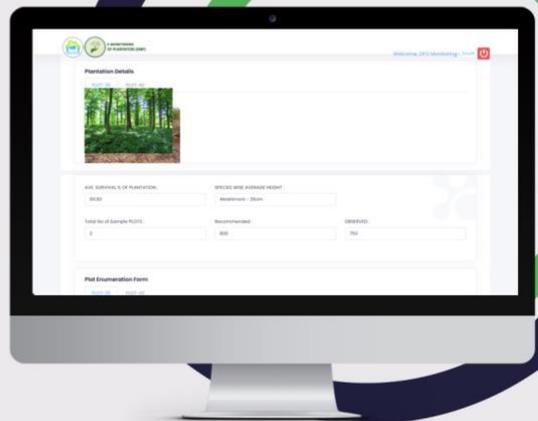
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EMP- Web Application

Features

- Launch & manage Monitoring Drive
- Range Officer- Facility to review, edit and submit monitoring data
- DFO- View, edit and authorise data
- Generate Mandatory Reports



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EMP- Android Application

Application User: Range Officer

CASE 1

ePlantation Journal is available

The Range officer will enter the ePlantation Journal ID to generate the plot wise Form 3A, Observation form & Form 2A.

CASE 2

ePlantation Journal is not available

Here the Range Officer will create the ePlantation Journal using the PJ creation wizard. On successful creation of ePlantation Journal, plot wise Form 3A, Observation form & Form 2A will be generated.

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APP

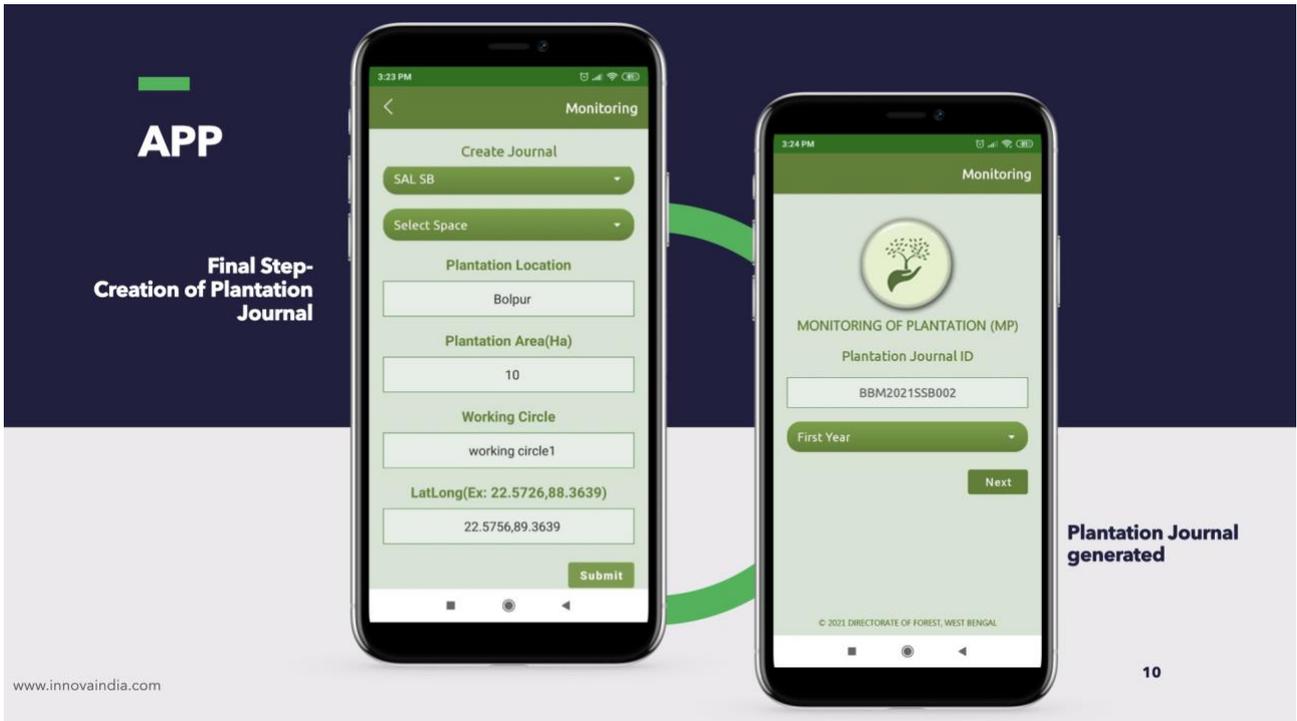
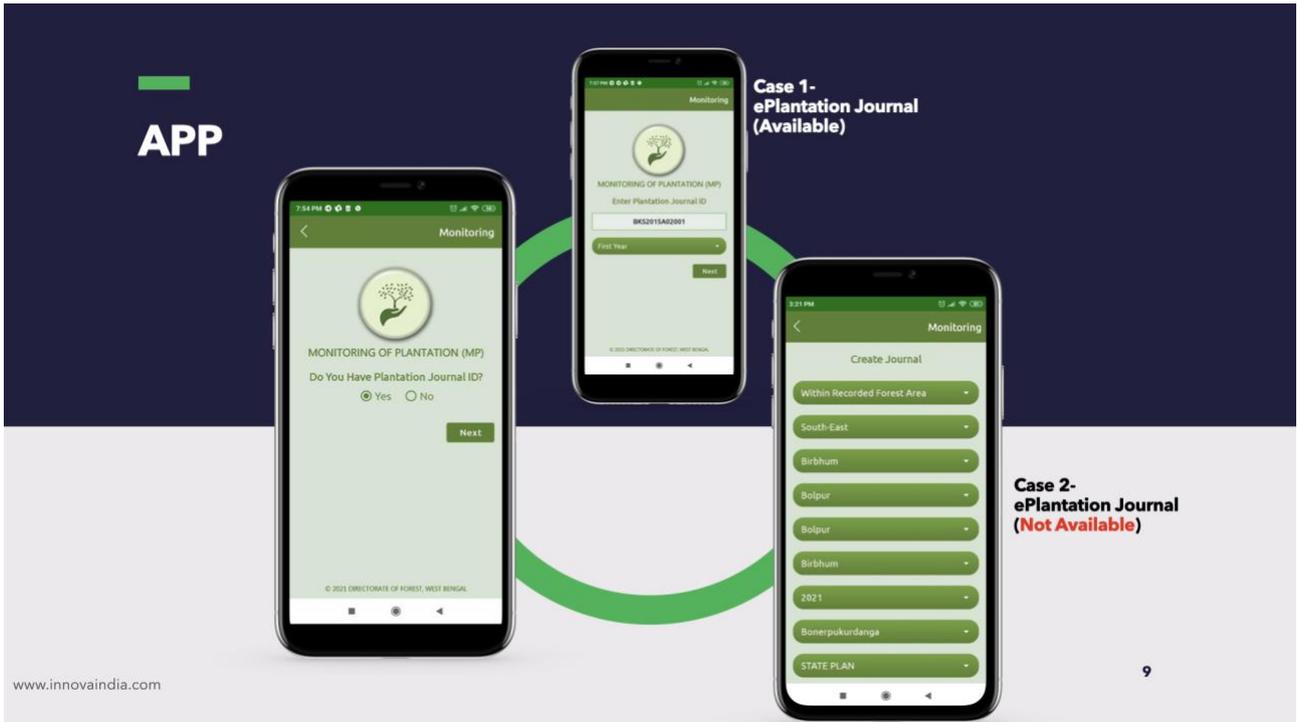
Range Officer's -
Personalised login
(One Time)



DASHBOARD

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APP

Initiate Monitoring

Plantation Details

Pj ID: BBM2021SSB002
 Monitoring Year: First Year
 Creation: 2021
 Division: Birbhum
 Range: Bolpur
 Plantation Area: 10.00 Ha
 Monitoring Area: 0.75 Ha
 Sample No of Plants: 1200
 Sample No of Plots: 3

Generate Form 3A
 Update Observations
 Update Form 2

Generate Form 3A

ID: BBM2021SSB002
 Area: 0.75 Ha
 No Of Plots: 3

No of Plots: 3

Enter Plot Name

p1
 p2
 p3

Next

Naming Sample Plots

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APP

App auto records the GPS coordinates

Monitoring

22.594594594594593
 88.40718532849583

Choose Plot for Monitoring:

p1
 p2
 p3

Start Monitoring

Monitoring

Selected Species in Plot: p1

Akasmoni Add

Sal/Sakhua
 Akasmoni

Submit

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Sample plot wise Species selection

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APP

Submit monitoring data

Monitoring

Plot: p1
Species Name

Sa/Sakhua 10 10
Akasmoni Less 30 30-40

Submit

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1 2 3 -
4 5 6 -
7 8 9 ✕
, 0 . →

Monitoring

22.594594594594593
88.40718532849583

Choose Plot for Monitoring:

p1
 p2
 p3

Start Monitoring

Monitoring

22.594594594594593
88.40718532849583

Choose Plot for Monitoring:

p1
 p2
 p3

Start Monitoring

Similar procedure is followed to complete the Form 3A of Plot 2 & Plot 3

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APP

Monitoring

Plot: p2
Species Name

3.20 400 Submit

Confirm All Plot...!!
Have you completed all plot?
NO CANCEL YES

Submit

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Monitoring

ID: BBM2021SSB002
Plot wise total Species

p1 Total Species(Height): 400
p2 Total Species(Height): 400
p3 Total Species(Height): 350

Total Observed Species: 1150

Submit

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APP

Form 3A Complete
Generate Observation form

Plantation Details

Pj ID: BBM2021SSB002
Monitoring Year: First Year
Creation: 2021
Division: Birbhum
Range: Bolpur
Plantation Area: 10.00 Ha
Monitoring Area: 0.75 Ha
Sample Plots: 3
Sample Plants: 1200
No of Observed Plants: 1150

Generate Form 3A
Update Observations
Update Form 2

Observation

ID: BBM2021SSB002

Area:
Total Area : 10.00
Sample Area : 0.75

Plant:
Sample Plants : 1200
Observed Plants : 1150

Survival Percentage:
95.833336 %

Submit

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FORM-OBSERVATION

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APP

Observation Complete
Generate Form 2

Plantation Details

Pj ID: BBM2021SSB002
Monitoring Year: First Year
Creation: 2021
Division: Birbhum
Range: Bolpur
Plantation Area: 10.00 Ha
Monitoring Area: 0.75 Ha
Sample Plots: 3
Sample Plants: 1200
No of Observed Plants: 1150

Generate Form 3A
Update Observations
Update Form 2

Form 2

ID: BBM2021SSB002

Status of Land

Legal Status Of Land: ROR
 PF/RF/USF
 Road Side Plantation
 NO

Source Of Seeds and Status of Nursery

Source of seeds: Research Wing
 Others

Seed grading and sees treatment done in Nursery: YES
 NO

Seedlings produced in: Central Nursery
 Field

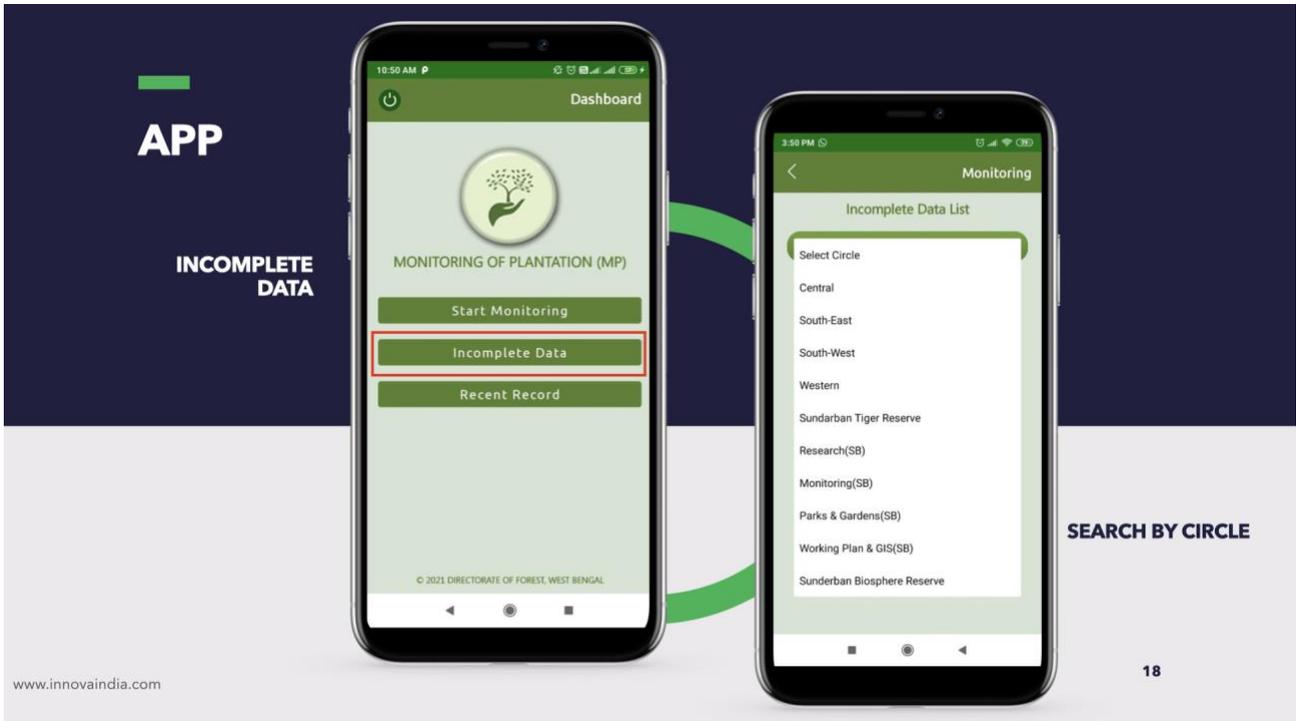
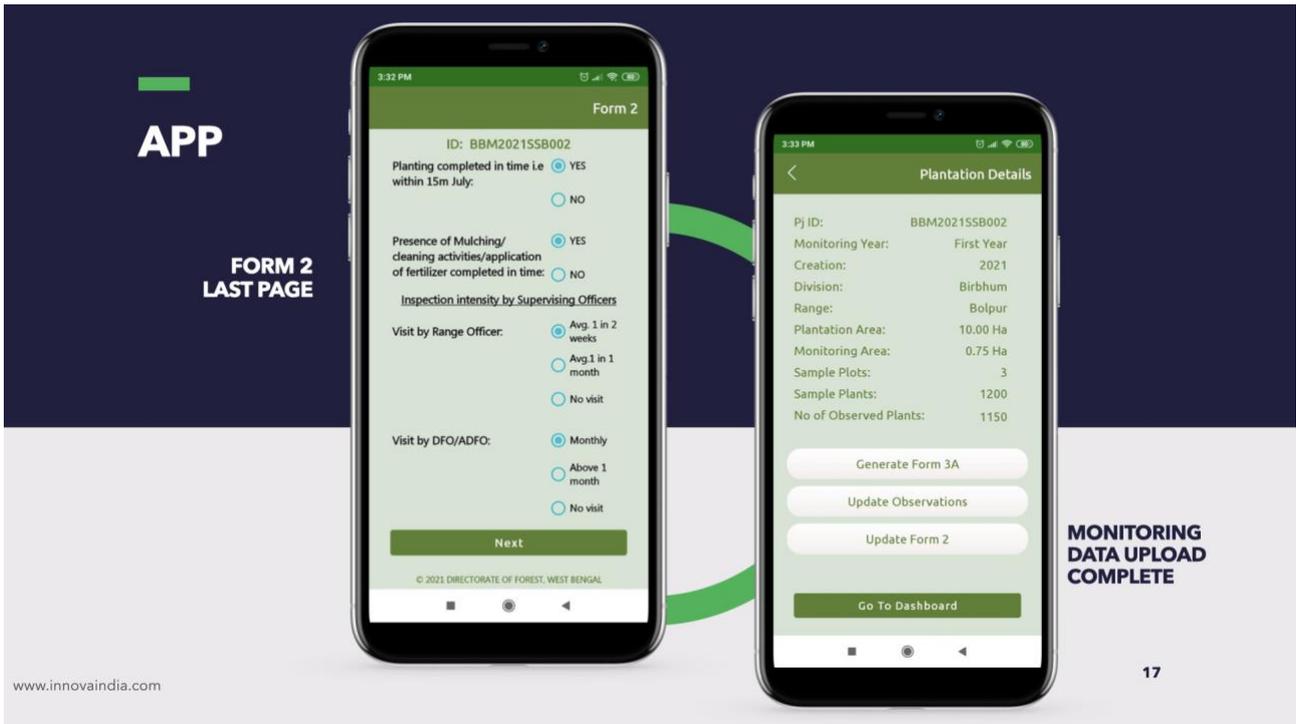
Next

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FORM 2- PAGE 1

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APP

INCOMPLETE DATA LIST

STATUS OF MONITORING

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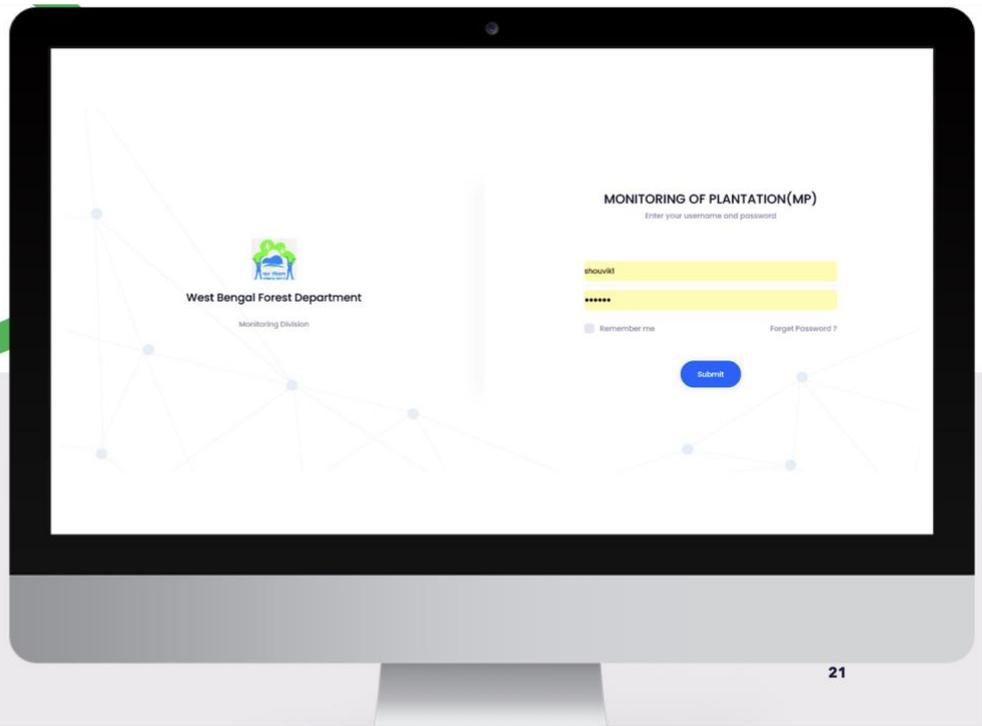
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Live monitoring data ready for authorisation & analysis

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WEB



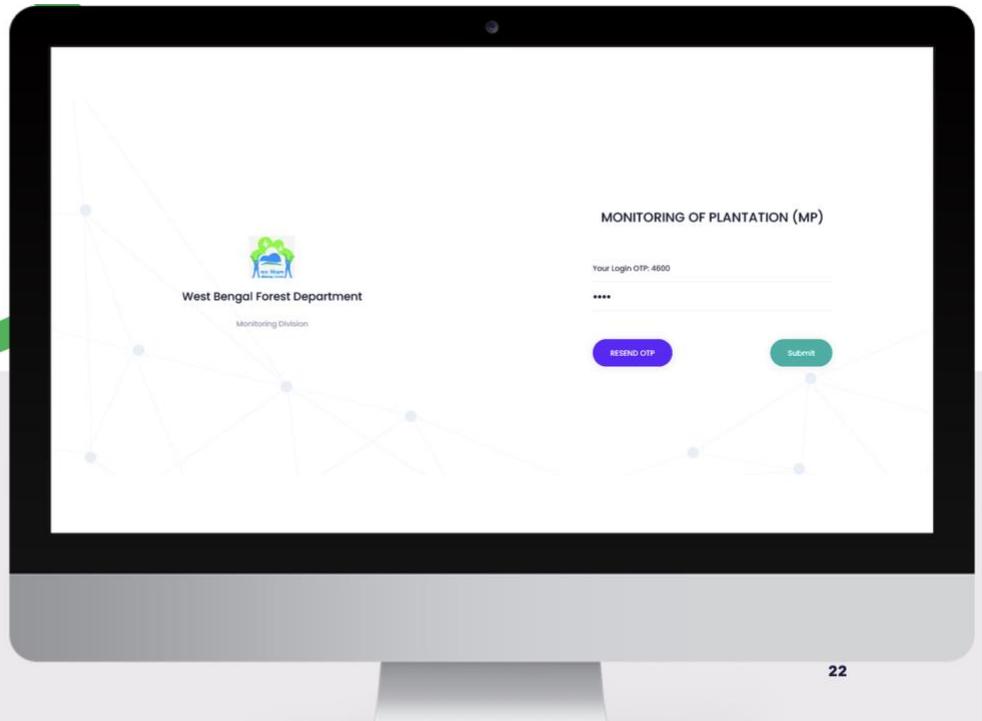
ACCESS AVAILABLE TO:

- RANGE OFFICER
- ADFO
- DFO
- ADMIN

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WEB



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RO- DASHBOARD

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E-MONITORING OF PLANTATION (EMP)

Welcome, shouvik das

SPOTLIGHT MANAGE REPORTS

Dashboard Search Security

Dashboard

Welcome, [shouvik das](#)

Last Login: 162.158.235.58 04/08/2021 05:34:19

Monitoring Drive: Active

FY: 2021-2022

EMP Date: 01-Apr-2022 to 31-Feb-2022

EMP Year: Select Year

Division: Select Division

EMP Date: Select EMP Date

Search

Recent Records

List of unauthorised monitoring data

DIVISION NAME	FIRST YEAR	THIRD YEAR	FIFTH YEAR
Bankura North	0	0	0
Bankura South	0	0	0
Panchhat	0	0	0
Birbhum	0	0	0
Bardhaman	0	0	0
Durgapur	0	0	0
Kangsaband North	0	0	0
Purulia	0	0	0
Jhargram	0	0	0
Kharagpur	0	0	0
Prasann Medinipur	0	0	0
Bagmatiyan	0	0	0
Working Plant (South-I)	0	0	0
24-Fungaria (South)	0	0	0
Purba Medinipur	0	0	0

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RO- DIVISION WISE VIEW OF UNAUTHORISED DATA

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E-MONITORING OF PLANTATION (EMP)

Welcome, shouvik das

SPOTLIGHT MANAGE REPORTS

Unauthorised Data Authorised Data

Unauthorised Data

Creation Year: Select Creation Year

Monitoring Year: Select Monitoring Year

Scheme: Select Scheme

Model: Select Model

Zone: South Bengal

Circle: Select Circle

Division: Select Division

Range: Select Range

Beat: Select Beat

Search

---- OR ----

Select id Type: Select id Type

Enter id:

Search

Unauthorised Data List

MONITORING DATE	MONITORING ID	PJ ID	MY	RANGE OFFICER	CREATION YEAR	ZONE	CIRCLE	DIVISION	MODEL	AREA (HA)	STATUS
04/09/2021	60	88M2021S8B002	1st Year	shouvik das	2021	SB	South-East	Birbhum	SAL SB	10.00	Incomple
25/08/2021	48	88M2021D8R001	1st Year	shouvik das	2021	SB	South-East	Birbhum	Fodder, Grass and Bamboo	10.00	Incomple

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RO- DATA PREVIEW & EDIT
 (RO CAN EDIT MONITORING DATA BEFORE THE
 AUTHORISATION OF DFO)

VIEW

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Monitoring (South) Division & Monitoring South DMU
FORMS FOR 1ST YEAR (Monitoring year 2021) [Monitoring Status: incomplete]
 Plantation Details

EMP ID: 90 P.U. ID: BHM2021588002 Creation Year: 2021 Monitoring Year: First Year

Range Officer: shouvik das Zone: South Bengal Circle: South-East Division: Birbhum

Range: Bolpur Block: Bolpur Scheme: STATE PLAN Model: SAI SB

PLANTATION LOCATION (P.S., MOZA with J. & PLOT) for SB/Block & Compartment for NB:
 Bolpur

Plantation AREA (AS PER RECORD): 10.00 Sample AREA: 0.75 Plantation AREA (AS OBSERVED): 0 GPS Reading one fixed point: 22.5756,89.3639

Total No of Sample PLOTS: 3

Date of Survey & Monitoring: 04/09/2021 Working Circle: working circle Total no of Plants (Recommended): 1000

Total no of Plants (Observed): 150 Spacing as Recommended: Select Spacing Upload Kml file: [Browse] No file selected

FORM 3A - HEIGHT CLASS



DFO- DASHBOARD

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Welcome, shouvik das

Last Login: 162.184.227.814 202/08/2022 16:58:27

Monitoring Drive: Active
 FY: 2021-2022
 EMP Date: 01-Apr-2022 to 01-Feb-2022

EMP Year: Select Year Range Officer: Select Officer Division: Select Division

EMP Date: Select EMP Date

Recent Records
 List of unauthorised monitoring data

DIVISION NAME	FIRST YEAR	THIRD YEAR	FIFTH YEAR
Bankura North	0	0	0
Bankura South	0	0	0
Bankura	0	0	0
Birbhum	0	0	0
Bardhaman	0	0	0
Durgam	0	0	0
Kangsabhad North	0	0	0
Palas	0	0	0
Jhargam	0	0	0
Khoreggur	0	0	0
Passim Medinipur	0	0	0
Rajnansari	0	0	0
Working Plan (South-I)	0	0	0
24-Parganas (South)	0	0	0
Passim Medinipur	0	0	0



DFO- DIVISION WISE VIEW OF UNAUTHORISED DATA

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Dashboard Search Security

Dashboard

Welcome, shouvik

Last Login: 162.158.227.159 04/09/2021 15:44:54

Monitoring Drive: Active

FY: 2021-2022

EMP Date: 01-Apr-2021 to 01-Feb-2022

EMP Year: Select Year

Range Officer: Select Officer

Division: Select Division

EMP Data: Select EMP Data

Search

Recent Records

List of unauthorized monitoring data

DIVISION NAME	FIRST YEAR	THIRD YEAR	FIFTH YEAR
Bankura North	3	1	2
Bankura South	1	2	1
Panchet	3	5	5
Birbhum	2	2	2
Burdwan	1	1	2
Durgapur	2	2	1
Kangsabati North	2	2	2
Purulia	2	2	2
Jhargram	2	2	1
Kharagpur	2	1	1
Poshim Medinipur	1	2	1
Rupnarayan	1	2	2
Working Plan (South-I)	2	2	1



DFO- DATA AUTHORISATION

VIEW

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E-MONITORING OF PLANTATION (EMP)

Welcome, shouvik

Monitoring (South) Division & Monitoring South DMU
FORMS FOR 1ST YEAR (Monitoring year 2021) [Monitoring Status: complete]

Plantation Details

EMP ID: SB PJ ID: SBM201828200 Creation Year: 2014 Monitoring Year: First Year

Range Officer: shouvik das Zone: South Bengal Circle: South-East Division: Birbhum

Range: Solpur Block: Solpur Scheme: STATE PLAN Model: SAL SB

PLANTATION LOCATION (P.S., MOUDA with A & PLOT) for SB/Block & Compartment for SB
Solpur

Plantation AREA (AS PER RECORD): 10.00 Sample AREA: 0.75 Plantation AREA (AS OBSERVED): 0 GPS Reading one fixed point: 22.5026, 88.3639

Total No of Sample PLOTS: 3

Date of Survey & Monitoring: 07/09/2021 Working Circle: Development Total no of Plants (Recommended): 1200

Total no of Plants (Observed): 105 Spacing as Recommended: 2.5x2.5 Upload Kml file: [Browse] No file selected.

Update

FORM 3A - HEIGHT CLASS



SPOTLIGHT **MANAGE** **REPORTS**

Report

- | [Monitoring Status report](#)
- | [Division wise Weighted Survival Percentage](#)
- | [Division wise Weighted Performance Score](#)
- | [Scheme & Category wise Plantation Based on Weighted Survival Percentage](#)
- | [Scheme & Category wise Plantation Based on Weighted Performance Score](#)
- | [Inter Circle Performance at a glance Based on Weighted Performance Score](#)
- | [Division wise Performance](#)
- | [Detail Monitoring Data](#)

REPORTS

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FIELD VISIT

Zone: South Bengal

Date: 29/10/2021 to 30/10/2021



	MONITORING DATE	ZONE	DIVISION	RANGE	BEAT	AREA	MODEL	YEAR
1.	29-10-2021	SB	Medinipur	Bhadutala	Moupal	14 Ha	A3	3 rd Year
2.	29-10-2021	SB	Medinipur	Medinipure	Baghasole	31 Ha	A1	3 rd Year
3.	29-10-2021	SB	Rupnarayan	Goaltore	Barapatasol	10 Ha	A2	3 rd Year
4.	29-10-2021	SB	Rupnarayan	Goaltore	Barapatasol	10 Ha	A2	5 th Year
5.	29-10-2021	SB	Rupnarayan	Goaltore	Barapatasol	15 Ha	A2	5 th Year
6.	30-10-2021	SB	Panchet	Bishnupur	Bishnupur - II	10 Ha	A2	3 rd Year
7.	30-10-2021	SB	Panchet	Bishnupur	Bishnupur - II	15 Ha	A3	3 rd Year
8.	30-10-2021	SB	Panchet	Bishnupur	Bishnupur - II	10 Ha	A2	3 rd Year
9.	30-10-2021	SB	Bankura South	Simlapal	Simlapal	20 Ha	A2	5 th Year
10.	30-10-2021	SB	Bankura South	Simlapal	Simlapal	10 Ha	A3	5 th Year
11.	30-10-2021	SB	Bankura South	Simlapal	Simlapal	20 Ha	A2	5 th Year

EMP Dashboard: South Bengal

E-MONITORING OF PLANTATION (EMP)Welcome, shouvik das

SPOTLIGHT MANAGE REPORTS

Dashboard Search Security

Dashboard

Welcome,
shouvik das

Last Login: 162.158.235.33 09/11/2021 17:39:21

Monitoring Drive: Active

FY: 2021-2022

EMP Date: 01-Apr-2021 to 01-Feb-2022

EMP Year:

Division:

EMP Data:

Recent Records

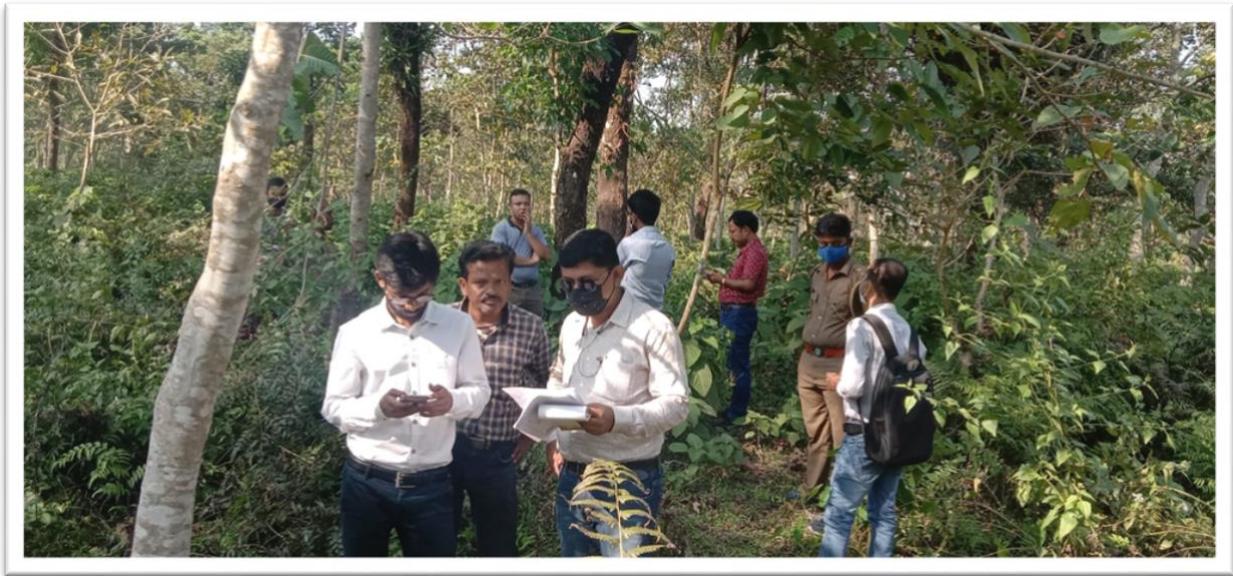
[List of unauthorized monitoring data](#)

DIVISION NAME	FIRST YEAR	THIRD YEAR	FIFTH YEAR
Bankura South	0	0	3
Panchet	0	3	0
Pashim Medinipur	0	2	0
Rupnarayan	0	1	2

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Zone: North Bengal

Date: 02/11/2021 to 03/11/2021



	MONITORING DATE	ZONE	DIVISION	RANGE	AREA	MODEL	YEAR
1.	02-11-2021	NB	Siliguri SF	Central SF	20 Ha	Misc. NB	3 rd Year
2.	02-11-2021	NB	Kurseong	Bagora	5 Ha	A5	3 rd Year
3.	02-11-2021	NB	Kurseong	Bagora	10 Ha	A5	5 th Year
4.	02-11-2021	NB	Kurseong	Bagora	5 Ha	Misc. Hills	5 th Year
5.	03-11-2021	NB	Baikunthapur	Targhera	15 Ha	Misc. NB	3 rd Year
6.	03-11-2021	NB	Baikunthapur	Belacoba	20 Ha	A5	5 th Year
7.	03-11-2021	NB	Baikunthapur	Belacoba	20 Ha	A5	5 th Year
8.	03-11-2021	NB	Jalpaiguri	Diana	10 Ha	A5	3 rd Year
9.	03-11-2021	NB	Jalpaiguri	Diana	10 Ha	A5	5 th Year



EMP Dashboard: North Bengal




**E-MONITORING
OF PLANTATION (EMP)**

Welcome, Chhotan Mondal 

SPOTLIGHT
MANAGE
REPORTS

Dashboard
Search
Security

Dashboard

Welcome,
Chhotan Mondal

Last Login: 162.158.227.6 08/11/2021 19:06:05

Monitoring Drive: Active

FY: 2021-2022

EMP Date: 01-Apr-2021 to 01-Feb-2022

EMP Year:

Division:

EMP Data:

Recent Records

[List of unauthorized monitoring data](#)

DIVISION NAME	FIRST YEAR	THIRD YEAR	FIFTH YEAR
Kurseong	0	1	2
Baikunthapur	1	0	2
Jalpaiguri	0	1	1
Siliguri Social Forestry	0	1	0
Jalpaiguri Social Forestry	1	0	0

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ADVANTAGE

EMP APPLICATION IS QUICK & EFFECTIVE TO GENERATE ANNUAL REPORTS

EASY & REAL-TIME

The mobile app together with web application will enable the Range Officers to effectively collect, process, and analyse the monitoring data under all government schemes and will bring more transparency with geo-tagged pictures & KMLs.

FAST APPLICATION PROCESSING

Generation of consolidated Annual mandatory MIS report will be fast & real-time reducing manual intervention at HQ.

SECURE

The complete data, will be always available in the cloud server, ensuring the data is secured & backed up for life.

RMD ARCHIVE



INTRODUCTION

The Research Monitoring & Development Wing of Forest Directorate, West Bengal looks after the activities of research (Silviculture), monitoring & evaluation of forest vegetation and soil-moisture conservation related works in and around the forest lands throughout the State.

As this Wing has been continuing the research, monitoring and soil conservation activities for several decades a considerable quantum of database has been accumulated in successive years which need secure conservation and protection for future references. Moreover, manual retrieval of previous important data appears to be cumbersome and time-consuming.

Advanced recent technologies have given us the opportunity to converge all available information on a single platform and rapid analysis of data and results as per requirement enable us to avail query-based solutions by means of Enterprise Solution through the interchange of information from different regional offices to retrieve and disseminate informative data throughout the organization providing the office managers with real-time operating information.

As a pre-requisite of that mission and also to preserve and protect data, creation of one integrated archive has been felt essential which will keep all information in centralized system and stored information may be retrieved as and when necessary.

OBJECTIVE

The Research, Monitoring and Development Wing are entrusted with the related activities of Forest Directorate of West Bengal where upgradation and maintenance of the accumulated data are done on regular basis. These databases are not only important for contemporary period but also immensely valuable for formulating future strategies, planning and execution of various Government schemes and projects. Therefore, it has been felt necessary to create an integrated, interactive automated system which shall incorporate the latest technology available in the time of installation and will be easily upgradable when software improvements become available.

The Research, Monitoring and Development (RMD) Archive may be created on turnkey basis through outsourcing with the following goals:

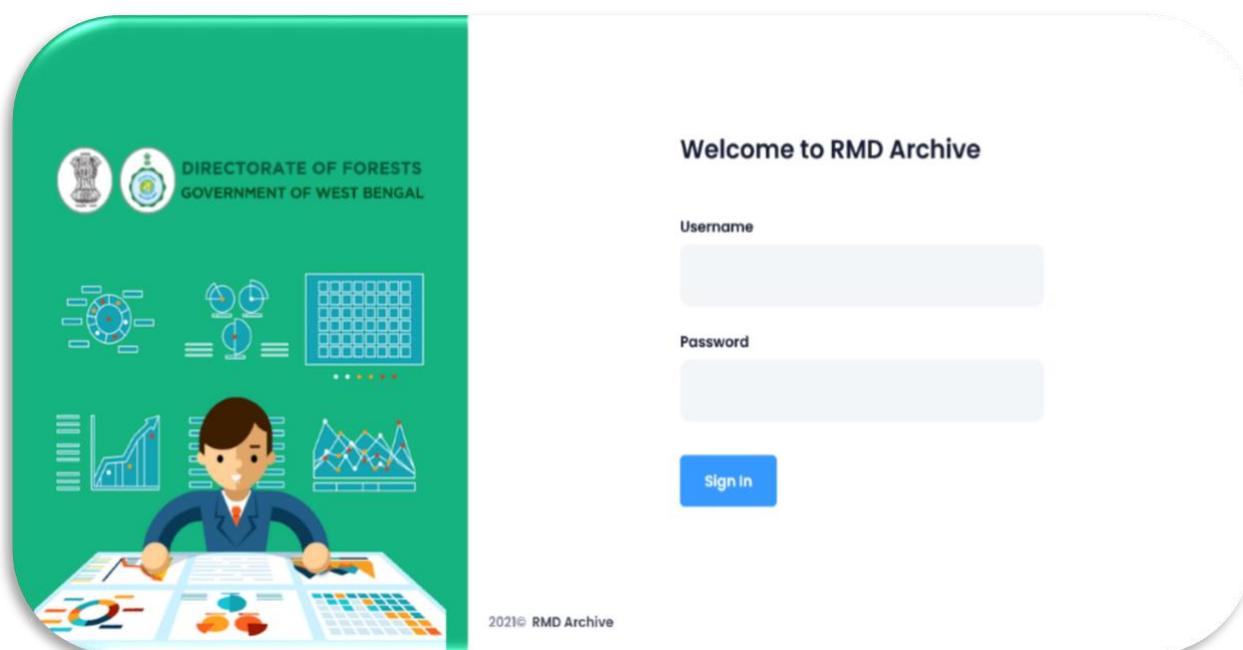
- Flexibility
- Scalability
- Reliability
- Ease to access and handle through mobile App from internet connected smart phones
- Integrity- Data security at endpoint as well as User access level

APPLICATION OVERVIEW

RMD Archive will run on all major operating systems independently and can be integrated with one another quickly and easily. This proposed archive will give the scope of accessibility and consultation of the historical research achievements, year wise records of monitoring & evaluation as well as soil conservation documents in significantly easier manner than any other proprietary approaches.

RMD Archive can bring all the pre-existing Research, Monitoring-evaluation and Soil Conservation documents together on a single platform very easily and quickly, thus unified archive solution will enable us to view all available documents in PDF, TIFF or PNG formats. Indexes can also be created for easy retrieval of specific documents as per requirement. Using the existing file system and database the RMD Archive can be integrated into the existing technology architecture easily and quickly with the help of some easy-to-implement Applications. The simple and easy browser-based file system should be completely customisable from bottom-up and will not require individual client installation; a simple introduction will enable the users to effectively use the RMD Archive.

RMD ARCHIVE: APPLICATION FLOW



MANAGE RESEARCH ARCHIVE

DIRECTORATE OF FORESTS
GOVERNMENT OF WEST BENGAL

RMD Archive

RESEARCH CIRCLE
SOIL CONSERVATION
DEVELOPMENT CIRCLE
MONITORING CIRCLE

Search

Task Panel

SL. NO.	CATEGORY	NEW	ORGANISE
1	Seed	Add to archive	Manage archive
2	Vegetative Propagation	Add to archive	Manage archive
3	Experimental Plantations/Trial	Add to archive	Manage archive
4	Seed Sources	Add to archive	Manage archive
5	Conservatory	Add to archive	Manage archive
6	Medicinal Plants	Add to archive	Manage archive
7	Silviculture Practices	Add to archive	Manage archive
8	RAC	Add to archive	Manage archive
9	Publications / Reports	Add to archive	Manage archive
10	Preservation Plot	Add to archive	Manage archive

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MANAGE SOIL CONSERVATION ARCHIVE

DIRECTORATE OF FORESTS
GOVERNMENT OF WEST BENGAL

RMD Archive

RESEARCH CIRCLE SOIL CONSERVATION DEVELOPMENT CIRCLE MONITORING CIRCLE

Search Organise Soil Archive

Task Panel

SL. NO.	CATEGORY	NEW	ORGANISE
1	Plantation Work	Add to archive	Manage archive
2	Structural work	Add to archive	Manage archive
3	Publications / Reports	Add to archive	Manage archive

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MANAGE DEVELOPMENT ARCHIVE

DIRECTORATE OF FORESTS
GOVERNMENT OF WEST BENGAL

RMD Archive

RESEARCH CIRCLE SOIL CONSERVATION DEVELOPMENT CIRCLE MONITORING CIRCLE

Search Organise Development Archive

Task Panel

SL. NO.	CATEGORY	NEW	ORGANISE
1	Training Data	Add to archive	Manage archive
2	Syllabus & Study Material	Add to archive	Manage archive
3	Publications / Reports	Add to archive	Manage archive

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MANAGE MONITORING CIRCLE ARCHIVE

The screenshot shows the RMD Archive web application interface. At the top left, there are logos for the Government of West Bengal and the Directorate of Forests. The header includes the text "DIRECTORATE OF FORESTS" and "GOVERNMENT OF WEST BENGAL". On the top right, it says "RMD Archive" with a user profile icon. Below the header is a navigation bar with four tabs: "RESEARCH CIRCLE", "SOIL CONSERVATION", "DEVELOPMENT CIRCLE", and "MONITORING CIRCLE". The "MONITORING CIRCLE" tab is selected. Below the navigation bar is a search bar with the text "Search" and a button labeled "Organise Monitoring Archive". A "Task Panel" is displayed below the search bar, containing a table with three rows of data. Each row has a "NEW" column with an "Add to archive" button and an "ORGANISE" column with a "Manage archive" button.

SL. NO.	CATEGORY	NEW	ORGANISE
1	Monitoring Methodology	Add to archive	Manage archive
2	Survey & Monitoring Reports	Add to archive	Manage archive
3	Publications / Reports	Add to archive	Manage archive

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--- EOF ---