THE DEVELOPMENT AND IMPLEMENTATION OF ENVIRONMENTAL QUALITY MONITORING PROGRAMME

ENVIRONMENTAL QUALITY MONITORING PROGRAMME (EQMP)

USER MANUAL

RIVER WATER QUALITY INDEX MANAGEMENT SYSTEM (RQIMS)
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ABOUT ENVIRONMENTAL QUALITY MONITORING PROGRAMME (EQMP)

The Department of Environment (DoE) closely monitors the country’s environment quality through a network of environmental monitoring stations to detect any significant changes in the environment quality which may be harmful to human health and the environment. Information gathered by EQMP is shared with the public via River Water Quality Index Management System (RQIMS) portal.

First Time Login

![Image](figure1.png)

Figure 1: Introduction pop-up on first-time view

i. On the first-time login, an Introduction pop-up window will be displayed and show welcome notes.

ii. Users are also able to download the related document for references via the links provided in the introduction pop-up window.

iii. Kindly read and understand the documentation provided before accessing the River Water Quality Index Management System (RQIMS).

iv. Click the **Next** button to continue and a disclaimer pop-up window will be displayed.
Disclaimer Information

Figure 2: Disclaimer information

i. The Disclaimer pop-up window shows the scope of the portal and the right of the data provided belong to the Department of Environment Malaysia and is only for public reference.

ii. The user needs to understand and agree with the terms and conditions by ticking the check box of “I have read and understood” before accessing RQIMS.

iii. Upon agreement with the terms and conditions, click on the Close button to close the disclaimer pop-up windows and view the River Water Quality Status on the map.
Default Map view

Figure 3: Default Map view.

i. This is the default map view of the RQIMS portal. It shows the map of Malaysia with River Water Quality Status from all monitoring stations based on the stations’ locations on the map.

ii. In the default map view, the user can see seven components as shown in Figure 3. The components are:

1. Navigation Bar.
2. Side Menu Panel, Search Map and River Modules.
3. Information of State and Legends.
5. Base Map switch function.
8. Station icon and the latest River Water Quality Index.
1. **Navigation bar**

   ![Navigation bar](image)

   **Figure 4: The navigation bar of RQIMS located at the top of the website page**

1a. **Introduction tab**

   When the user clicks the **Introduction** tab, an Introduction page will be opened and shows the general information of the RQIMS portal and also the links to supporting documents for references. The documents provided are:

   i. About River Water Quality Monitoring Network
   ii. Assessing River Water Quality

1b. **Malaysia River Water Quality Index**

   ![Malaysia River Water Quality Index](image)

   **Figure 5: Malaysia River Water Quality Index**

   Malaysia River Water Quality Index displays the hourly Water Quality Index (WQI) data from monitoring stations. Only the last seven days of data are available in the portal and the latest data displayed is the past three hours of data.

   Users can generate a Data Trend Chart of the selected monitoring station by clicking on the **Station ID**.
1d. Data Trend Chart

Data Trend Chart displays the trending chart of the water quality status of a selected station over a period. The default period is set to a one-week trend.

1d-i. Continuous and Manual River Modules’ buttons

Users can switch from the Continuous River module to the Manual River module by clicking the module button. For the Continuous River module, the data trend chart will show the data trend collected from continuous monitoring stations, while in the Manual River module, it shows the data trend collected from manual monitoring stations.

1d-ii. Query Selection

Users are also able to select a particular monitoring station and display the trending chart by querying the state, river, station ID and time range. Click the Generate button to generate the selected trending chart. The available time ranges for selection are one week and one day range.
1e. User Manual

Users can download and read the user manual to get better navigation throughout the River Water Quality Index Management System portal and guide to use all available features.

1f. Contact Us

![Contact Us information pop-up](image)

*Figure 7: Contact Us information pop-up*

The Contact Us section shows the contact detail of the Department of Environment Malaysia for any inquiry about RQIMS. It provides the address of the Department of Environment, complaint line, hotline, complaint email address and the official website address of the Department of Environment, Malaysia.
2. Side Menu Panel, Search Map and River Modules

2a. Side Menu Panel

In the side menu panel, there are four menu selections displayed, which are:

   i. Geolocation map
   ii. Malaysia River Water Quality Index
   iii. Data Trend Chart
   iv. Introduction

2a.i. Geolocation map

Users can open the default map view of Malaysia by clicking the Geolocation map tab.

2a.ii. Malaysia River Water Quality Index

Click Malaysia River Water Quality Index tab to view the data table of water quality status for the current day. Users can refer to section 1b for the details of the page.
2a.iii. Data Trend Chart

Click the **Data Trend Chart** tab to view the trending chart of water quality status up to one week period. Users can refer to section 1d for the details of the page.

2a.iv. Introduction

The **Introduction** page will display the information and supporting documents on River Water Quality in Malaysia.

2b. Search map function

![Figure 9: Result of search in Search map function](image)

Users can use the search map function to find or locate a monitoring station that is available in the RQIMS on the map. The search function will display the result that matches the station information record with the key input by the user. Click on the station name to zoom in to the station on the map. Click the **Close** button to close the list of displayed results.
2c. River Modules’ button

![Image of River Modules button]

Figure 10: Continuous and Manual River modules’ button

Users can change the river module between Continuous Monitoring Stations or Manual Monitoring Stations module by using the buttons shown in Figure 10.

3. States and Legend

![Image of States and Legend]

Figure 11: List of States in Malaysia (left) and WQI Category legend (right).

In the list of state panel display, the user can select any of the states listed, and it will zoom the map to the selected state and show the stations located within the state area.
For the legend panel, it shows the station icon, Water Quality Status category and its ranges as seen on the map view.

4. **River Water Quality Status Legend**

![River Water Quality Status Legend](image1)

*Figure 12: River Water Quality Status Legend*

The River Water Quality Status Legend is positioned on the left side of the map. Users can toggle open and close by clicking the **double arrow** icon.

5. **Map Switch function**

![Map switch function](image2)

*Figure 13: Map switch function*

The map switch function is to change the base map from a topographic map to a satellite map and vice versa.
6. **Map features’ function**

![Map Home button, Find My Location button and zoom in and out button](image)

*Figure 14: Map home button, Find My Location button and zoom in and out button*

To reset the map view display to the default map view, the user just needs to click the **Map Home** button.

Find My Location function is to locate the current location of the user. When the user clicks the **Find My Location** button, the permission access location pop-up browser is displayed, and the user needs to allow the browser to access the location of the user’s device. The map will zoom in to the user’s current location.

To zoom in or out, the user can use the `+` button and `-` buttons respectively. Other than zoom in and out buttons, the user also can zoom in or out by using a scroll roller on the mouse device.

7. **River Water Quality Status Dashboard**

![River Water Quality Dashboard](image)

*Figure 15: River Water Quality Dashboard*

River Water Quality Status Dashboard shows the total count of river monitoring stations by category of water quality based on WQI value.
7a. Water Quality Status Box

There are three (3) categories in the dashboard which are Clean ranging from 81 to 100, Slightly Polluted ranging from 60-80, and Polluted ranging from 0 to 59.

![Dashboard showing water quality categories](image)

**Figure 16: List of stations in the Clean category**

Users are also able to click one of the category boxes to see the list of stations in the selected category. The list of stations provides details such as the station's location and state, station ID, the nearest water intake and WQI value.

When clicking on station ID, the map will zoom into the location of the selected station from the list. It will show the location and information of the station.
7b. Select State button

Click the **Select State** button will show the list of states in Malaysia. The users can choose any state and zoom in on the map.

![State list panel](image17.png)

**Figure 17: State list panel**

![Map zoomed in to the selected state](image18.png)

**Figure 18: Map zoomed in to the selected state in the continuous monitoring river module**
Figure 19: Map zoomed in to the selected state in the manual monitoring river module

When the user selects any state on the right panel, the map will be zoomed in to the selected state and the state border is highlighted.

Figure 20: Map zoomed in to the selected river in the manual monitoring river module

In figure 20, the map is zoomed in and displays the station information box upon users selecting a monitoring station at the left panel.
8. **Station icon and information**

![Image](image_url)

*Figure 21: Station information box*

Users can see the station information when clicking the **station icon** on the map.

The station information available is shown in figure 9. Click **Zoom To** to zoom in to the station location.