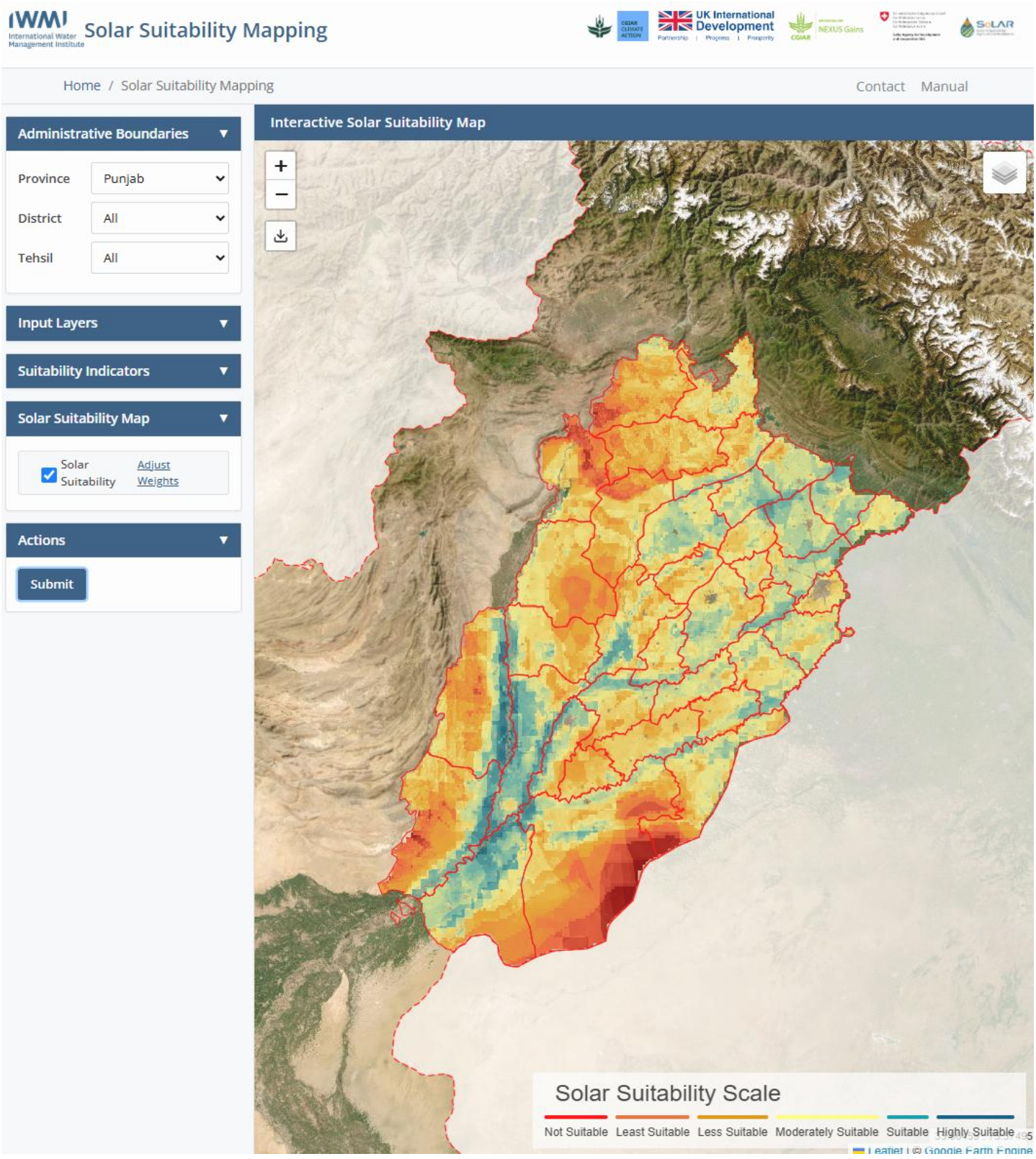
PakWMIS: Solar Suitability Mapping (SSM)



User Manual

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1. Getting Started

1.1 System Access

To access the Solar Suitability Mapping (SSM) system, visit **https://pakwmis.iwmi.org/SSM/** in your web browser. The system is designed to work optimally with modern web browsers including:

- Google Chrome (recommended)
- Mozilla Firefox
- Safari
- Microsoft Edge

1.2 System Requirements

- Stable internet connection
- JavaScript enabled
- No additional software installation required

2. User Interface Overview

The SSM interface is organized into several key components for intuitive navigation:

2.1 Header Section

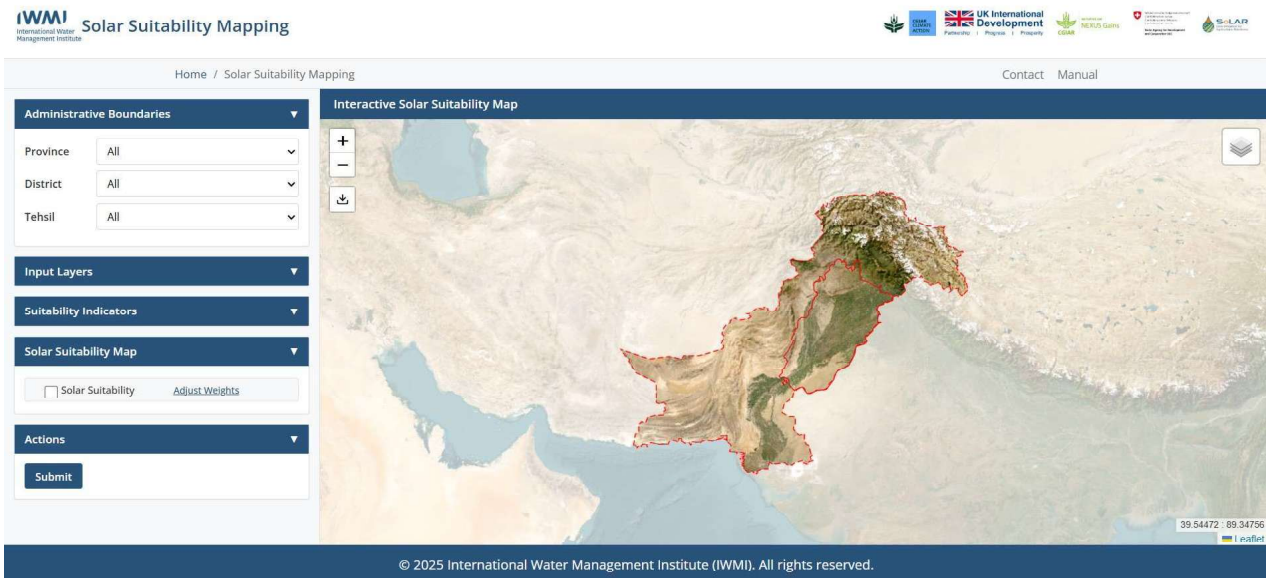
- Contains organizational logos and branding
- Provides system identification

2.2 Home Page

- Offers a comprehensive overview of the system
- Explains key features and capabilities
- Serves as the entry point to the mapping interface

2.3 Map View

- Primary workspace for data visualization
- Interactive geographic display area
- Central hub for all analysis activities



3. Core Features and Functionality

3.1 Map Interface

The Map page serves as the primary tool for visualizing and analyzing solar suitability data across Pakistan.

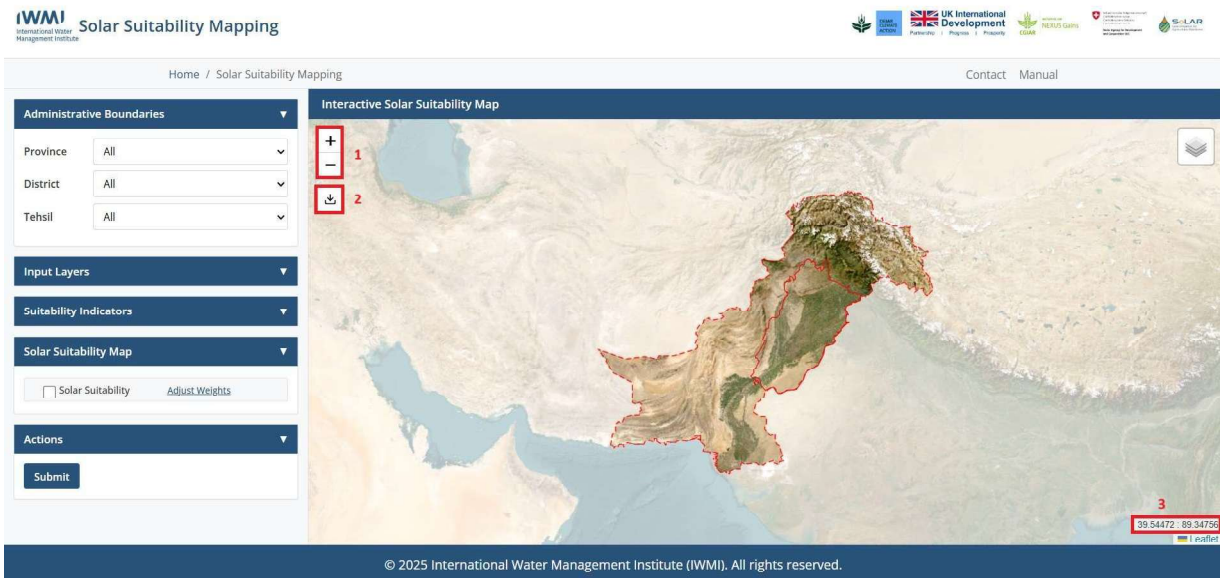
3.1.1 Map Navigation Controls

Basic Navigation:

- **Pan:** Click and drag to move around the map
- **Zoom:** Use mouse wheel or zoom controls to adjust map scale
- **Mouse Position Display:** Real-time coordinate display showing the exact location of your cursor on the map

Navigation Tips:

- Use zoom controls to focus on specific regions of interest
- Coordinate display helps with precise location identification
- Smooth panning allows for seamless exploration across Pakistan

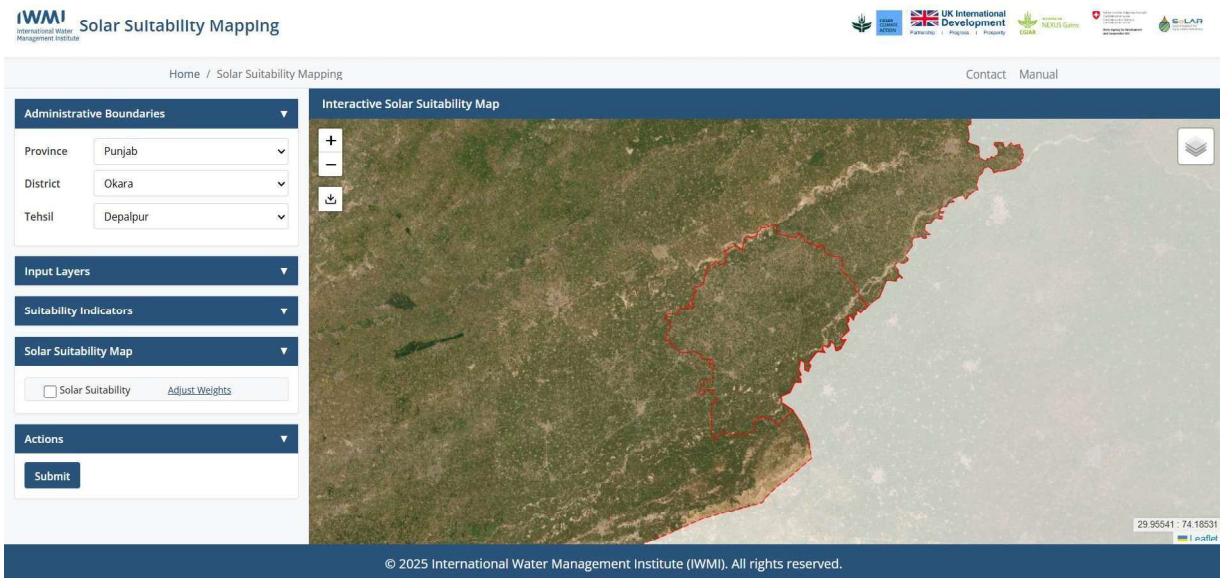


3.1.2 Administrative Boundary Selection

The system provides hierarchical boundary selection through cascading dropdowns:

Selection Process:

1. **Province Selection:** Choose from Pakistan's provinces
2. **District Selection:** Select specific district within chosen province
3. **Tehsil Selection:** Further narrow down to tehsil level (sub-district)



Important Notes:

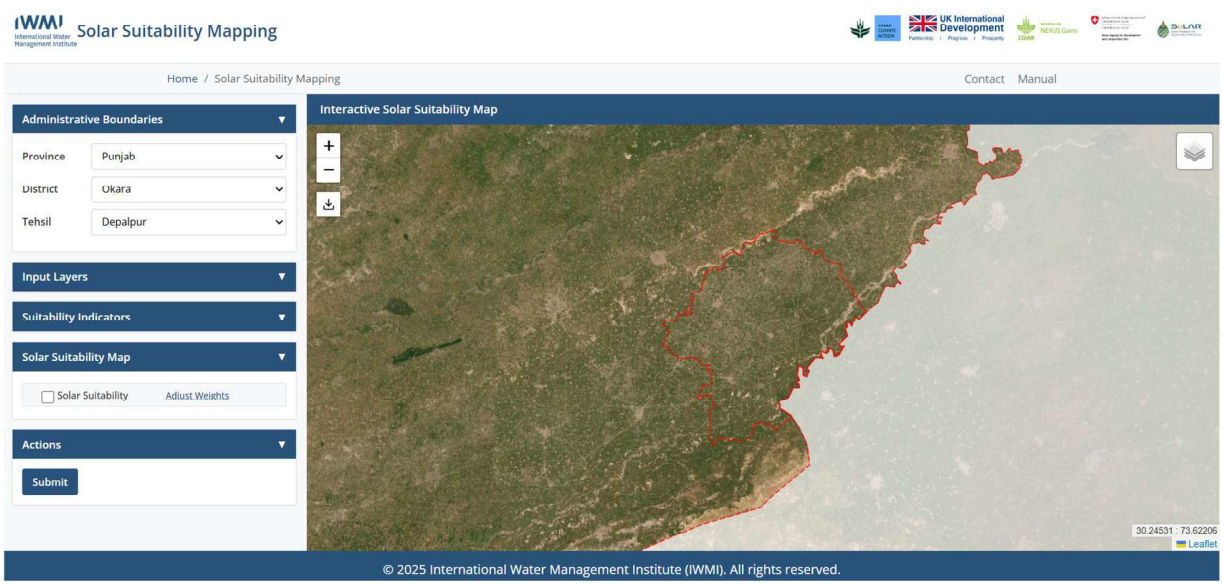
- District selection is required before accessing layer options
- Selection affects available data layers and analysis scope
- Hierarchical selection ensures data relevance and system performance

3.1.3 Layer Management System

The SSM offers three distinct categories of data layers:

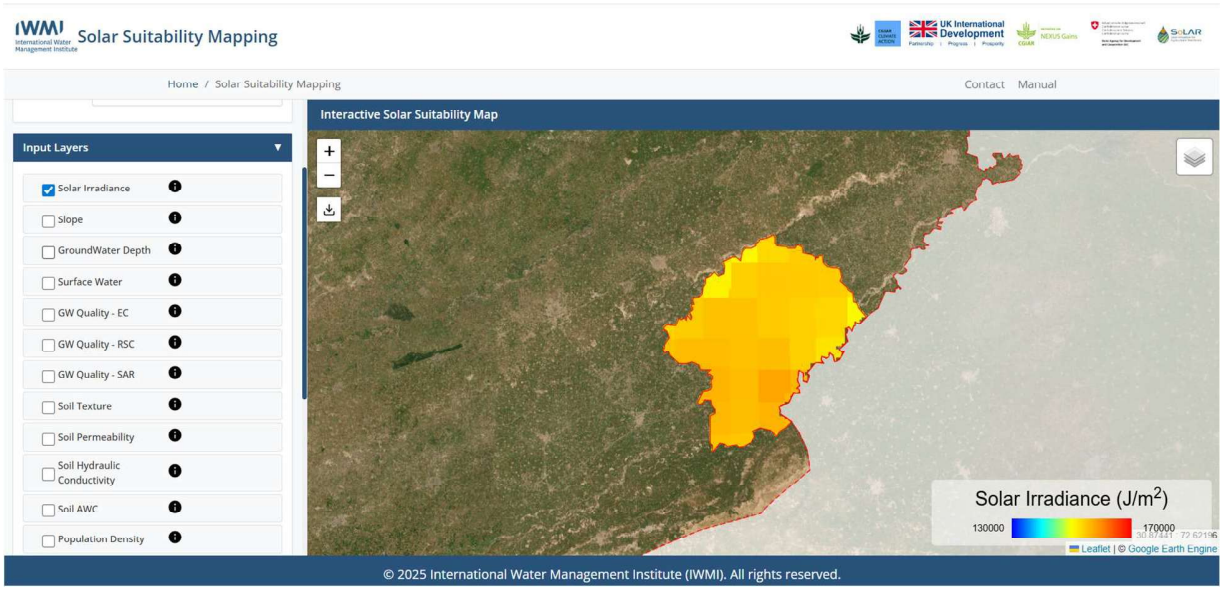
Layer Categories:

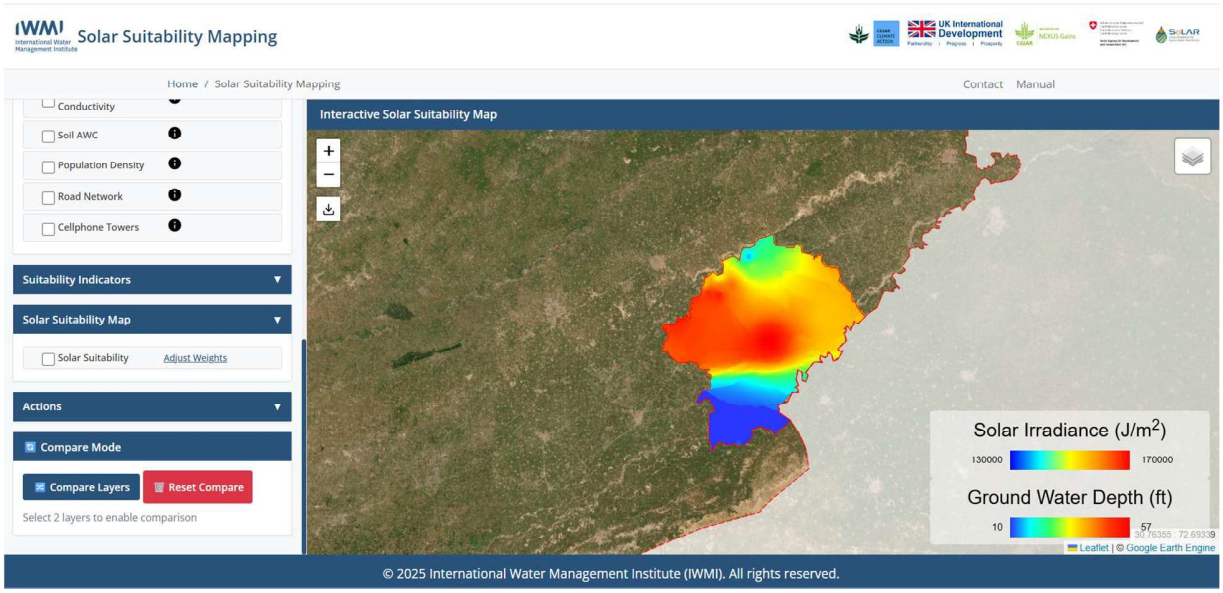
1. **Input Layers**
    - Raw data inputs used for analysis
    - Base geographic and environmental data
    - Foundation for suitability calculations
2. **Suitability Indicators**
    - Processed indicators showing individual factors
    - Component analyses for solar potential
    - Individual parameter assessments
3. **Solar Suitability Map**
    - Final composite analysis results
    - Integrated suitability assessments
    - Color-coded suitability classifications



Layer Selection Rules:

- Maximum of 2 layers can be selected simultaneously
- Layer availability depends on selected administrative boundary
- Different combinations allow for comparative analysis

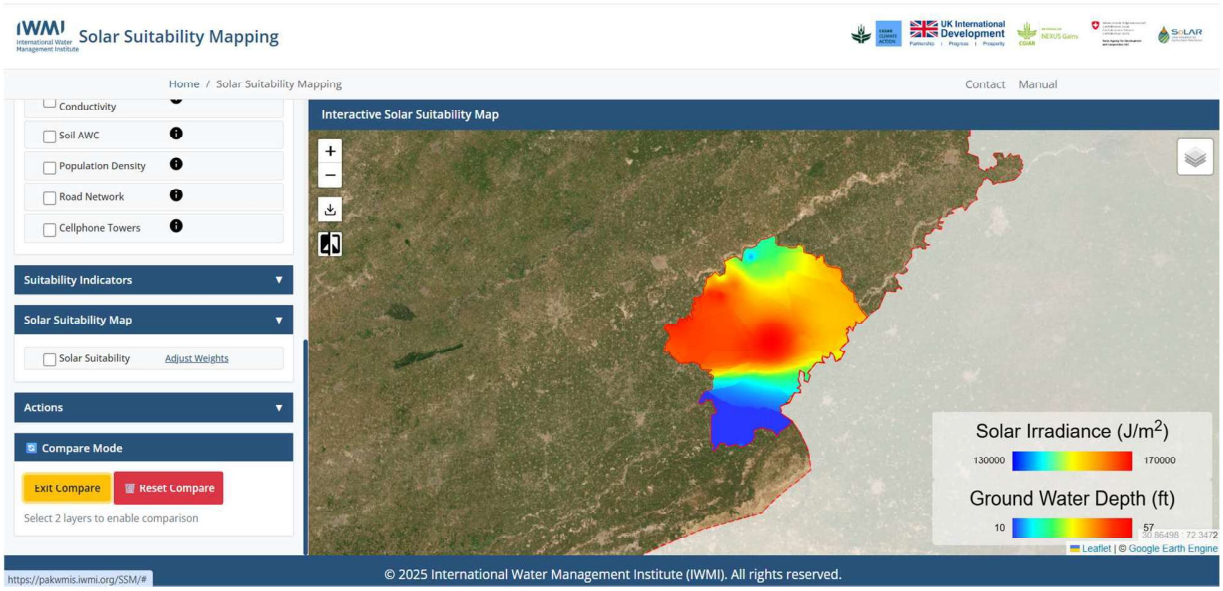


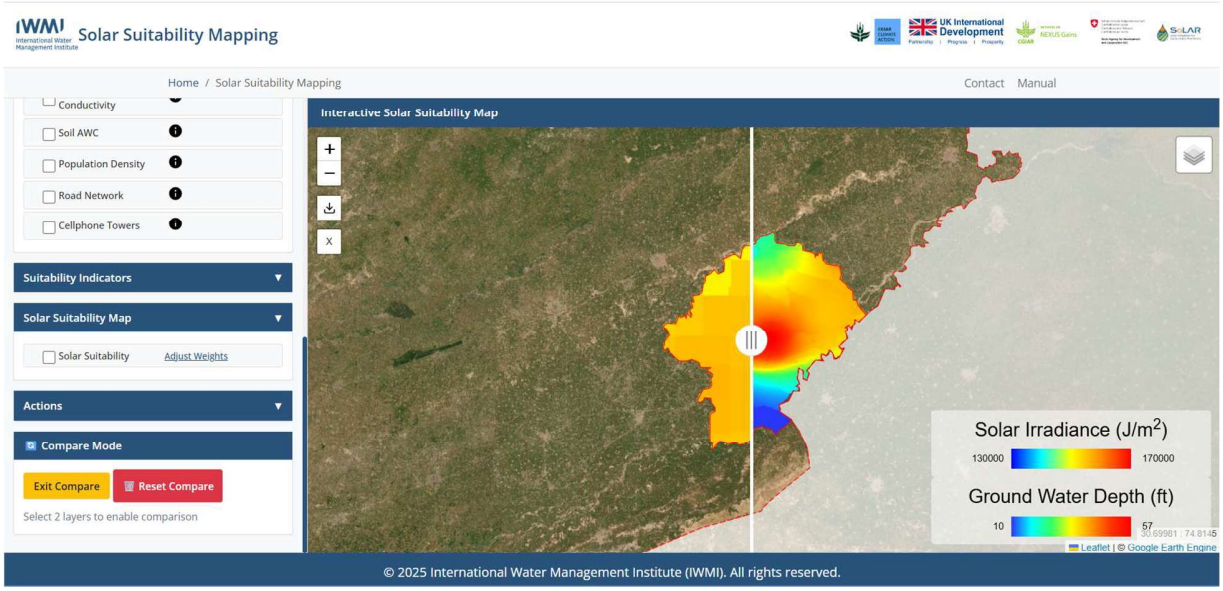


3.1.4 Analysis Tools

Swipe Analysis Tool:

- **Purpose:** Side-by-side comparison of two selected layers
- **Operation:** Interactive swipe interface allows users to compare layers visually
- **Benefits:** Easy identification of correlations and differences between datasets

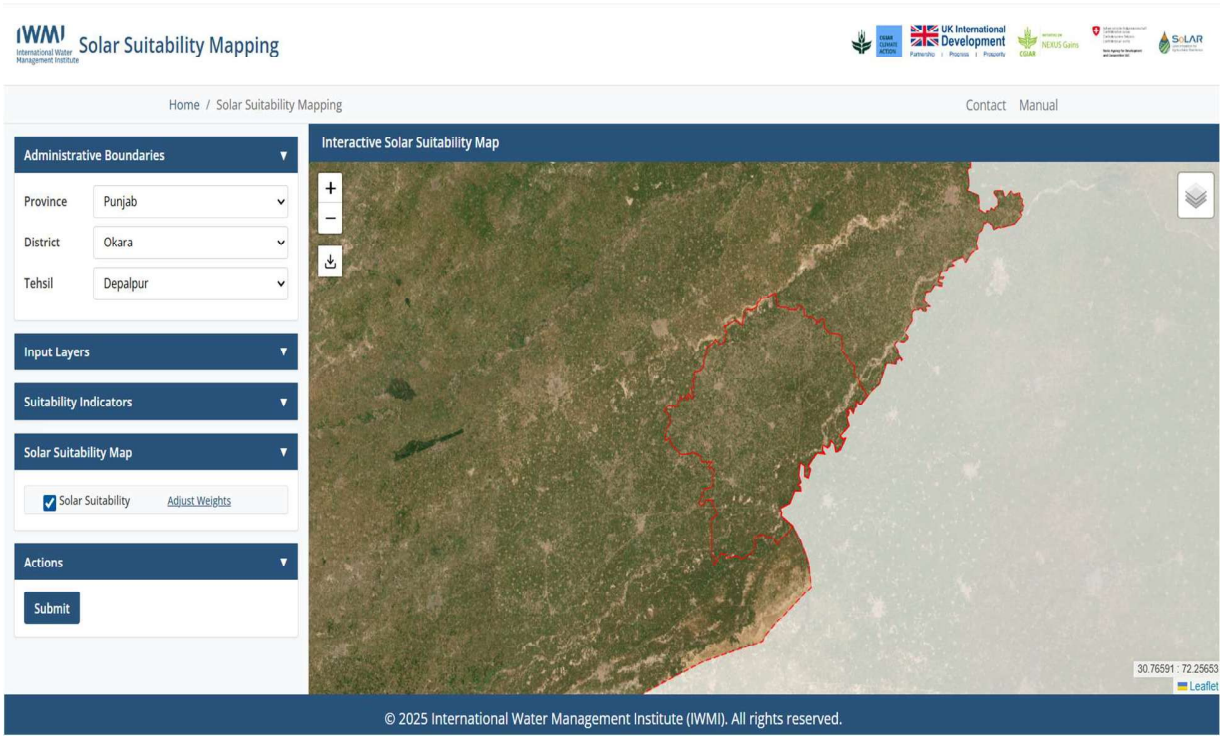


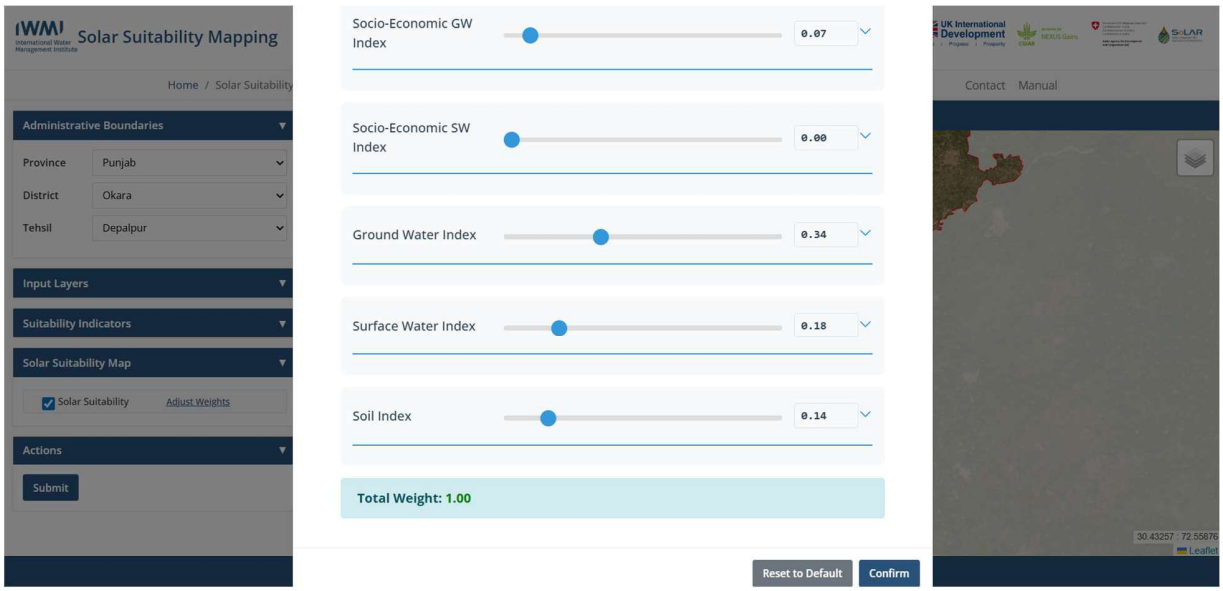


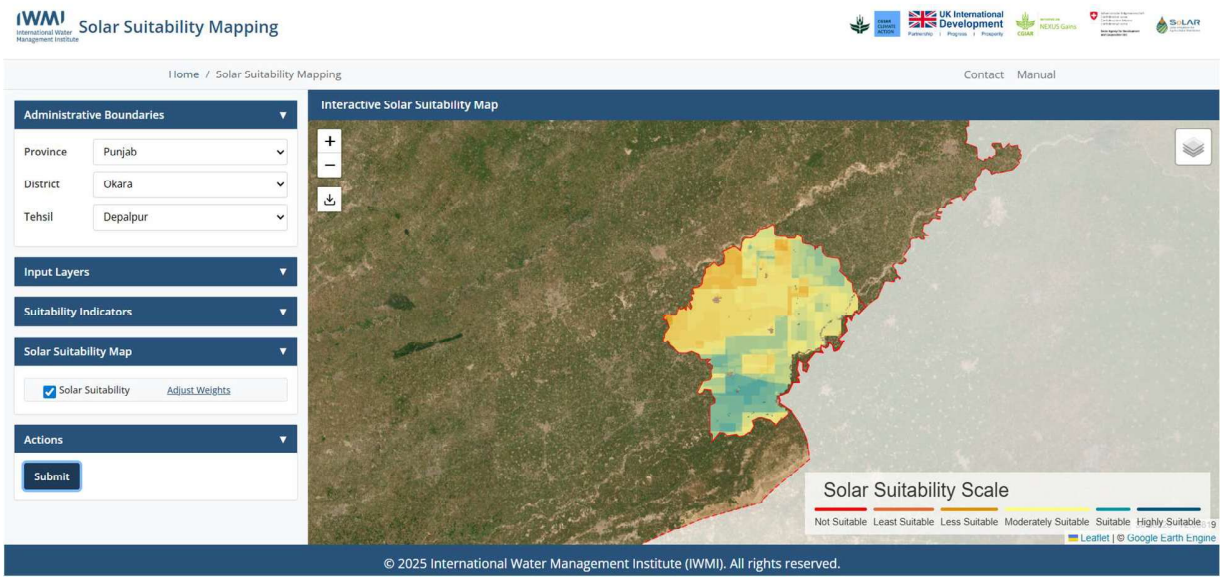
Solar Suitability Analysis:

1. **Visualization Options:**
   - Checkbox selection under Solar Suitability Map section
   - Multiple visualization modes available
   - Customizable display parameters
2. **Weight Adjustment Feature:**
   - **Functionality:** Adjust relative importance of different factors
   - **User Control:** Modify weights according to specific requirements or priorities
   - **Flexibility:** Adapt analysis to different scenarios or criteria
3. **Analysis Execution:**
   - **Process:** Set desired parameters and weights

- **Action:** Click "Submit" button to generate analysis
- **Result:** System processes inputs and displays customized solar suitability map







4. Step-by-Step Usage Guide

4.1 Basic Analysis Workflow

1. **Initial Setup:**
   - Access the SSM system via the provided URL
   - Navigate from Home page to Map view
2. **Geographic Focus:**
   - Select Province from dropdown menu
   - Choose specific District of interest
   - Optionally select Tehsil for detailed analysis
3. **Layer Selection:**
   - Browse available layers in the three categories
   - Select up to 2 layers for analysis
   - Consider layer combinations for meaningful comparisons
4. **Analysis Configuration:**
   - Use Swipe tool for comparative visualization
   - Adjust weights if performing suitability analysis
   - Configure visualization parameters as needed
5. **Generate Results:**
   - Click Submit to process analysis
   - Review generated solar suitability maps
   - Interpret results using provided legends and scales

4.2 Advanced Analysis Techniques

Comparative Analysis:

- Select layers from different categories for comprehensive comparison
- Use input layers alongside suitability indicators
- Compare multiple suitability scenarios

Custom Weighting:

- Experiment with different weight combinations
- Analyze sensitivity to parameter changes
- Develop scenario-specific assessments

5. Data Interpretation Guidelines

5.1 Understanding Suitability Classifications

- High suitability areas (optimal for solar installations)
- Medium suitability zones (moderate potential)
- Low suitability areas (limited potential or constraints)

5.2 Layer Interaction Analysis

- Correlations between different input factors
- Impact of individual parameters on overall suitability
- Geographic patterns and regional variations

6. Best Practices

6.1 Effective Layer Selection

- Choose complementary layers for meaningful analysis
- Consider both physical and socio-economic factors
- Balance technical and practical considerations

6.2 Weight Adjustment Strategy

- Start with default weights for initial analysis
- Adjust based on specific project requirements
- Test sensitivity through incremental changes

7. Troubleshooting

7.1 Common Issues

- **Layers not loading:** Ensure district selection is completed
- **Analysis not processing:** Verify maximum 2 layers are selected

- **Slow performance:** Consider zooming to smaller geographic areas

7.2 System Optimization

- Clear browser cache if experiencing issues
- Ensure stable internet connection
- Close unnecessary browser tabs for optimal performance

This user manual provides a comprehensive guide to using the PAKWMIS Solar Suitability Mapping system. For additional support or technical assistance, users should refer to the contact information provided on the system's homepage.