



Compartment Level Survey Mapping Forms and Dashboard

User Manual

Developed by



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Compartment Level Survey Mapping Forms and Dashboard

A web-based platform for forest data management in Punjab, enabling Assistant Directors (ADs), QA Leads, QC Persons, and District Forest Officers (DFOs) to collect, validate, and monitor spatial/non-spatial forest data.

Key Modules:

Assistant Directors (ADs)

- Collect field data (spatial/non-spatial).
- Edit datasets/compartments.
- Mark forests as "Completed" after full survey.
- Correct data returned from QC/DFO.

QA Leads

- Assign forests to QC team members for review.
- Monitor QC progress.

QC Persons

- Analyze spatial/non-spatial data of compartments.
- Flag errors or return data to ADs for corrections.

District Forest Officers (DFOs)

- View forest-level summaries (tabular + map).
- Inspect boundaries/compartments with interactive popups.
- Raise observed issues on each compartment.

Sign In / Login

Step 1: Access the Login Page

- Open your web browser and navigate to the URL.
- The Login screen will appear (as shown below):

Step 2: Enter Credentials

- Username: Enter your assigned username (e.g., AD_Lahore01, QC_User42).
- Password: Type your password (case-sensitive).

Step 3: Sign In

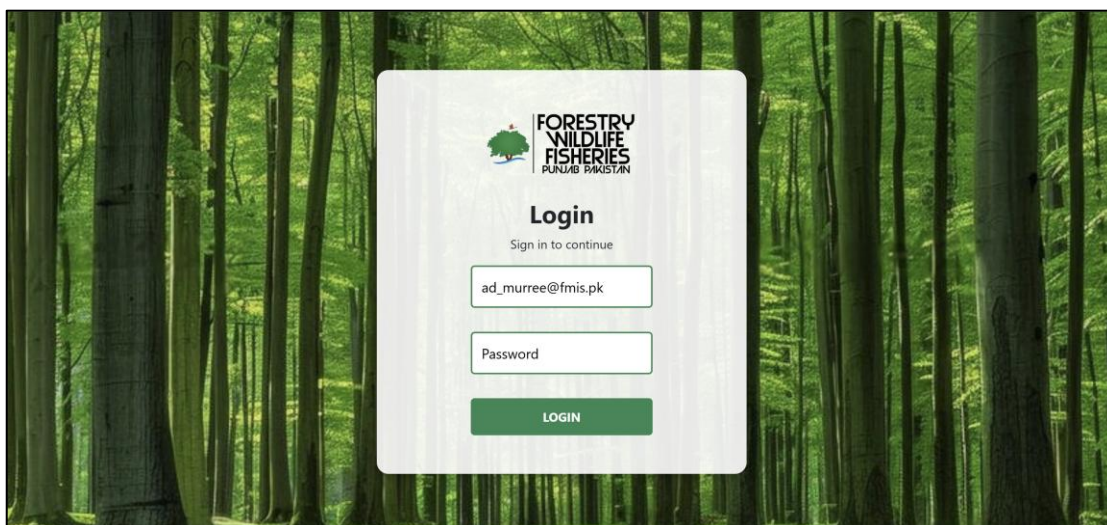
- Click the "LOGIN" button.

If credentials are correct, you will be redirected to your role-specific welcome page.

Troubleshooting:

✗ Invalid Credentials: Ensure caps lock is off and retry. Contact admin if issues persist.

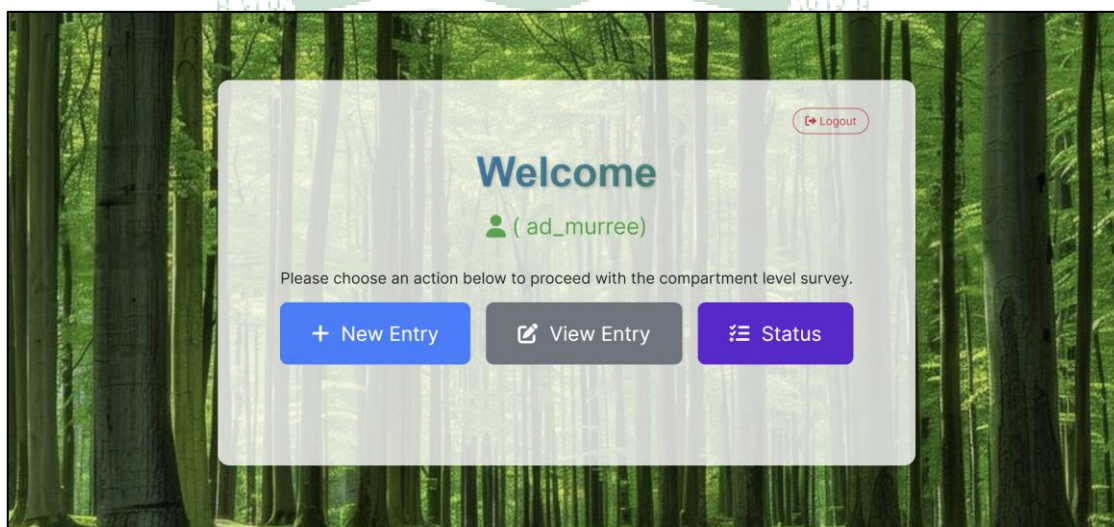
Login Screen Overview



Assistant Director (AD) Module

This is the landing page for Assistant Directors after login. From here, ADs can initiate new surveys, view/edit existing entries, or check the status of forests.

Welcome Screen Overview



Key Actions

1. New Entry

- Add a new compartment-level survey (spatial/non-spatial data).
- Click "+ New Entry".
- A form will appear as shown below.

Data Entry Form - Screen Overview 1

The screenshot shows the 'Forests Compartment Level GIS Mapping' Data Entry Form, Step 1: Basic Information. The form is titled 'Forests Compartment Level GIS Mapping' and 'Data Entry Form'. It contains several input fields for basic information:

- Zone:** A dropdown menu with 'Northern Zone' selected.
- Division:** A dropdown menu with 'Murree' selected.
- Gross Area:** A text input field with the placeholder 'Enter Gross Area in Acres'.
- Range/Sub Division:** A text input field with the placeholder 'Enter Range/Sub Division'.
- Circle:** A dropdown menu with 'Rawalpindi' selected.
- Forest Type:** A text input field with the placeholder 'Enter Forest Type'.
- Forest Name:** A dropdown menu with '-- Select a Forest --' selected.
- Officer Name:** A text input field with the placeholder 'Enter Officer Name'.

At the bottom right, there is a 'Next' button. A progress bar at the bottom indicates 'Step 1 of 4'.

- **Zone:** Select from dropdown (pre-filled based on user's district, e.g., "Northern Zone").
- **Division:** Verify auto-filled division (e.g., "Murree").
- **Gross Area (Acres):** numerical value only (e.g., 150) - Must be > 0.
- **Range/Sub Division:** Verify auto-filled (e.g., "Kotli Sattian").
- **Circle:** Verify auto-filled circle (e.g., "Rawalpindi").
- **Forest Type:** Verify auto-filled (e.g., "Coniferous", "Scrub", "Riverine").
- **Forest Name:** Click dropdown and select a forest (e.g., "Kashmir Point").
Note: If missing, contact DBA or Lead to add.
- **Officer Name:** Enter the name of the surveying officer (e.g., "Ali Raza").

Data Entry Form - Screen Overview 2

The screenshot shows the 'Forests Compartment Level GIS Mapping' Data Entry Form, Step 2: Compartment Information. The form is titled 'Forests Compartment Level GIS Mapping' and 'Data Entry Form'. It contains several input fields for compartment information:

- Compartment Number:** A dropdown menu with '7/MF' selected.
- Total Area Of Compartment:** A text input field with the placeholder 'Enter Compartment Area in Acres'.
- Planted Area:** A text input field with the placeholder 'Enter Planted Area in Acres'.
- Blank Area:** A text input field with the placeholder 'Enter Blank Area in Acres'.
- Plantable Blank Area:** A text input field with the placeholder 'Enter Plantable Blank Area in Acres'.
- Unplantable Blank Area:** A text input field with the placeholder 'Enter Unplantable Blank Area in Acres'.

At the bottom left, there is a 'Previous' button. At the bottom right, there is a 'Next' button. A progress bar at the bottom indicates 'Step 2 of 4'.

- **Compartment Number:** Select from dropdown (e.g., 7/MF).
If unavailable, choose "**Others**" and manually enter the number (e.g., 8/MF-new).
- **Planted Area (Acres):** Enter area under active plantation (e.g., 120).

- **Plantable Blank Area (Acres):** Enter area suitable for future planting (e.g., 30).
- **Blank Area (Acres):** Enter non-plantable area (e.g., 50).
- **Unplantable Blank Area (Acres):** Enter permanently unusable area (e.g., 20).
- **Total Area of Compartment (Acres):** Verify the **sum of all sub-areas**.
- **Navigation:**
 - **"Previous":** Returns to **Step 1** (Basic Information).
 - **"Next":** Proceeds to **Step 3** (only enabled if validation passes).

Data Entry Form - Screen Overview 3

The screenshot shows the 'Forests Compartment Level GIS Mapping' Data Entry Form, specifically Step 3: Compartment Information. The form is set against a background image of a forest. It contains several input fields and sections:

- Species Planted:** A table with columns for 'Entry 1', 'Species Name', '%', and a 'Remove' button. Below the table is an 'Add Species' button.
- Plantation Year:** A text input field with a placeholder 'Enter Plantation Year Series i.e 2006-2010 or Individual Year i.e 2006,2010'.
- Source Of Irrigation:** A dropdown menu with 'Choose...' as the selected option.
- Selected Irrigation Sources:** A list box showing selected sources.
- Remarks:** A text input field with a placeholder 'Enter Remarks'.
- Upload CPT Boundary:** A button to upload a boundary file.
- Forest Density%:** A text input field with a placeholder 'Enter Forest Density%'.
- Plantation Funding Scheme:** A dropdown menu with 'Choose...' as the selected option.
- Selected Plantation Funding Scheme:** A list box showing the selected scheme.
- Record Availability:** A dropdown menu with 'Choose...' as the selected option.
- Navigation:** 'Previous' and 'Submit' buttons, with a 'Next' button that is disabled.
- Progress Bar:** A green progress bar indicating 'Step 3 of 4'.

Section 1: Species Planted

Add Species

- Click **"Add Species"** to add a new species row.
- For each entry:
 - **Species Name:** Type Species name (e.g., "Chir Pine").
 - **% Coverage:** Enter percentage (e.g., 70%).
 - **Remove:** Click bin icon to delete incorrect entries.

Example:

Species Name	% Coverage
Kail	60%

Section 2: Plantation Year

- Enter year range (e.g., 2006-2010) OR
- Individual years separated by commas (e.g., 2006,2010).

Section 3: Source of Irrigation

Select Sources:

- Click "**Choose...**" → Select from dropdown (e.g., "Rainfed", "Canal").
- Selected items appear under "**Selected Irrigation Sources**".

Section 4: Forest Density: Enter percentage (e.g., 85%).

Section 5: Funding & Records

Plantation Funding Scheme:

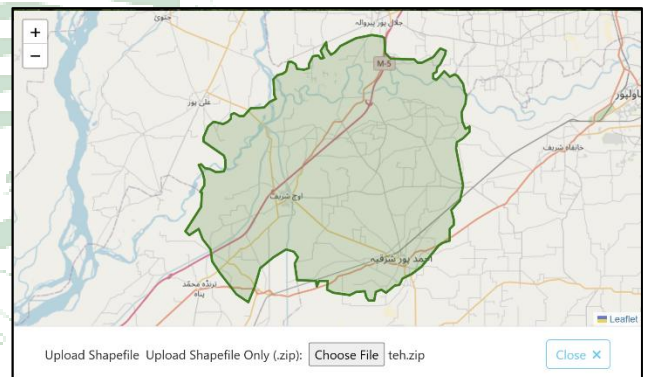
- Select scheme (e.g., "Rehabilitation").

Record Availability:

- Choose status (e.g., "Yes", "No").

Uploading Compartment Boundary (Critical Step)

1. Click "**Upload CPT Boundary**":
 - A modal window appears (see below screenshot).
2. **Upload Zipped Shapefile:**
 - Click "**Choose File**" → Select .zip containing:
 - Mandatory files: .shp, .shx, .dbf, .prj.
 - Click "**Open**".
3. **Verification:**
 - System auto-checks:
 - File format validity.
 - **If errors occur:** Reupload corrected files.
4. **Success:**
 - Boundary displays on map preview.
 - Proceed to "**Close**".



Navigation & Validation

- **Previous:** Returns to Step 2.
- **Submit Next:** Final review before submission and proceed to "**Next**" to upload feature boundaries.

Troubleshooting

✗ Upload Errors:

- Ensure zipped file contains all required components.

- Check CRS (Coordinate Reference System) matches project standards (e.g., WGS84).

✗ Species % Mismatch:

- Total coverage should ideally sum to ~100%.

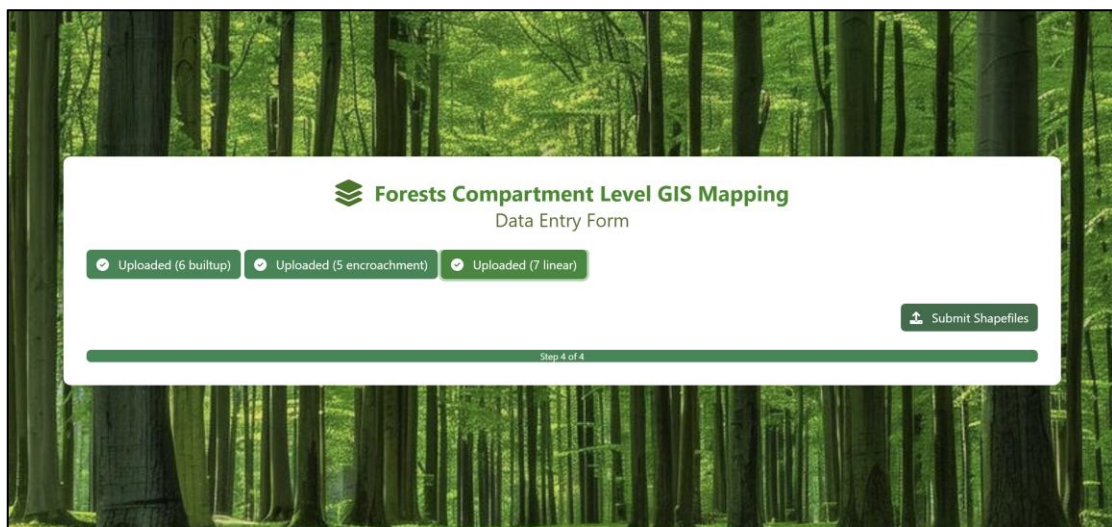
Pro Tip: Carefully see:

- ✓ Zipped shapefile contains: .shp, .shx, .dbf, .prj
- ✓ Boundary matches compartment location
- ✓ Species % totals are realistic

Uploading Spatial Features & Final Submission

Submit additional spatial data layers and complete compartment survey.

Upload Features Shapefile Screen



Uploading Spatial Data Layers

A. Built-up Structures

- **Purpose:** Mark buildings/structures within the compartment.
- **Action:**
 1. Click "**Upload Built-up Structures**".
 2. Select zipped shapefile (.zip containing .shp, .shx, .dbf, .prj).
 3. Verify preview on map.

B. Encroachments

- **Purpose:** Document illegal land occupations.
- **Action:**
 1. Click "**Upload Encroachments**".
 2. Upload zipped shapefile with boundary polygons.
 3. Add remarks if needed (e.g., "Encroachment since 2015").

C. Linear Features

- **Purpose:** Add roads, streams, or fences.
- **Action:**

1. Click "**Upload Linear Features**".
2. Upload line/polyline shapefiles.

Final Validation

- **System Checks:**
 - All shapefiles align with compartment boundaries.
 - No file corruption (valid formats only).
- **Errors:**
 - **✗ Misaligned Layers:** Adjust coordinates or reproject files.
 - **✗ Missing Files:** Rezip with all components.

Submission Process

1. Zipped shapefile must be exported from provided **GDB** for buildup structure, encroachment and linear feature files.
2. **Review:** Ensure all data layers are correctly displayed on the map.
3. Click "**Submit Shapefiles**" to finalize.
4. On successful submission page will be redirected to "**Welcome Page**"

Troubleshooting

Issue	Solution
Shapefile misalignment	Reupload with correct CRS (e.g., EPSG:4326).
Submission failure	Check internet connection; retry.

IMPORTANT NOTE: Data Preparation Guidelines & GeoDatabase Processing in ArcMap

Note: The system uses pre-configured geodatabases with defined domains to standardize feature categories and attribute values. To ensure data consistency:

- **Do Not Modify Geodatabase Structure:**
 - Domains: Pre-set values (e.g., forest types, species names) cannot be altered.
 - Schema: Field names, data types, and relationships are fixed.
- **Workflow for Data Collection:**
 - Step 1: Digitize Features**
 - Draw boundaries/features directly in the provided geodatabase.
 - Step 2: Populate Attributes**
 - Use dropdowns (domain values) for fields like "**structureType**", "**encType**" & "**linearType**".
 - In case of missing feature type in the dropdown, choose others and write that type in "**Others**" field.
 - Step 3: Validate Data**
 - Cross-check attribute tables for errors before export.
 - After exporting into shapefile calculate other values from "**Others**" field into type field.
 - Step 4: Export & Upload**

- Convert to zipped shapefile (include .shp, .shx, .dbf, .prj).
- Upload via the web portal.

Why This Matters:

System Checks: The web portal validates shapefile fields against geodatabase standards.

Rejection Risk: Tampering with domains/schema will cause upload failures.

Key Reminders:

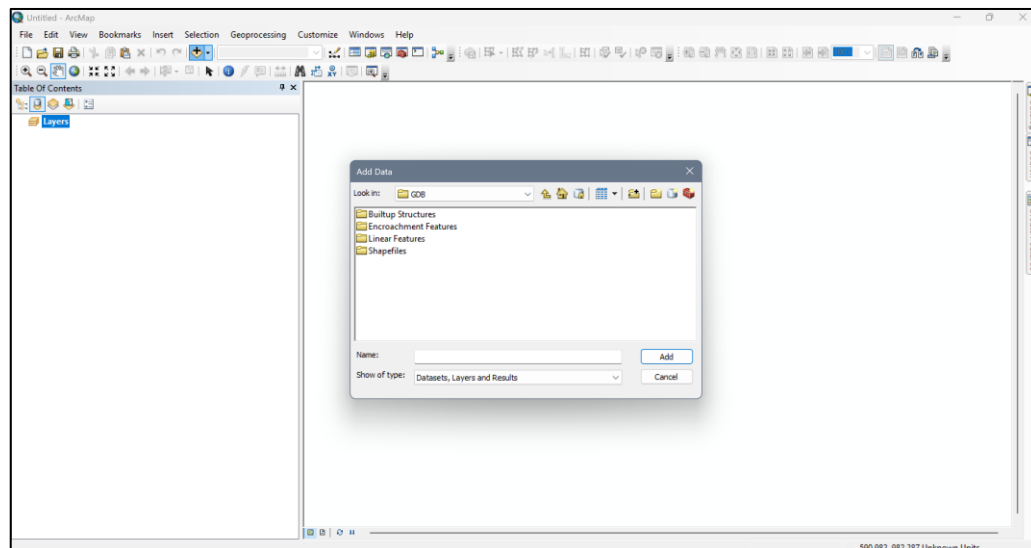
✓ Always:

- Use the original geodatabase as your starting point.
- Verify data before exporting to shapefile.

✗ Never:

- Edit domain values or field names in the geodatabase.
- Upload shapefiles created from scratch (missing domain checks).

1. Add geodatabases from the shared folder and digitize each individually based on compartment features.



2. The attribute structure of all three geodatabases are as below:

Feature Class Properties

General

Editor Tracking

XY Coordinate System

Domain, Resolution and Tolerance

Fields

Indexes

Subtypes

Feature Extent

Relationships

Representations

Field Name	Data Type
OBJECTID	Object ID
Shape	Geometry
Shape_Length	Double
Shape_Area	Double
GlobalID	Global ID
structureType	Text
others	Text
name	Text
area_ac	Double

Click any field to see its properties.

Field Properties

Alias	structureType	
Allow NULL values	Yes	
Default Value		
Domain	structuretype	
Length	255	

Import...

To add a new field, type the name into an empty row in the Field Name column, click in the Data Type column to choose the data type, then edit the Field Properties.

OKCancelApply

Feature Class Properties

General

Editor Tracking

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Field Name	Data Type
OBJECTID	Object ID
Shape	Geometry
Shape_Length	Double
Shape_Area	Double
GlobalID	Global ID
encType	Text
others	Text
name	Text
area_ac	Double

Click any field to see its properties.

Field Properties

Alias	encType	
Allow NULL values	No	
Default Value		
Domain	encType	
Length	255	

Import...

To add a new field, type the name into an empty row in the Field Name column, click in the Data Type column to choose the data type, then edit the Field Properties.

OKCancelApply

Feature Class Properties

General

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Fields

Indexes

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Feature Extent

Relationships

Representations

Field Name	Data Type
OBJECTID	Object ID
Shape	Geometry
Shape_Length	Double
Shape_Area	Double
GlobalID	Global ID
linearType	Text
others	Text
length_m	Double
width_m	Double
capacity_m3	Double
GlobalID	Global ID

Click any field to see its properties.

Field Properties

Alias	linearType	
Allow NULL values	No	
Default Value		
Domain	linearType	
Length	255	

Import...

To add a new field, type the name into an empty row in the Field Name column, click in the Data Type column to choose the data type, then edit the Field Properties.

OKCancelApply

3. Below are the snapshots of dropdowns of feature types from each geodatabase of features.

builtup_structure

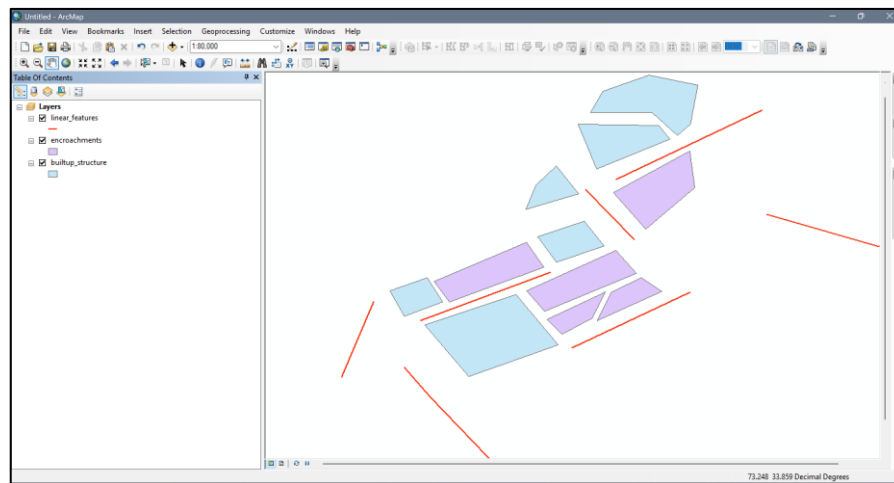
structureType	other	name	area_ac
Check Post	<Null>	aa	83316.696819
<Null>	<Null>	bb	20914.860729
Check Post	<Null>	cc	16029.518959
Watch Tower	Ghar	dd	14896.703744
Guards Quarters	<Null>	ee	34312.066072
Rest Houses	<Null>	fff	49483.466135
Office			
Official Residencies			
Others			

builtup_structure

structureType	other	name	area_ac
Check Post	<Null>	aa	83316.696819
<Null>	<Null>	bb	20914.860729
Check Post	<Null>	cc	16029.518959
Watch Tower	Ghar	dd	14896.703744
Guards Quarters	<Null>	ee	34312.066072
Rest Houses	<Null>	fff	49483.466135
Office			
Official Residencies			
Others			

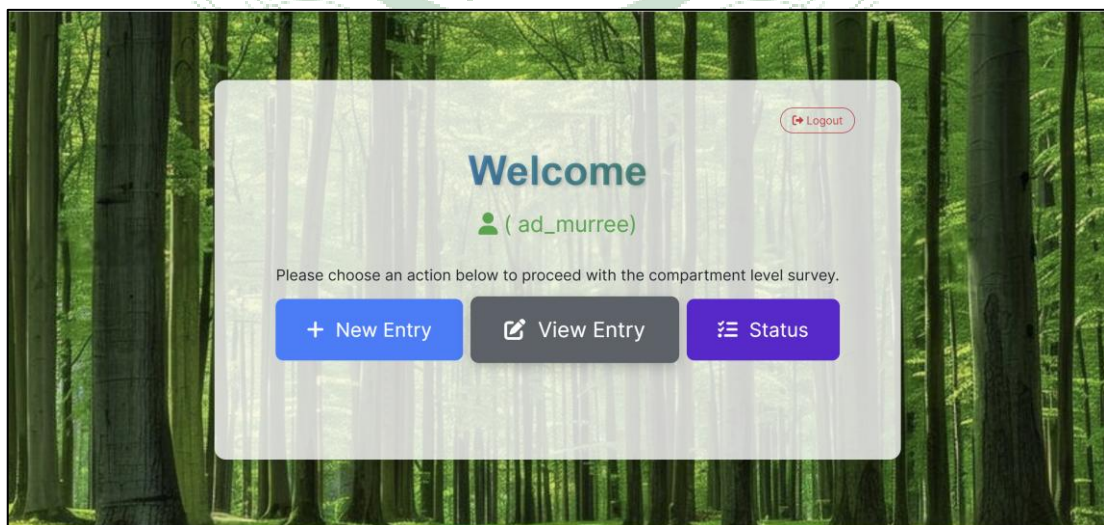
linear_features						
	linearType	others	length_m	width_m	capacity_m3	
▶	Road	<Null>	5430.907858	22	<Null>	{F1A05
	Road	<Null>	3289.044539	44	23	{10A94
	Canal	<Null>	4867.83969	33	78	{CB588
	Main Branch Canal	<Null>	2652.840852	11	57	{3F596
	Others	Nullah	4656.826311	11	45	{B0B0A
	Canal	<Null>	5759.486889	25	38	{4BB77
	Main Branch Canal	<Null>	4367.798028	34	25	{A99D6

4. Digitized features example:



2. Viewing & Managing Compartment Entries

Welcome Screen Overview – View Entry



Features:

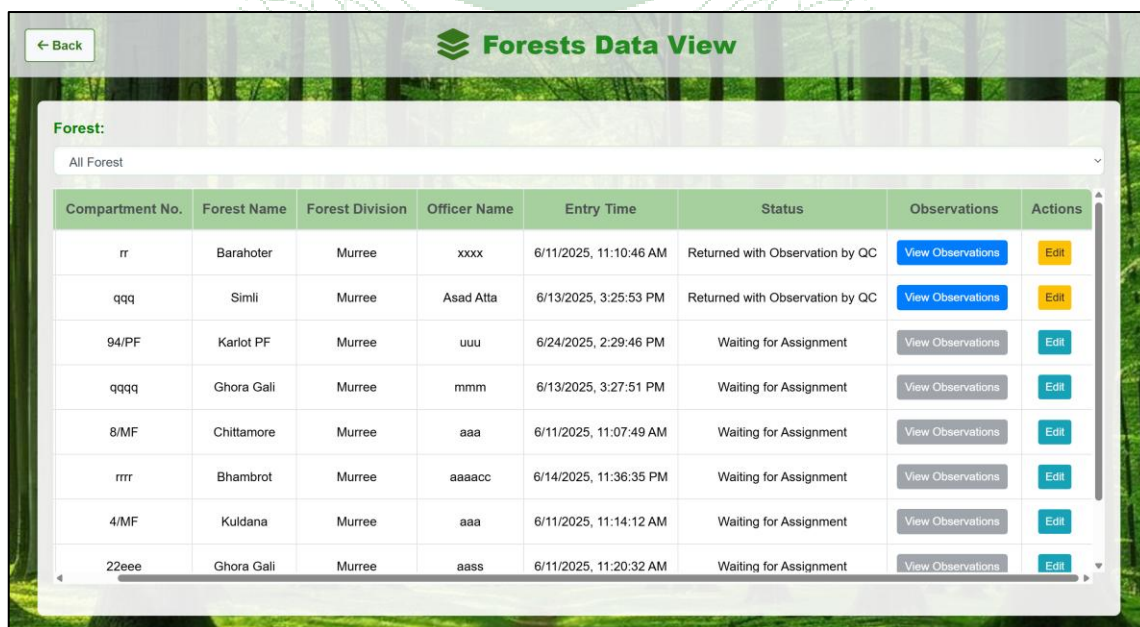
- **Filter:** Select specific forests from "**Forest**" dropdown (default: "All Forest").

Column	Description
Compartment No.	Unique ID (e.g., 94/PF).
Forest Name	Parent forest (e.g., "Karlott PF").
Status	Waiting for Assignment, Returned by QC, Returned by DFO etc.
Observations	If returned with observations
Actions	Edit/View options (see below).

Action Buttons

- **"View Observations"** (For Returned Entries):
 - Click to see QC and DFO feedback (e.g., "Boundary misalignment in shapefile").
- **"Edit"**:
 - For **"Returned"** Entries: Correct data and resubmit.
 - Scenario: Compartment rr (Baraholer Forest) was returned by QC.
 - Steps:
 1. Click **"Edit"** next to the entry.
 2. Review **QC Observations** (popup appears).
 3. Make corrections:
 - Adjust spatial data (re-upload shapefiles if needed).
 - Update species percentages or other non – Spatial data.
 4. Click **"Resolve Observation"** and this will be forwarded back to QC or DFO.
 - For **"Waiting"** Entries: Modify draft submissions.

Compartment List View Screen



The screenshot shows the 'Forests Data View' application. At the top, there is a 'Back' button and the title 'Forests Data View'. Below the title, there is a 'Forest:' section with a dropdown menu set to 'All Forest'. The main part of the screen is a table with the following columns: Compartment No., Forest Name, Forest Division, Officer Name, Entry Time, Status, Observations, and Actions. The table contains eight rows of data, each with a unique compartment number and associated details. The 'Status' column shows various states like 'Returned with Observation by QC' and 'Waiting for Assignment'. The 'Actions' column contains buttons for 'View Observations' and 'Edit'.

Compartment No.	Forest Name	Forest Division	Officer Name	Entry Time	Status	Observations	Actions
rr	Barahoter	Murree	xxxx	6/11/2025, 11:10:46 AM	Returned with Observation by QC	View Observations	Edit
qqq	Simli	Murree	Asad Alta	6/13/2025, 3:25:53 PM	Returned with Observation by QC	View Observations	Edit
94/PF	Karlott PF	Murree	uuu	6/24/2025, 2:29:46 PM	Waiting for Assignment	View Observations	Edit
qqqq	Ghora Gali	Murree	mmm	6/13/2025, 3:27:51 PM	Waiting for Assignment	View Observations	Edit
8/MF	Chittamore	Murree	aaa	6/11/2025, 11:07:49 AM	Waiting for Assignment	View Observations	Edit
rrrr	Bhambrot	Murree	aaaacc	6/14/2025, 11:36:35 PM	Waiting for Assignment	View Observations	Edit
4/MF	Kuldana	Murree	aaa	6/11/2025, 11:14:12 AM	Waiting for Assignment	View Observations	Edit
22eee	Ghora Gali	Murree	aass	6/11/2025, 11:20:32 AM	Waiting for Assignment	View Observations	Edit

Key Rules

- **Editable Fields:** Depends on status:

Status	Editable?
Returned by QC	Full edit access
Waiting for Assignment	Editable until assigned to QC

- **Data Locking:** Once approved by DFO, contact admin for changes.

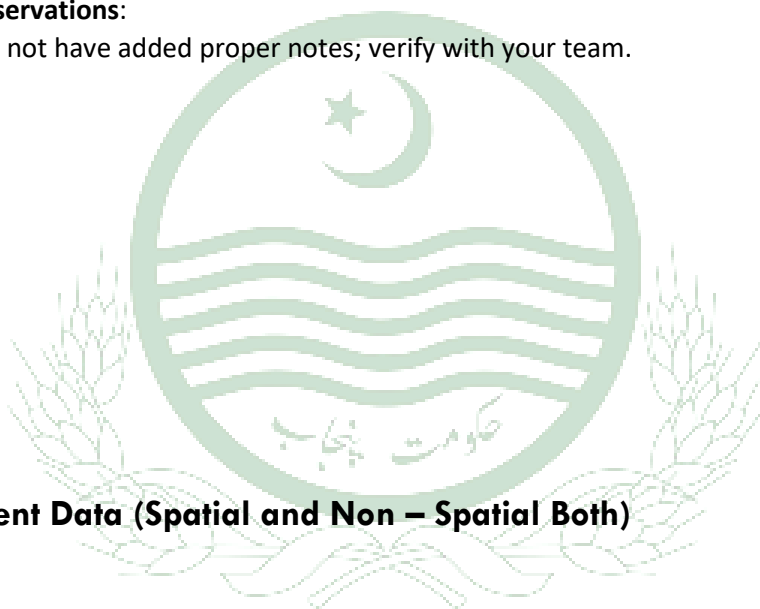
Troubleshooting

✗ "Edit" Button Disabled:

- Ensure status is "**Returned**" or "**Waiting**".
- Refresh page; contact QA Lead if issue persists.

✗ Missing Observations:

- QC may not have added proper notes; verify with your team.



Editing Compartment Data (Spatial and Non – Spatial Both)

Attribute Editing

- **Core Information (Non-Editable):** Forest Name, Division ID, Sub Division & Officer Name.

Editable Fields

Field	Rules	Format
Total Area	Must equal sum of all area fields	4.00 acres
Planted/Blank Areas	≥ 0	Numeric (2 decimal)
Forest Density	1-100%	99
Funding Scheme	Multi-select from domains	Non Developed, Khushali Bank

Plantation Year	Years/ranges separated by commas	2006-2009, 2008
Remarks	Optional notes	Free text

Area Validation

- **Total Area** = Planted + Blank + Plantable Blank + Unplantable Blank

Species Management

- **Add New Species:**
 1. Click Add New Species.
 2. Enter % Coverage (ensure total $\leq 100\%$).

Spatial Data Updates

- **Upload Options**
 1. **CPT Boundary:** Re-upload corrected compartment boundary.
 2. **Built-up/Encroachment/Linear Features:** Replace specific feature layers.

Requirements:

1. Zipped shapefiles (.shp, .shx, .dbf, .prj).
2. CRS: EPSG:4326 (WGS84).

QC Observation Resolution

- **Resolve Observations:**
 1. Click to view QC notes (e.g., "Boundary mismatch in NW sector").
 2. Make corrections via attribute/spatial edits.
 3. Click Update Attributes → Resubmit to QC / DFO.
 - 4.

Edit Compartment Data Screen

Edit Compartment Features

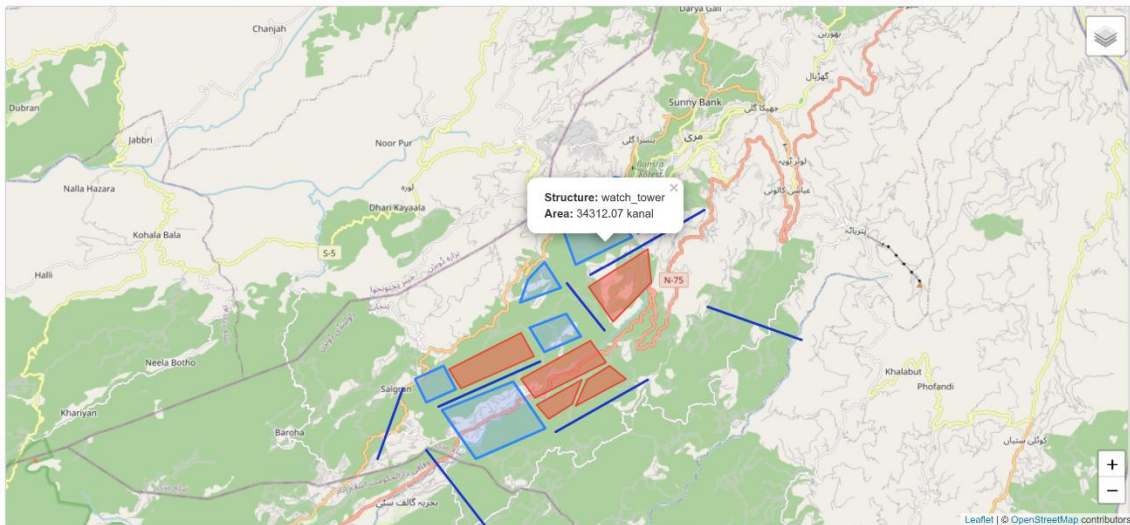
Attributes Edit

Forest Name:	Division ID:	Sub Division:	Officer Name:
Barahoter	23	Lower Topa	XXXX
Total Area (acres):	Planted Area (acres):	Blank Area (acres):	Plantable Blank Area (acres):
4.00	1.00	1.00	1.00
Unplantable Blank Area (acres):	Forest Density:	Funding Scheme:	Plantation Year:
1.00	99	Non Developed, Khushali Bank	2006-2009, 2008
Source of Irrigation:	Record Availability:	Remarks:	
Water Peter Engine	yes	rrrr	

Add New Species

Update Attributes

Spatial Data



Upload Features

Upload CPT Boundary

Upload Builtup Structure

Upload Encroachment Structure

Upload Linear Features

Resolve Observations

Action Buttons

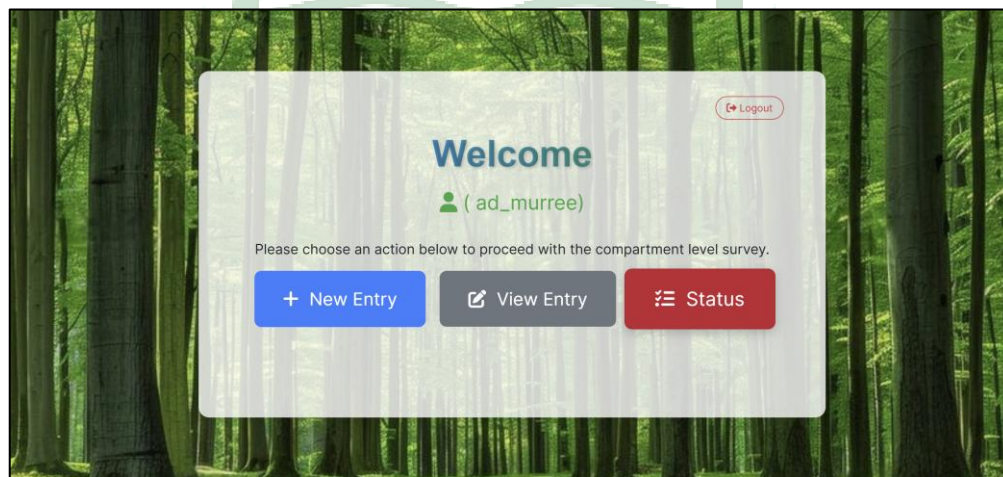
Button	Purpose
Update Attributes	Saves non-spatial changes.
Upload Features	Replace spatial data layers.
Resolve Observations	Mark QC / DFO issues as addressed.

Example Workflow

- **Correct Areas:** Adjust Planted Area from 1.00 to 1.50 → Update Total Area to 4.50.
- **Add Species:** Insert "Blue Pine" at 20% coverage.
- **Fix QC Flags:** Re-upload boundary file to resolve alignment issues.
- **Submit:** Click Resolve Observations to notify QC / DFO. After resolving will be redirected to view page.

3. Completion of Forest Status

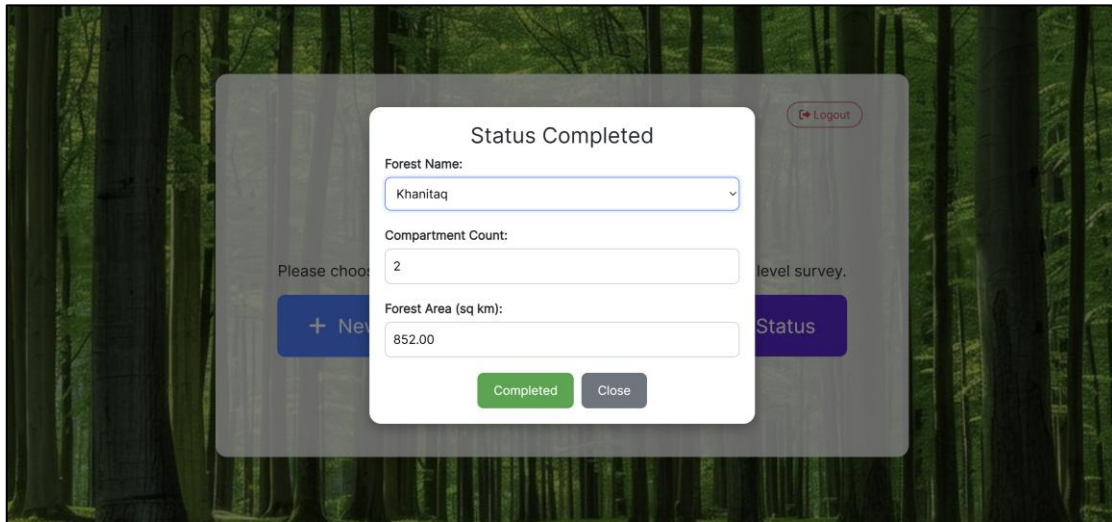
Welcome Screen Overview – Status Update



Steps to Mark Forest as Completed

- **Verify Data:**
 1. Confirm the count of compartments surveyed to mark forest survey as completed.
 2. Initiate Completion:
 3. Click "**Completed**" button.
- **Confirmation:**
 1. System displays: "**Are you sure you want to mark this survey as completed?**", click "Yes".

Completion Status Screen



Status Completed

Forest Name: Khanitaq

Compartment Count: 2

Forest Area (sq km): 852.00

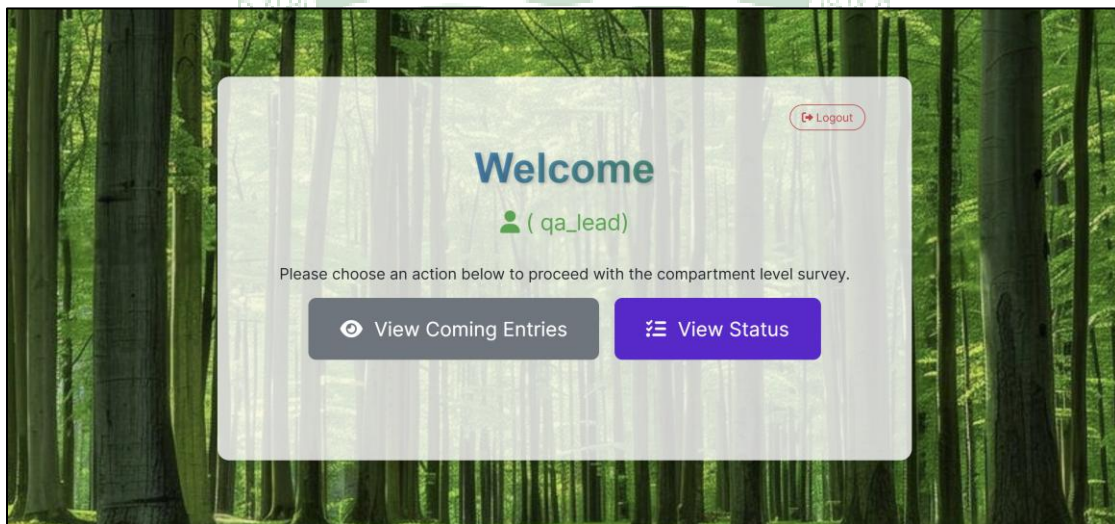
Completed Close

Logout

QA Lead Module

Dashboard for QA Leads to monitor and assign forest surveys to QC team members.

Welcome Screen Overview – QA Lead



Welcome

(qa_lead)

Please choose an action below to proceed with the compartment level survey.

View Coming Entries View Status

Logout

Navigation Options

1. View Coming Entries

- **Purpose:** Review newly submitted forest compartments from ADs that require QC assignment.

2. View Status

- **Purpose:** Track progress of assigned surveys across QC team.
- **Displays:**
 - **Compartments Pending QC:** Count and forest names.

- **Under Review:** Currently being analyzed by QC.
- **Returned for Corrections:** Flagged issues needing AD action.

1. Assigning Forests to QC Team

Key Columns

Column	Action
Unique ID	System-generated tracking code
Forest Details	Zone, Division, Forest Type
Assigned To	Dropdown to select QC officer
Actions	Click Assign to confirm

Workflow

1. Select QC officer from Assigned To dropdown.
2. Click **Assign** → **Confirmation** popup appears.

Rules

- One forest can be assigned to only **1 QC officer** at a time.
- Reassignment requires QA Lead approval.

Data Entry Tracking Form Screen

Sr.No	Unique ID	Zone	Circle	Division	Range/Sub Division	Forest Name	Forest Type	Assigned To	Actions
1	nsbh108	Northern Zone	Sargodha	Bhakkar	Kallurkot Range	31/ML	Irrigated	Select User	Assign
2	clka2	Central Zone	Lahore	Kasur	Chunian	Rakh Bhunike	Irrigated	Select User	Assign
3	clla3	Central Zone	Lahore	Lahore	Ravi Park	Shahdara	Riverain	Select User	Assign
4	nrmu33	Northern Zone	Rawalpindi	Murree	Ghora Gali	Manga	Scrub	Select User	Assign
5	clla4	Central Zone	Lahore	Lahore	Shahdara	Dargahi Gill	Irrigated	Select User	Assign
6	nrmu23	Northern Zone	Rawalpindi	Murree	Ghora Gali	Ghora Gali	Coniferous	Select User	Assign
7	clla1	Central Zone	Lahore	Lahore	Jallo	Rakh Tehra RF	Irrigated	Select User	Assign
8	nrmu46	Northern Zone	Rawalpindi	Murree	Municipal	Chittamore	Coniferous	Select User	Assign
9	nrmu44	Northern Zone	Rawalpindi	Murree	Municipal	Kuldana	Coniferous	Select User	Assign

2. Tracking Survey Progress

Key Fields

Field	Purpose
CPT Survey Count	Total compartments in forest

Field	Purpose
Assigned Date	When QC received the task
Survey Status	Completed/Invalid
Verification Status	Count of QC Pending/QC Passed/ QC Observations compartments

Status Interpretation

Status	Meaning	Next Step
QC Pending	Under review by QC	Monitor progress
QC Passed	Approved; moves to DFO	No action needed

Troubleshooting

- ✗ **Cannot Assign Forest?**
 - Ensure forest isn't already QC Passed or assigned to another officer.
- ✗ **Missing QC Officers in Dropdown?**
 - Confirm officers are active; contact admin if missing.

Example Workflow

1. QA Lead filters for **Northern Zone** → Assigns 3 forests to QC Officer Ali.
2. Next day, checks **View Status**:
 - 2 forests QC Passed.
 - 1 forest Returned with observation "Boundary mismatch".

Forest Assignment by Lead Screen

Division:		Forest Name:						
Lahore		Anno Bhatti						
Division	Forest Name	CPT Survey Count	Assigned Date	Assigned To	Survey Status	Verification Status		
						QC Pending	QC Observations	QC Passed
Lahore	Anno Bhatti	10	2025-06-23 10:22:42	QC Rehan	Valid	7	3	0

QC of Spatial and Non - Spatial Data Module

Interface for Quality Control (QC) personnel to review and validate forest compartment data submitted by ADs.

Welcome

(QC Rehan)

Please choose an action below to proceed with the compartment level survey.

View Entries

Logout

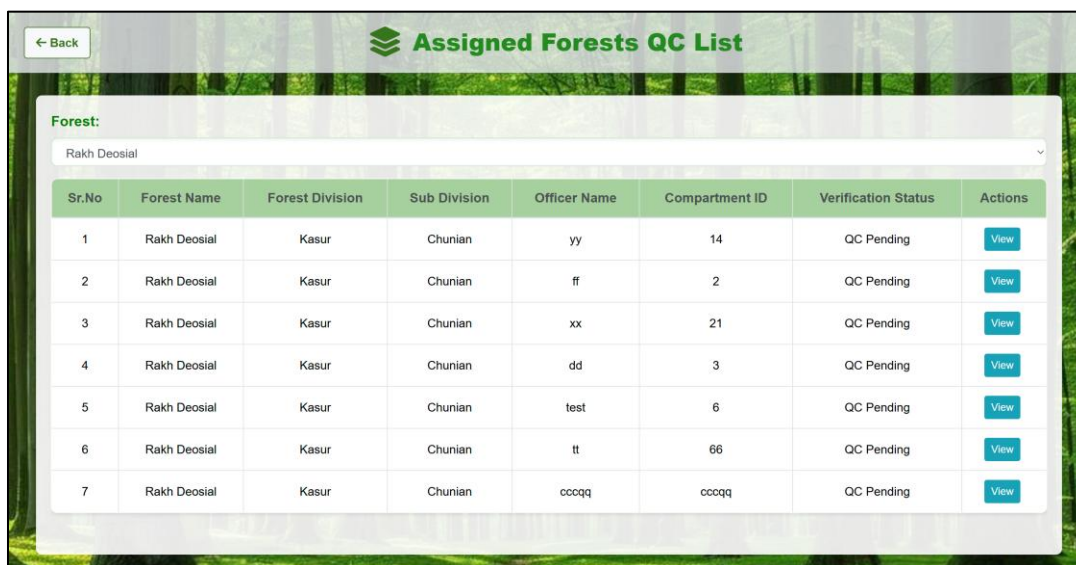
Navigation Option

View Entries

- **Purpose:** Access all forest compartments assigned to you for verification.
- **Displays:**
 - List of compartments grouped by forest.
 - Key status indicators (Pending, Returned, Approved).

1. Reviewing Assigned Compartments

Assigned Forests QC List Screen



Sr.No	Forest Name	Forest Division	Sub Division	Officer Name	Compartment ID	Verification Status	Actions
1	Rakh Deosial	Kasur	Chunian	yy	14	QC Pending	View
2	Rakh Deosial	Kasur	Chunian	ff	2	QC Pending	View
3	Rakh Deosial	Kasur	Chunian	xx	21	QC Pending	View
4	Rakh Deosial	Kasur	Chunian	dd	3	QC Pending	View
5	Rakh Deosial	Kasur	Chunian	test	6	QC Pending	View
6	Rakh Deosial	Kasur	Chunian	tt	66	QC Pending	View
7	Rakh Deosial	Kasur	Chunian	cccqq	cccqq	QC Pending	View

Key Features

- **Filter:** Use dropdowns to sort by Forest/Division/Status.
- **Status Indicators:**
 - **QC Pending:** Awaiting verification
 - **Resubmitted after Correction to QC:** Returned after AD corrections

Actions

- Click "**View**" to inspect compartment details view page.

2. In-Depth Compartment Verification Process

Detailed interface for QC officers to validate spatial/non-spatial data and manage review outcomes.

Data Validation Sections

Area Calculations

Field	Value (acres)	Validation Rule
Total Area	14.00	Must equal sum of below
Planted Area	1.00	-
Blank Area	1.00	-
Plantable Blank	11.00	-
Unplantable Blank	1.00	Sum Check: 1+1+11+1 = 14 

Ecological Data

- **Forest Density:**
 - Verify against satellite imagery.
- **Plantation Year:**
 - Cross-check with historical records.
- **Funding Scheme:**
 - Ensure alignment with domain values.

Species Composition

Species	% Coverage
ddd	55%
tit	55%

Rule: Total $\leq 100\%$ (Current: 110% → **Flagged**).

Spatial Data Verification

Required Steps:

1. **Download Files:**
 - Boundary, Built-up, Linear Features, Encroachments (GeoJSON).
2. **GIS Validation:**
 - Open in QGIS/ArcMap to:
 - Check boundary topology (no gaps/overlaps).
 - Verify feature alignment (e.g., structures within bounds).
3. **Attach Evidence:**
 - Upload screenshots of issues (e.g., "Species % exceeds 100%" or boundary misalignment).

GIS Validation Cheat Sheet for QC Officers

Tools Needed: QGIS/ArcMap, Satellite Imagery (Google/Bing) or Geometry Checker Plugin / Toplogy

Boundary Checks

Check	Method	Acceptance Criteria
Alignment	Overlay boundary on satellite imagery	$\leq 5\text{m}$ deviation from actual forest edge
Topology	Use QGIS "Geometry Checker"	No gaps/overlaps with adjacent compartments
Area	Calculate in GIS (Ha)	Must match submitted " Total Area " ($\pm 1\%$)

Feature Validation

Add basemap on GIS Software to verify Spatial Boundaries as well.

Feature	Validation Rule
---------	-----------------

Built-up Structures	Must be within compartment boundary
Encroachments	Verify with revenue records if disputed
Linear Features (roads/streams)	Check connectivity to external networks

Attribute-Spatial Cross-Checks

- **Forest Density:** Compare with NDVI maps (if available).
- **Species %:** Ensure planted areas align with species distribution maps.

Quick QGIS Steps

1. **Load Files:**
Download → Layer → Add Layer → Add Vector Layer (select GeoJSON)
2. **Enable Satellite Imagery:**
Open ArcMap → Add Google Satellite or any other basemap.
3. **Run Geometry Checks:**
Vector → Geometry Tools → Check Validity

Common Errors & Fixes

Observed errors and possible fixes may be added in text format in observations so that AD can view and rectify accordingly.

Error	Solution
Boundary gaps	Request AD Snap vertices to adjacent compartment
Species % >100	Request AD to revise species table
Misaligned features	Request AD to Re-digitize with GPS points

Visual Guide

Include annotated screenshots of:

1. **Valid vs. Invalid Boundaries** (highlighting gaps/overlaps).
2. **Feature Misalignment Example** (e.g., building outside boundary).

Pro Tip: Carefully see:



Keyboard Shortcuts:

- Ctrl+Click to measure distances in QGIS.
- F7 to toggle topology editing.



Documentation:

- Always save validation screenshots as [CompID]_[Date]_[Issue].jpg

Action Buttons

Button	Function
Approve	Submit to DFO if all checks pass
Return to AD	Send back with observations
Download All	Export full dataset for offline review

Adding Observation Screen on Click of Return to AD

The screenshot displays the 'Compartments Verification Form' interface. A modal dialog box titled 'Enter Observation/Remarks' is open, featuring a text input field with the placeholder 'Observations will be here and Screenshot if any will be attached.' Below the input field is a 'Upload Image' button. A satellite map is visible in the background of the dialog, with a red pin indicating a location. At the bottom of the dialog is a blue button labeled 'Submit Observation/Remarks'. The background form is partially visible, showing fields for 'Forest Name', 'Area (ha)', 'Total Area (acres)', 'Unplanted Blank Area (acres)', 'Source of Irrigation', and a table for 'Species 1 Name' and 'Species 2 Name' with percentage columns.

Common Observations Format

- **Issue:** Species % totals 110% (exceeds 100%)
- **Location:** Species table
- **Evidence:** [Attach screenshot]
- **Action Required:** Adjust percentages or remove redundant entries.

Compartments Verification Form Screen

Compartments Verification Form

Forest Name	Division ID	Sub Division	Officer Name
Anno Bhatti	49	North Sub-Division	Ali
Total Area (acres)	Planted Area (acres)	Blank Area (acres)	Plantable Blank Area (acres)
14.00	1.00	1.00	11.00
Unplantable Blank Area (acres)	Forest Density	Funding Scheme	Plantation Year
1.00	55	Non Developed, TBTP, Hill	2006-2009
Source of Irrigation	Remarks		
Water Peter Engine, Hailloo	tttt		

Planted Species

Species 1 Name:

ddd

Percentage:

55

Species 2 Name:

ttt

Percentage:

55

Download GeoJSON Files

Compartment Boundary

Builtup Structures

Linear Features

Encroachments

Returned to AD

Approve

Workflow Example

- QC downloads boundary → finds 5% overlap with adjacent compartment in QGIS.
- Adds observation:
Issue: Boundary overlap with CPT-CCF (5% area)
Evidence: [Overlap_Screenshot.jpg]
- Clicks "**Return to AD**" → Status changes to Resubmitted.

Key Rules

- Mandatory:** GIS validation before approval.
- Edits:** QC can only add observations, not modify data directly.
- Turnaround:** Resolve within 5 working days (system alert after 3 days).

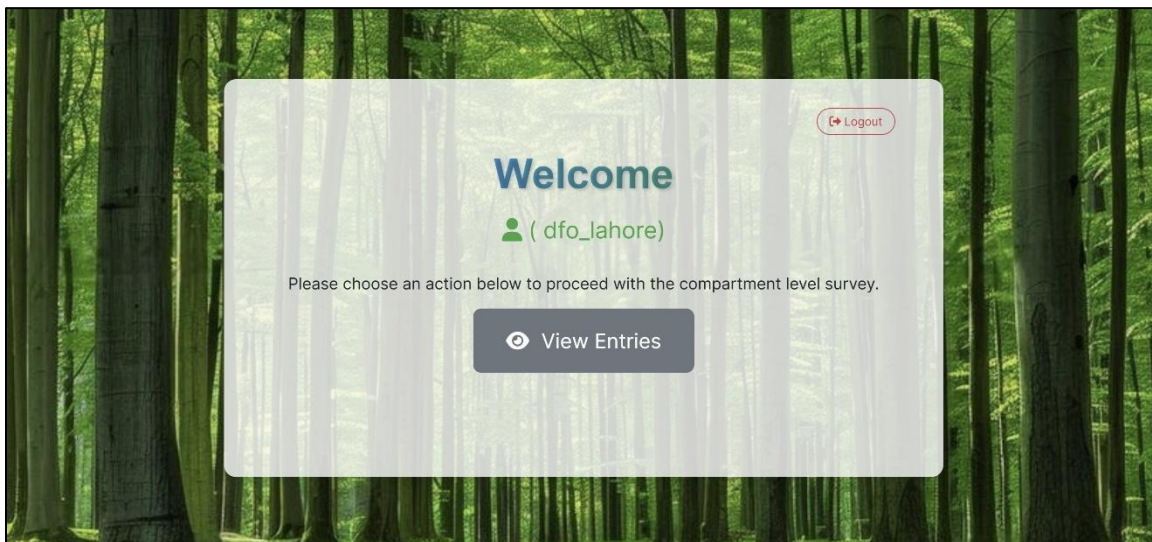
DFO Forest Compartment Review Module

Allows District Forest Officers to monitor approved compartments, view summaries, and address escalated issues.

Navigation Option:

- **View Entries:** Access all QC-approved forest compartments for final review.

DFO Welcome Screen



1. Reviewing Forest Entries Interface

Forest Summary Table

Column	Description	DFO Action
Zone/Circle	Administrative boundaries	Filter/sort data
Forest Area	Total acreage	Verify against GIS calculations
Compartments Count	Number of sub-units / Compartments	Check completeness
Actions	View button	Inspect details

Troubleshooting

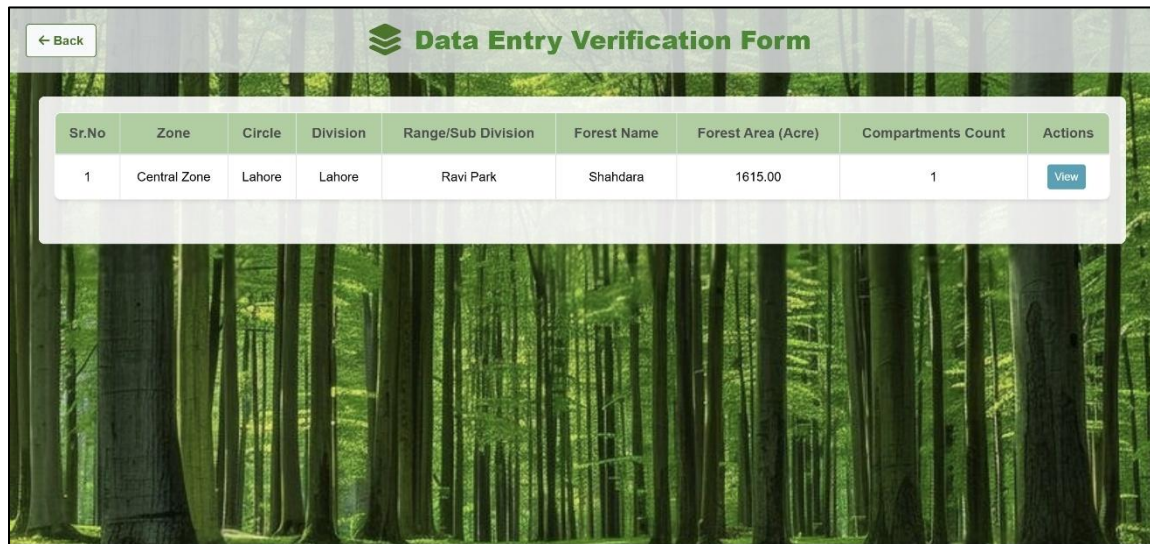
✗ Area Mismatch?

Recalculate in GIS; escalate to AD through adding observation if systemic error.

✗ Missing Compartments?

Verify number of compartments and add observation if surveys are incomplete.

View Entries Interface Screen



← Back

Data Entry Verification Form

Sr.No	Zone	Circle	Division	Range/Sub Division	Forest Name	Forest Area (Acre)	Compartments Count	Actions
1	Central Zone	Lahore	Lahore	Ravi Park	Shahdara	1615.00	1	View

2. Reviewing Forest Entries in Detail and Viewing and Adding Observations

Review forest-wide summaries, inspect compartment details via interactive map, and flag issues.

Forest Summary Section

Field	Verification Rule	Example Value
Gross Area	Cross-check with sum of compartments	1615 acres
Forest Density	Match against satellite imagery (NDVI)	55%
Encroached Area	Validate with revenue records	147,834.17 kanal

Interactive Map Features

A. Spatial Layers

- **Forest Boundary** (Outer polygon)
- **Compartment Boundaries** (e.g., ccc111)
- **Feature Layers:** Built-up, Encroachments, Linear Features

B. Popup Details

Click any compartment to see:

Attribute	Example Value
Area	4 acres

Attribute	Example Value
Plantation Year	2006-2009
Funding Scheme	Non Developed, [...]
Species Data	None (Highlights missing data)

Forest Summary – Spatial and Non – Spatial Data of Forest, Compartments and Features Screen

The screenshot shows the 'Data Entry Verification Form' for a forest compartment named 'Shahdara'. The form is divided into several sections for data entry:

- Zone:** Central Zone
- Circle:** Lahore
- Division:** Lahore
- Legal State:** Reserved
- Forest Type:** Riverain
- Forest Name:** Shahdara
- Gross Area (Acres):** 1615
- Planted Area (Acres):** 1
- Blank Area (Acres):** 1
- Unplantable Blank Area (Acres):** 1
- Forest Density (%):** 55
- Builtup Area (Kanal):** 218953.32
- Encroached Area (Kanal):** 147834.17

Below the form is a map showing the location of Shahdara. A pop-up window for 'Shahdara' provides additional details:

- Type:** Riverain
- Area:** 1615 acres
- Zone:** Central Zone
- Circle:** Lahore
- Division:** Lahore

At the bottom left, there is a red button labeled 'View Compartment List to Add Observations'. At the bottom right, there is a green button labeled 'Approve Forest'.

Adding Observations

Step 1: Access Compartment List

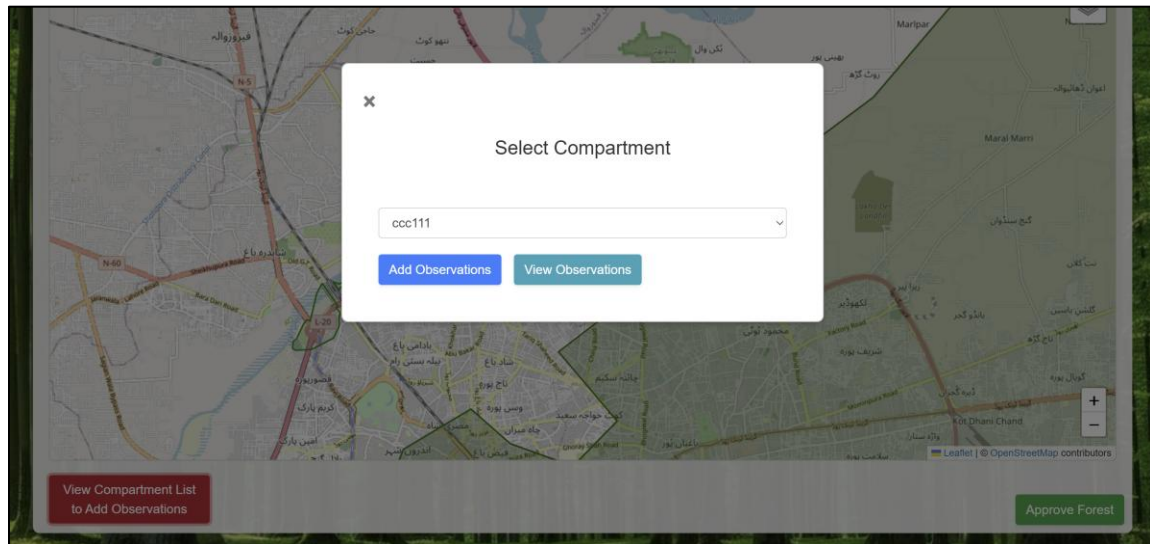
- Click "**View Compartment List to Add Observations**".
- Dialog appears with:
 - List of all compartments.
 - Buttons: **View Observations** / **Add Observation**.

Step 2: Flag Issues

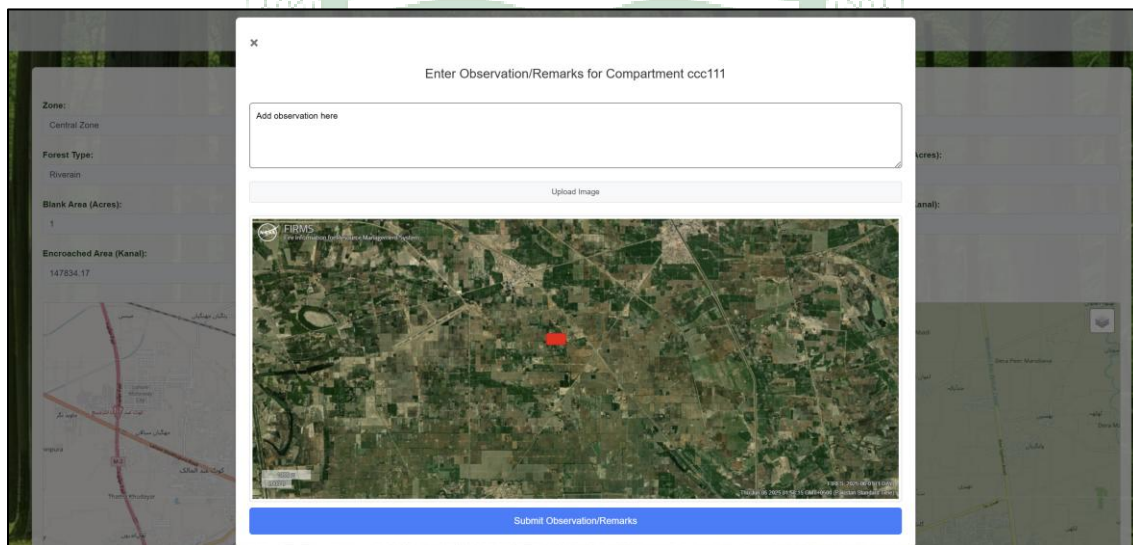
1. Select compartment (e.g., ccc111).
2. Click "**Add Observation**" → Fill:

- **Issue Type:** Dropdown (e.g., "Encroachment Discrepancy").
 - **Description:** Free text (e.g., "147,834 kanal encroachment missing in revenue records").
 - **Attach Evidence:** Upload GPS points/screenshots.
3. **Submit:** Routes to AD for action.

Adding and View Observation Through Button Dialogue



Adding Observation Through Buttons



Example Workflow

1. DFO clicks Shahdara Forest boundary on map.
2. Notes ccc111 has no species data → Clicks "**Add Observation**".
3. Submits: "Species survey missing per Compartment ccc111."
4. Compartment reverts to AD for correction.

DFO Forest Verification: Map-Based Workflow

Key Features:

- Dynamic boundary color-coding for observation status
- Direct observation management from map popups
- Two-way sync between list view and map

Visual Indicators on Map

Boundary Color	Status
Green	Approved (no issues)
Red	Open observation(s)

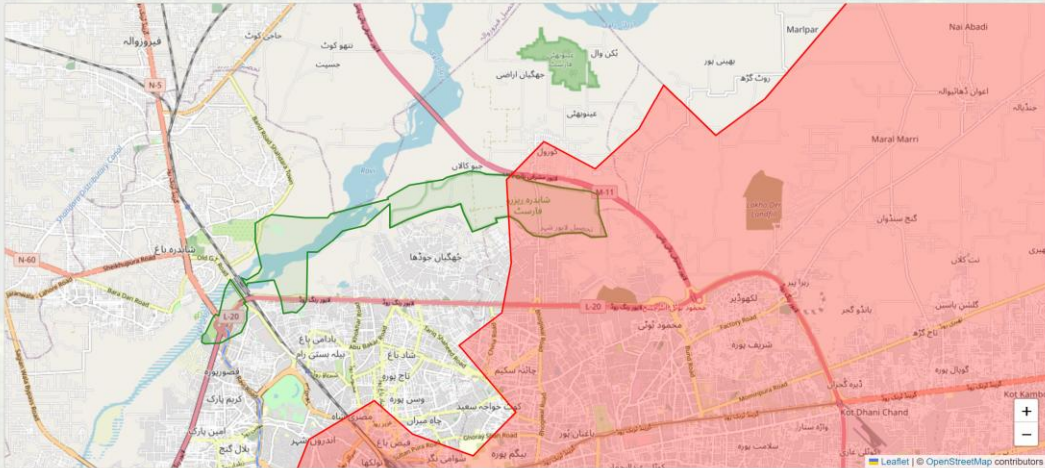
Example:

- Compartment ccc111 turns red after adding observation.

Forest Summary Screen after Adding Observation

Data Entry Verification Form

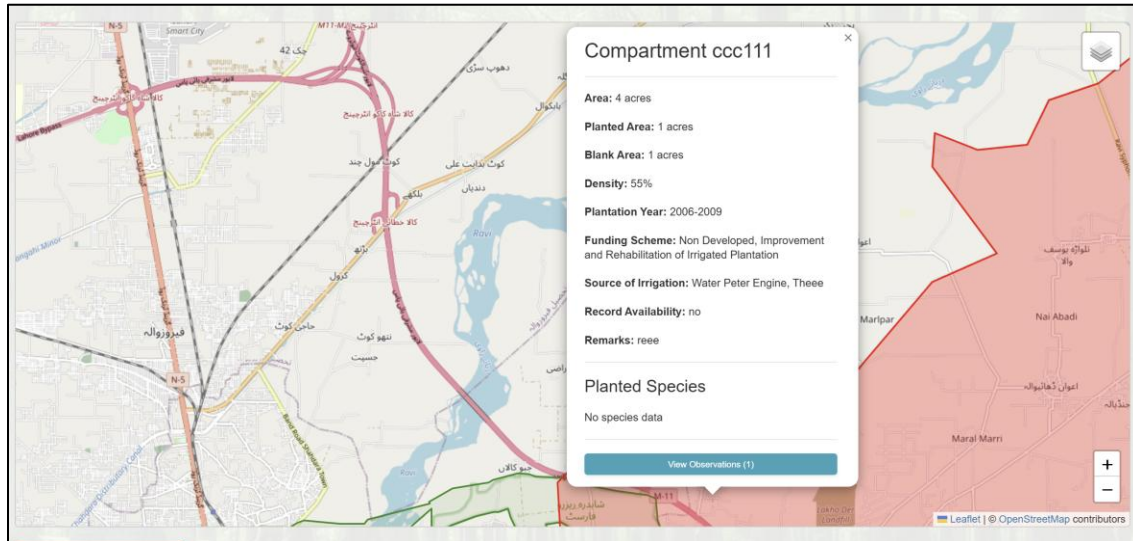
Zone:	Circle:	Division:	Legal State:
Central Zone	Lahore	Lahore	Reserved
Forest Type:	Forest Name:	Gross Area (Acres):	Planted Area (Acres):
Riverain	Shahdara	1615	1
Blank Area (Acres):	Unplantable Blank Area (Acres):	Forest Density (%):	Builtup Area (Kanal):
1	1	55	218953.32
Encroached Area (Kanal):			
147834.17			



View Compartment List to Add Observations

Approve Forest

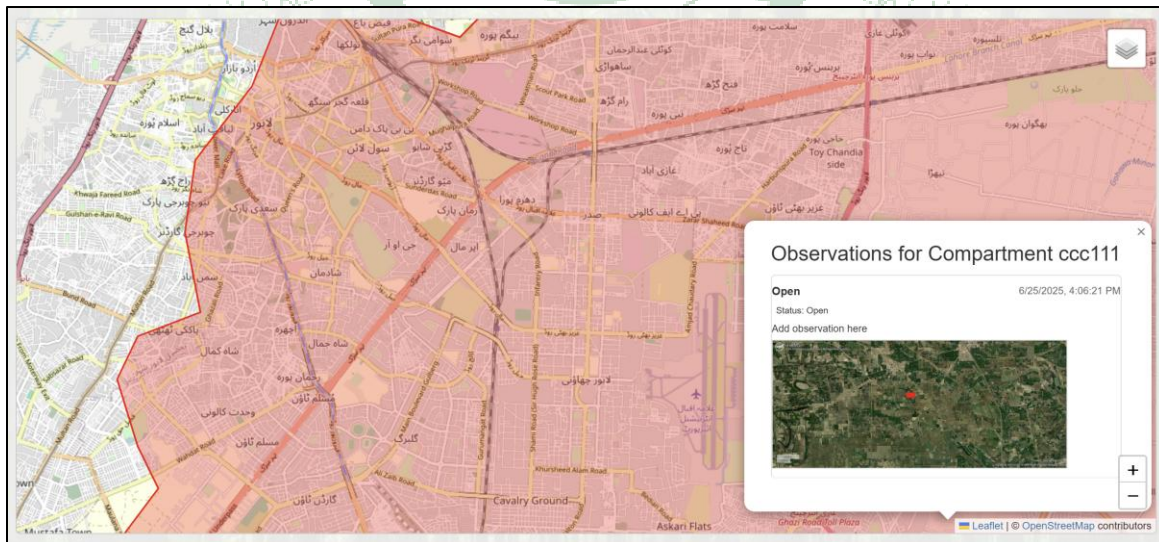
Compartment Popup on Map with View Observation Button if added



Observation Popup Interface

- **Timestamp:** 6/26/2025, 4:06:21 PM
- **Status Badge:** Open/Resolved
- **Screenshot View:** A screenshot will be displayed if added while adding observation.

Compartment Observation Popup on Map



Troubleshooting

✗ Color Not Updating?

- Refresh map layer (F5).
- Clear browser cache.

Note: If all approved DFO can click on the button at Bottom Right Corner to Approve Forest and then that forest with all its compartments will be locked.

