

# Improving Water Management in Punjab (Pakistan) Barani Areas through use of Geospatial Technologies

Agency for Barani Areas Development (ABAD)



Pakistan Space and Upper Atmosphere Research Commission  
(SUPARCO)



# Overview

*“Strengthening of Database of ABAD with GIS & RS Techniques and GNSS Surveying”*

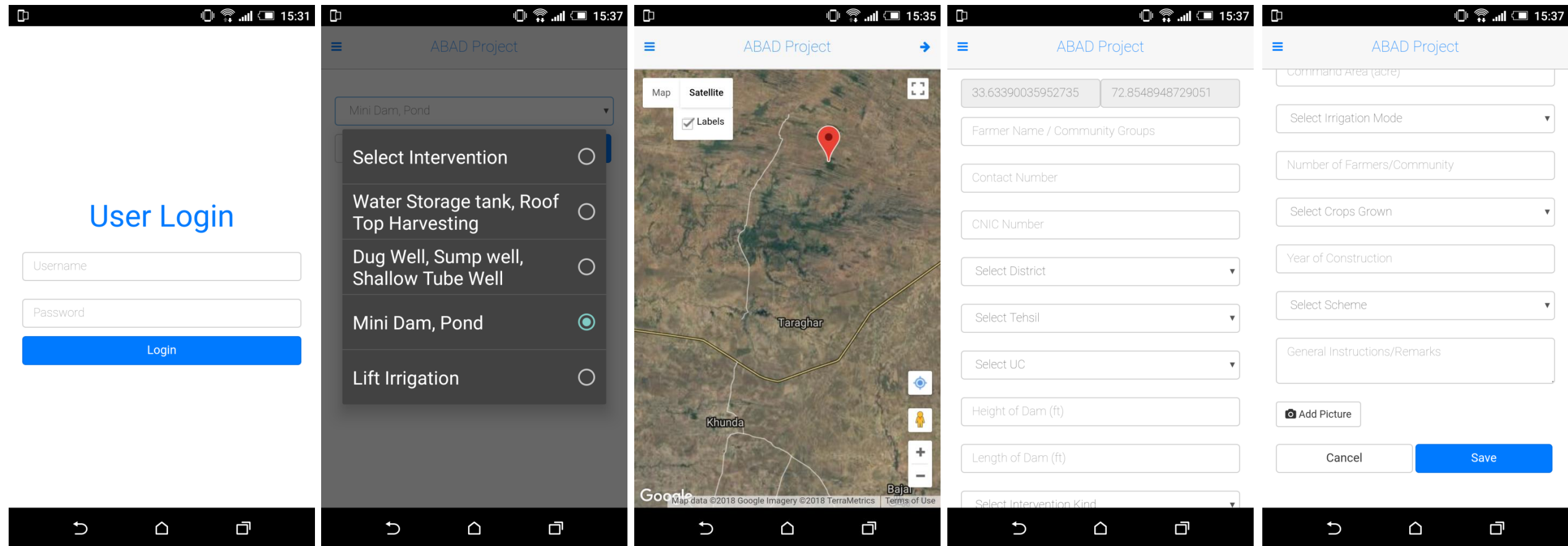
- From older **Methods, Practices** and **Data**
- To Modern geospatial **tools**, recent **data**, systematic; organized and readily available **database**

# Objectives

*“Strengthening of Database of ABAD with GIS & RS Techniques and GNSS Surveying”*

- Development of **Spatial Database**
- **Identification of Potential Area** for Development
- **Capacity Building** of ABAD

# Development of Spatial Database



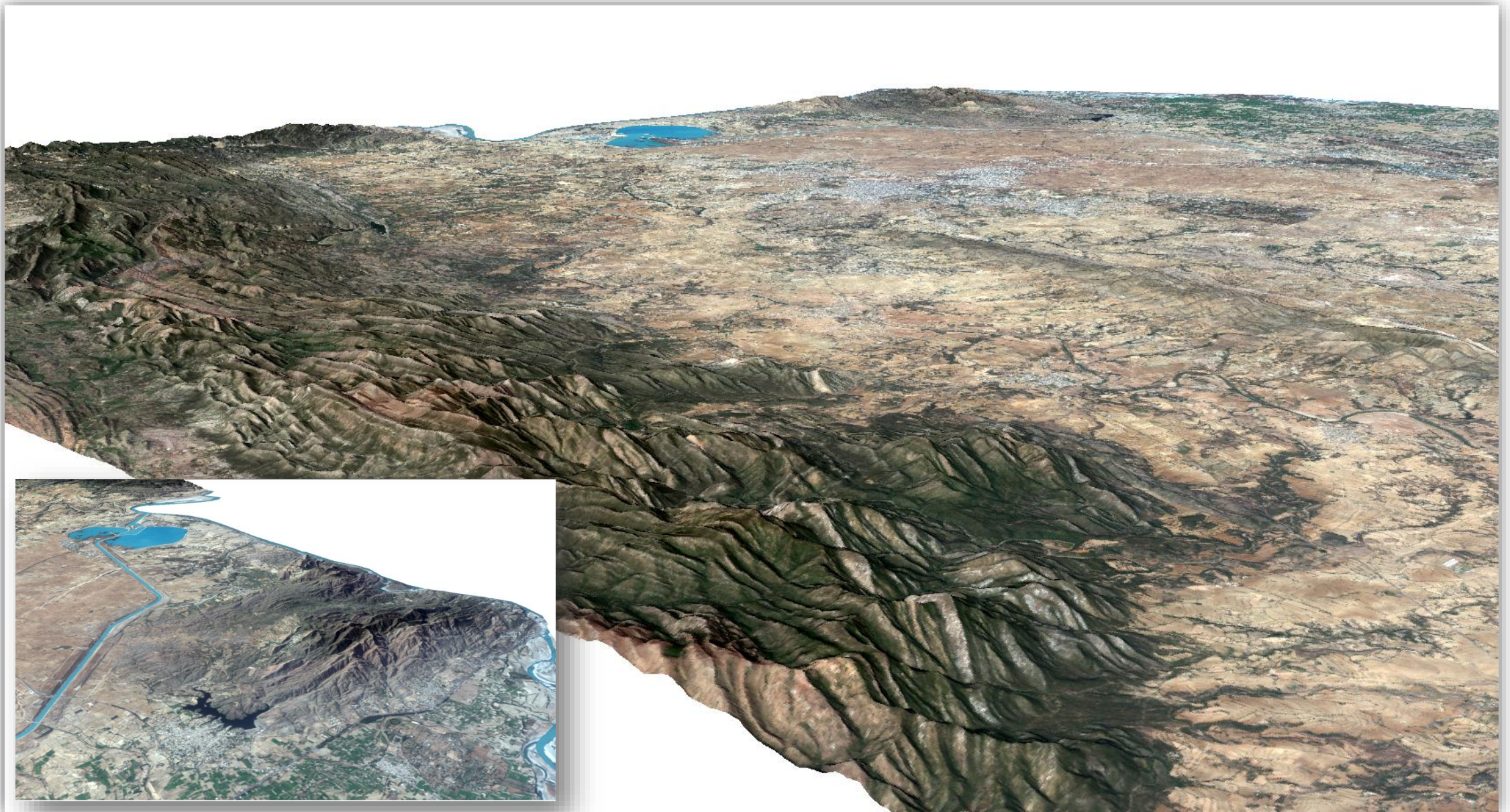
# Development of Spatial Database

The screenshot displays a GIS application interface with the following components:

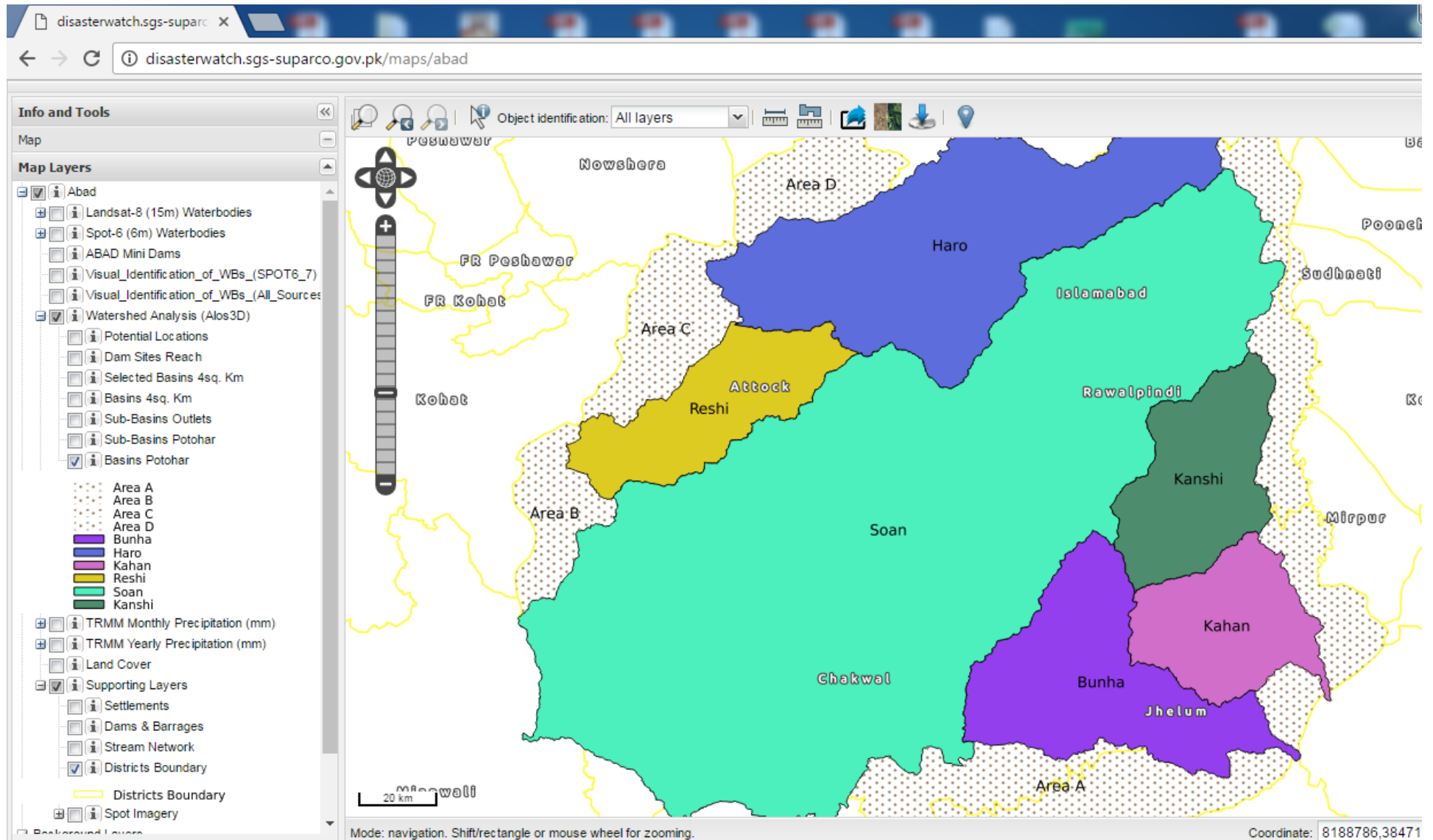
- Info and Tools:** Includes navigation icons and an 'Object identification: All layers' dropdown.
- Map Layers:** A list of layers on the left, including:
  - Abad
  - Landsat-8 (15m) Waterbodies
  - Spot-6 (6m) Waterbodies
  - ABAD Mini Dams (checked)
  - Visual\_Identification\_of\_WBs\_(SPOT6\_7)
  - Visual\_Identification\_of\_WBs\_(All\_Sources)
  - Watershed Analysis (Alos3D)
  - TRMM Monthly Precipitation (mm)
  - TRMM Yearly Precipitation (mm)
  - Land Cover
  - Supporting Layers
    - Settlements
    - Dams & Barrages
    - Stream Network
    - Districts Boundary (checked)
  - Background Layers
    - Google Satellite
    - Google Physical (checked)
    - DigitalGlobe Imagery
- Map:** A map of the Islamabad region showing districts like Nowshera, Attock, and Rawalpindi. Blue triangles represent 'ABAD Mini Dams'.
- Attribute Table:** A pop-up window titled 'ABAD Mini Dams' showing the following data:

id:	17
sr:	17
sub_sr:	17
district:	Attock
lat:	33.6581583333333
lon:	72.2728083333333
owner:	Abdul Jabbar Danish S/o Lal Khan
height_(ft):	30
section_to:	435
section_bo:	112
material:	Earthen
spillway_e:	No
spillway_p:	Chute
spillway_c:	225
capacity_d:	43.95
capacity_e:	45
catchment_:	1
command_ar:	12
irrigation:	Lift & Flow
no_of_farm:	2
crops_grow:	Wheat, Vegetable
year_of_co:	2010-11
- Footer:** 'Mode: object identification. Move the mouse over an object to identify it, click it to view its attribute data.' and 'Coordinate: 7953360,3879'.

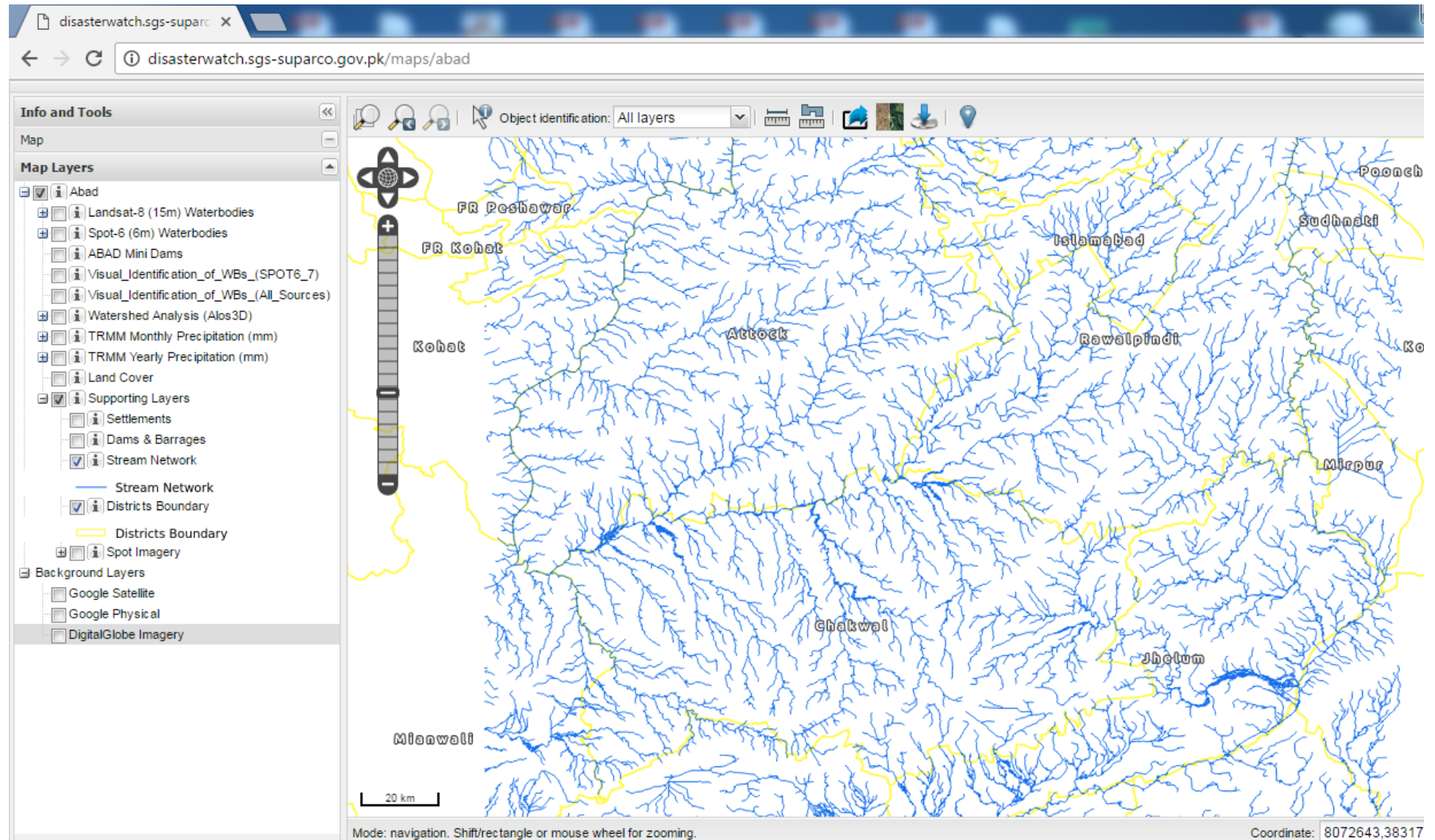
# Identification of Potential Area for Development



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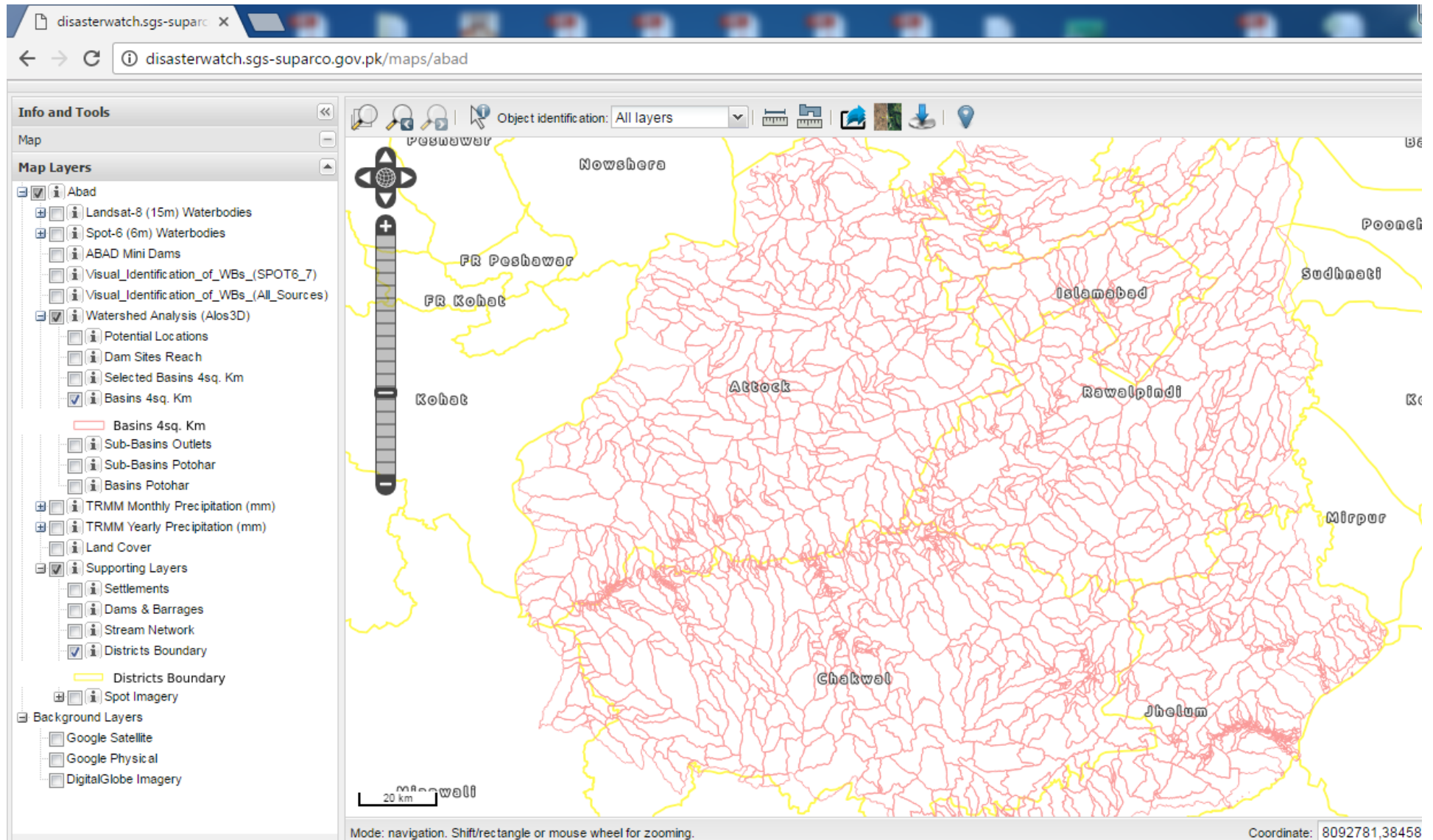


# Identification of Potential Area for Development

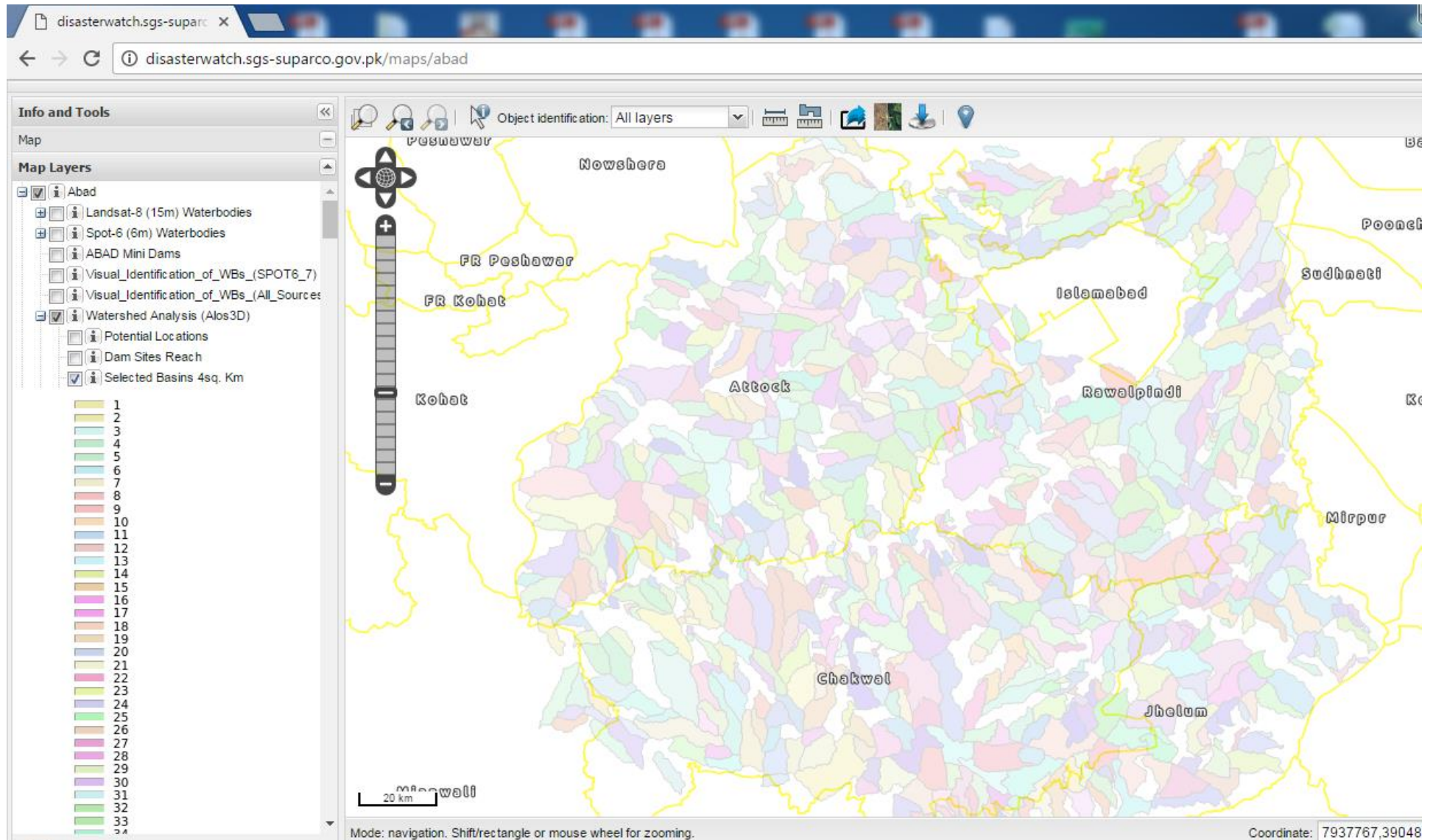




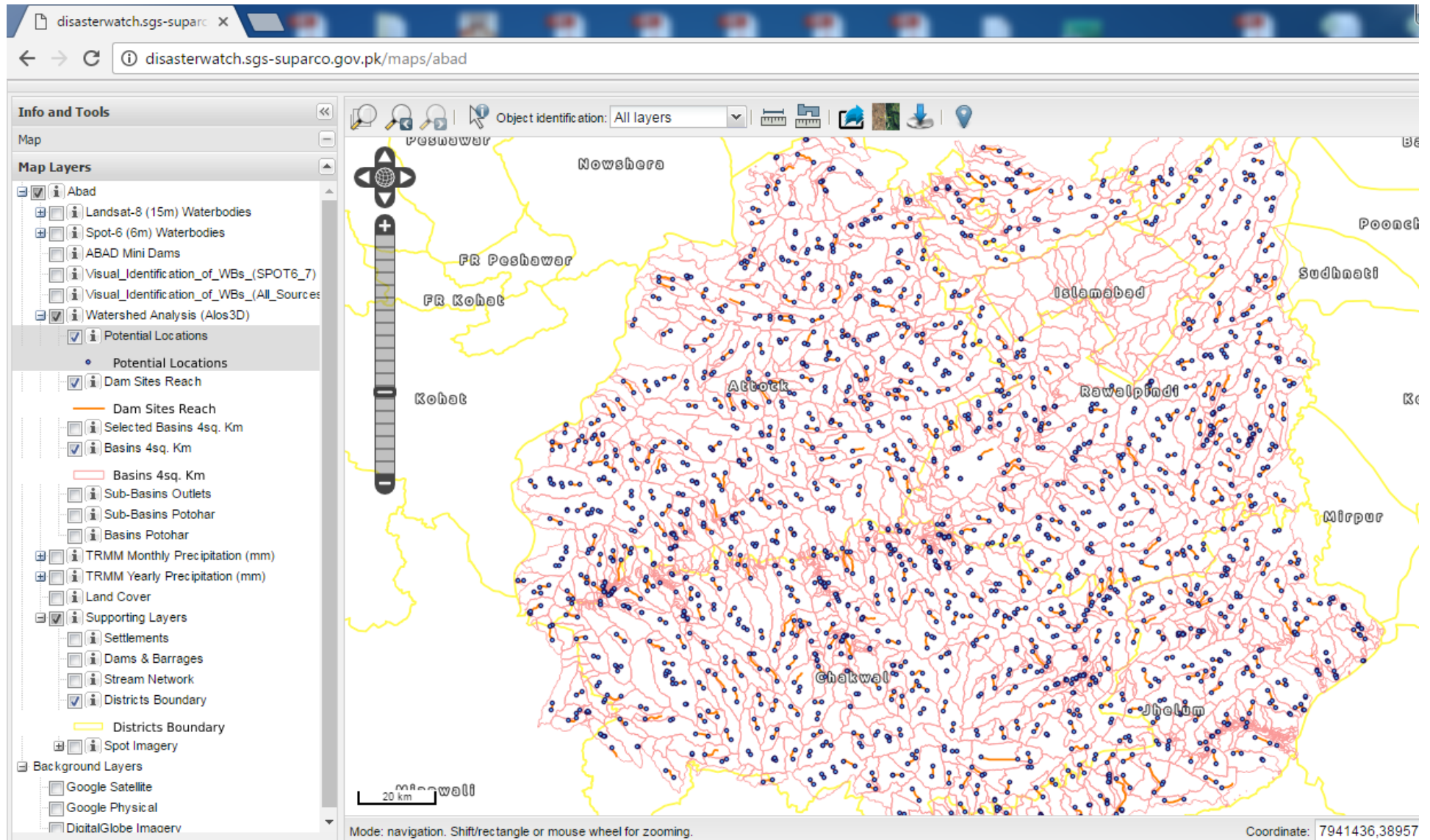
# Identification of Potential Area for Development



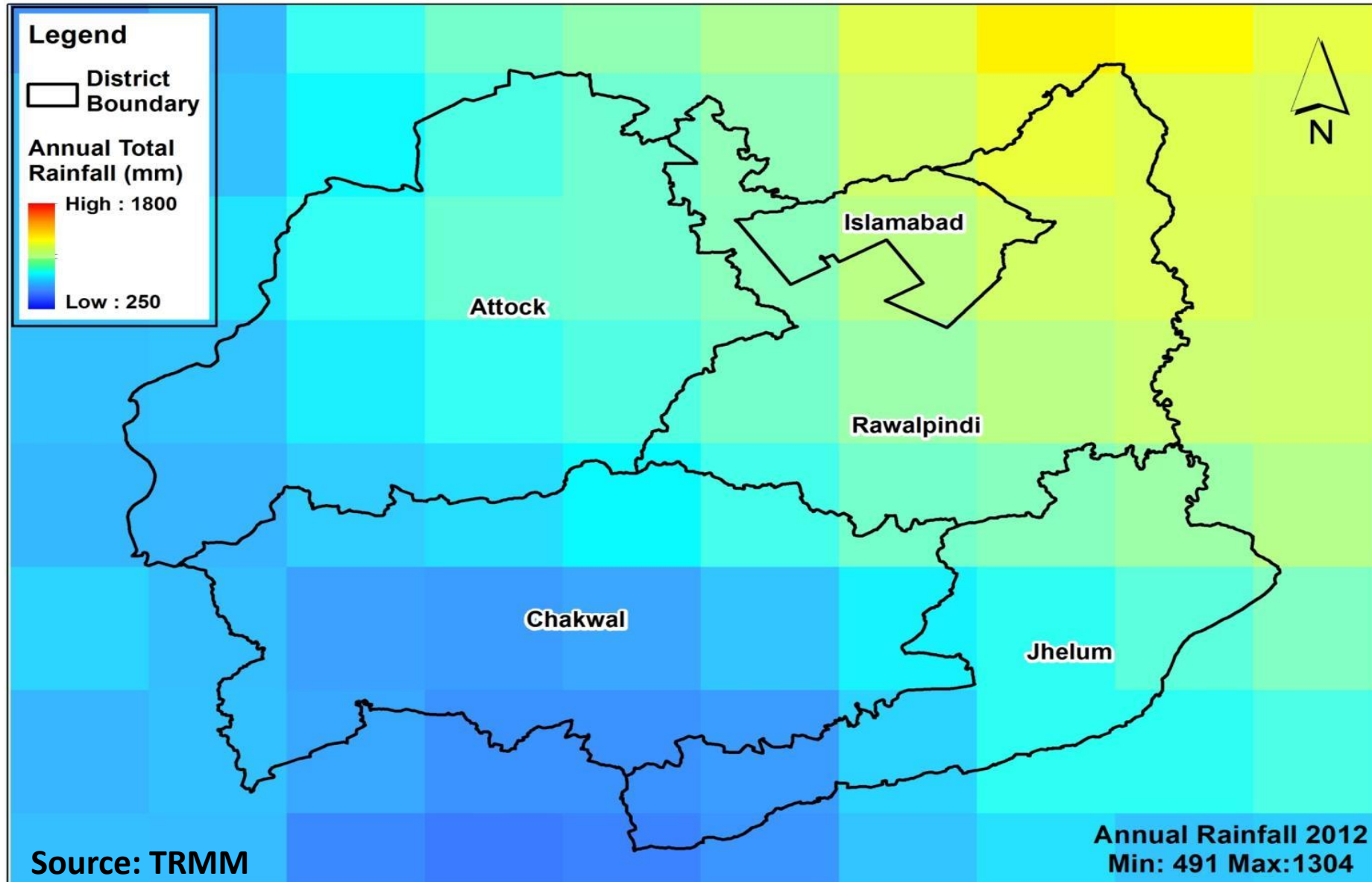
# Identification of Potential Area for Development



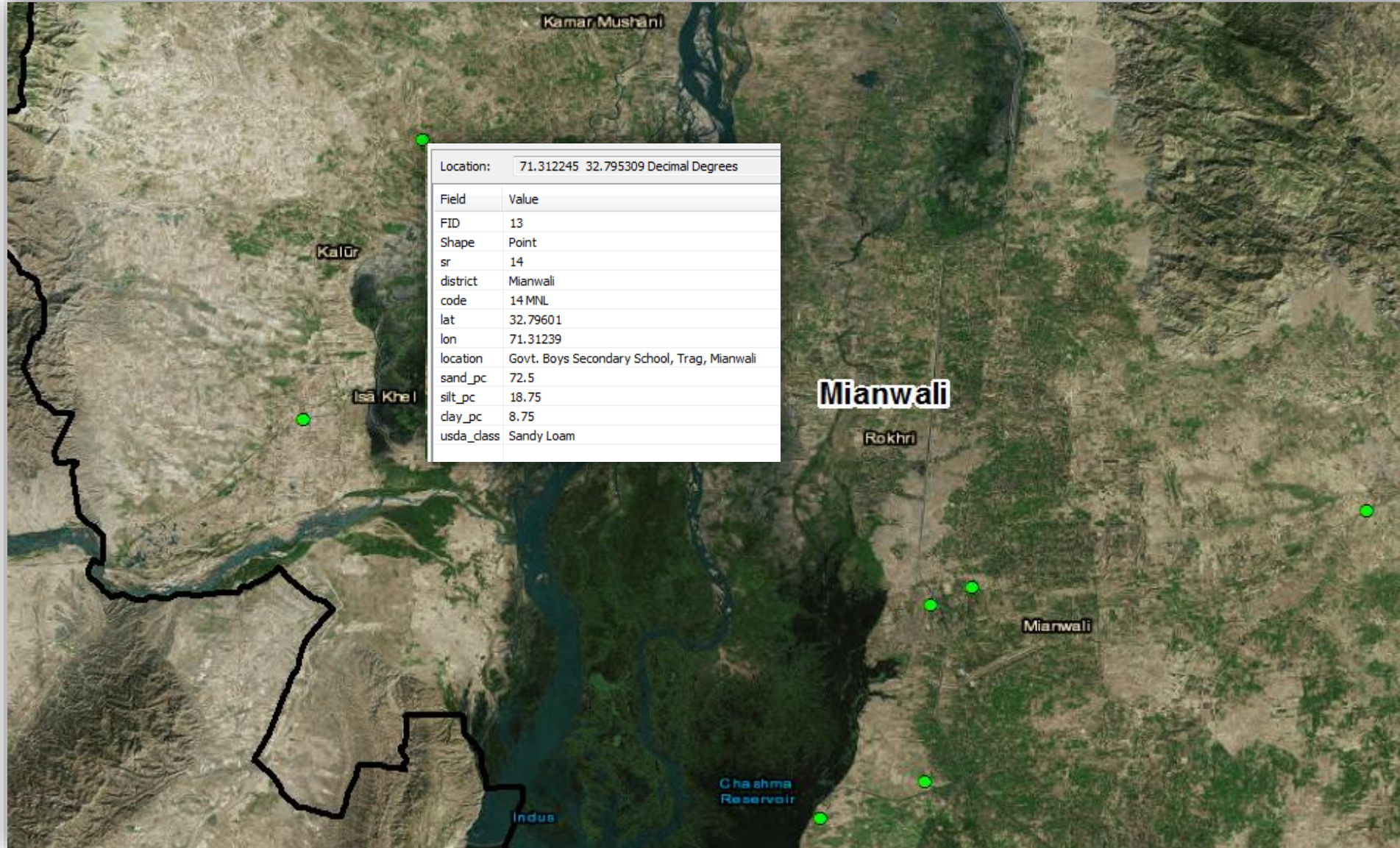
# Identification of Potential Area for Development



# Multicriteria Parameter – Rainfall



# Multicriteria Parameter – Soil














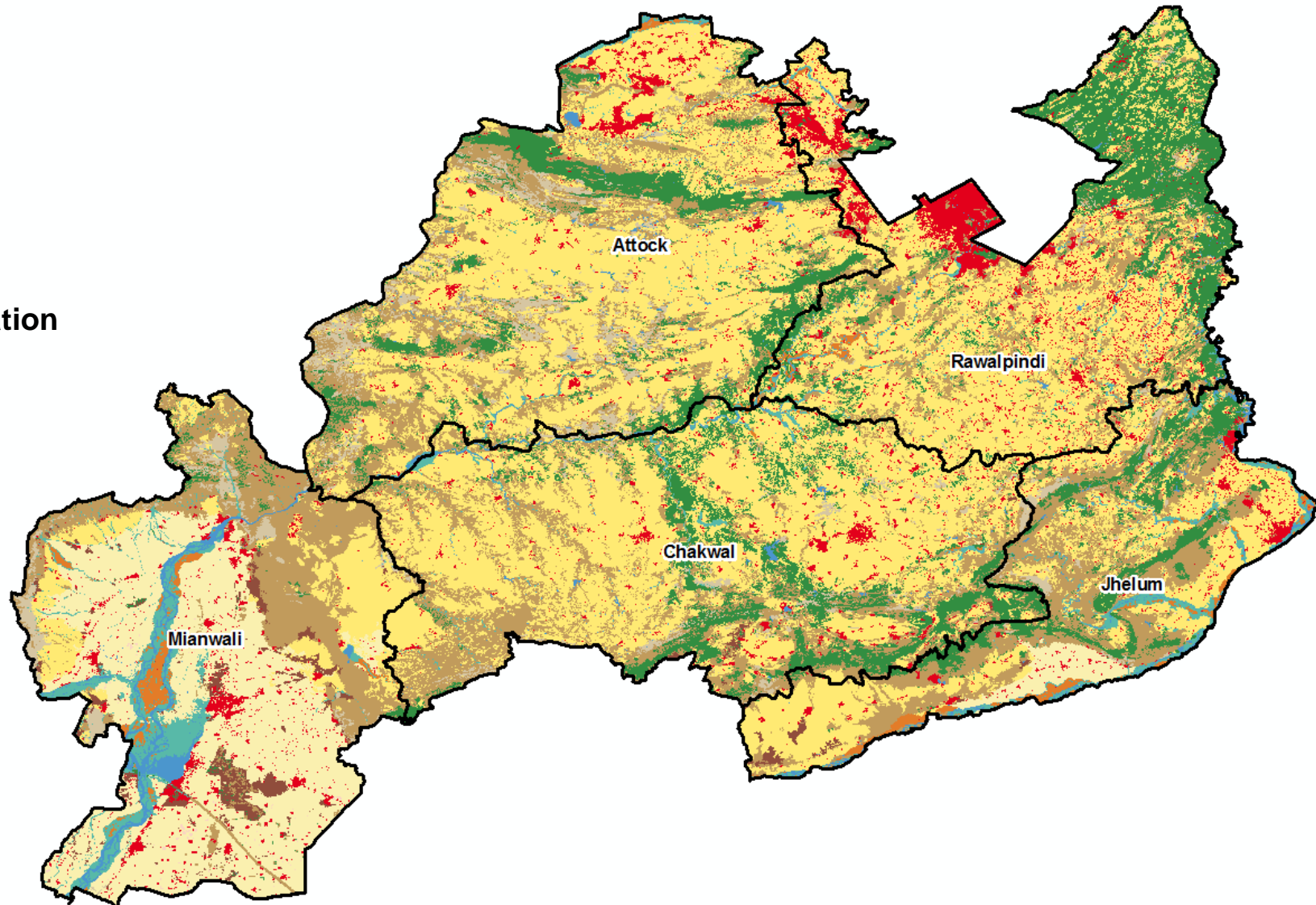
# Multicriteria Parameter – Land Cover

## Legend

 District Boundary

## Land Cover Class

-  Bare Areas
-  Bare Areas with Sparse Natural Vegetation
-  Built-up Area
-  Crop Irrigated
-  Crop Rainfed
-  Crop in Flood Plain
-  Natural Shrubs and Herbs
-  Natural Trees
-  Natural Vegetation in Wet Areas
-  Orchards
-  Wet Areas

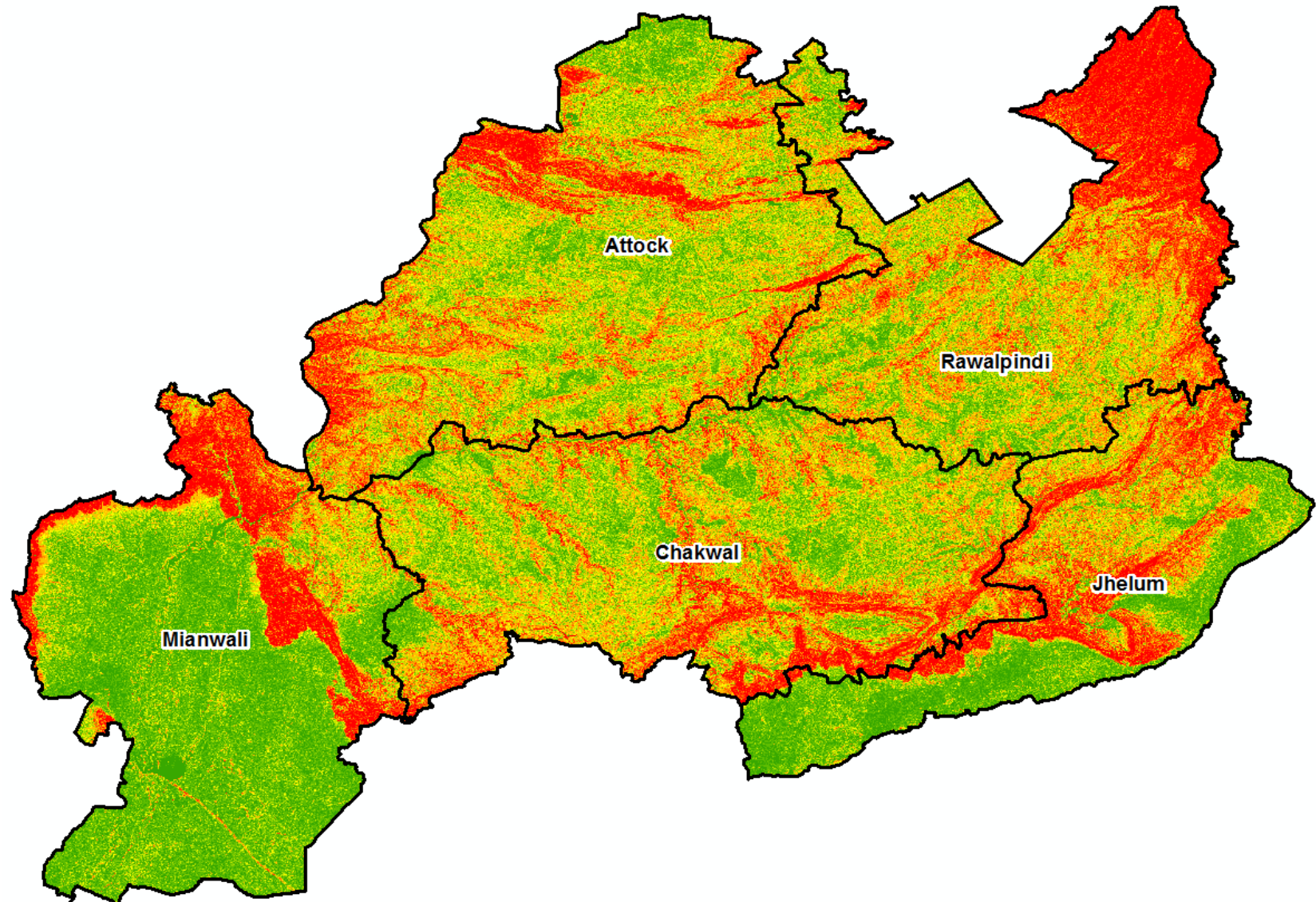


# Multicriteria Parameter – Slope

## Legend

 District Boundary

## Slope (%)



# Capacity Building of ABAD

- Establishment of **RS GIS Lab** in ABAD
- Hiring of **RS & GIS Experts** in ABAD
- Formal **Trainings** on RS, GIS and GNSS
- On Field **Trainings**





**Thank You**