

User Manual

GIS Application of Pyara-Kuakata Project



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**User Manual
of
GIS Application of Payra-Kuakata Project**

Table of Contents

- List of Figuresii**
- 1 Introduction 1**
 - 1.1 Background 1
 - 1.2 Objectives..... 1
- 2 GIS-Application 2**
 - 2.1 User Registration 2
 - 2.2 Login to the Application..... 3
 - 2.3 View User List..... 4
 - 2.4 Home Menu 4
 - 2.5 Data Explorer..... 5
 - 2.6 Report..... 8
 - 2.7 Upload..... 8

List of Figures

Figure 2.1: Application Landing Page	2
Figure 2.2: User Registration Form	2
Figure 2.3: User Registration Form	3
Figure 2.4: Login Success Message.....	3
Figure 2.5: Login Error Message	3
Figure 2.6: User List.....	4
Figure 2.7: Updating User Info.....	4
Figure 2.8: Home Page.....	4
Figure 2.9: Spatial Layers Panel	5
Figure 2.10: Right Panel.....	6
Figure 2.11: Map View Panel	7
Figure 2.12: Windrose Data View.....	8
Figure 2.13: Data Upload View	9

1 Introduction

1.1 Background

Strategic Environmental Assessment (SEA), which supports the decision-makers, is a broader scale assessment. The outputs of a SEA assist to make the plan more sustainable for a specific region or any other spatial jurisdiction for a specific sector(s). In this study, a regional level SEA is being conducted for a very specific plan which is being prepared by the Urban Development Directorate (UDD), Ministry of Housing and Public Works, under their 'Payra-Kuakata Comprehensive Plan Focusing on Eco-tourism Project'. The UDD has developed Regional plans, Structural plans, and Urban and Rural plans for this project. During the development, huge GIS-based data and information are produced and validated to perform the spatial analysis in favour of the suitability of the plans and make them sustainable by saving and protecting the natural hotspots, agricultural potentials, and ecosystem services. Nevertheless, this study also obliges the SEA team to collect and process all kinds of environmental (air quality, soil quality, noise level, water quality, and weather parameters) and ecological data/information to respect the existing situation and tag the upcoming development as a green one for the given region.

In pursuit of using both geo-spatial and environmental data/information to make the plans susceptible to the existing ecosystems and acceptable to the decision makers, an integrated system is the only platform, where all kinds information can be matched, compared and evaluated as well as hold the potentials for any further uses.

1.2 Objectives

The main objective of the Database report is to explain the development process of GIS-based MIS and the presentation of the meta data and the data or information itself.

The specific objectives are-

- to develop an GIS-based MIS (here the name is UDD Geo-Application) integrating the databases of PKCP and the SEA;
- to present the SEA databases/information;

2 GIS-Application

2.1 User Registration

To initiate the registration process, click on the "Registration" link from Home page. This entails submitting essential details, including a valid Initial (as a user ID), Name, Password, Designation, Company Name, and User Access Type. There are two user access types available: one is designated as "Admin," while the other is classified as "User". The Admin role provides elevated privileges, allowing individuals with this designation to control and manage user accounts, as well as oversee other critical activities within the application. Admin users play a pivotal role in maintaining the system's integrity and ensuring seamless operations. On the other hand, users assigned the "User" role enjoy the ability to engage in standard activities such as exploring data and generating reports. It's crucial to keep in mind that previously utilized user IDs cannot be used for creating new accounts. This safeguard maintains the application's integrity and prevents duplicate registrations. This uncomplicated procedure guarantees both security and user authenticity, resulting in a dependable and secure application experience.

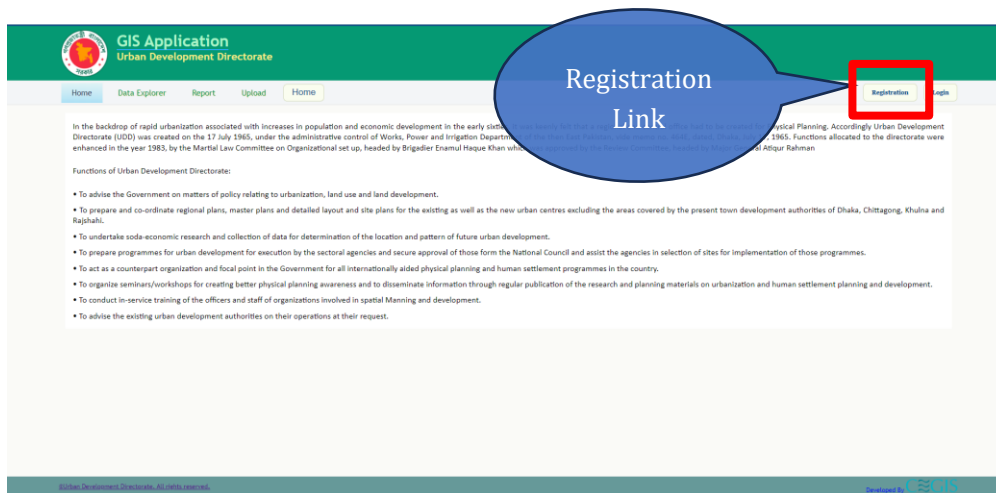


Figure 2.1: Application Landing Page

The image shows a "Create User...." registration form. The form has a blue header with the title "Create User...." and a close button. Below the header are several input fields: "*Initial:", "*Name:", "*Password:", "Designation:", "Company:", and "*Access Type:". The "*Access Type:" field is a dropdown menu with the text "<-----Select----->". At the bottom of the form are two buttons: "Save" and "Cancel".

Figure 2.2: User Registration Form

2.2 Login to the Application

Upon successfully completing the registration process, users are required to log in to the application. To do so, click on the "Login" link, which will automatically redirect to the login page as depicted in Figure 2.3. On this login page, users should input their Initial and Password. Successful login attempts will trigger a popup message, as illustrated in Figure 2.4. However, if an invalid Initial or password is provided, the system will display an error message, as shown in Figure 2.5. Upon a successful login, a "Logout" link will become visible.

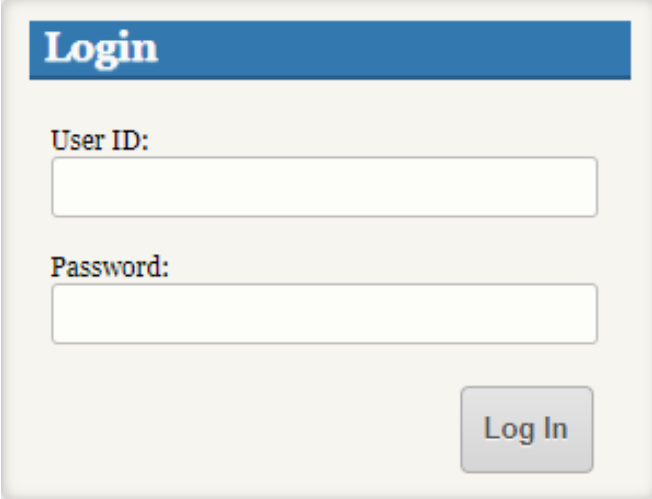
A login form with a blue header bar containing the word "Login" in white. Below the header, there are two input fields: "User ID:" and "Password:". The "User ID:" field is a simple text box, while the "Password:" field is a text box with a light gray background. To the right of the "Password:" field is a "Log In" button with a light gray background and rounded corners.

Figure 2.3: User Registration Form

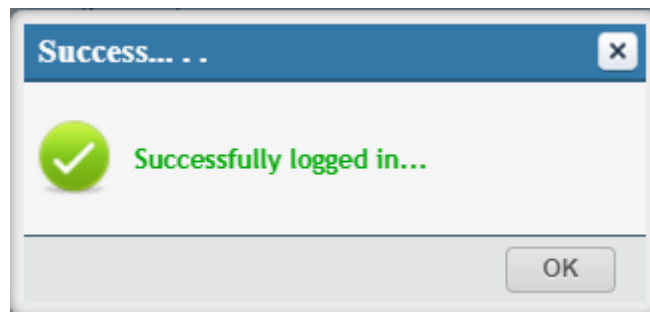


Figure 2.4: Login Success Message

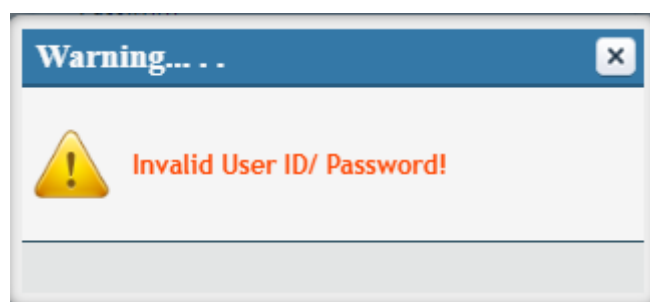


Figure 2.5: Login Error Message

2.3 View User List

When logging in as an Admin user within the application, a new menu link, illustrated in Figure 2.6, appears, offering essential functionalities. This page acts as a central hub for administrators, facilitating the streamlined management of user accounts. Administrators can efficiently update user information, change passwords, and delete user accounts. Additionally, the user list table presents two action buttons for editing and deleting user profiles, enhancing the ease of user management and ensuring an organized and effective administrative experience.

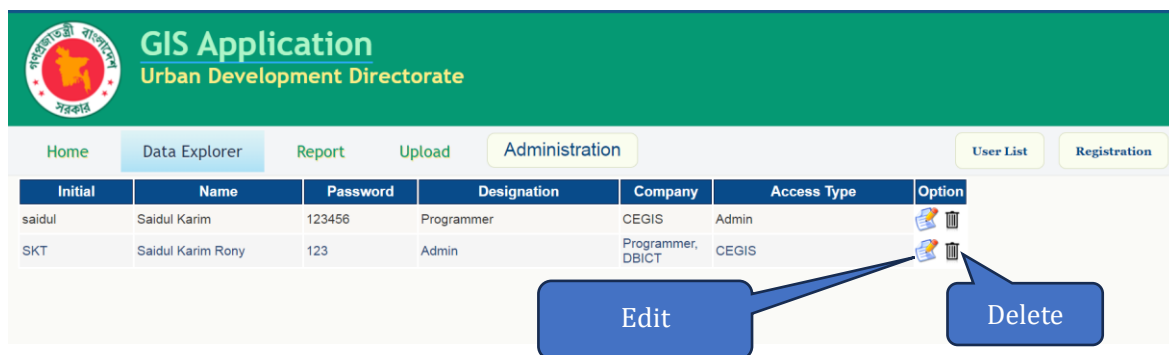


Figure 2.6: User List

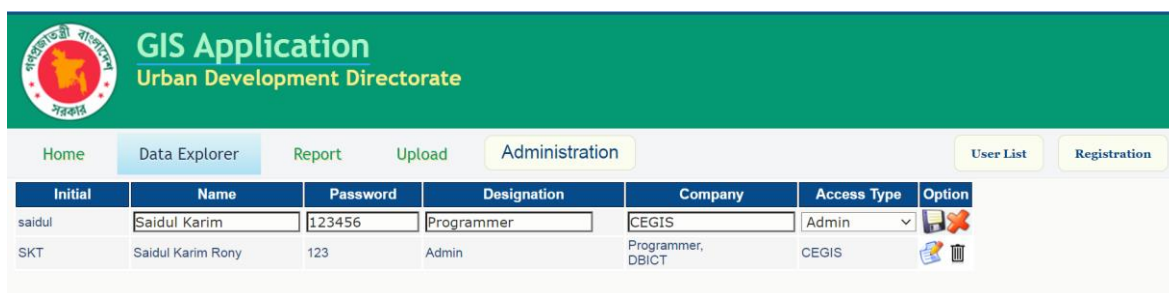


Figure 2.7: Updating User Info

2.4 Home Menu

This menu displays fundamental application information in textual format, as depicted in Figure 2.8.

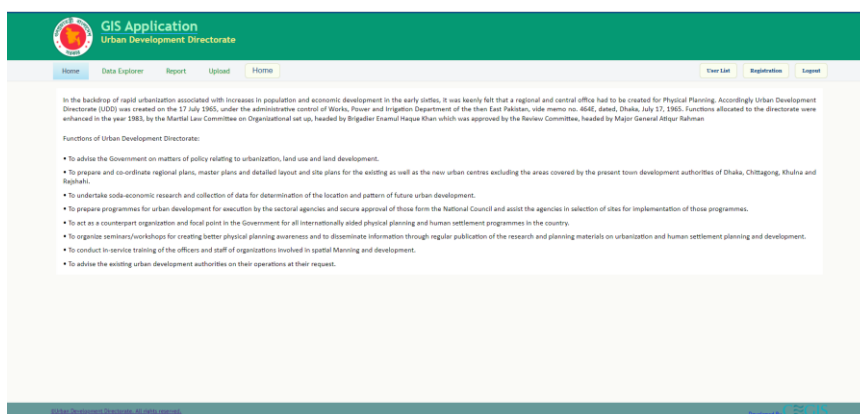


Figure 2.8: Home Page

2.5 Data Explorer

The Data Explorer menu serves as a powerful tool for visualizing Geographic Information System (GIS) data on a map. It provides users with a comprehensive list of spatial layers, categorized for easy navigation. The left panel, as illustrated in Figure 2.9, presents the Spatial Layer list and a handy search feature, enabling users to efficiently locate specific data layers.

In contrast, the right panel, showcased in Figure 2.10, is dedicated to displaying the Legend, Variation Map Layer, and Map Locator. This section allows users to gain insights into the spatial data's attributes and variations, enhancing their understanding of the information presented.

The central panel, depicted in Figure 2.11, is the focal point for viewing spatial data and accessing various tools designed to manipulate and interact with the data. Here, users can explore, analyze, and work with spatial information, making the Data Explorer menu an invaluable resource for GIS data exploration and interpretation.

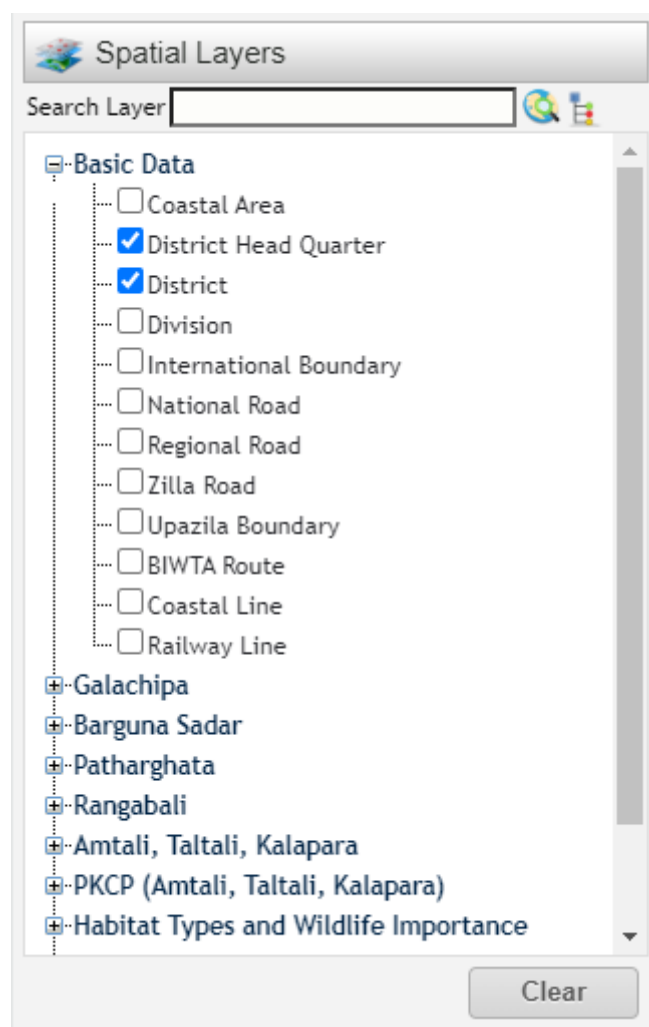


Figure 2.9: Spatial Layers Panel

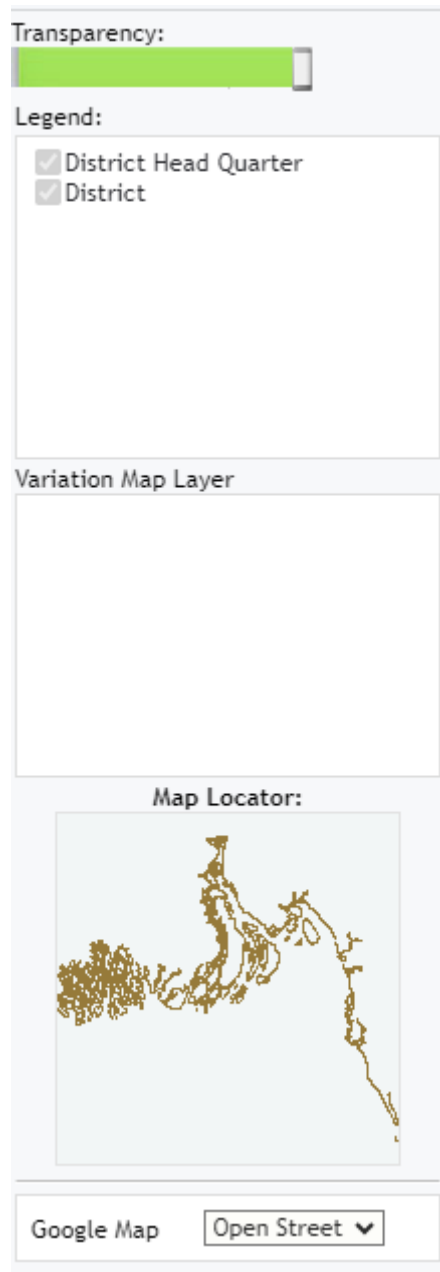


Figure 2.10: Right Panel

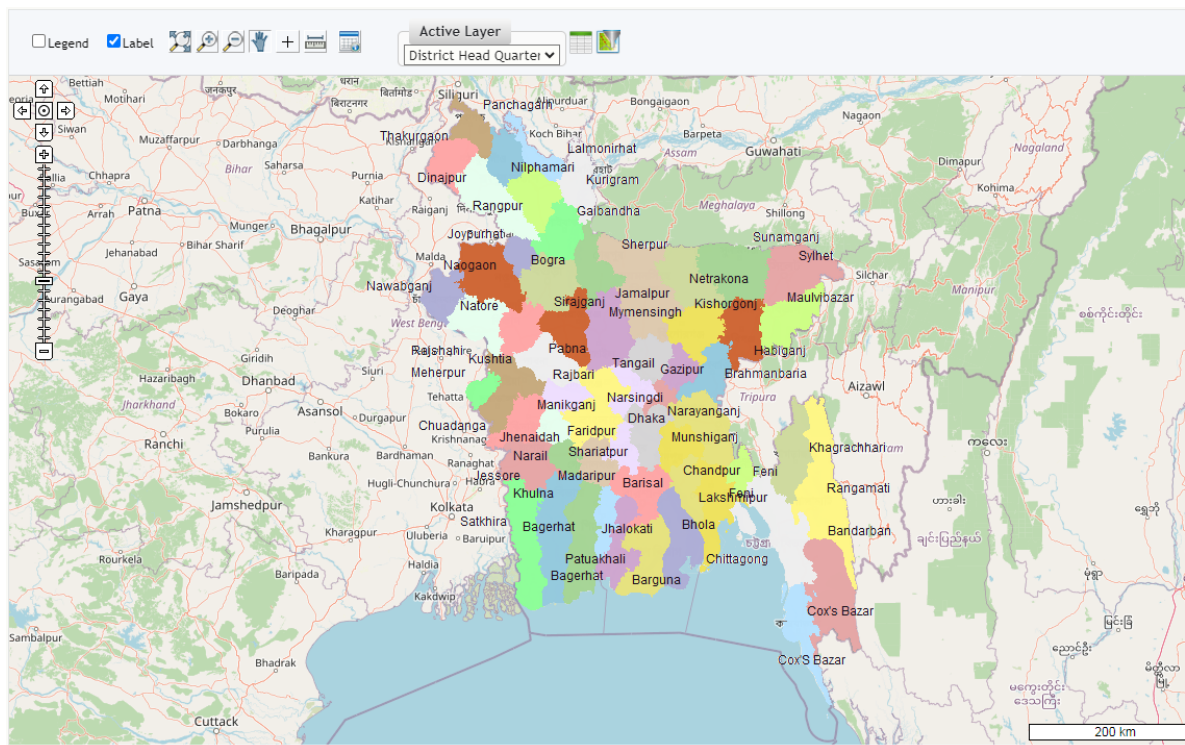
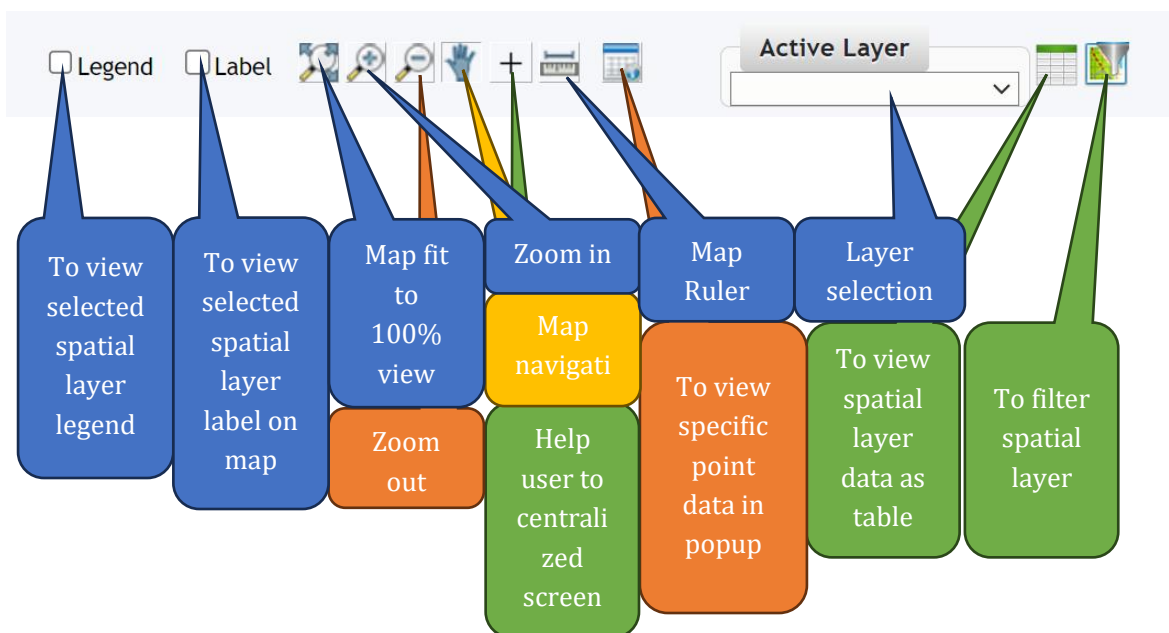


Figure 2.11: Map View Panel



2.6 Report

The windrose graph view is a powerful tool that provides a visual representation of wind patterns and their associated characteristics. This graphical display allows users to gain insights into the distribution of wind direction and speed over a specific period, making it particularly valuable for various applications, including meteorology, environmental studies, and renewable energy planning. By depicting data in a circular format, the windrose graph offers an intuitive way to understand the prevailing wind conditions and variations. It enables users to make informed decisions, whether it's for optimizing energy generation, assessing environmental impacts, or planning outdoor activities, by harnessing the comprehensive information presented in an easily interpretable and visually engaging manner.

The Report page allows users to view and apply filters to windrose data. Users have the option to filter the data by Wind Location, Year, Month, and Days, as demonstrated in Figure 2.12. Additionally, users can export windrose graph by clicking on the graph menu, enhancing the versatility and utility of this tool for user specific needs.

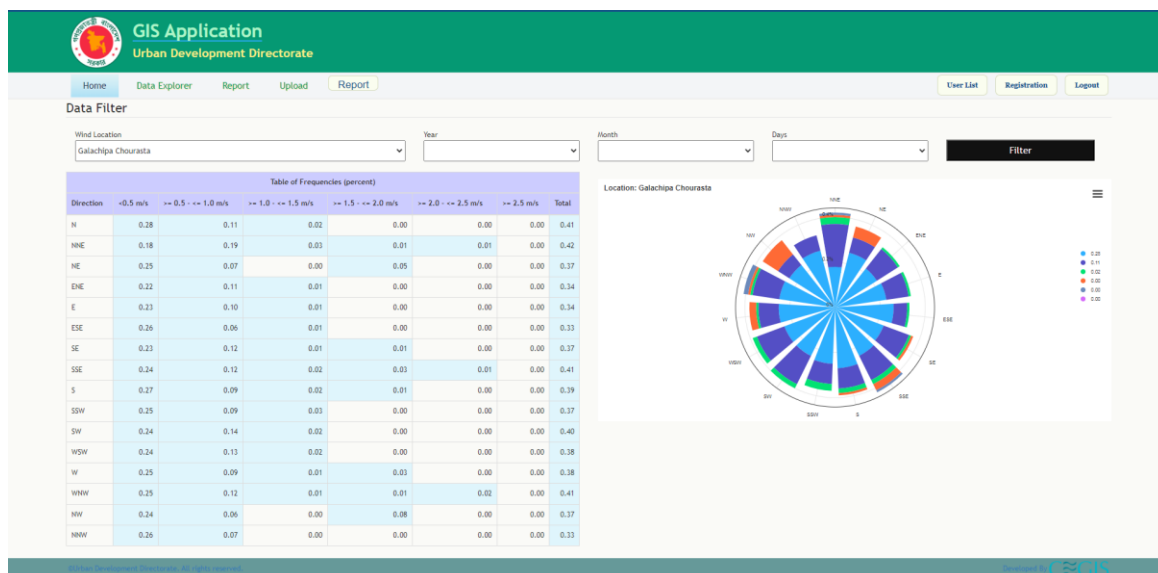


Figure 2.12: Windrose Data View

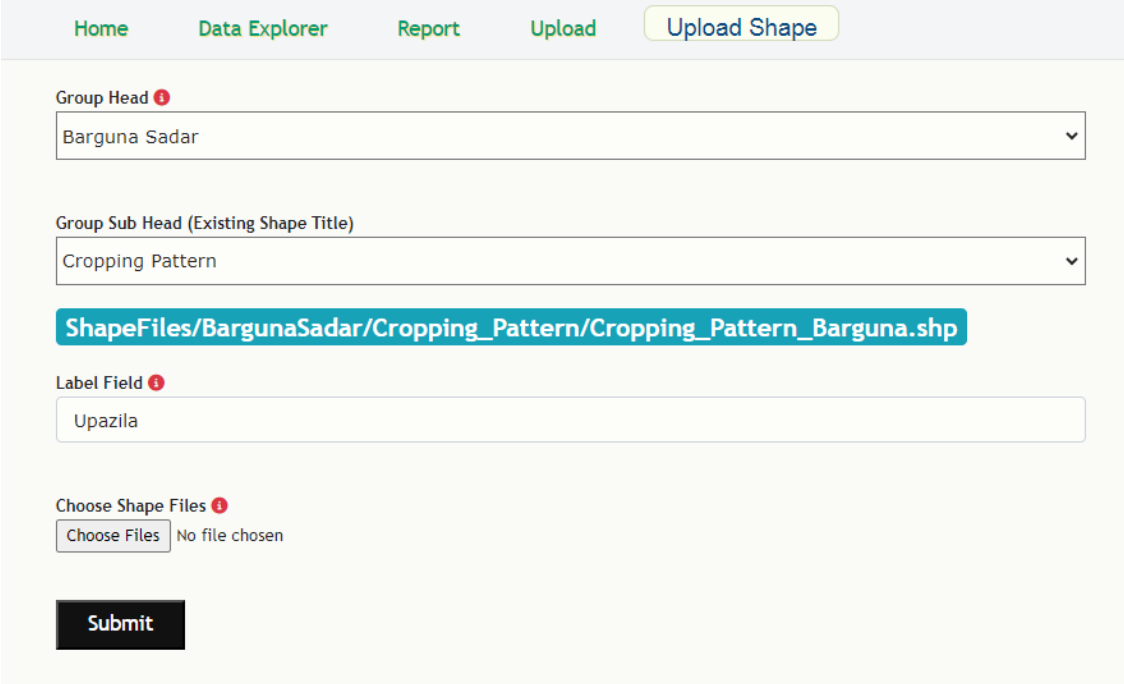
2.7 Upload

The Data Explorer menu within this application offers a seamless experience for managing spatial layers. Users have the capability to add new spatial layers to enhance their mapping and data visualization. This feature empowers users to customize their GIS data according to their specific needs and requirements.

While the Upload page allows authorized users to add new spatial layers, it's important to note that existing spatial layers cannot be modified. This limitation ensures the integrity and consistency of the existing data layers, preventing inadvertent changes that could impact the accuracy of previous work.

To add new spatial layers, users are required to select a shape file along with its supporting files. This process ensures that the data is correctly structured and ready for integration into the application. Furthermore, validation checks have been incorporated to verify the data before submission to the server, ensuring data quality and preventing errors.

Once the validation is successfully completed, the newly added data will seamlessly appear in the Data Explorer menu. This allows users to promptly access and utilize their newly added spatial layers, creating a dynamic and flexible environment for GIS data management.



The screenshot displays a web interface for uploading shapefiles. At the top, there is a navigation bar with links for Home, Data Explorer, Report, Upload, and Upload Shape. The main form contains several input fields: a dropdown menu for Group Head (set to Barguna Sadar), a dropdown menu for Group Sub Head (Existing Shape Title) (set to Cropping Pattern), a text field for Label Field (set to Upazila), and a file selection area for Choose Shape Files (No file chosen). A Submit button is located at the bottom left. A blue banner displays the file path: ShapeFiles/BargunaSadar/Cropping_Pattern/Cropping_Pattern_Barguna.shp.

Figure 2.13: Data Upload View