



TiNAI

TAMIL NADU LAND USE
INFORMATION SYSTEM

User Manual

Version 1.0



TiNAI

TAMILNADU
LAND USE
INFORMATION
SYSTEM

PREFACE

This User Manual has been prepared to provide structured guidance for the use of the Integrated Geospatial Decision Support Platform developed for the Government of Tamil Nadu. The manual describes the procedures for accessing, configuring, and interpreting analytical outputs across thematic modules including land use, forests, climate, water resources, energy, disaster management, coastal systems, agriculture, urban development, and predictive analytics.

The document is intended to support consistent usage, informed decision-making, and effective inter-departmental coordination.



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ABBREVIATIONS AND ACRONYMS

Acronym	Description
AOI	Area of Interest
GHSL	Global Human Settlement Layer
LULC	Land Use and Land Cover
LUCU	Land Use & Land Cover Utilities
SST	Sea Surface Temperature
AFSI	Agro-Forestry Suitability Index
SDMA	State Disaster Management Authority
UHI	Urban Heat Island



CHAPTER 1

INTRODUCTION TO TINAI

1.1. ABOUT TINAI

TiNAI (Tamil Nadu Land Use Information System) is a state-wide, multi-dimensional geospatial decision-support platform developed by the State Planning Commission, Government of Tamil Nadu. The system is designed to support evidence-based planning, policy formulation, monitoring, and sustainable resource management across Tamil Nadu by integrating high-quality spatial and non-spatial datasets from multiple sectors into a single, unified digital environment.

TiNAI enables users to visualise, analyse, and interpret complex spatial information through interactive maps, analytical dashboards, and advanced tools. By providing a common platform for multiple departments and stakeholders, TiNAI improves data accessibility, enhances interdepartmental coordination, and supports transparent, informed decision-making.

The TiNAI Geospatial Platform is a state-wide, multi-dimensional decision-support platform developed by the State Planning Commission of the Government of Tamil Nadu. The system is designed to support evidence-based planning, policy formulation, and sustainable land and resource management across the state.

TiNAI integrates high-resolution spatial, environmental, and sectoral datasets into a single unified digital platform, enabling users to visualize, analyze, and monitor land-use dynamics and resource conditions across Tamil Nadu. The platform provides district-to-local-level insights through interactive maps, analytical dashboards, and decision-support tools

The system is structured around nine thematic modules:

1. Land Use & Land Cover
2. Climate Change
3. Disaster Management
4. Coastal & Marine Resources
5. Forests
6. Agriculture
7. Energy & Industry
8. Urban & Peri-Urban
9. Water Resources

Each module hosts multiple thematic and analytical tools that generate spatial trends, statistics, comparisons, and vulnerability assessments. These tools are designed to deliver

predictive, historical, and real-time insights, supporting effective planning and monitoring at state, district, taluk, and local levels.

TNLUIS enables users to perform area-based analysis, change detection, trend assessment, and sectoral overlays, thereby strengthening inter-departmental coordination and improving data-driven governance. The platform serves as a centralised knowledge repository for land-use information and supports informed decision-making for sustainable development across Tamil Nadu.

1.2. KEY FEATURES OF TINAI

- **Integrated Data Platform:**
Combines datasets from national and state agencies into a unified system covering land use, climate, disaster risks, water resources, agriculture, forests, urban development, energy, and coastal environments.
- **Thematic and Predictive Modules:**
Organised into nine thematic modules, each offering analytical and predictive tools that deliver actionable insights.
- **Interactive Map Visualization:**
Allows users to explore spatial data through dynamic maps with layer controls, legends, filters, and base map options.
- **Analytical Dashboards:**
Provides charts, tables, and statistics linked directly to map layers for better interpretation and comparison.
- **Multi-scale Analysis:**
Supports analysis at multiple administrative levels, including state, district, taluk, and local areas.
- **Real-time and Near Real-time Data Integration:**
Integrates live or regularly updated datasets via APIs to ensure timely, relevant insights.
- **User-friendly Interface:**
Designed for both technical and non-technical users with intuitive navigation and guided workflows.
- **Interoperability and Scalability:**
Supports standard geospatial services and formats, enabling future expansion and system integration.

1.3. PURPOSE OF THE USER MANUAL

This User Manual provides guidance for accessing and using the platform's analytical modules and Tools. It describes the procedures for data selection, visualisation, and interpretation to support planning, monitoring, and decision-making by government departments and associated stakeholders.

This manual is intended for use by:

- i. State and district-level planning officials
- ii. Line departments
- iii. Technical officers and analysts
- iv. Research and monitoring teams

1.4. TINAI INTERFACE

TiNAI has two powerful interfaces, also known as TiNAI applications

1. TiNAI Geospatial Platform

The **TiNAI Geospatial Platform** is the primary interface for spatial data visualisation and analysis. It hosts the nine thematic modules and provides access to interactive maps, analytical dashboards, and geospatial tools. It has two segments – a Dashboard presenting a key summary, and a GIS platform presenting a detailed interactive map view and user filters.

Key Capabilities:

- Visualize thematic and asset layers across Tamil Nadu
- Perform spatial analysis and comparisons
- View module-wise statistics through charts and tables
- Explore data at different administrative levels
- Access real-time or updated datasets via APIs

This interface is primarily used for monitoring, analysis, and data-driven decision support.

2. TiNAI Digital Twin

The TiNAI Digital Twin is an advanced AI-enabled interface that complements the geospatial platform. It allows users to explore future scenarios using dynamic models and the AI chatbot. The AI chatbot will present users with customized replies without requiring any filter or query option, unlike a typical GIS platform.

Key Capabilities:

- Simulate urban growth, infrastructure development, and environmental changes
- Enables an AI chatbot for data analysis
- Perform “what-if” scenario analysis
- Support predictive modelling for climate and disaster impacts
- Visualise potential outcomes of policy or planning decisions

This interface is handy for scenario planning, impact assessment, and long-term strategic planning.

1.5. TINAI PLATFORM ACCESS

To access the TiNAI web platform, use the following web link

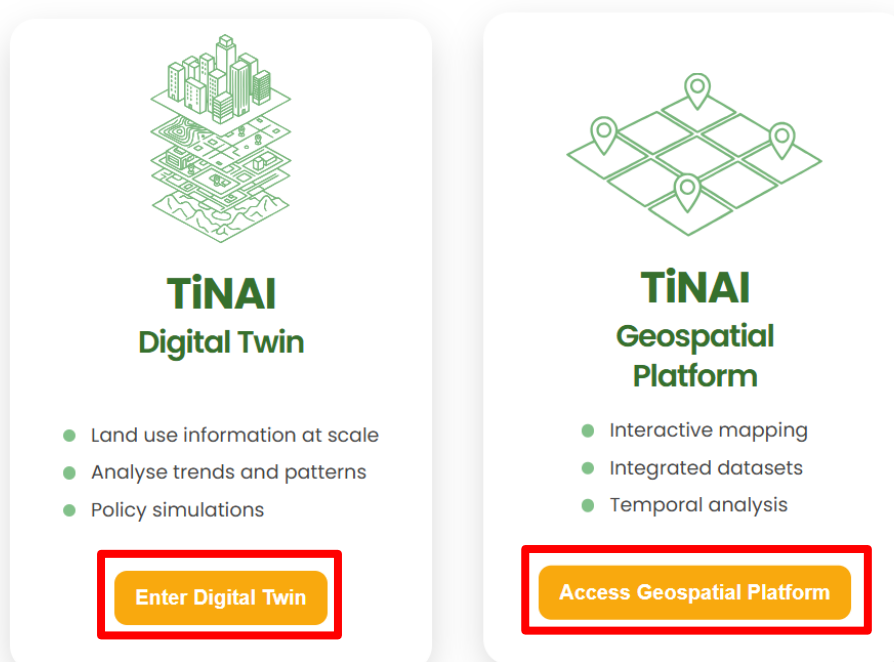
[TiNAI – TNSLURB](https://tnslurb.tn.gov.in/tinai/) (<https://tnslurb.tn.gov.in/tinai/>)



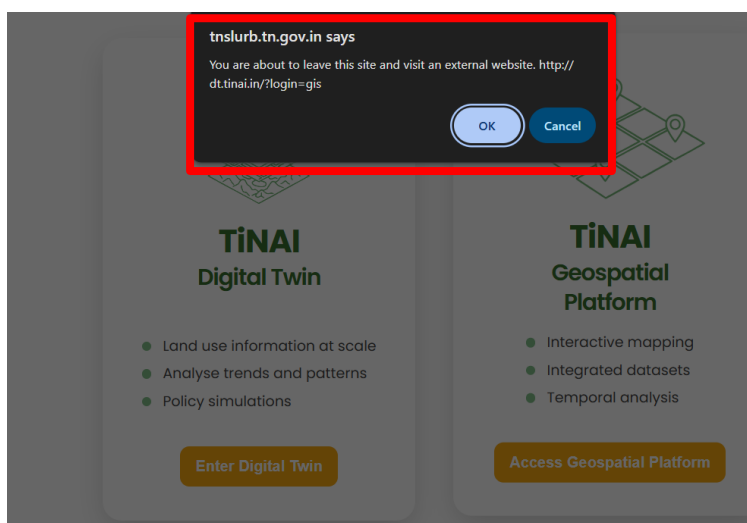
This page lists About TiNAI, Features, Thematic Modules, TiNAI Interface, and other details, including Knowledge & Technology Partners, along with Disclaimer and Terms of Use.

1.6. TINAI TOOL ACCESS

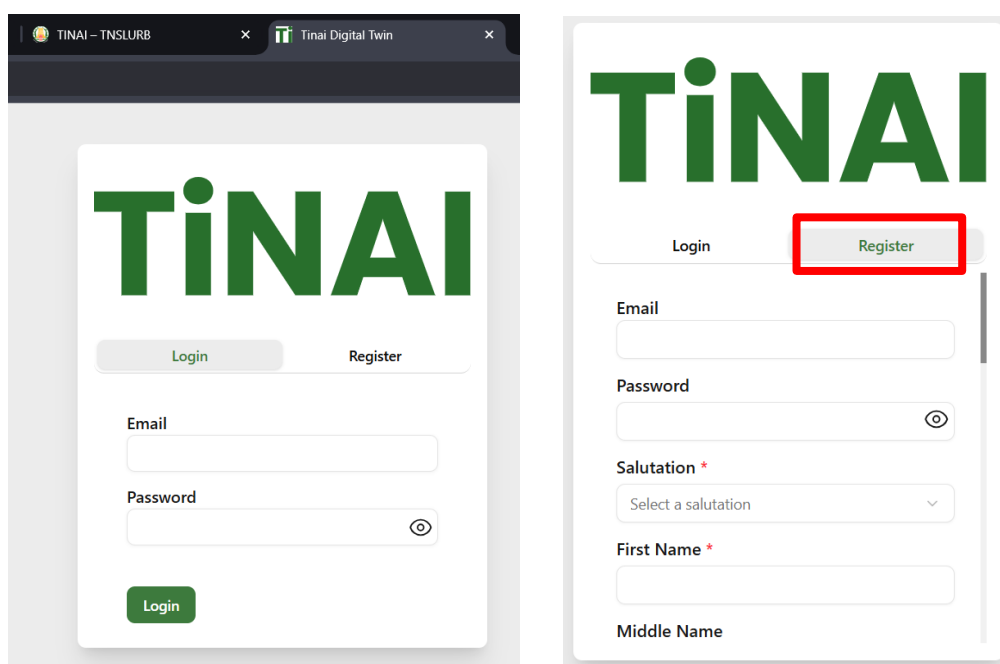
Depending on the user's preference, they can select either – Enter Digital Twin or Access Geospatial Platform (Refer to the image below)



When the user clicks the desired button, it opens a new tab for login, as shown in the image below.



Select "Ok" to get redirected.



Upon redirection, the user will need to choose Register if they are logging in to this platform for the first time.

When the user clicks the "Register" option, they will have to fill out the User form (this information is collected for record-keeping purposes to ensure the user's authenticity). The user must fill in all columns to create their user credentials.

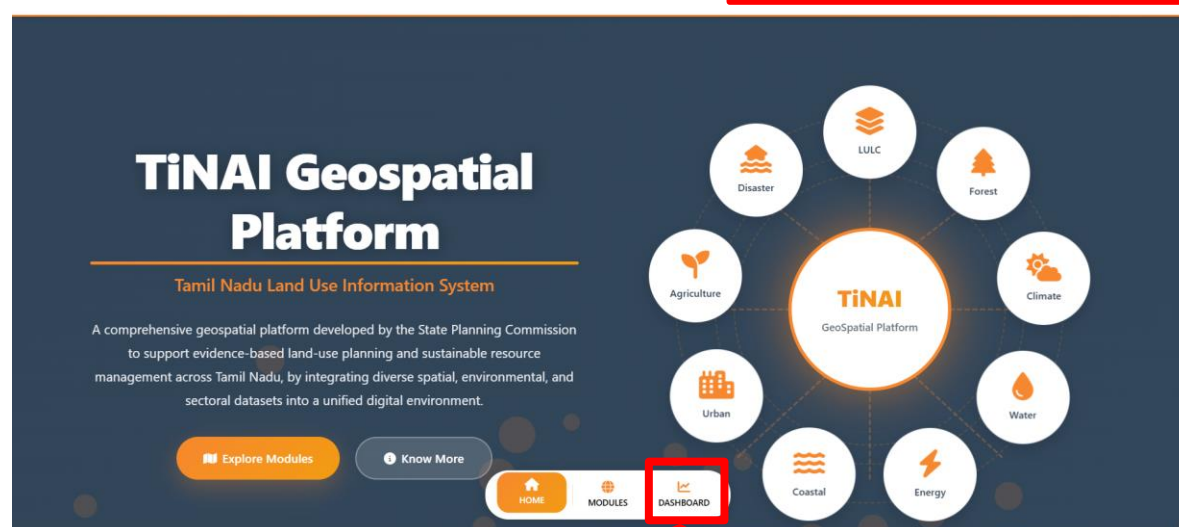
After successful registration, the user can log in to TiNAI using the registered email ID and password. After successful login, they will be directed to the respective TiNAI Application they had opted for.

CHAPTER 2

TINAI GEOSPATIAL PLATFORM



Click on this floating menu bar to access the dashboard and modules

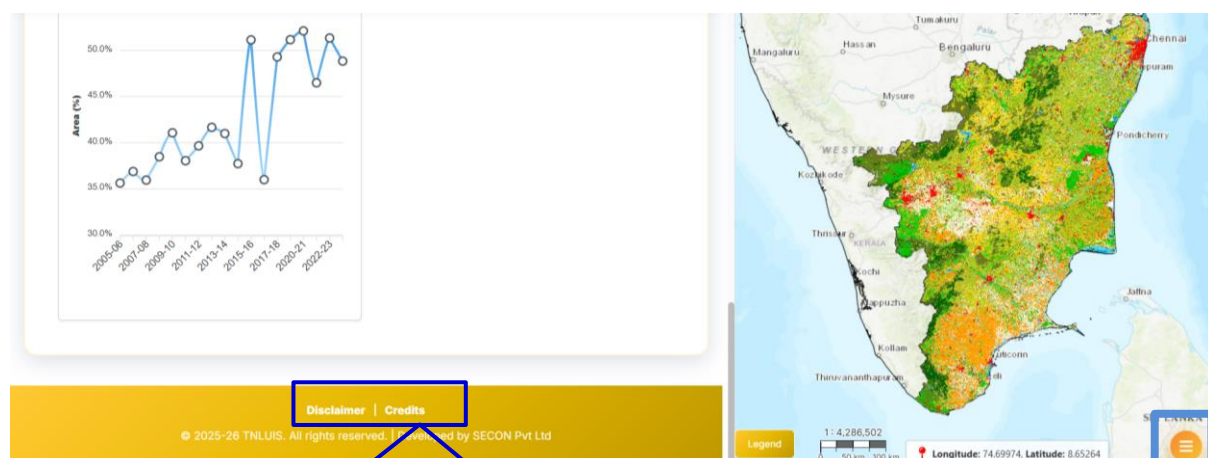
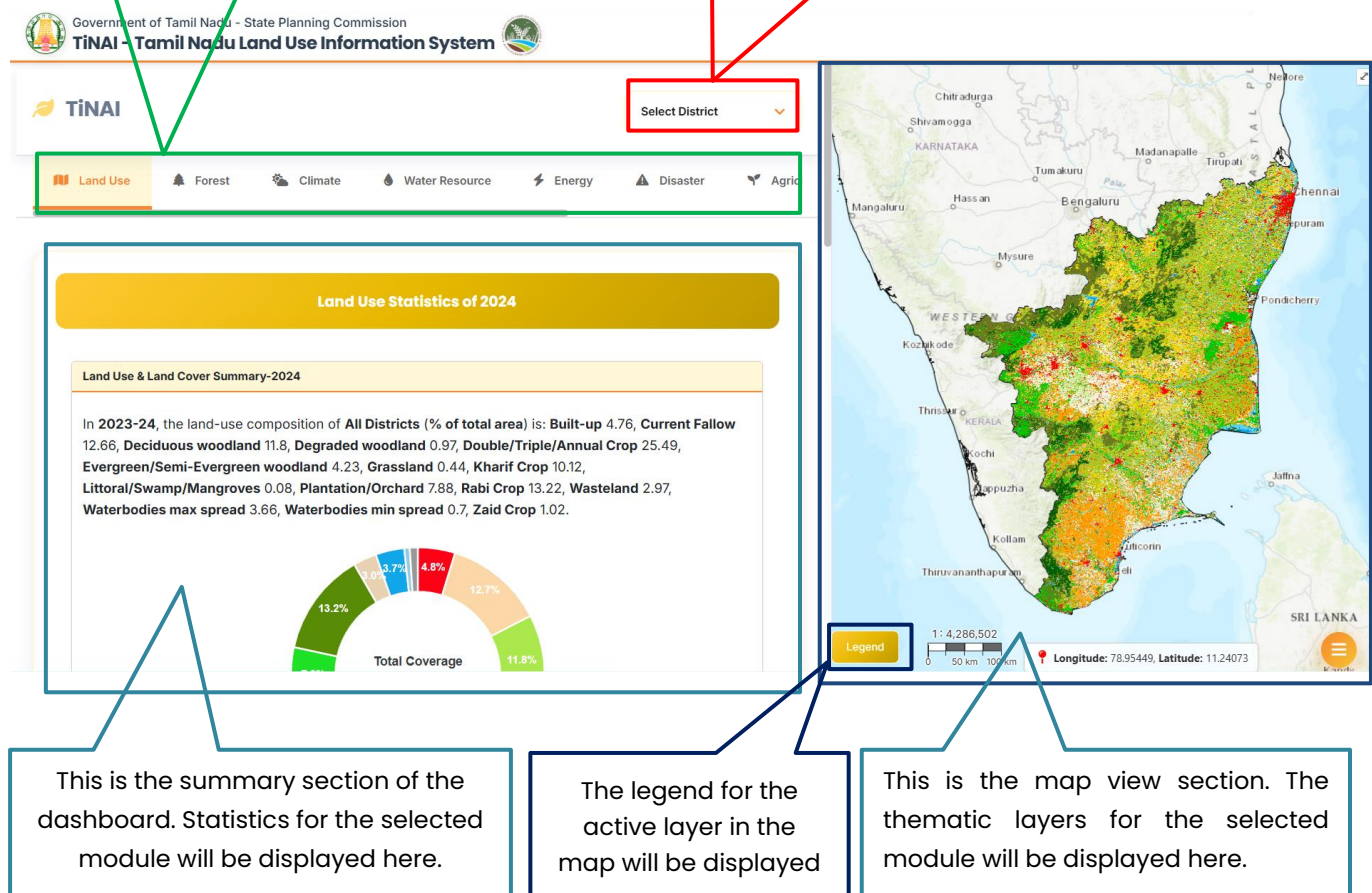


Click 'Dashboard' to view the Summary of representative parameters of the nine thematic modules

Once the user selects the Dashboard option from the menu bar, the Dashboard page is displayed.

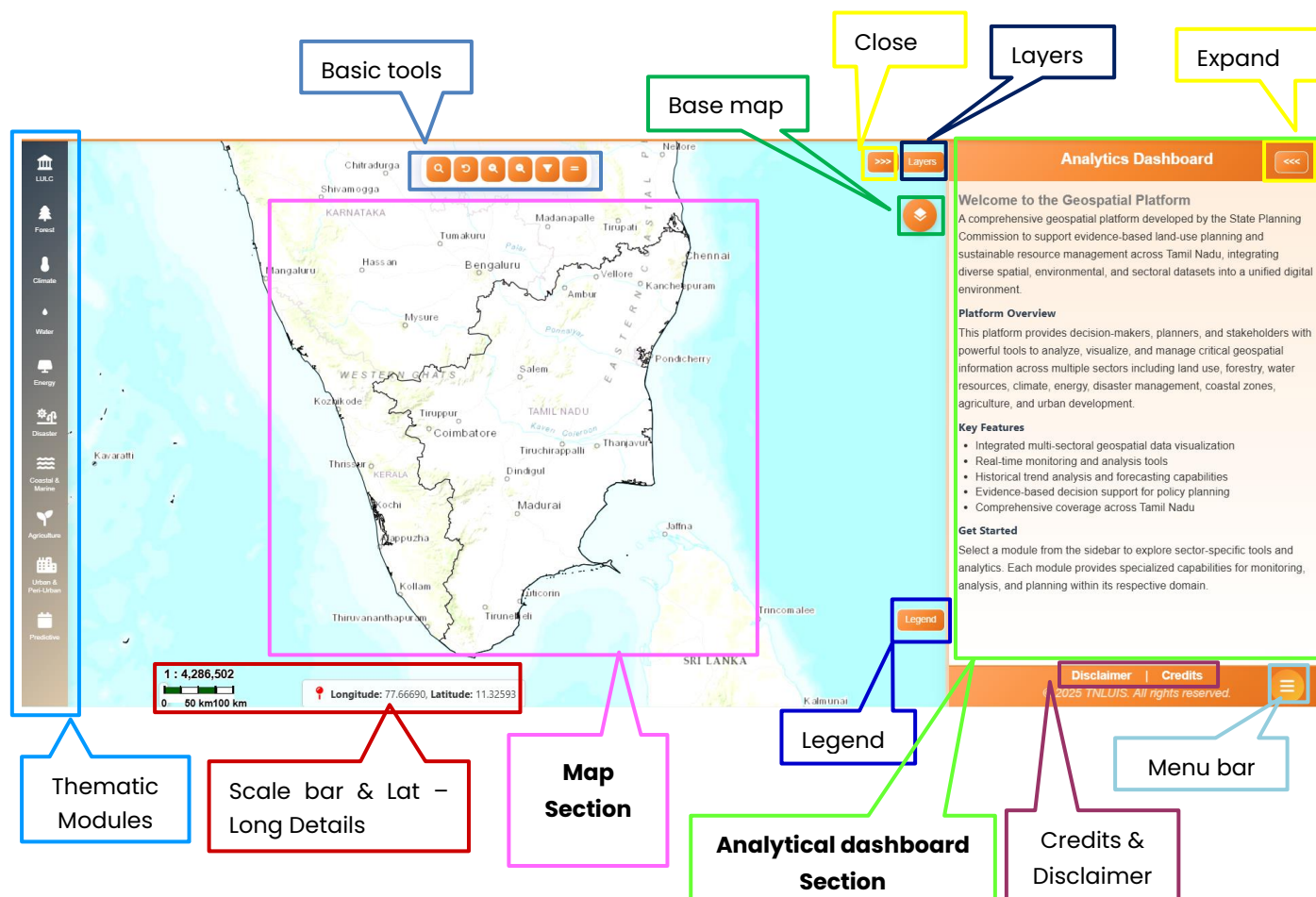
Users can select any of the nine modules from the Menu Bar to view the summary of the key parameters of that sector. By default, the state data will be displayed

To get any district-level data, choose one from this drop-down button. The selected district's data will be displayed in the dashboard's summary section.



Once the user selects the Modules option from the floating menu bar, the following page will be displayed. The Modules Section of the Geospatial platform is the GIS interface of TiNAI. It has been built with a dedicated Analytics Dashboard section (Right panel) that displays graphs or data table, and a brief summary of the key inferences, making interpretation easy for the user, especially for those who find GIS map reading difficult.

For the ease of the users, the details of various buttons in the TiNAI's GIS Platform are highlighted below. Related explanation is also give below the screenshot.



Basic Tools: These tools support interactive map functions, including search, reset map, zoom in and out, attribute filter, and swipe tools.

Base Map: This provides different base map options, including satellite imagery, light and dark grey maps, terrain, topography, and street maps.

Close: This option closes the analytical dashboard.

Layers: This section contains all thematic and asset layers of Tamil Nadu.

Expand: This option expands the analytical dashboard.

Thematic Modules: This includes all nine thematic and predictive modules, and their respective tools can be accessed through these icons under this bar.

Scale bar & Lat-Long details: This shows a dynamic scale bar that changes with zoom in and zoom out. Lat-Long shows the latitude and longitude value of the mouse hover over an area.

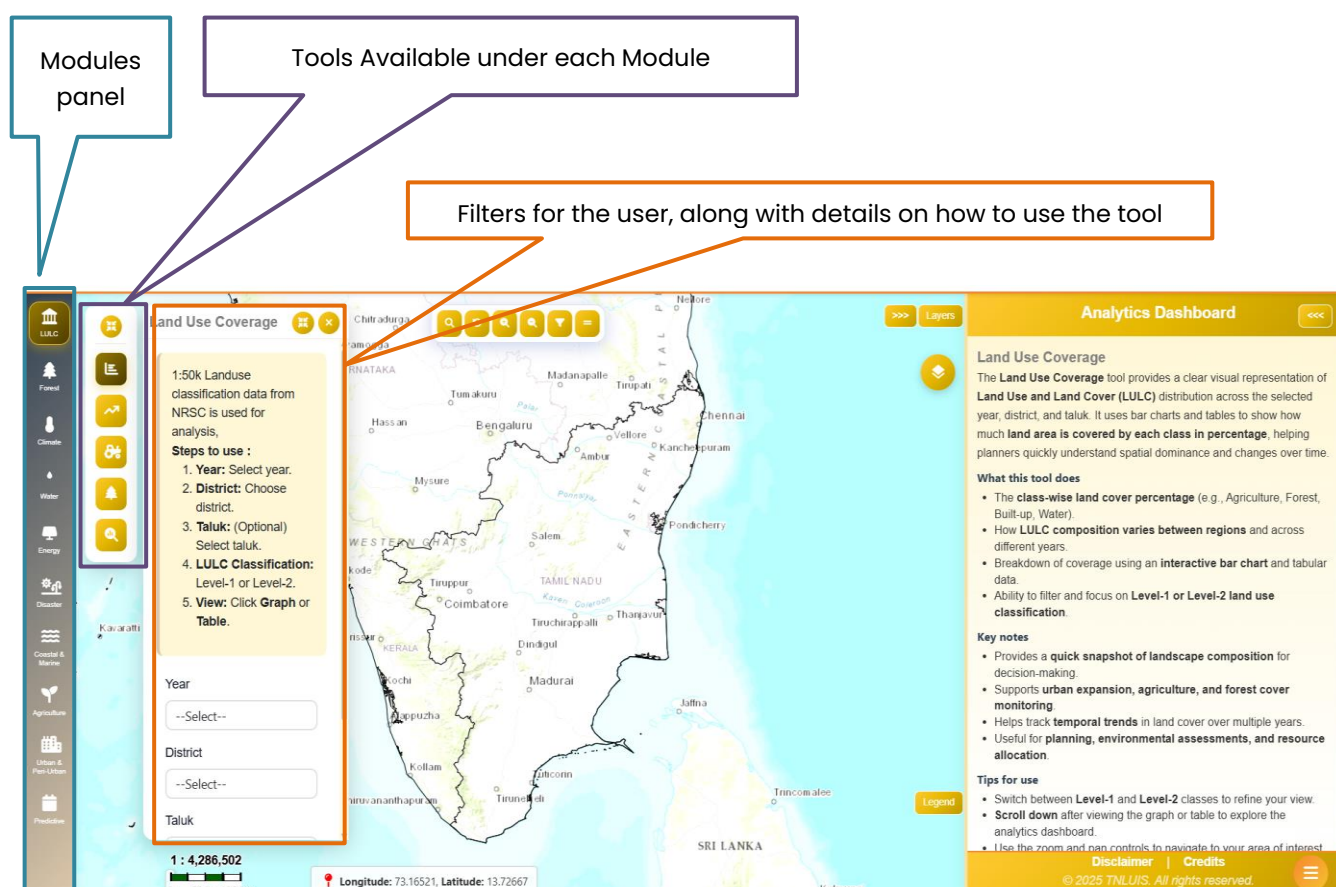
Map View: This area displays all data layers on the map.

Legend: This shows the legends for the layers currently displayed in the map view.

Analytical Dashboard: This dashboard provides an overview of the selected module or tool and presents insights from thematic layers through charts and tables.

Credits & Disclaimer: It displays the data source credits and disclaimer information for the use of the respective data and layers.

Menu Bar: This provides access to the Dashboard and the Home page of the TiNAl Geospatial Platform.



The left panel lists the nine Thematic Modules and the tools under each. This is the user interface section. When a Module is selected, the user can click any listed tool to fetch the required details. For the user's benefit, each tool includes a brief guide listing 'to-do' items.

Modules: It shows the list of thematic modules and the predictive module.



Tools: When the module is clicked, the tools for that module are displayed. In the above figure, the tools for the LULC module are shown. When the mouse hovers over a tool icon, the tool name is displayed.

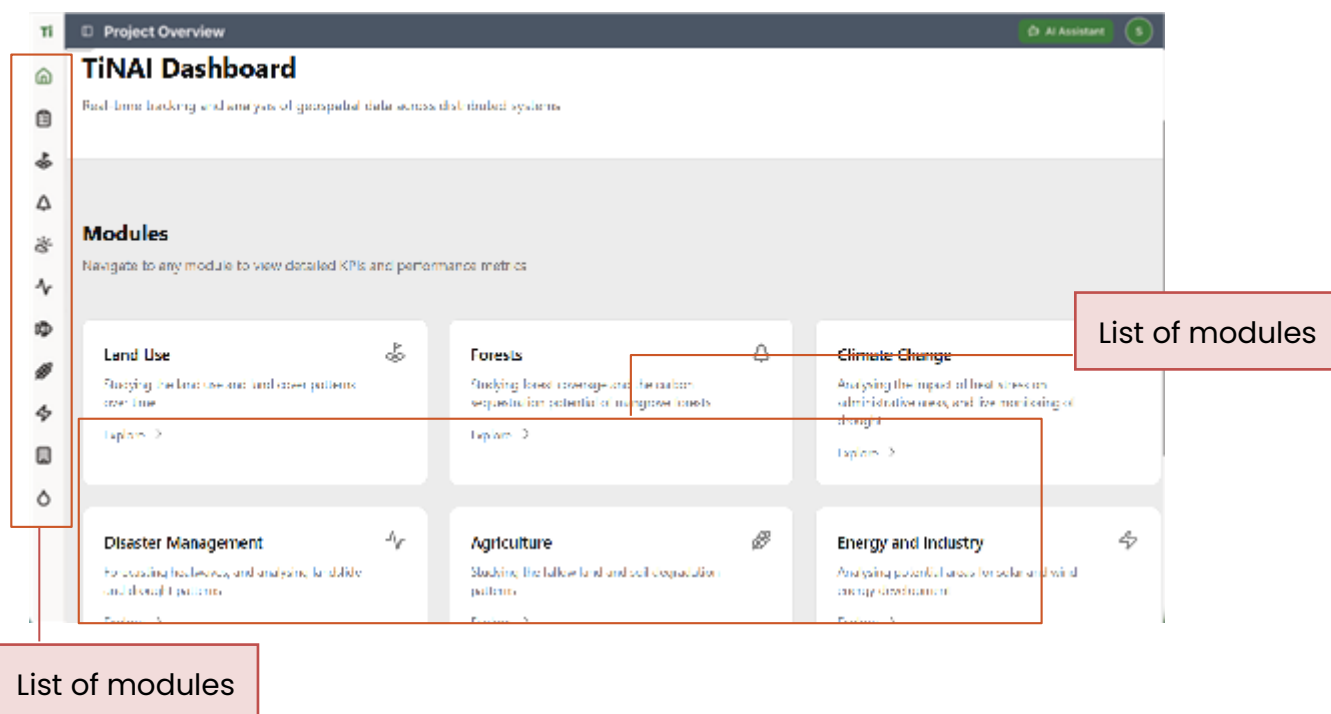
Analysis Panel: When a tool is clicked, an analysis panel opens left to the map section, showing information on how to use this panel and providing options to select parameters such as years, district name, etc., based on the tool's key parameter needs.

CHAPTER 3

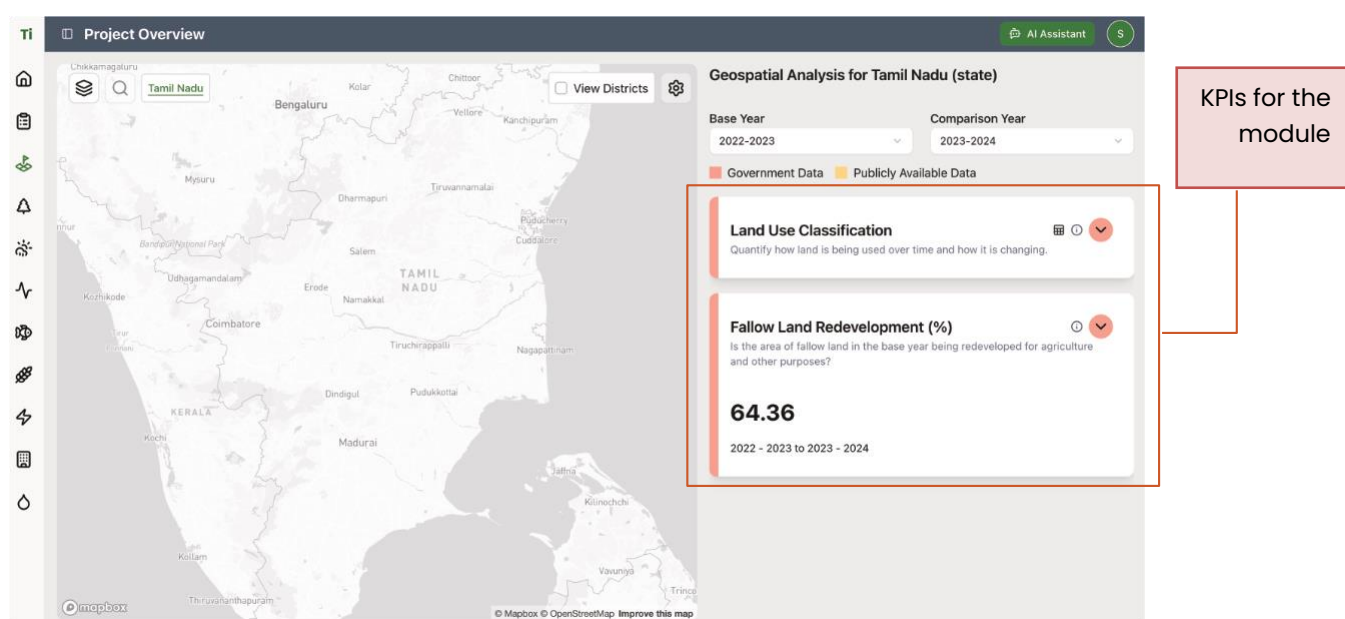
TINAI DIGITAL TWIN

On choosing “Enter Digital Twin”, the user will get redirected to the TiNAI Digital Twin platform. The user has to login to enter the platform.

On successful login, the user will be presented with the following screen



The screenshot displays the TiNAI Dashboard interface. At the top, there is a 'Project Overview' header with an 'AI Assistant' button. Below this, the 'TiNAI Dashboard' title is followed by a subtitle: 'Real-time tracking and analysis of geospatial data across distributed systems'. A 'Modules' section is highlighted with a red box and labeled 'List of modules'. This section contains six modules: Land Use, Forests, Climate Change, Disaster Management, Agriculture, and Energy and Industry. Each module has a brief description and a 'Reports' link. A red box on the left side of the dashboard is also labeled 'List of modules'.



The screenshot displays the 'Geospatial Analysis for Tamil Nadu (state)' interface. On the left, there is a map of Tamil Nadu with various districts labeled. On the right, there is a 'Geospatial Analysis for Tamil Nadu (state)' section. This section includes a 'Base Year' dropdown set to '2022-2023' and a 'Comparison Year' dropdown set to '2023-2024'. Below these, there are two data sources: 'Government Data' (selected) and 'Publicly Available Data'. Two KPIs are listed: 'Land Use Classification' and 'Fallow Land Redevelopment (%)'. The 'Fallow Land Redevelopment (%)' KPI is highlighted with a red box and labeled 'KPIs for the module'. It shows a value of '64.36' for the period '2022 - 2023 to 2023 - 2024'.



Click to
access all
the
modules

TiNAI

Project Overview

Geospatial Analysis for Tamil Nadu (state)

Base Year: 2022-2023, Comparison Year: 2023-2024

Government Data, Publicly Available Data

Land Use Classification
Quantify how land is being used over time and how it is changing.

Fallow Land Redevelopment (%)
Is the area of fallow land in the base year being redeveloped for agriculture and other purposes?

64.36
2022 - 2023 to 2023 - 2024

Each module opens
to submodules

TiNAI

Project Overview

Geospatial Analysis for Tamil Nadu (state)

Base Year: 2022-2023, Comparison Year: 2023-2024

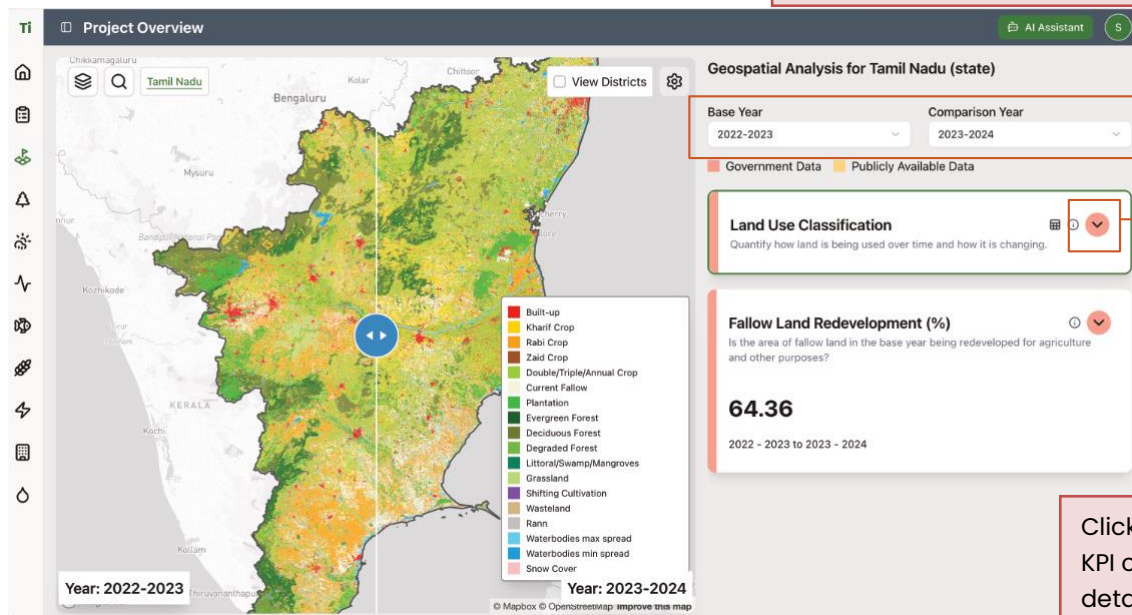
Government Data, Publicly Available Data

Land Use Classification
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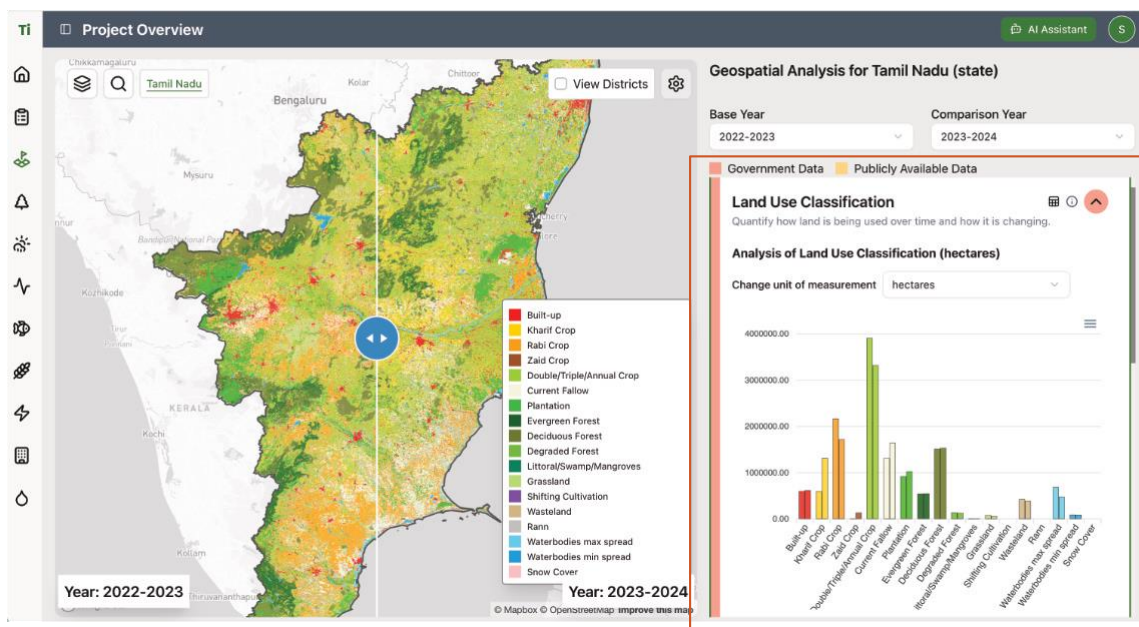
64.36
2022 - 2023 to 2023 - 2024

SPLIT-SCREEN VIEW OF BASE AND COMPARISON YEAR

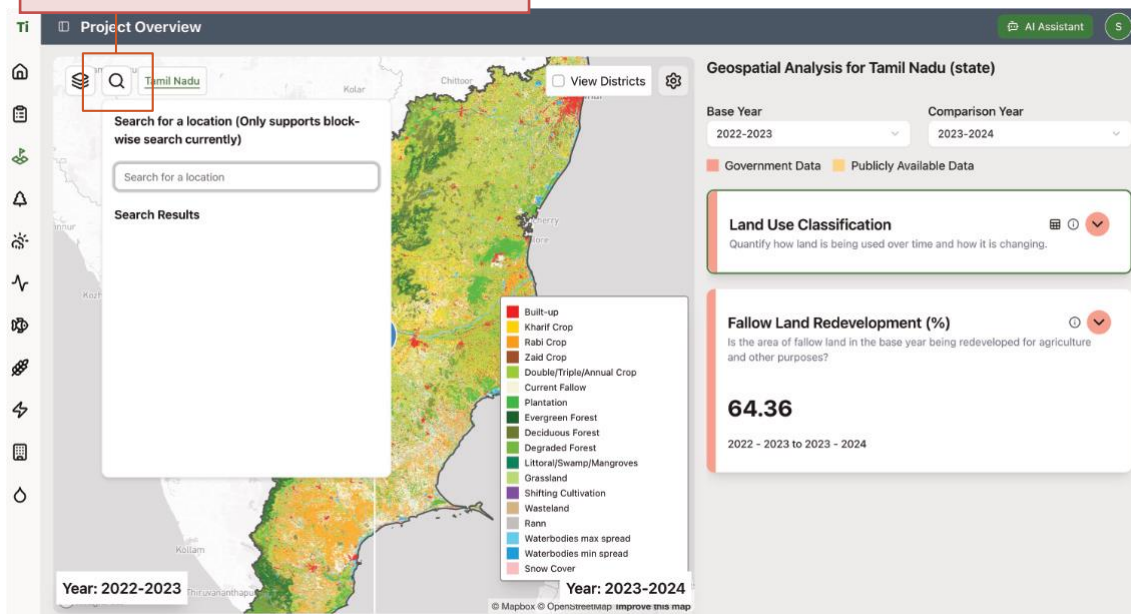


Click to expand the KPI card to get the details of the KPI within the selected area (State/ district/ Block)

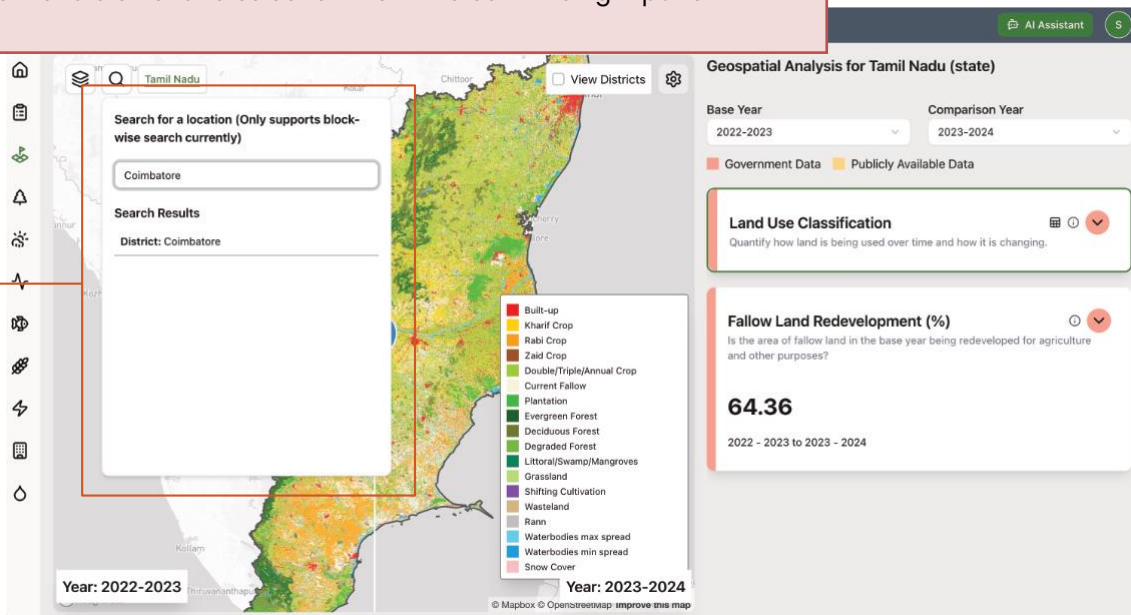
Expanded view reveals more data visualization of the KPI data in an interactive manner.



Click icon to search for a District

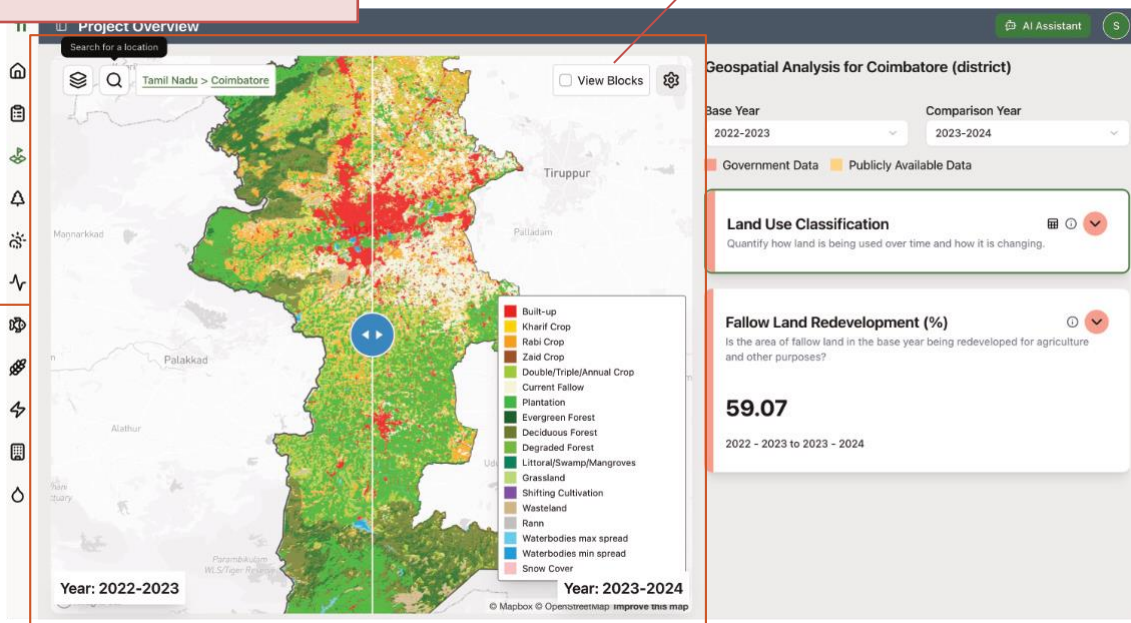


Search for a district and select on the KPI listed in the right panel



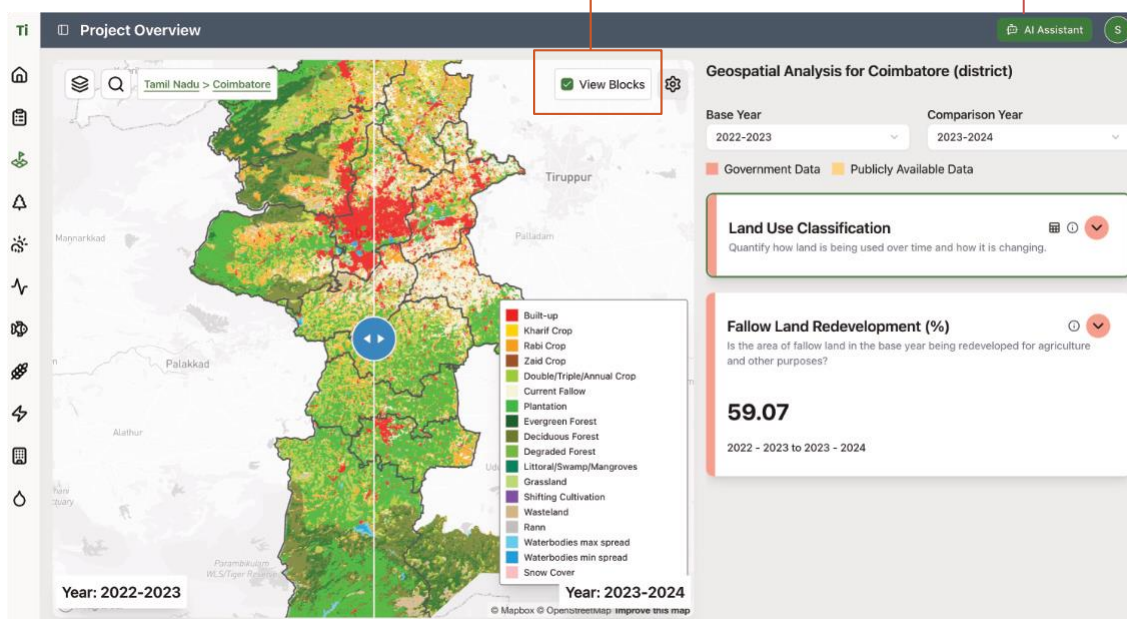
Split screen view of the district

Select to view blocks

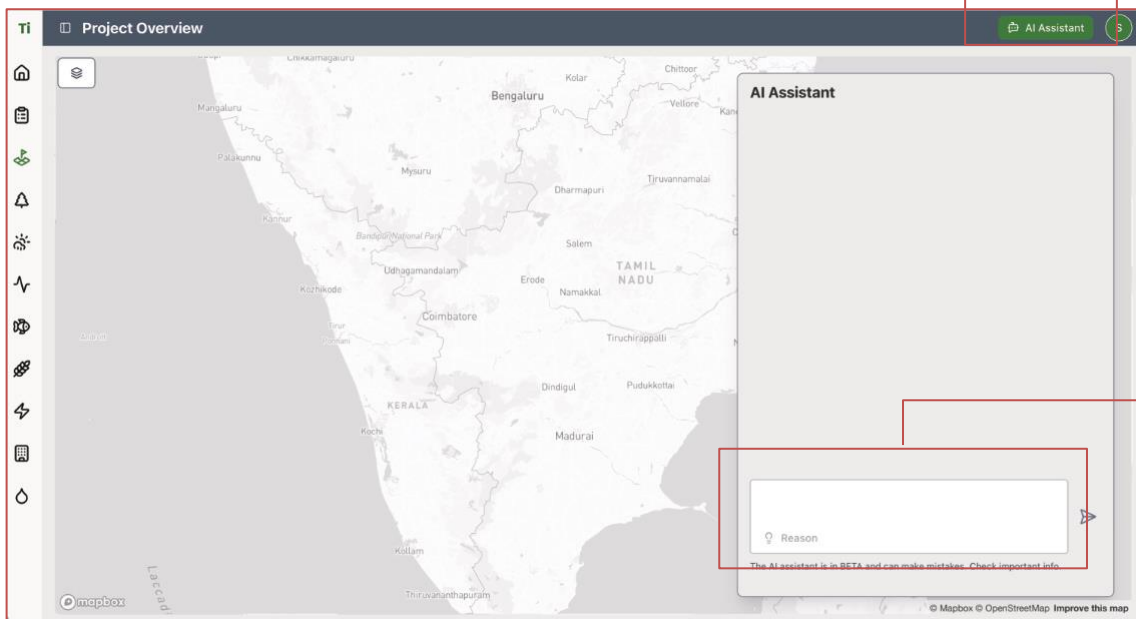


Block view of the district

Choose AI Assistant



AI Assistant opens for
interaction



AI results will get displayed on the chat window and on the map as well

