ADB ASIAN DEVELOPMENT BANK

User Manual

for

Climate and Disaster Risk Informed Investment Prioritization System (CRIIPS)

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CEGIS

User Manual
V1
Climate and Disaster Risk Informed Investment Prioritization System (CRIIPS)

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1. Introduction

1.1 Background

The Climate and Disaster Risk Informed Investment Prioritization System (CRIIPS) is an interactive online GIS Portal to facilitate the view, analysis, and understanding of the climate and disaster risk information of Bangladesh, organized according to ADB project areas. This web-based platform provides explicit access to geographic information and spatial data in an organized and user-friendly manner to the Asian Development Bank staffs for supporting planning, conceptualization and design of investment projects. It would facilitate the discovery, visualization and analysis of geospatial data and maps for risk informed policy decisions.

The GIS Portal is an online tool that offers comprehensive data related to climate change and sustainable development. The portal features a wide range of socio-economic, geo-physical, environmental, and climatic (current and projected) data layers, organized according to the Asian Development Bank (ADB) sectors. It enables users to extract fundamental information for ADB programming and project conceptualization, serving as a one-stop platform for project teams to perform quick project due diligence. The interactive platform includes analytical tools that allow users to analyse and extract project-specific data based on set spatial boundaries. The portal is designed for non-GIS users and is exclusively for the use of the Asian Development Bank.

1.2 Objective of CRIIPS

The CRIIPS portal is targeted to provide data and spatial information support to ADB officials that require reliable national information on socio-economic, geo-physical, environmental, climate and disaster for their project background study or other due diligence process. As a one stop platform it will assist ADB and government officials in their regular project formulation activities with reliable national and global data.

1.3 Benefits of CRIIPS

The CRIIPS portal offers major benefits, enabling climate and disaster risk-informed investment decisions and effective prioritization of projects for implementation. It provides tools to analyse and assess pre- and post-project benefits, ensuring comprehensive evaluation throughout the project lifecycle. The portal supports validation of new project suitability and baseline information, enhancing future investment security with evidence-based insights aligned with ADB's project portfolio. It facilitates tracking of adaptation, climate, and disaster resilience development progress, promoting informed decision-making. With open and easy access to geospatial data, users can explore diverse resources, climate, and disaster risk categories. Additionally, the portal provides access to an extensive repository of spatial, attribute, and temporal data layers, compiled over the past three decades and expandable for future projects.

2. Overview of the Portal

2.1 Key Features of Interactive GIS Portal

The Climate and Disaster Risk Informed Investment Prioritization System (CRIIPS) portal offers a comprehensive suite of features to support ADB staff in project formulation and due diligence. It provides access to over 160 GIS data layers across more than 10 ADB sector themes, encompassing socio-economic, geo-physical, environmental, and climatic data. Exclusive to ADB staff, this cloud-enabled platform includes climate and disaster risk maps, climate change projections, and geolocations of ADB projects, ensuring efficient analysis and decision-making. The portal serves as a baseline repository of resources, infrastructure, and ecosystems while integrating open-source data and maps, offering a user-friendly interface for non-GIS users to visualize and analyse data effectively.

Figure 2.1: Key Features of Interactive GIS Portal

2.2 Key Functions of the Portal

The CRIIPS portal is equipped with advanced analytical and mapping capabilities designed to streamline decision-making for ADB staff. Key features include:

- Spatial overlay and mapping
- Visualize, label, reclassify maps
- View attributes and analyse
- Compare map/risk scenarios

- Analyse climate & disaster risk
- Summary statistics for project boundary
- Investment status and prioritization
- Prepare, export and print Map
- Meta data and user manual
- Access open source data and maps

2.3 Data Layers in the Portal

2.3.1 Live Layer

Live Layer refers to an interactive data layer that displays real-time or frequently updated information on a map or dashboard. These layers are typically linked to live data sources, such as weather stations, environmental monitoring systems, or geospatial databases. There are more than 6 live layers in this portal.

Each listed item in the "Live Layer" panel appears to represent a specific dataset or visualization. For example:

- **Global Monthly/Yearly Temperature Anomaly (1880-present)**: Shows temperature changes over time, updated periodically.
- **Current Weather and Wind Station Data**: Displays live data from weather stations.
- **OpenAQ Recent Conditions in Air Quality**: Provides real-time air quality metrics.
- **Recent Earthquakes - Classic USGS Rendering**: Displays recent earthquake events.
- **GEOGloWS ECMWF Streamflow System (6-Day Forecast)**: Shows forecasted streamflow data over six days.

2.3.2 ADB Projects in Bangladesh

This portal consists 900+ geolocations and information of ADB projects under 10 ADB thematic sectors. The thematic sectors are: Agriculture, Natural Resources and Rural Development, Education, Energy, Health and Social Protection, Industry and Trade, Information and Communication Technologies, Multi-Sector, Public Sector Management, Water, Other Infrastructures & Services, and Transport. Each project layer includes key details such as the project name, project type, sector, subsector, geographic location, status, year of approval, and a corresponding Link.

2.3.3 GoB Priorities Aligned with NAP

Under this, projects by GoB and development partners which are aligned with National Adaptation Plan of Bangladesh (2023-2050) are listed. Each project layer includes key details such as the project name, project type, sector, budget, geographic location, status, year of approval etc.

2.3.4 Data Layer

The Data Layer includes various layers dividing ten groups such as Agriculture, Natural Resources, and Rural Development, Education; Energy, Health and Social Protection, Industry and Trade, Multisector, Water and Urban Infrastructure and Services, Transport, Climate Change Projection, and Climate and Disaster Risk. There are total 170+ GIS layers under 10 groups.

2.3.5 Climate and Disaster Risk Analysis Tool

The CRIIPS portal features a Climate and Disaster Risk Analysis Tool designed to facilitate the assessment of climate-induced risks using the IPCC AR5 climate change risk assessment framework. This tool allows users to comprehensively evaluate risks by selecting indicators for hazard, exposure, sensitivity, and adaptive capacity. Users can assign weightages to each indicator and CRA component, tailoring the analysis to specific project requirements. The tool generates outputs that depict climate-induced risk levels down to the union level within a predefined analysis boundary. The output map of this analysis can be downloaded in PDF, JPG, GIF, EPS, TIFF or AIX format. This advanced analytics tool with user-friendly functionality enhances the portal's capacity to support risk-informed decision-making to climate and disaster challenges.

3. Software Component

The main interface of the MIS is shown in Figure 3.1. To access the MIS main home page, simply enter the web address (**https://gis.cegisbd.com/adb**) in any browser's address bar.

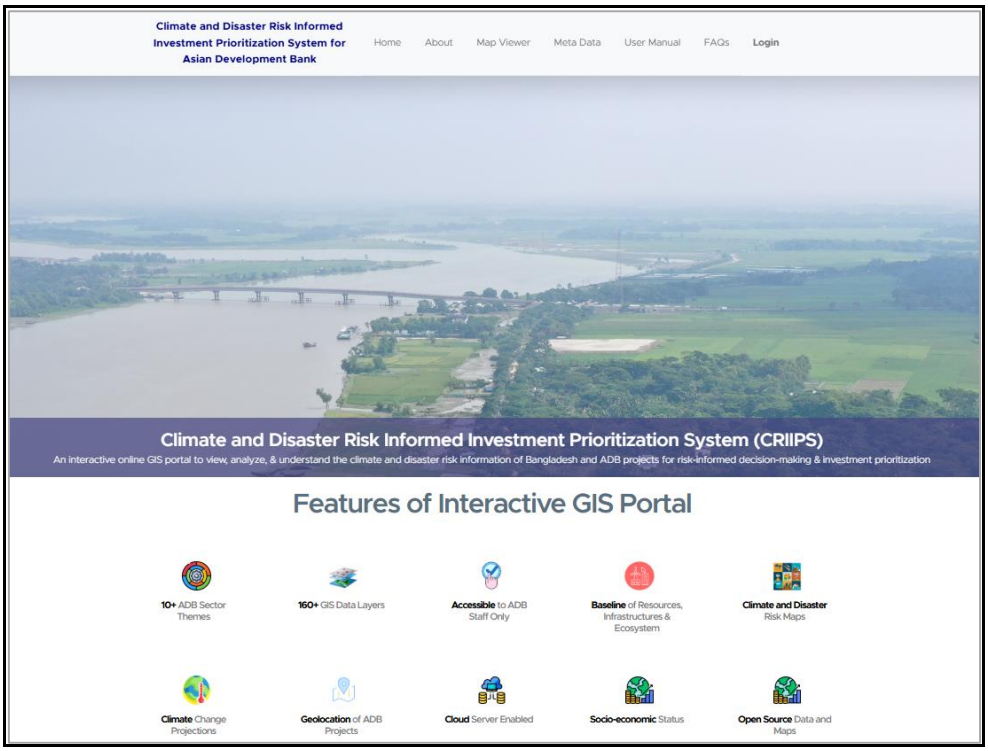


Figure 3.1: Home Screen of the MIS

3.1 Major Components

The major components of the MIS are as follows:

- Home
- About
- Map Viewer
- Meta Data
- User Manual
- FAQ
- Login
- Registration

3.2 Home

The dashboard is the system's home page, with menu options, an image slider, and a comprehensive breakdown of various features of interactive GIS Portal. It includes different Key Functions and ADB Thematic Sectors such as Education, Energy, Health and Social Protection, Agriculture, Natural Resources and Rural Development, Industry and Trade, Water, Other Infrastructures & Services, Transport, etc.

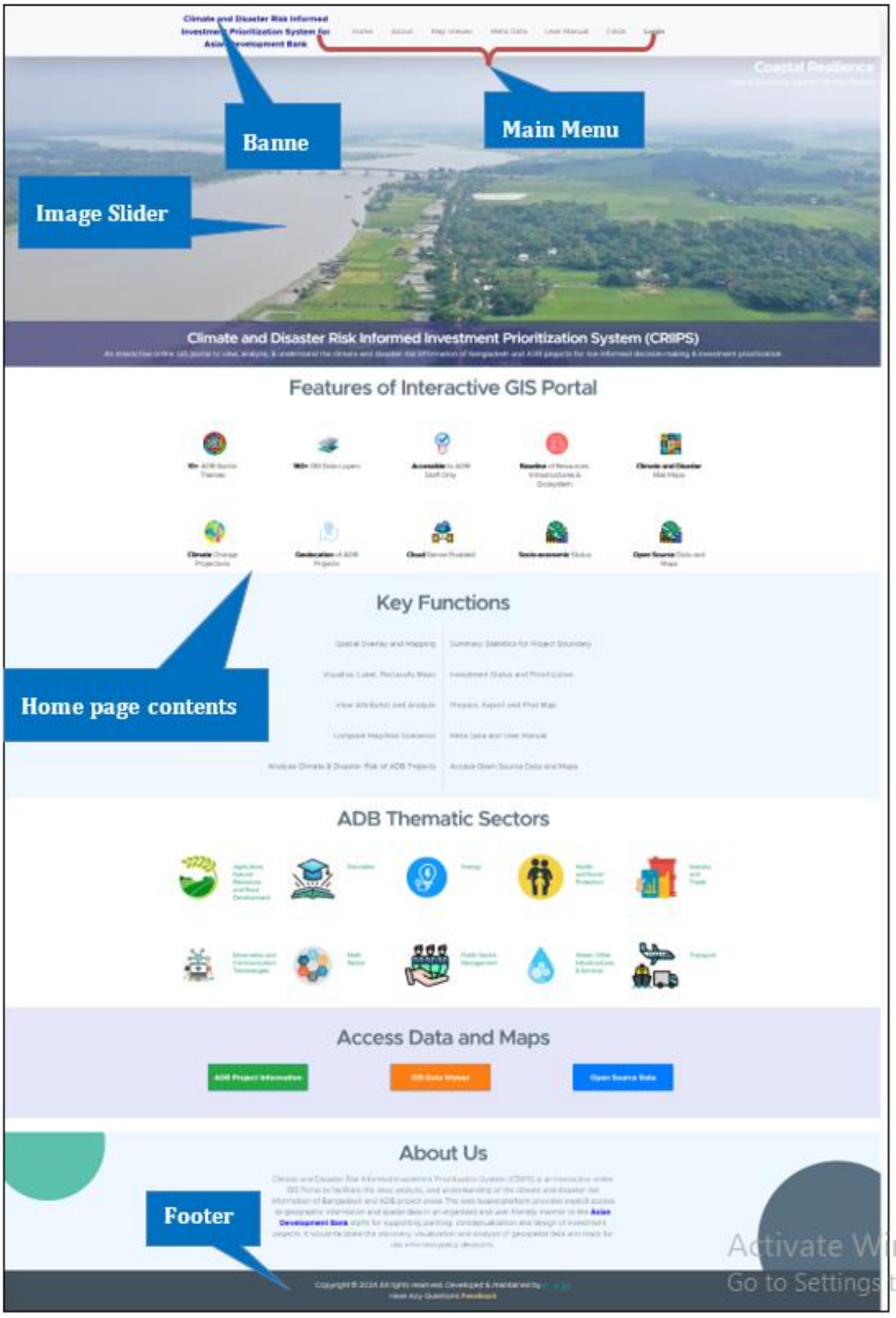


Figure 3.2: Home Page of the MIS

3.3 About

When the user ***clicks*** on the "***About***" button from the main menu, it will navigate to the About section, which is present at the same page. There are some short descriptions about the MIS and the project (Figure: 3.3).

Figure 3.3: About the MIS

3.4 Map Viewer

This module is designed to display and analyze, spatial data with features such as zoom-in, zoom-out, pan, and superimpose. The Map Viewer also allows users to search and view identity and attribute information of spatial data layers. Users can view details by clicking on the target point or icon, then a popup window comes with information (Figure: 3.4).

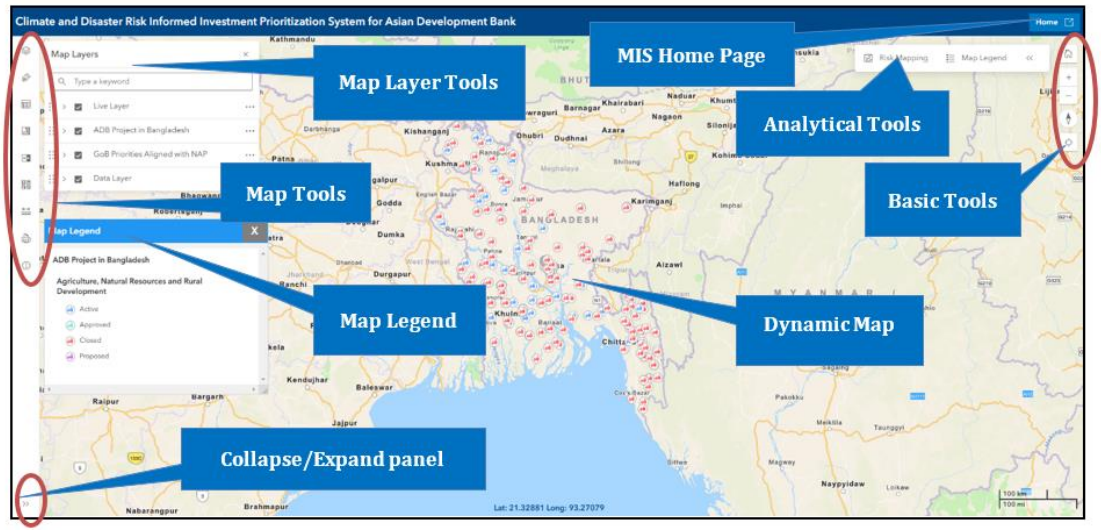


Figure 3.4: Map Viewer

There are many different tools used in the Map Viewer module to view and analysis map data in a very convenient way, so that a user can simply find and understand.

The functionalities of these map tools are described below:

3.4.1 Map Tools

- Map Layers
- Map Label
- Feature Table
- Reclassify Map
- Compare in Slider
- Base Maps
- Measurement
- Export Map

3.4.2 Analytical Tools

- Draw Polygon
- Prepare Risk Analysis Map

3.4.3 Basic Tools

Default Map View, Zoom In, Zoom Out, Reset Map Orientation, Find My Location.

Map Layer

This tool is useful to active or inactive layers from the layer list. User can also search relevant shapes or layer from the list (Figure: 3.5).

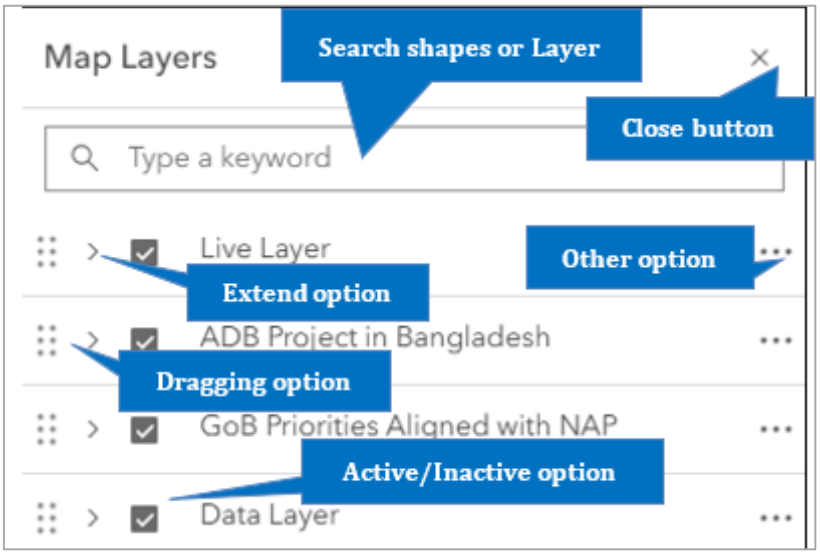


Figure 3.5: Map Layer (A1)

The search-box is used to search any layer, the Extend option is used to extend more layers, checkboxes are used to active or inactive layers on map, dragging option is used to change layer position between the layers and the three-dot option is for other options (Figure: 3.6).

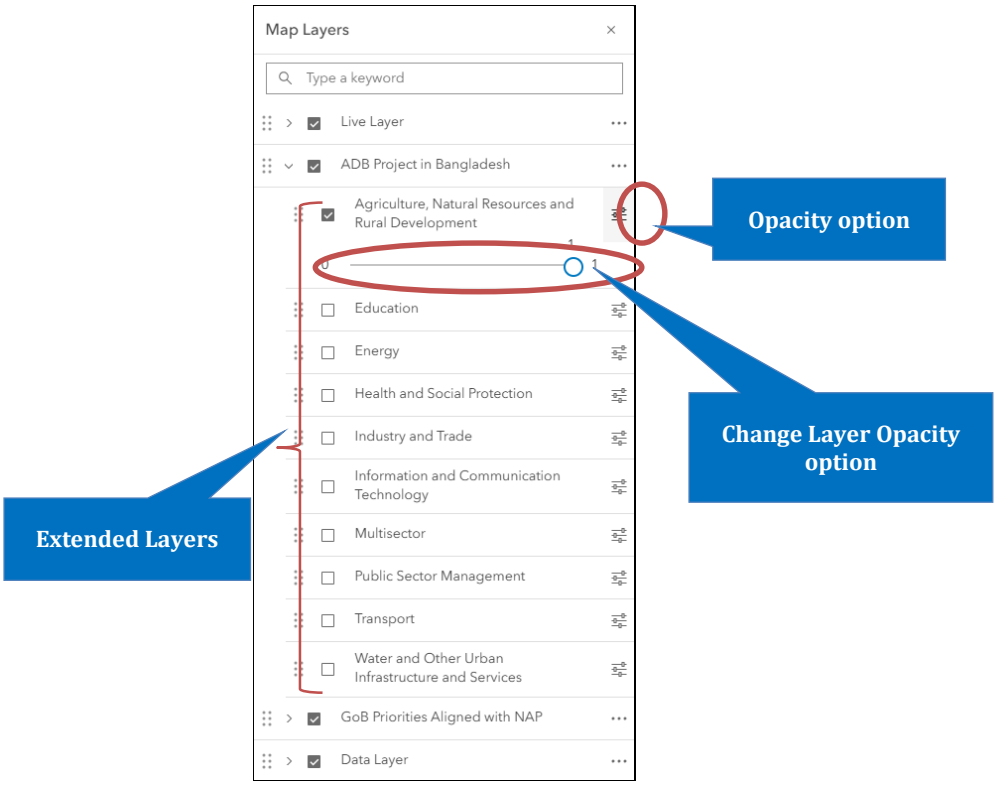


Figure 3.6: Map Layer (A2)

Map Label

To view label of one or more active layer(s), ***click*** on the Map Label tool to open the tool. Now, ***select*** a **layer** and a **field** from the dropdown list to view as label on map, then ***click*** on the **Show Label** button (Figure: 3.7).

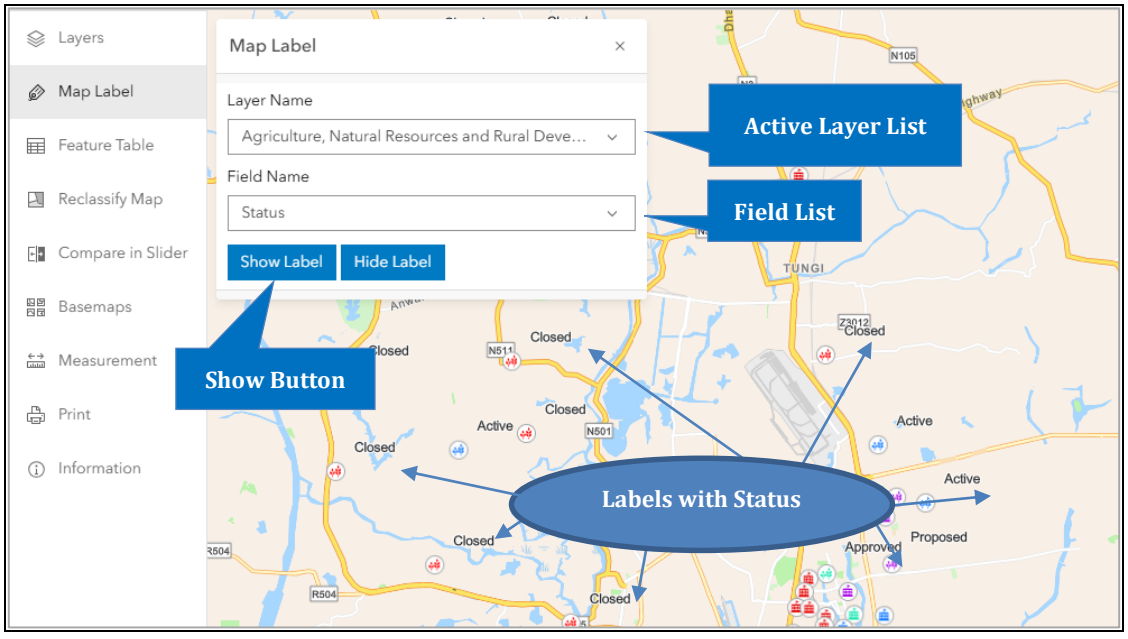


Figure 3.7: Map Label

Feature Table

This tool is useful to view attribute table of any selected shape or layer. ***Select*** a layer from the dropdown list, then ***click*** on the **Show Table** button (Figure 3.8).

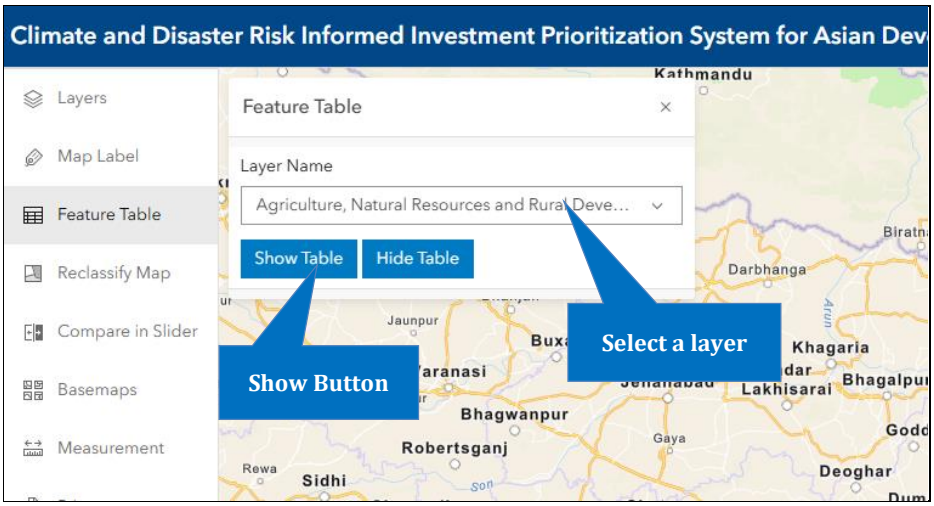


Figure 3.8: Feature Table Tool

At the bottom side, an attribute table appears with data (Figure 3.9).

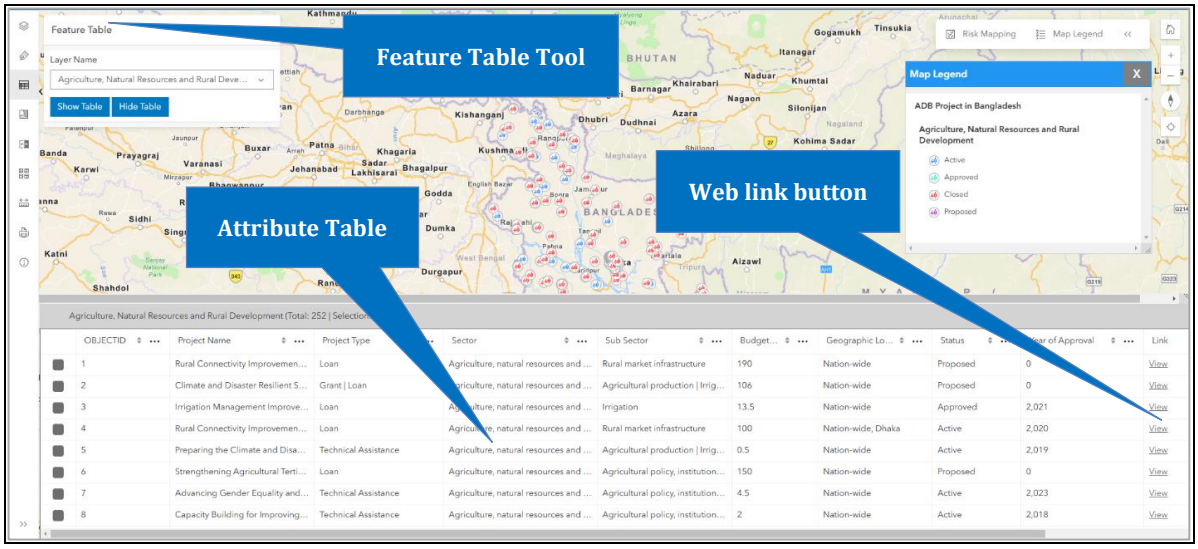


Figure 3.9: Feature Table (A1)

Reclassify Map

To reclassify any layer on the map, ***select*** any **layer**, then ***select*** a **field**, then ***select*** **Classification Method** and **number of classes**. Now, ***click*** on the **Show button** (Figure 3.10).

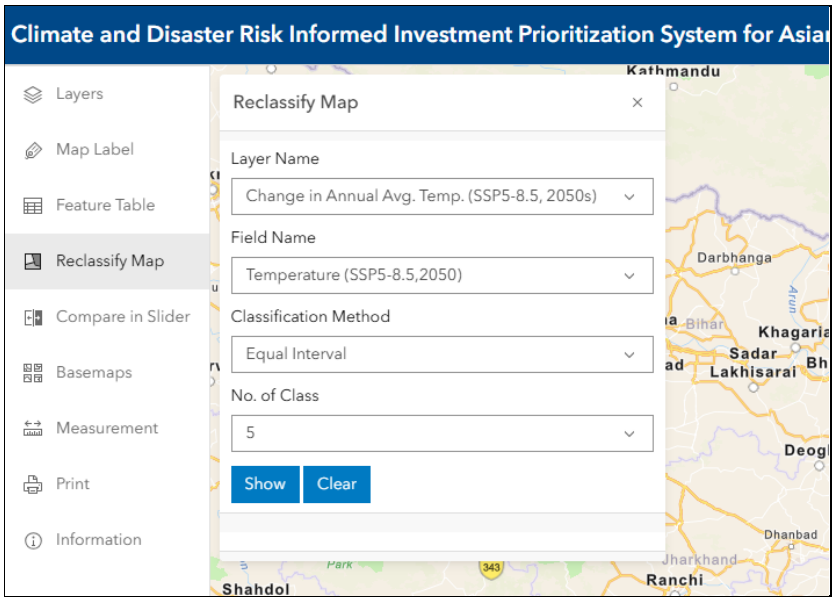


Figure 3.10: Feature Table (A2)

After that, the reclassified map will be showed like this (Figure 3.11).

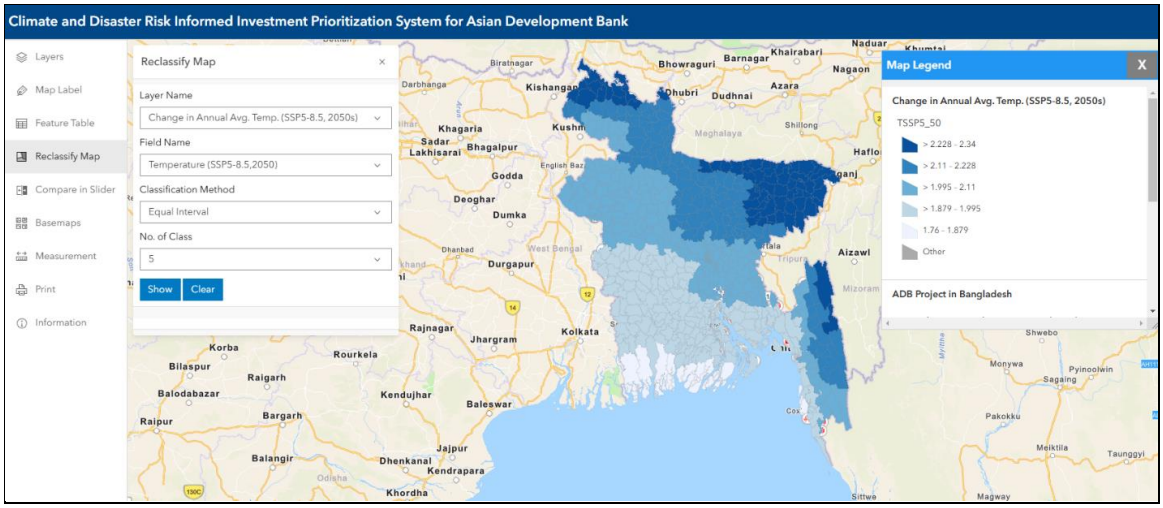


Figure 3.11: Feature Table (A3)

Compare in Slider

This tool is useful to compare between two selected layers. ***Select*** **Left** and **Right layers** from the dropdown lists, then ***click*** *on the* **Show** button. Now, a draggable tool appears at the center of the map. Simply, drag the tool left or right to see the comparison (Figure 3.12).

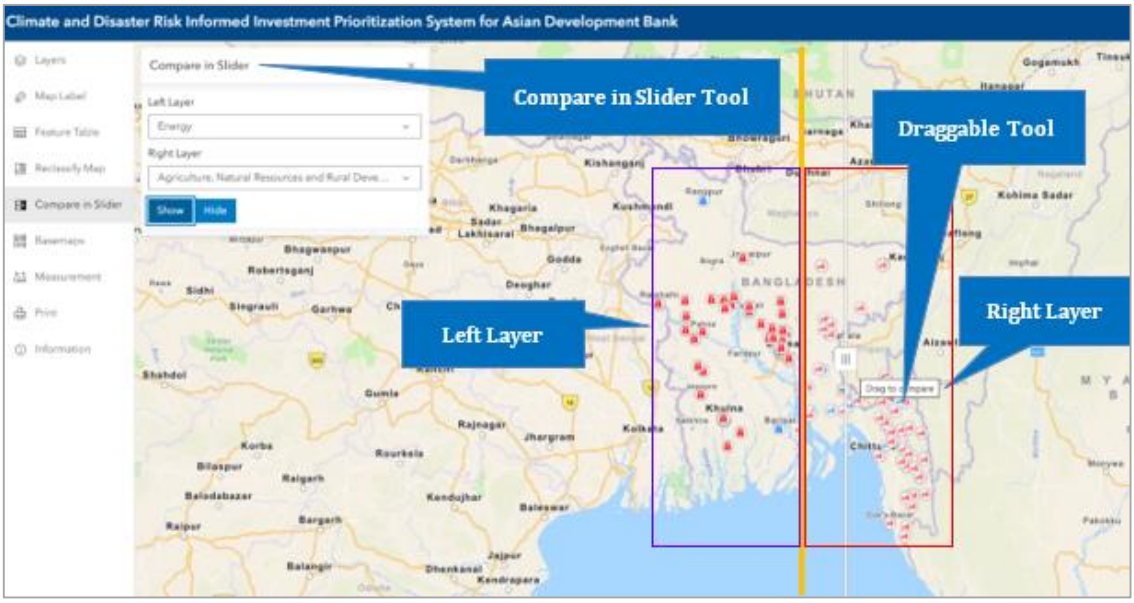


Figure 3.12: Compare in Slider

Base Maps

User can change the base map using this tool.

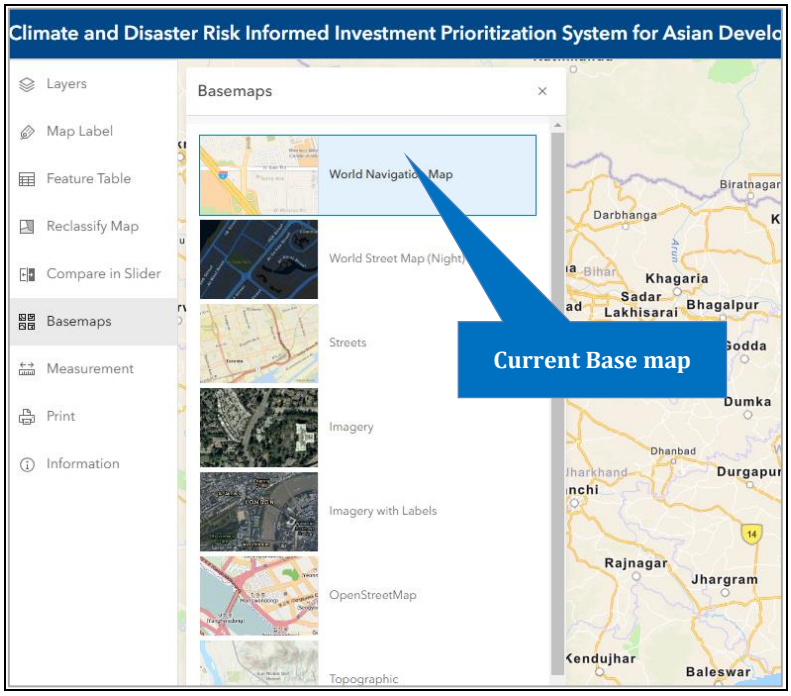


Figure 3.13: Base Map

Measurement

This tool is useful to measure distance on the map. ***Select*** the measurement tool, then ***click*** on the map anywhere, that the user wants to measure from and then ***click*** again to the second point, then third

point and so on. The total distance is visible at the measurement toolbox in different units. ***Click*** on the **New Measurement** button to measure for another distance (Figure 3.14).

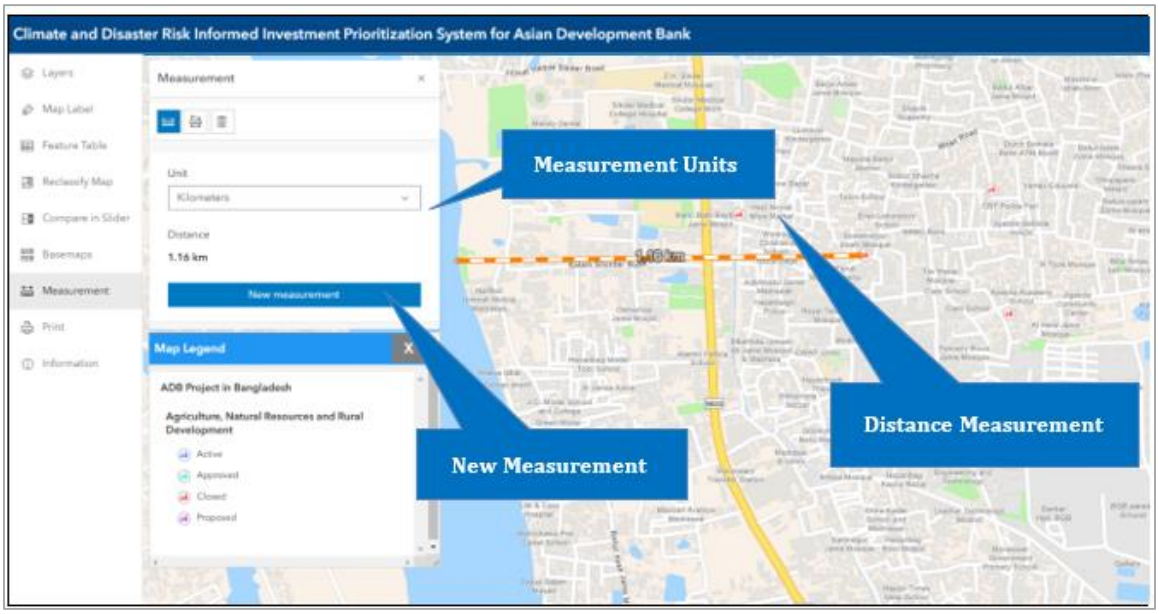


Figure 3.14: Measure Tool

Export Map

After any analysis or any informative map can be exported in different formats like pdf, jpg, gif, etc. in different templates as A3, A4 or Letter with portrait or landscape mode (Figure 3.15).

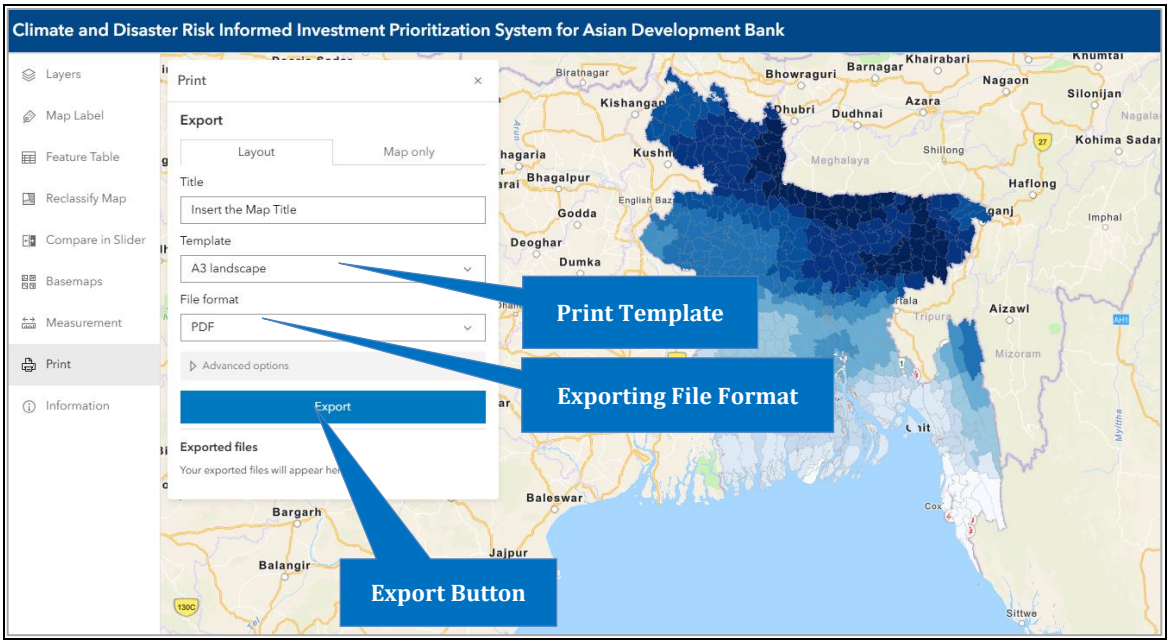


Figure 3.15: Export Map with Layout

Export without layout with fixed width, height and other advanced settings (Figure 3.16).

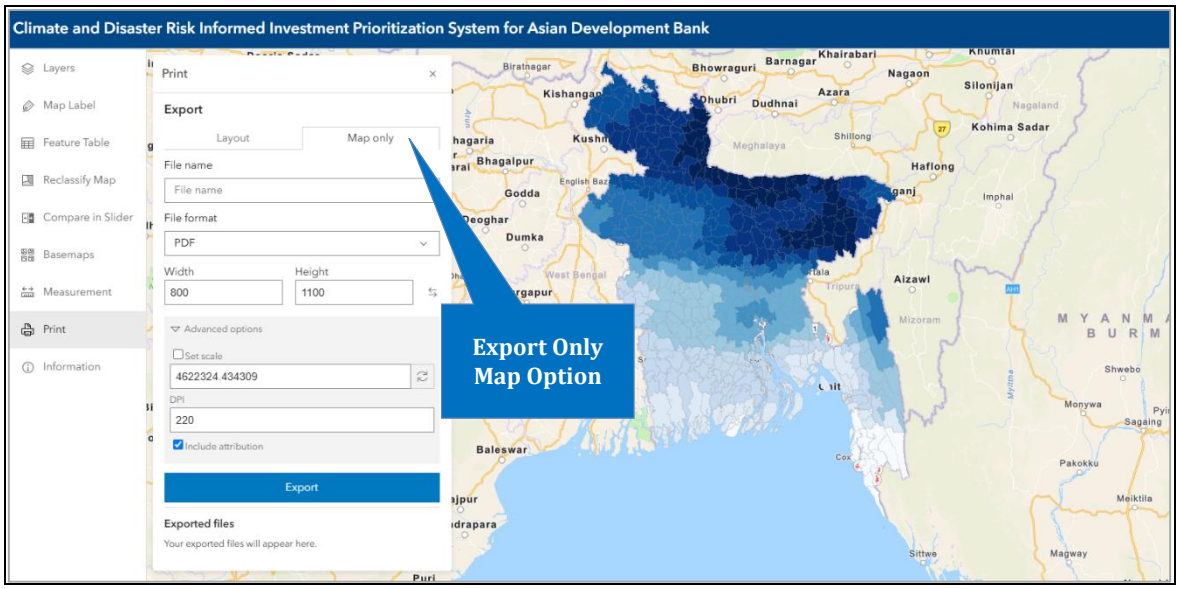


Figure 3.16: Export Only Map

3.5 Climate and Disaster Risk Analysis Tool

Draw Polygon

Click on the **Risk Mapping** icon to view the **Risk Analysis Tool**. Now, ***click*** on the **Draw Polygon** button to active the drawing mode, then click on the map by first click, second click, third and so on to draw the polygon. To **stop** drawing the polygon, ***double click*** on the map (Figure 3.17).

User can upload any shape file by clicking on the **Choose File** button then ***click*** on the **Upload File** button (Figure 3.18).

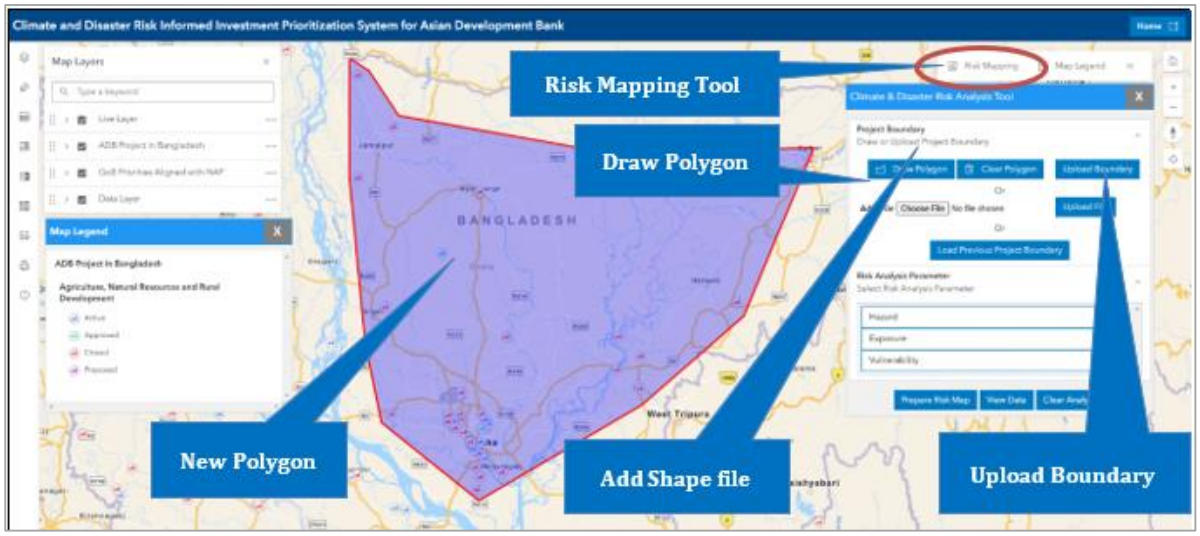


Figure 3.17: Draw Polygon

Now ***click*** on the **Upload Boundary** button to upload the new polygon on the map (Figure 3.18).

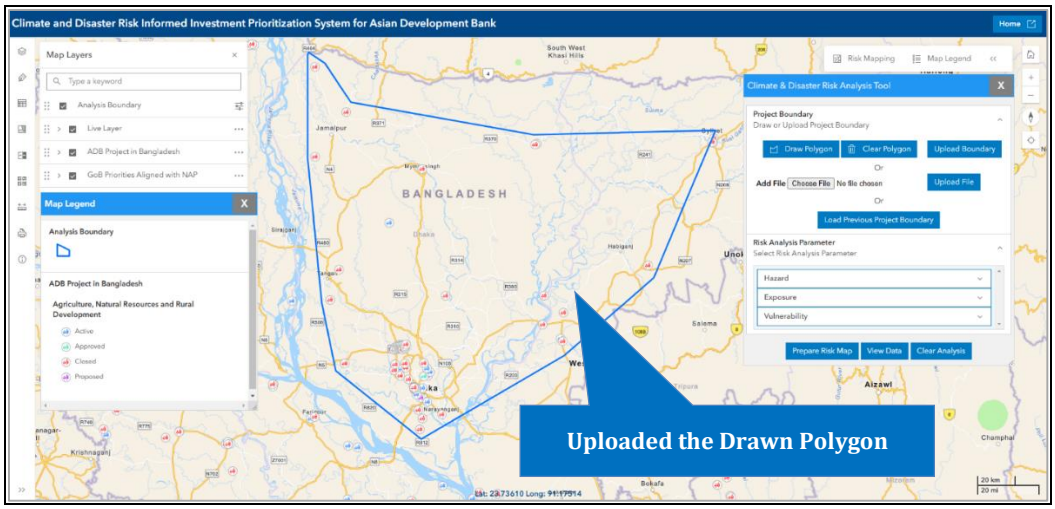


Figure 3.18: Upload Boundary

Prepare Risk Analysis Map

Click on the Risk Analysis Parameter Tab from the Risk Analysis Tool. There are three elements of CRA which are Hazard, Exposure and Vulnerability. Now select different desired indicators and weightage of each indicator to prepare the risk analysis map (Figure 3.19).

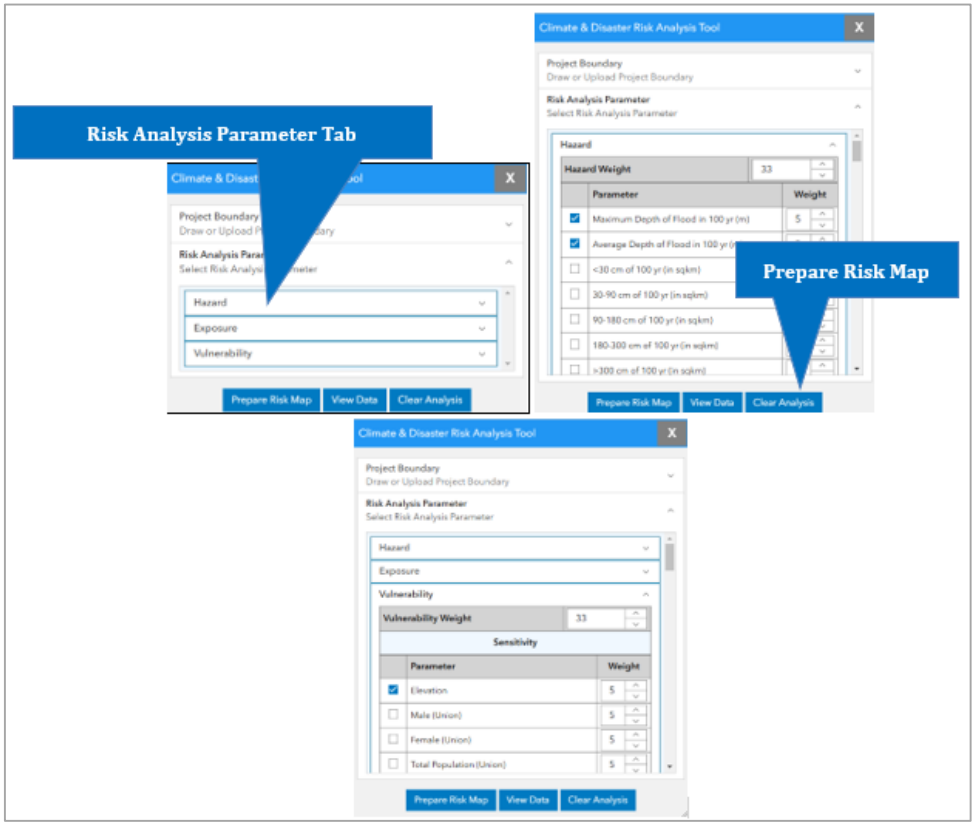


Figure 3.19: Risk Analysis Parameter

Now, ***click*** on the **Prepare Risk Map** button. Then, after waiting for a while, the analytical map appears on the map (Figure 3.20).

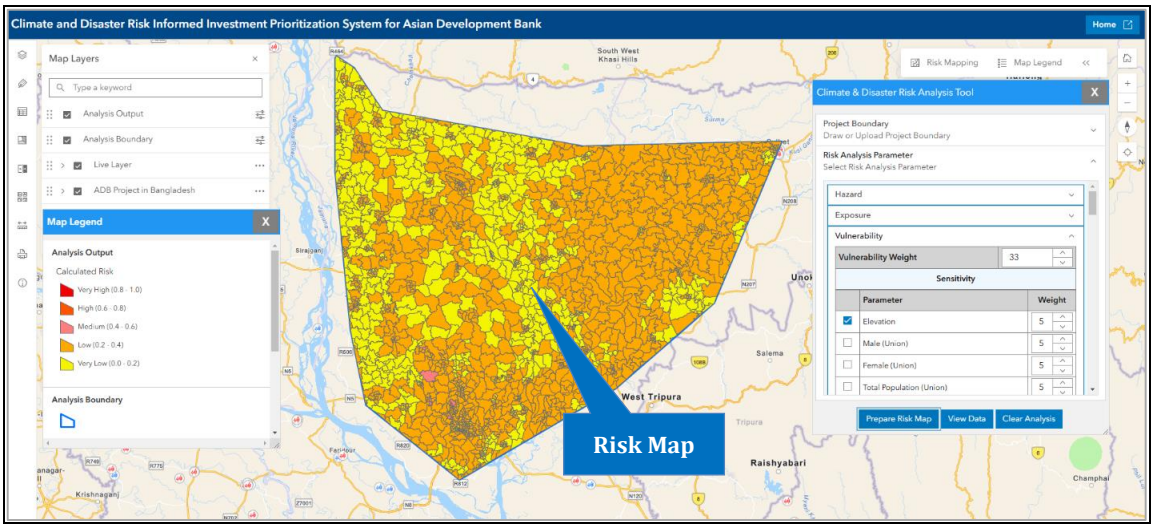
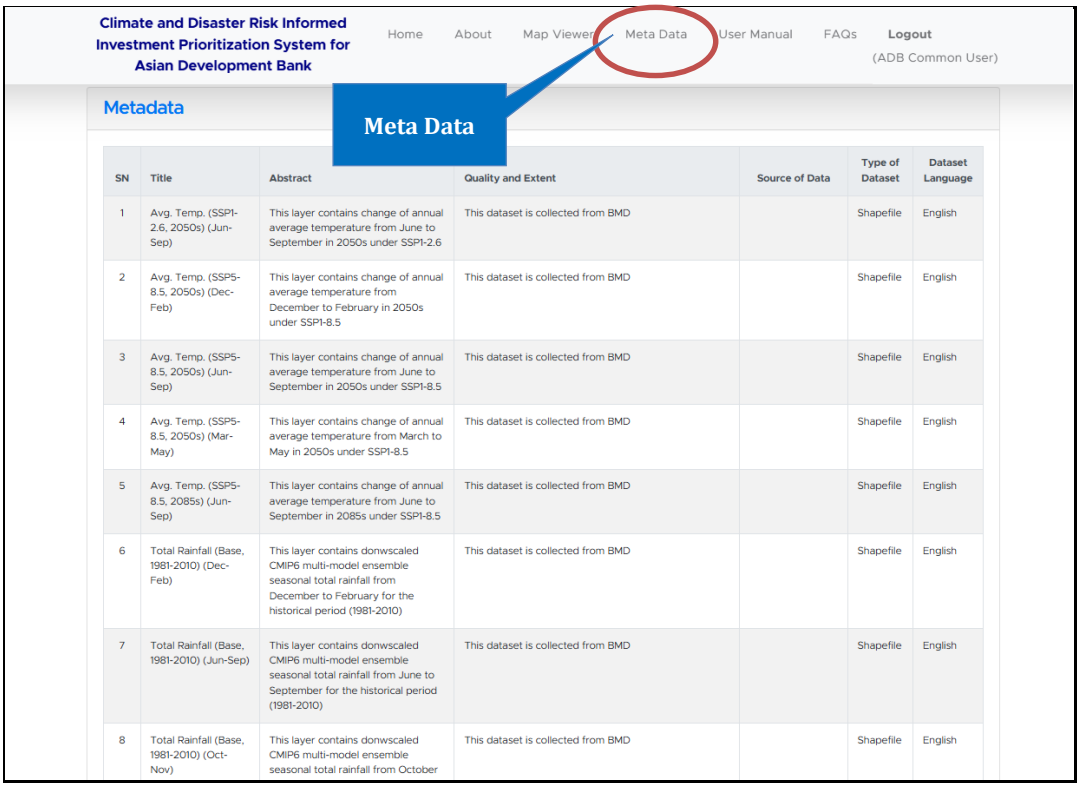


Figure 3.20: Risk Analysis Map

3.6 Meta Data

From the main menu, ***click*** on the **Meta Data** option, it will navigate to the Meta Data page (Figure 3.21). The Meta Data describes the data about the data, i.e., Source of Data, Type of Dataset, Dataset Language, Abstract etc.



SN	Title	Abstract	Quality and Extent	Source of Data	Type of Dataset	Dataset Language
1	Avg. Temp. (SSP1-2.6, 2050s) (Jun-Sep)	This layer contains change of annual average temperature from June to September in 2050s under SSP1-2.6	This dataset is collected from BMD		Shapefile	English
2	Avg. Temp. (SSP5-8.5, 2050s) (Dec-Feb)	This layer contains change of annual average temperature from December to February in 2050s under SSP1-8.5	This dataset is collected from BMD		Shapefile	English
3	Avg. Temp. (SSP5-8.5, 2050s) (Jun-Sep)	This layer contains change of annual average temperature from June to September in 2050s under SSP1-8.5	This dataset is collected from BMD		Shapefile	English
4	Avg. Temp. (SSP5-8.5, 2050s) (Mar-May)	This layer contains change of annual average temperature from March to May in 2050s under SSP1-8.5	This dataset is collected from BMD		Shapefile	English
5	Avg. Temp. (SSP5-8.5, 2085s) (Jun-Sep)	This layer contains change of annual average temperature from June to September in 2085s under SSP1-8.5	This dataset is collected from BMD		Shapefile	English
6	Total Rainfall (Base, 1981-2010) (Dec-Feb)	This layer contains donwscaled CMIP6 multi-model ensemble seasonal total rainfall from December to February for the historical period (1981-2010)	This dataset is collected from BMD		Shapefile	English
7	Total Rainfall (Base, 1981-2010) (Jun-Sep)	This layer contains donwscaled CMIP6 multi-model ensemble seasonal total rainfall from June to September for the historical period (1981-2010)	This dataset is collected from BMD		Shapefile	English
8	Total Rainfall (Base, 1981-2010) (Oct-Nov)	This layer contains donwscaled CMIP6 multi-model ensemble seasonal total rainfall from October	This dataset is collected from BMD		Shapefile	English

Figure 3.21: Meta Data Viewer

3.7 User Manual

To view the user manual, ***Click*** on the **User Manual** option from the Menu list. A Video Tutorial will be open in a video player so that, the users can understand it anytime (Figure 3.22).

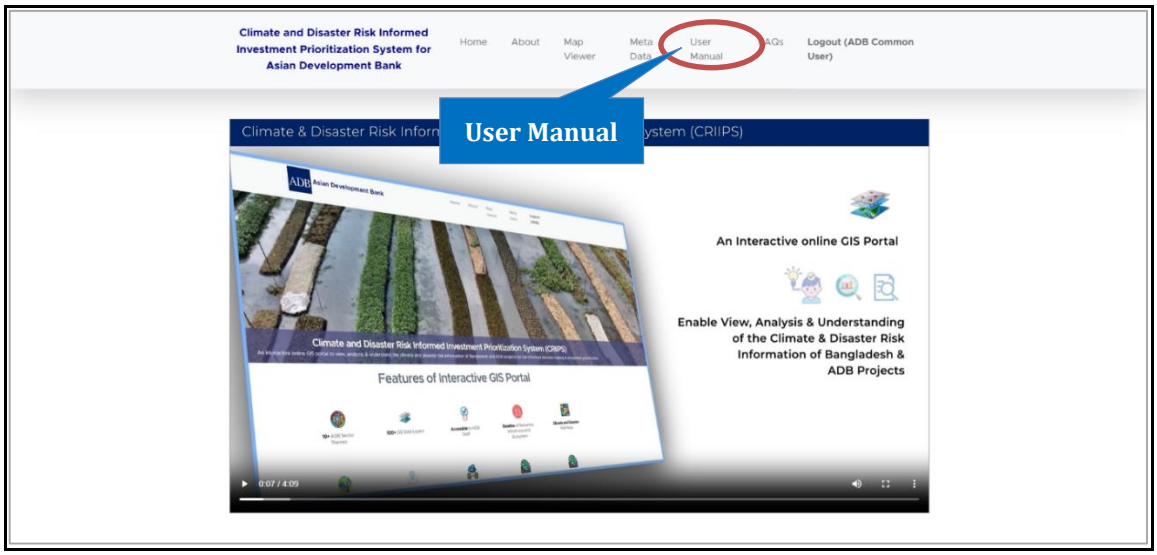


Figure 3.22: User Manual

3.8 FAQ

The FAQ (Frequently Asked Questions) option can be found from the main menu of the web application (Figure: 3.23).

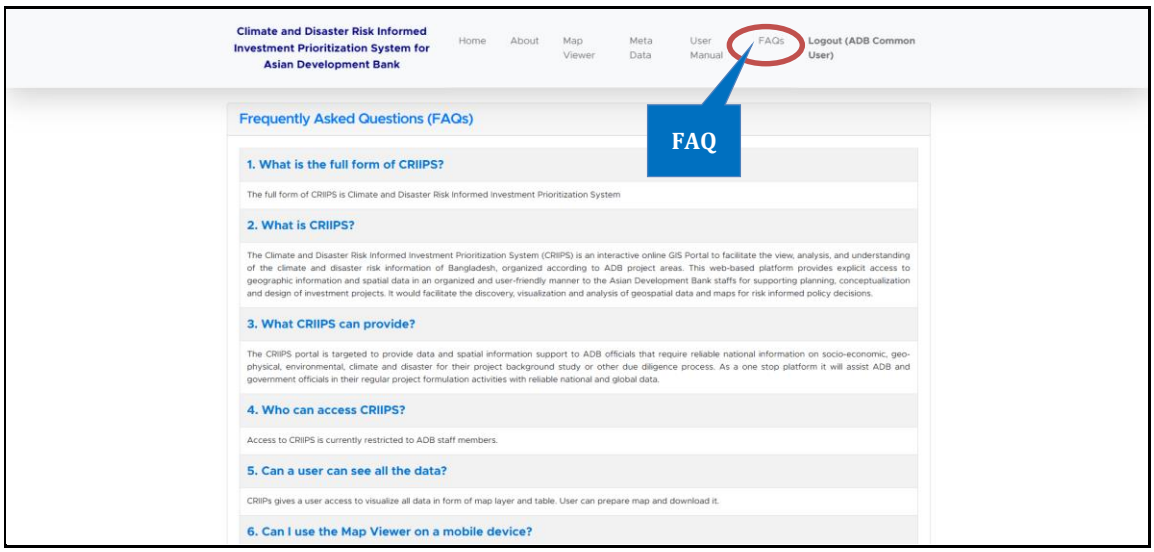


Figure 3.23: FAQ Section

3.9 Login

User Login is necessary when any restricted page need to open. Then the application opens the login page itself to verify user details (Figure: 3.24).

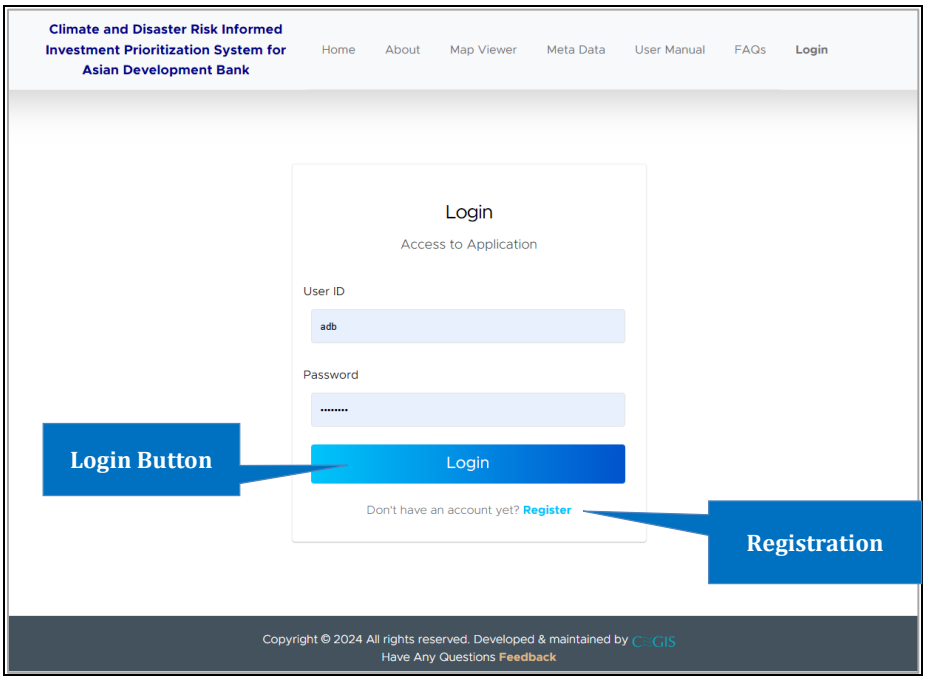


Figure 3.24: Login Interface

If the user details are verified with valid details, then it will take back to the page. Otherwise, it will give a warning message (Figure: 3.25).

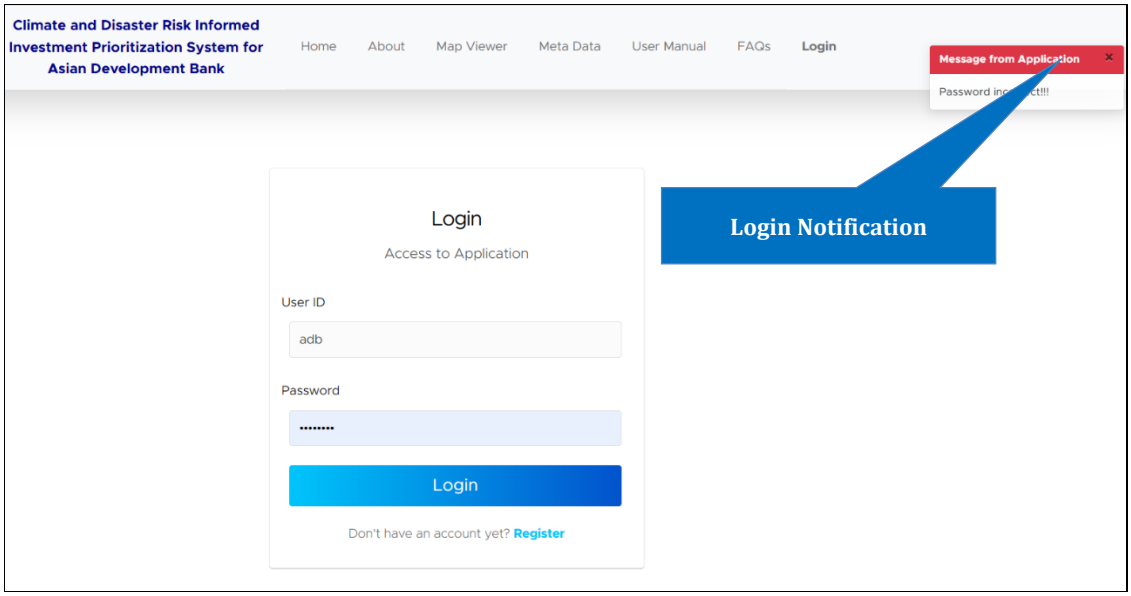


Figure 3.25: User login Verification

3.10 Registration

If the user is not registered yet, ***click*** on the **Register** button from the **Login Page** (Figure 3.25). Then the Registration page will come itself (Figure 3.26).

Now, the new user must fill up the entry form which contains- Email, Password, Confirm Password, Full Name and Designation. When the form fill-up is done, then ***click*** on the **Submit** button. If the registration is successful, then the new user can login from the login page.

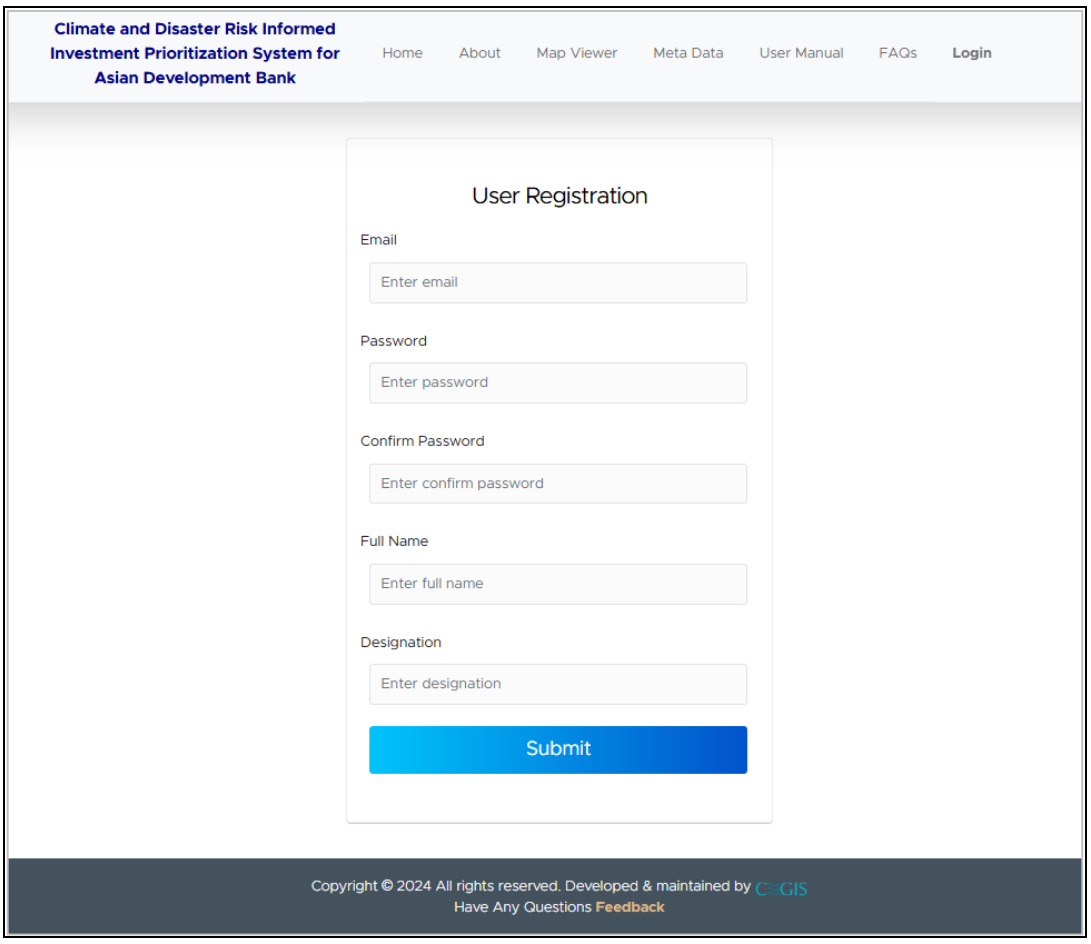


Figure 3.26: User Registration

Center for Environmental and Geographic Information Services
www.cegisbd.com