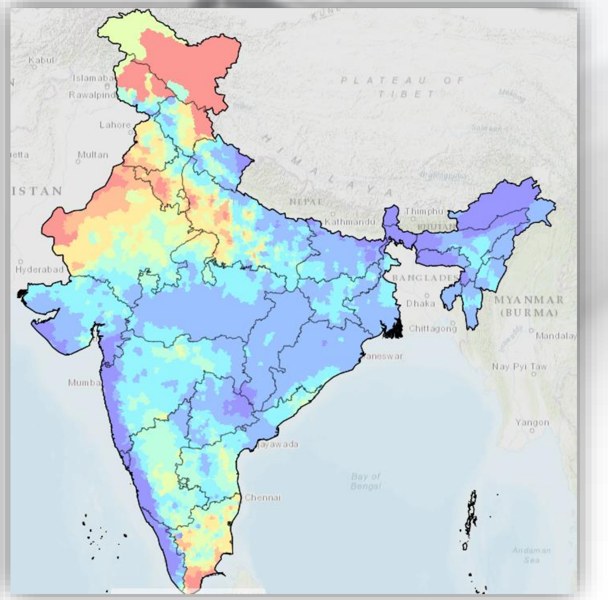
India WRIS

सत्यमेव जयते

स्वीयजलं अवैहि

NWIC

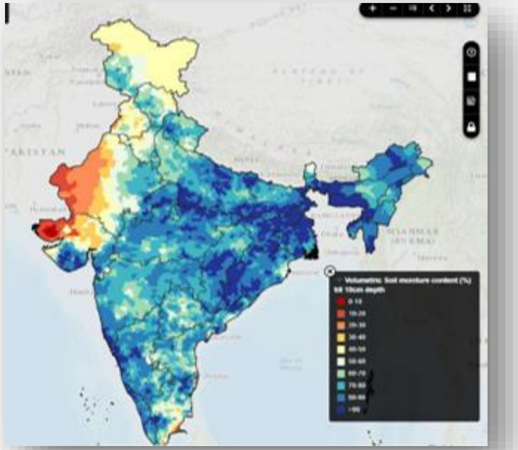


India – WRIS
India Water Resources Information System

India – WRIS : India Water Resources Information

CONCEPTUALIZATION

A *'Single Window Solution'*
for comprehensive, authoritative and consistent data & information of India's water resources in a standardized national GIS framework for planning, development and management of water resources in the country.



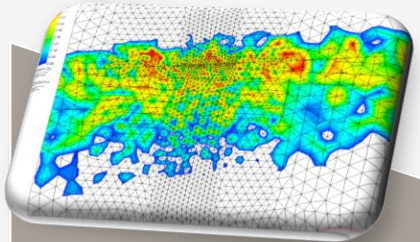
Empowering citizens with ***accurate, adequate and contemporary information*** *on the state of water resources of the country and enlightened public involvement in* ***water management decisions****.*

OBJECTIVE

To collect available data from varied sources, generate new database , organize in standardized GIS format and provide scalable web-enabled information system.

To provide tools to create value added maps by way of multi-layer stacking of GIS database so as to provide integrated view to the water resources scenarios.

To provide easier, faster access, sharing of nationally consistent and authentic water resources data through a centralized database and application server to all water resources departments / organizations.



To provide foundation for advanced modeling and Spatial Decision Support Systems (SDSS) including automated data collection system.

SYSTEM OVERVIEW

India-WRIS

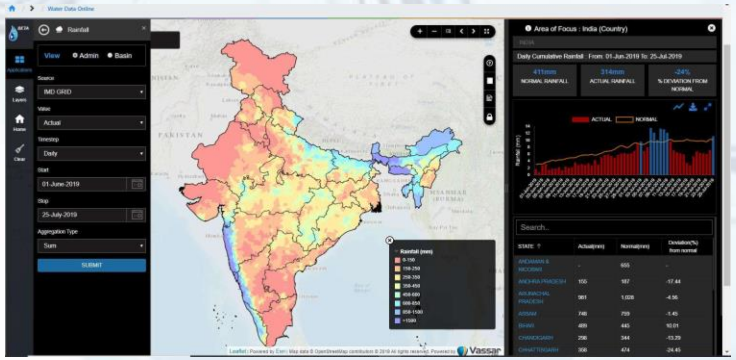
- **Water Data**
  - Dynamic Real time
  - Semi-Dynamic
  - Static data
- **WRIS Tools**
  - Input Data Builders
- **Utilities**
  - Value Added Products
- **WIMS**
  - Surface Water and Ground water Data
  - Manual / Telemetry data management

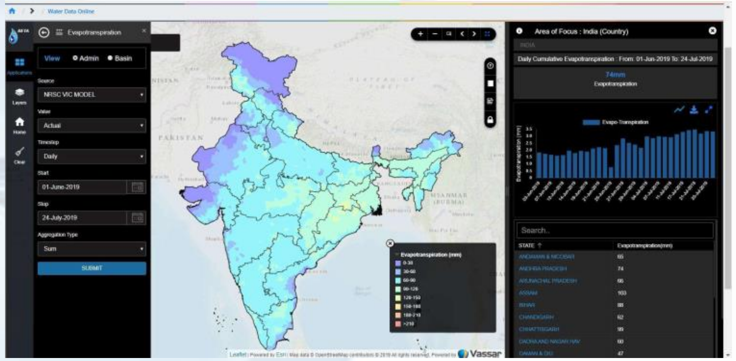
India – Water Resources Information System

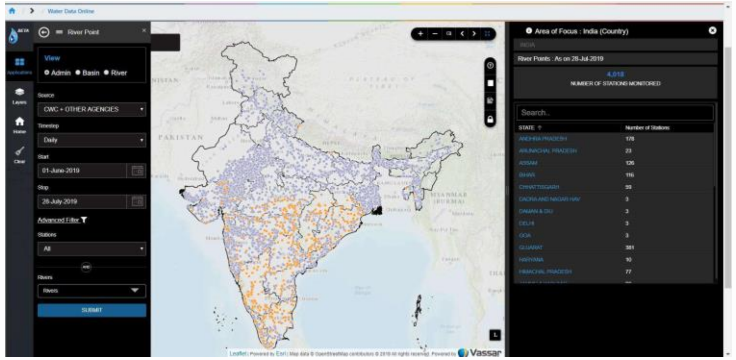
India-WRIS

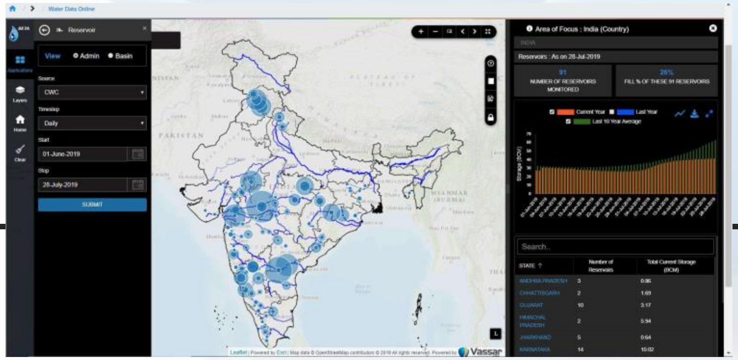
Water Data – Dynamic Data Modules

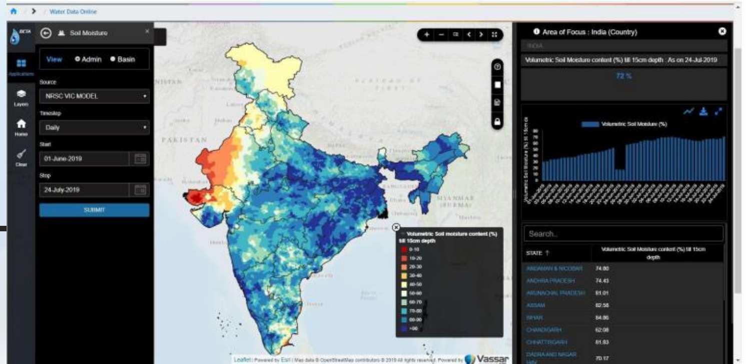
- Historical and real-time data of Rainfall, Reservoir, River Point, Evapo-transpiration, Soil Moisture, surface water quality, Ground water and Groundwater quality.
- Powerful visualizations like heat maps, tables, charts to view and analyze the data at different administrative and hydrological hierarchies

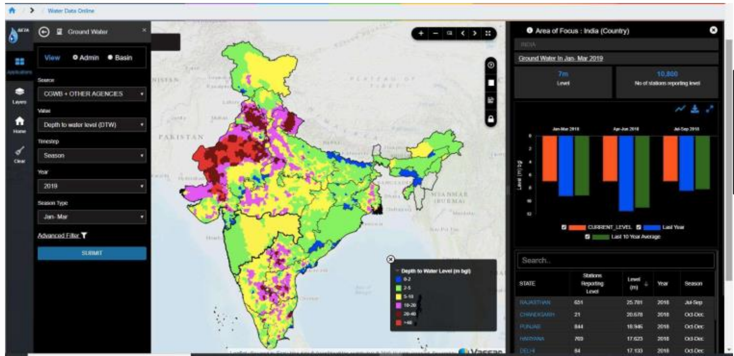








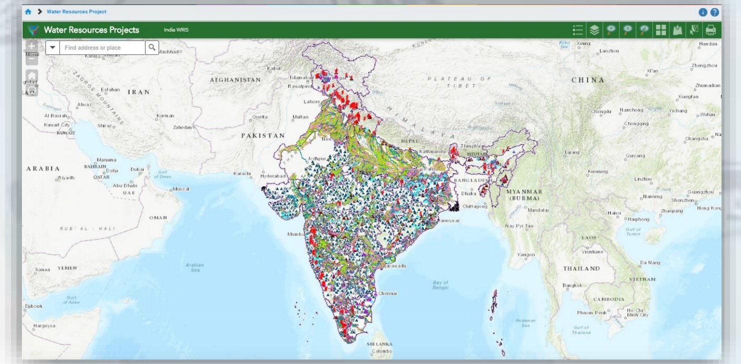


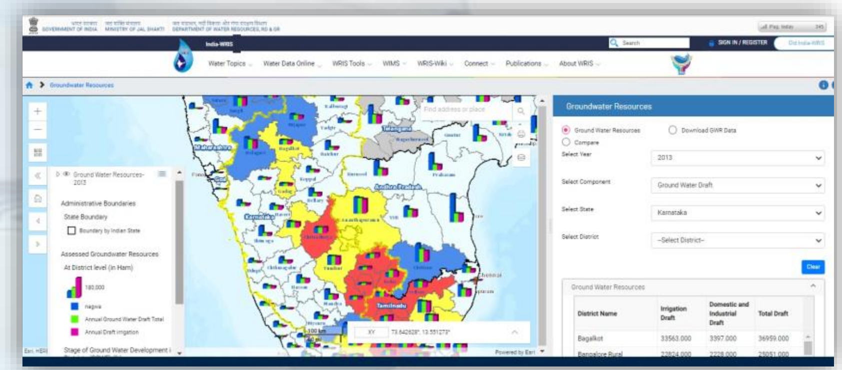


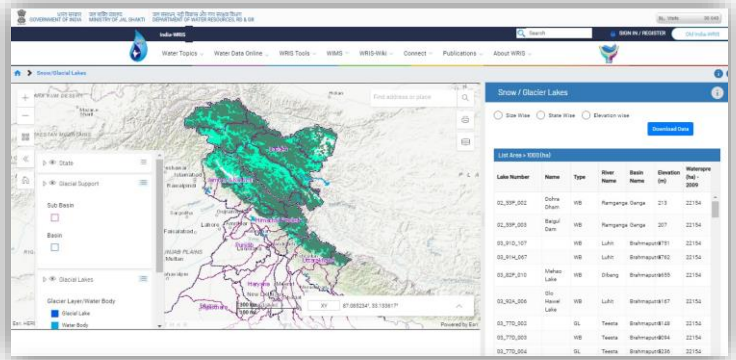
India – Water Resources Information System
India-WRIS

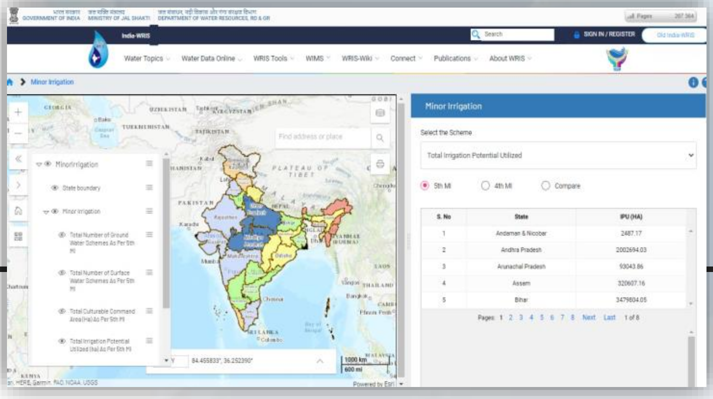
Water Data – Semidynamic & Static Modules

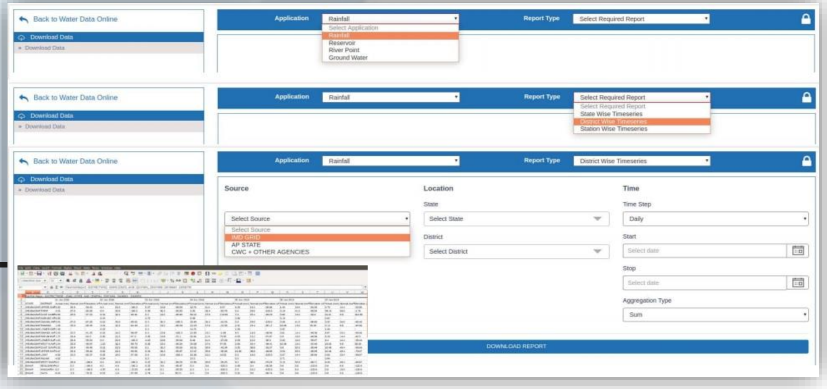
- Semi-dynamic / static data of Ground Water Resources, MI Census, Litholog, Snow-Glacial lakes, Water Resources Projects etc.

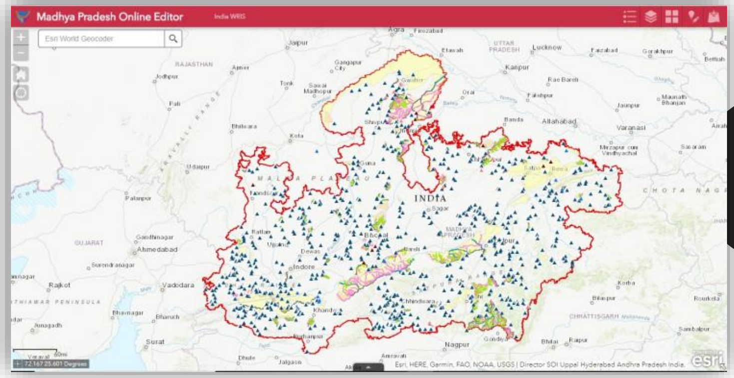




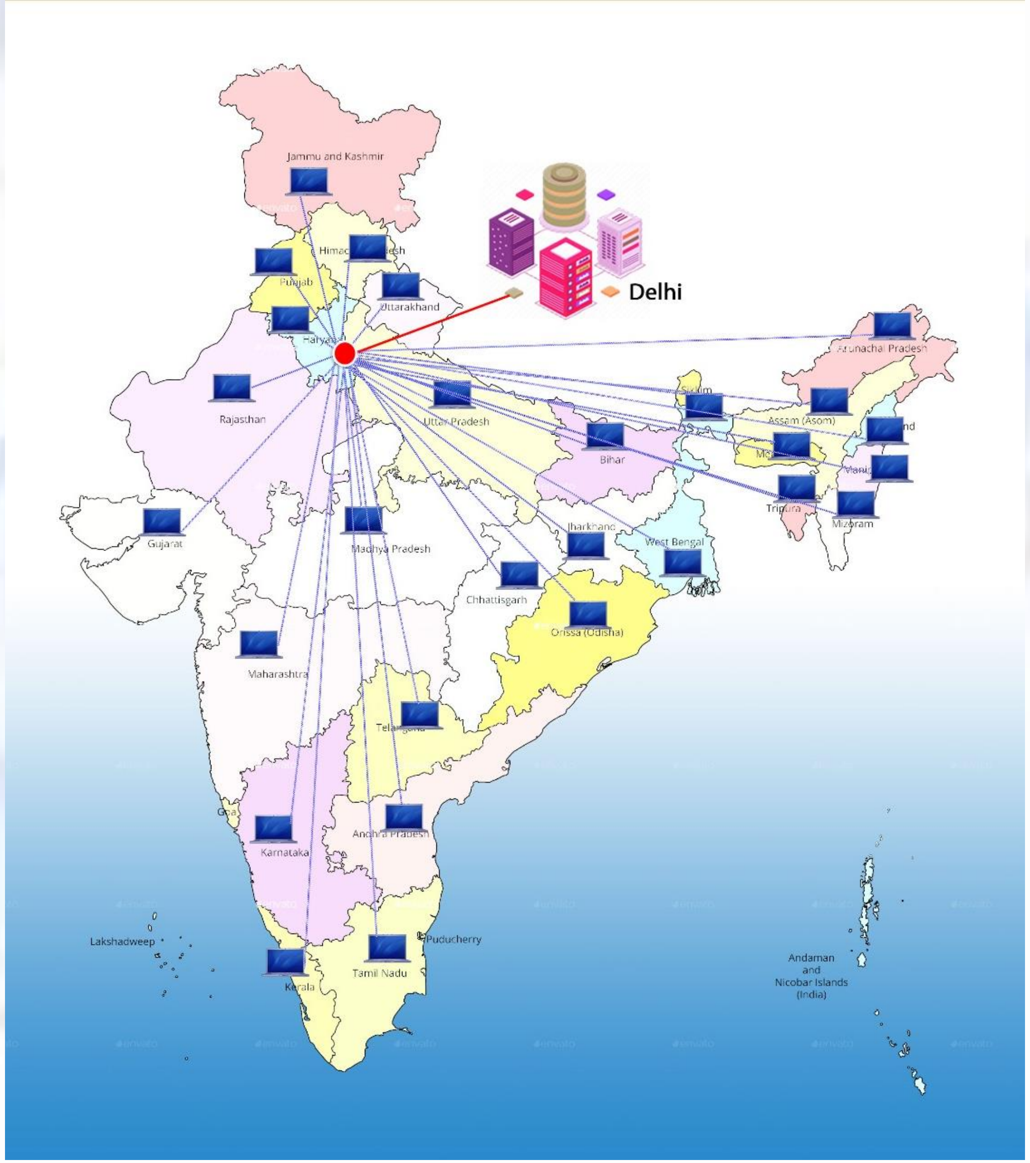








DATA AGENCIES



Data Available in WRIS

Central Ground Water Board

- Ground water observation well location and GW level
- Ground water quality sites and data
- Litholog well location and survey data
- Ground water resource estimation
- Aquifer systems
- Basin-CGWB

Central Water Commission

- Hydrological Observation Stations
- Surface Water Quality Stations
- Reservoir level and storage
- Glacial Lake and Water Body
- Rainfall
- WRP projects
- Reservoir sedimentation studies
- Shape files AIBP Canal , Command Area, Hydro Structure
- PMP atlas-major basins

National Remote Sensing Centre

- ET and Soil moisture
- Flood inundation maps.
- LULC, Wasteland, Land degradation, wetland cover
- Waterlogged Area and Saline areas
- Rainfall gridded data
- Ground water prospects maps
- Forest Cover – Classes

Survey of India

- Shape files of International Boundary
- State Boundary
- District Boundary
- Village Boundary
- Infrastructure Layers

Data Available in WRIS

National Water Development Authority

- Shape files
- IBTL Component
- Structure on Links (Dams, Barrages, Weirs, Anicuts)
- Detailed Links (canal, Tunnel, etc.)

Indian Meteorological Department

- Gridded Rainfall Data 0.25*0.25
- Seismic zones
- Extreme Temp and RF
- District-wise Rainfall Monitoring Station Location (DRMS)
- Earthquake events

Inland Waterways Authority of India

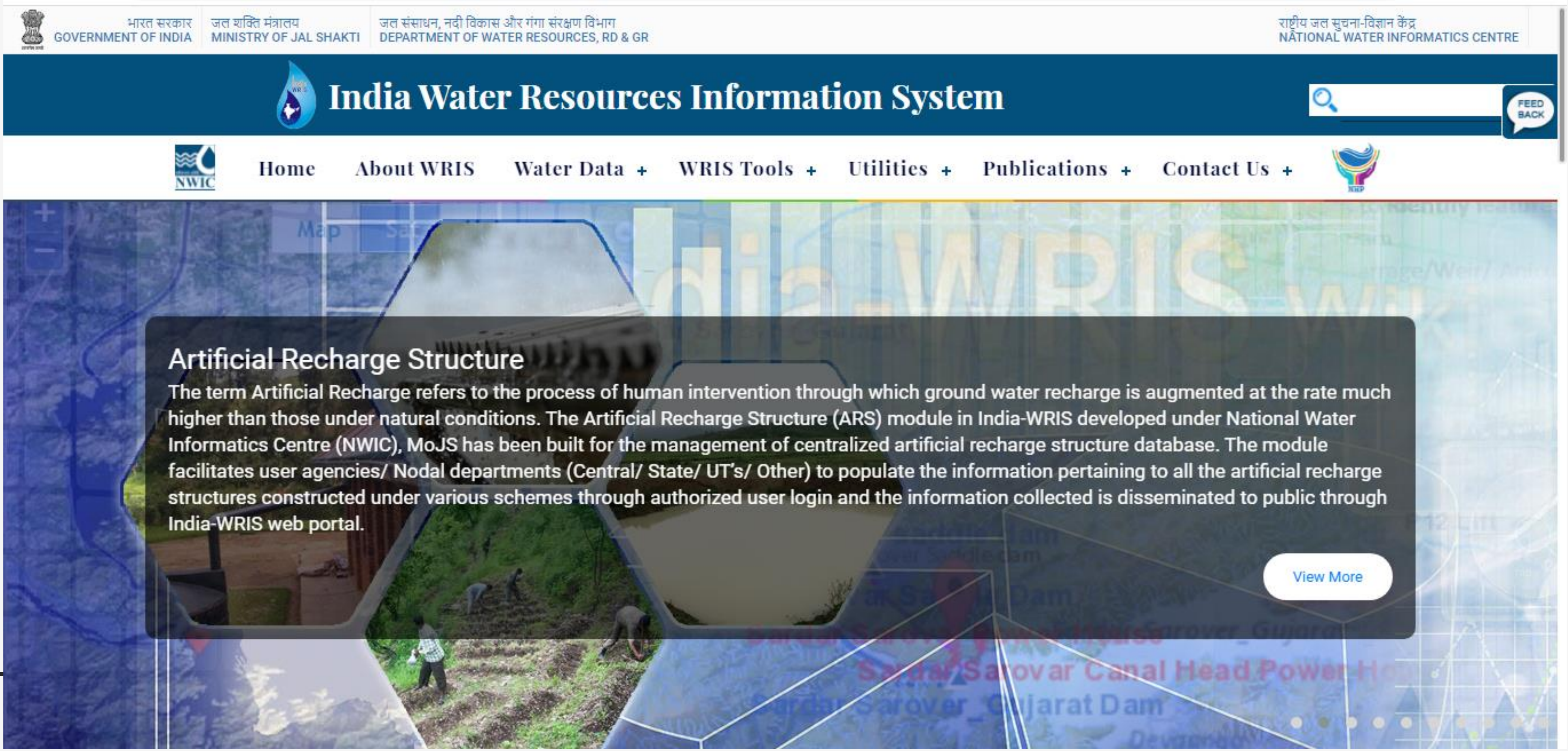
- Reports on
  - Beacon
  - Harbour Limit
  - Navigation Canal
  - Rail Road Bridge
- River(Inland Navigation)
- Settlement Location
- Waterways

Other agencies

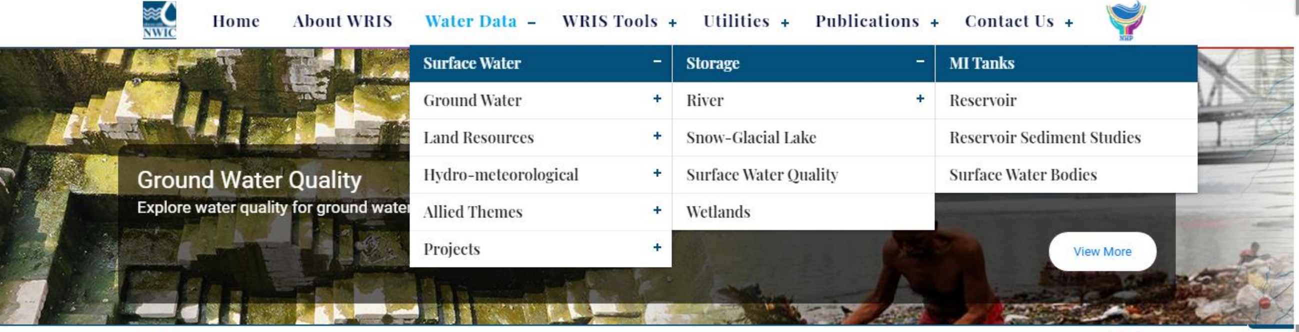
- NHP implementing state and central agencies data (RF, water quality, Reservoir level, etc)
- MI Census Data
- Minor irrigation tank storage and capacity data
- 2011 census data (upto village level)
- Parliament and assembly constituency boundary
- Soil data (NBSS-LUP)
- Water tourism sites (States)
- DPAP and DDP (MoRD)
- Reports related to WR collected from State WRD and local state agencies

India – Water Resources Information System

https://indiawris.gov.in/wris/#/



INDIA-WRIS MODULES : A WALK THROUGH
34 MODULES, TOOLS (2) & UTILITIES (8)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Snow-Glacial Lake
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Wetlands
MI Tanks
Reservoir
Reservoir Sediment Studies
Surface Water Bodies
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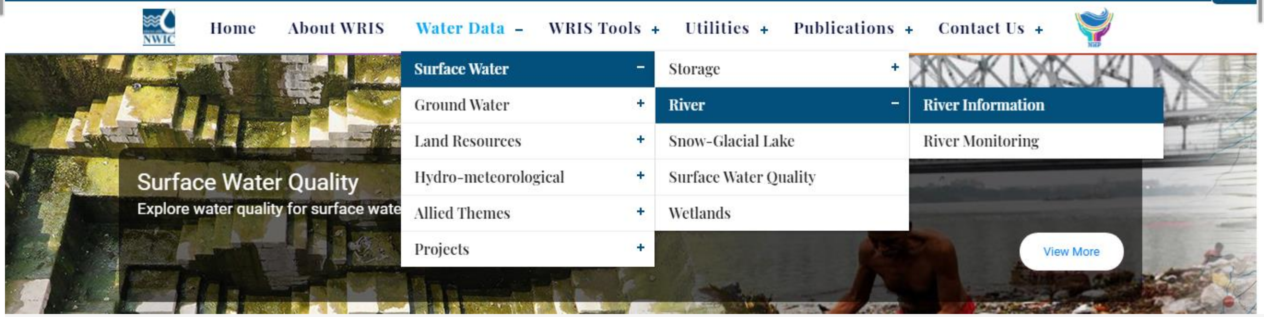
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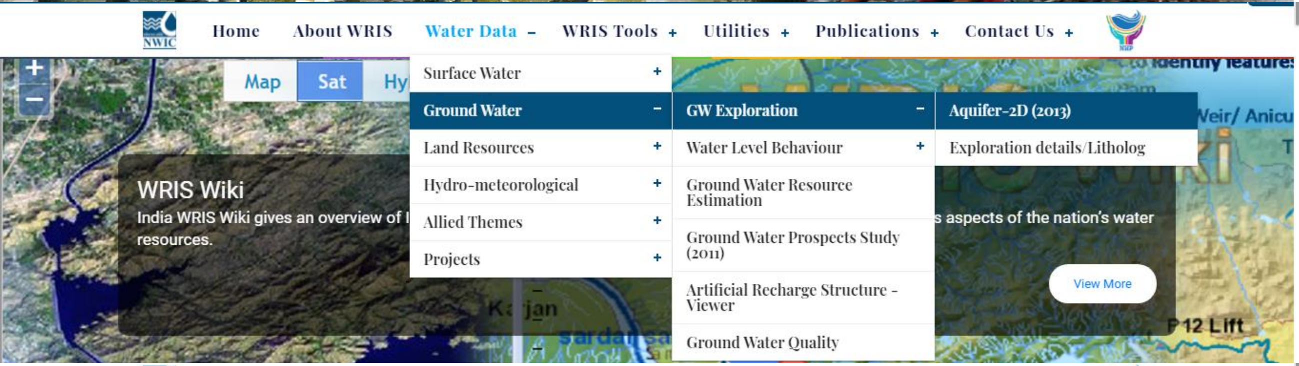
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Ground Water Resource Estimation
Ground Water Prospects Study (2011)
Artificial Recharge Structure - Viewer
Ground Water Quality
Aquifer-2D (2013)
Exploration details/Litholog
WRIS Wiki
India WRIS Wiki gives an overview of I
resources.
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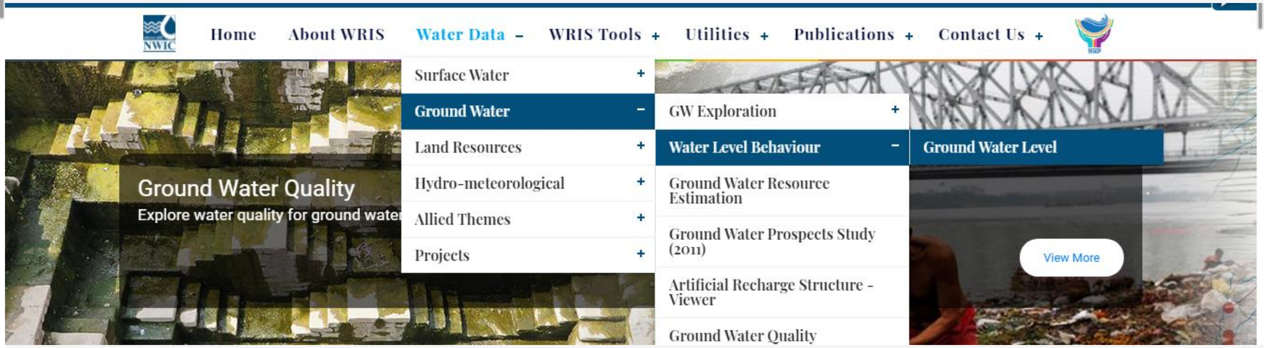
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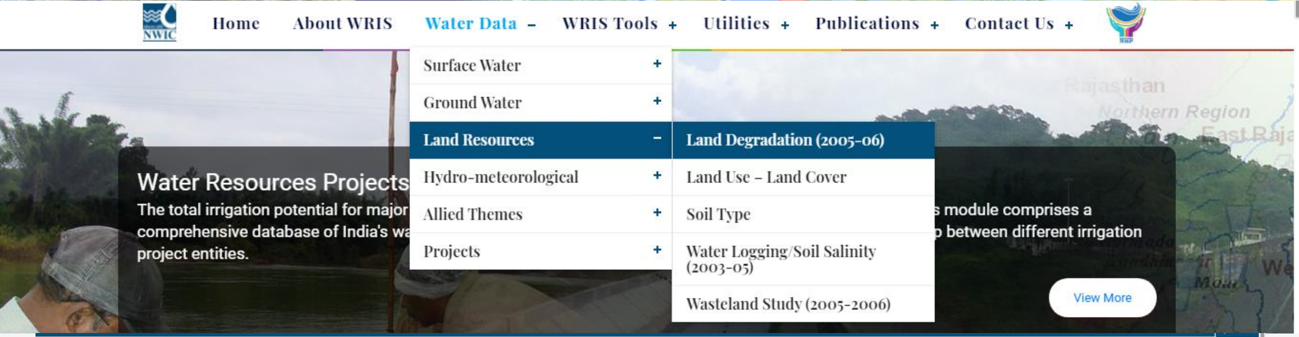
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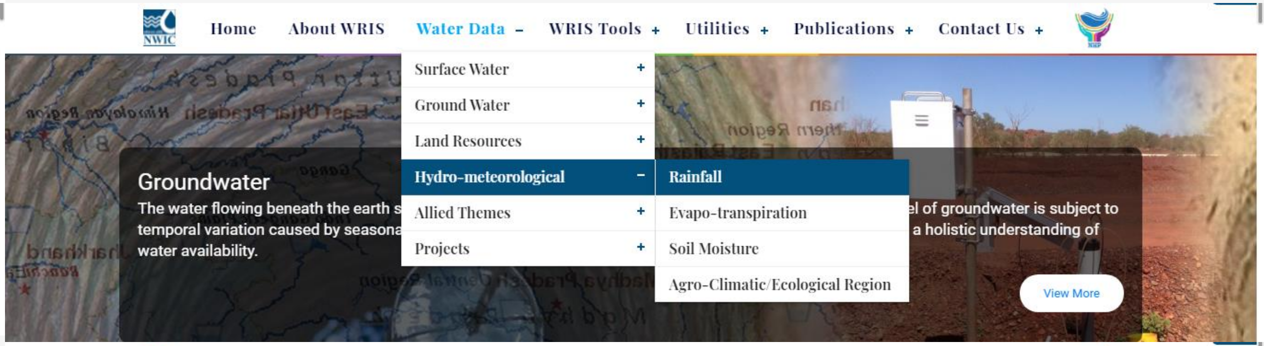
Land Use – Land Cover
Soil Type
Water Logging/Soil Salinity (2003-05)
Wasteland Study (2005-2006)
Water Resources Projects
The total irrigation potential for major
comprehensive database of India's wa
project entities.
module comprises a
between different irrigation
View More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Evapo-transpiration
Soil Moisture
Agro-Climatic/Ecological Region
Groundwater
The water flowing beneath the earth s
temporal variation caused by seasona
water availability.
el of groundwater is subject to
a holistic understanding of
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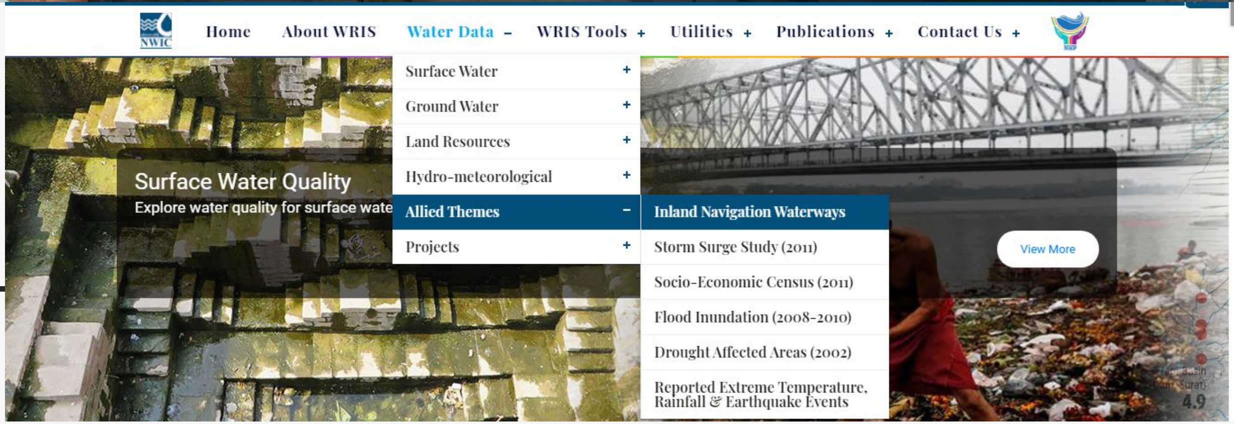
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Socio-Economic Census (2011)
Flood Inundation (2008-2010)
Drought Affected Areas (2002)
Reported Extreme Temperature, Rainfall & Earthquake Events
Surface Water Quality
Explore water quality for surface wate
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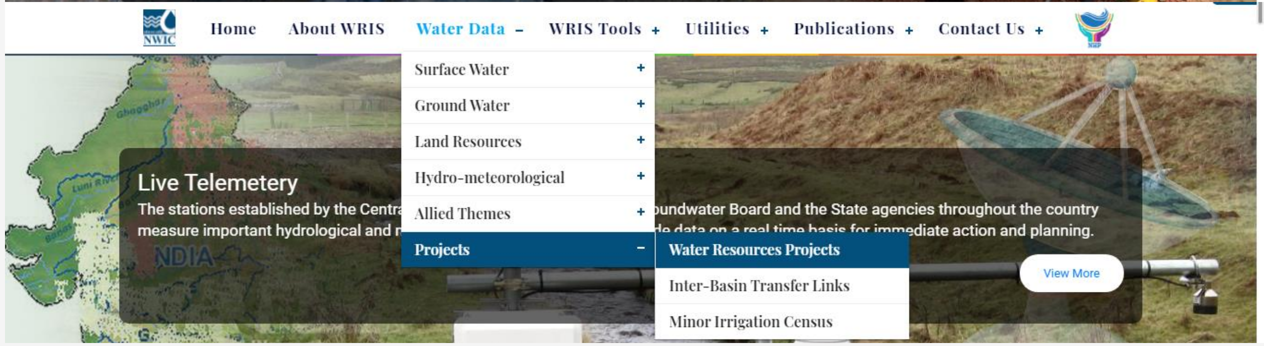
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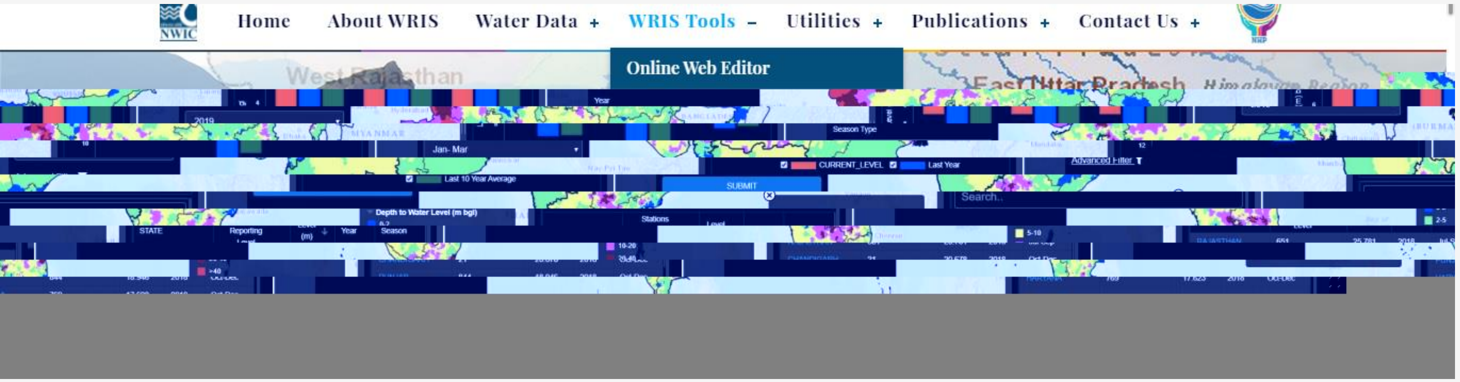
Inter-Basin Transfer Links
Minor Irrigation Census
Live Telemetery
The stations established by the Centra
measure important hydrological and r
undwater Board and the State agencies throughout the country
le data on a real time basis for immediate action and planning.
View More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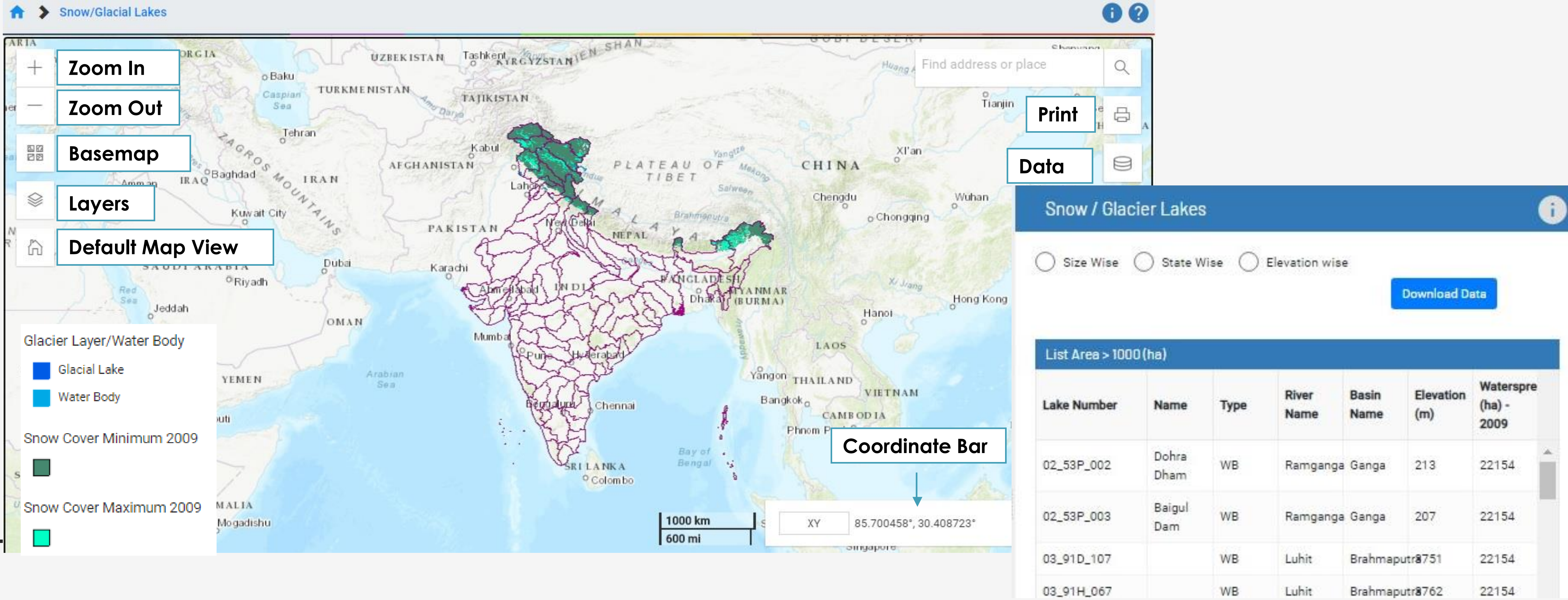
2.2 Snow-Glacial Lake

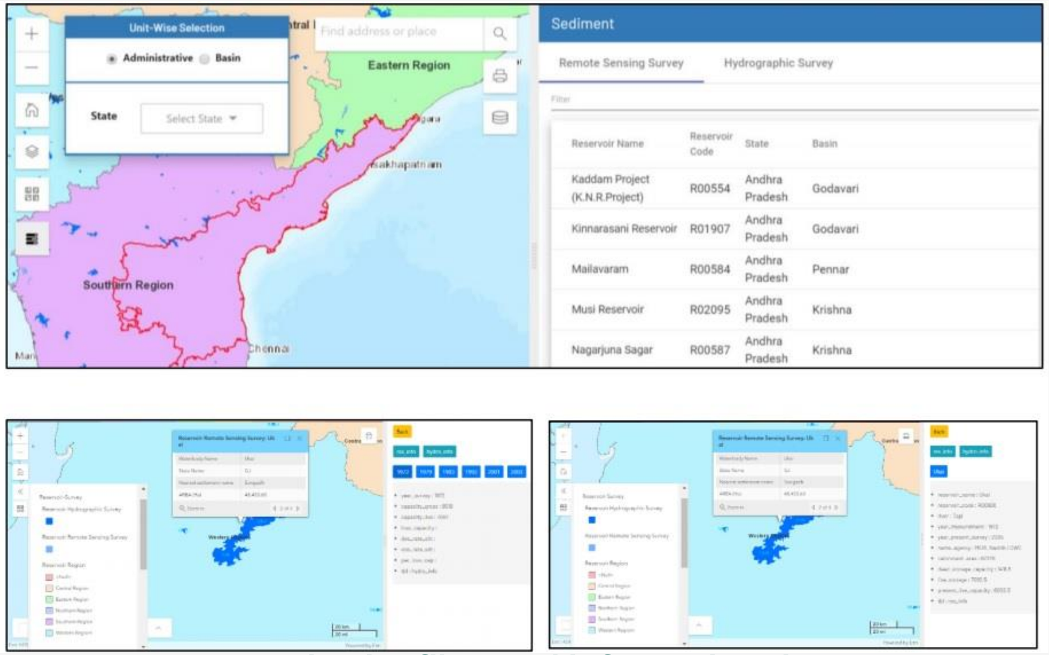
-Snow cover extent, glacial lakes & water bodies of the Indian Himalayan regions - satellite derived product - available for the years 2011-2020 covering the major river basins namely, Indus, Ganga and Brahmaputra .



2.3 Reservoir Sedimentation studies

- displays the result of sediment study done using remote sensing method and hydrographic survey in different reservoirs spread across India.

Reservoir Sediment Study



Unit wise filter and information view

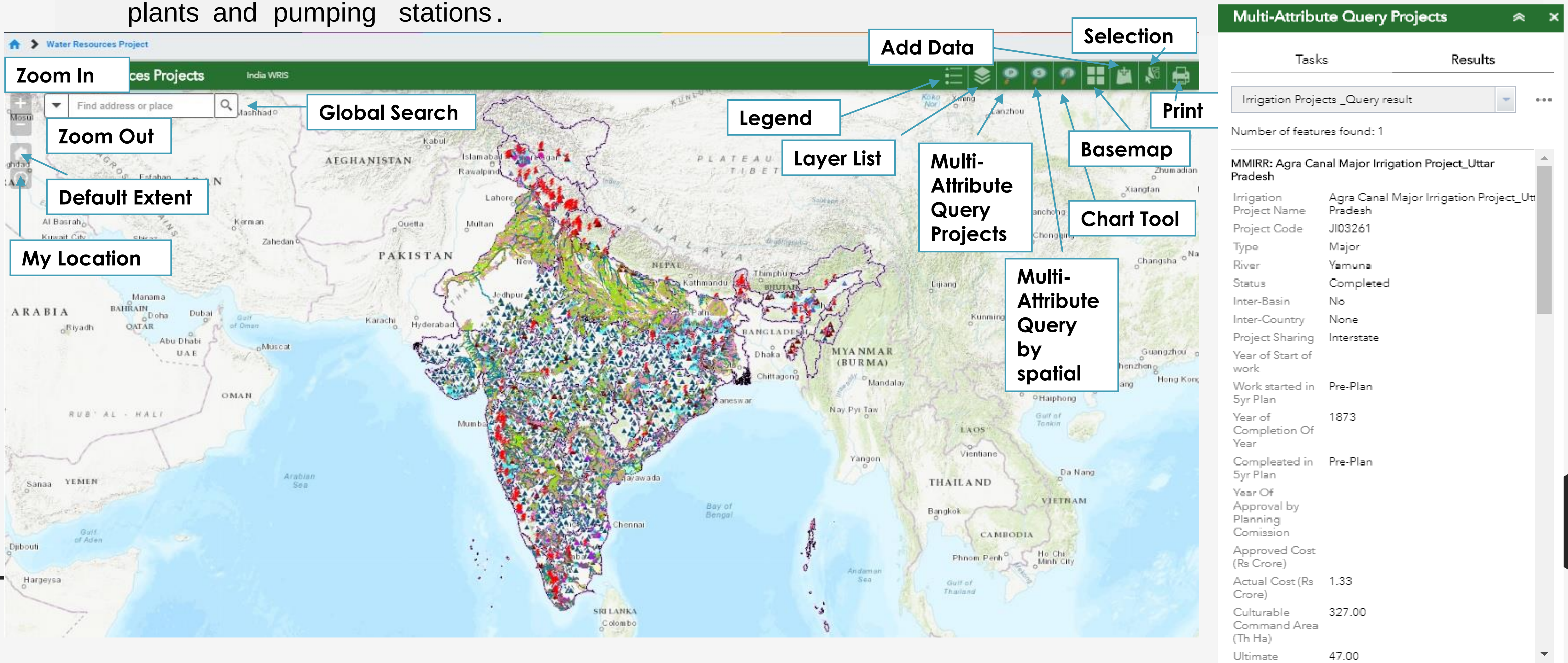
2.4 Water Resources Projects

-Information on irrigation, hydro-power and multi-purpose projects

- It provides a spatial inventory of:

    -connected water resources structures,

    -mapping the location of dams, barrages, weirs, anicuts, reservoirs, canals, command areas, hydropower plants and pumping stations.

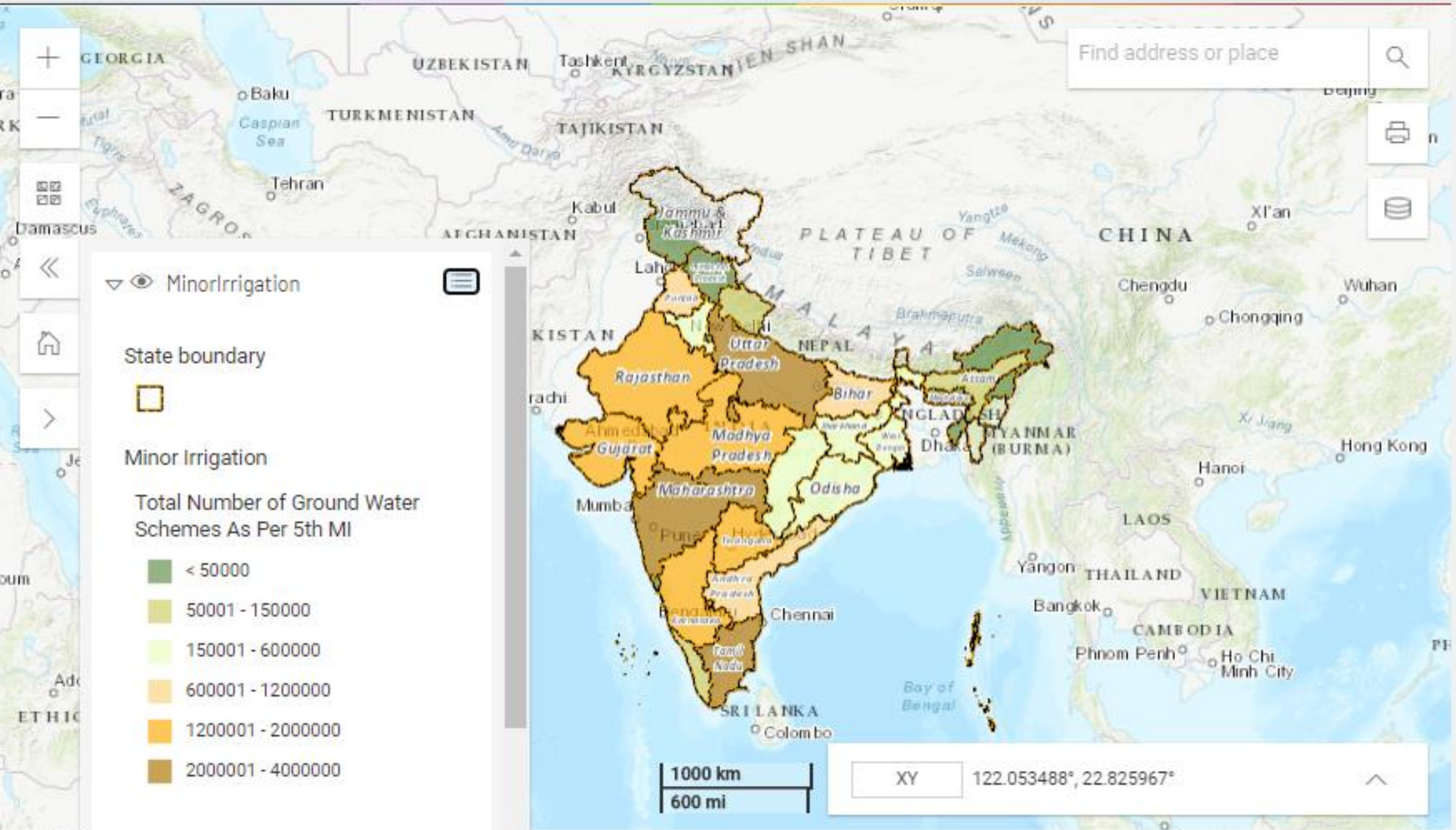


2.5 Minor Irrigation Census

- 4^{th} & 5^{th} Minor irrigation census.
- Sixlayers at district level :

1. ground water schemes
2. surface water schemes
3. Water Distribution devices
4. Total Irrigation potential created
5. Total Irrigation potential utilized
6. Culturable command area

Minor Irrigation



Minor Irrigation

Select the Scheme

Ground Water Schemes

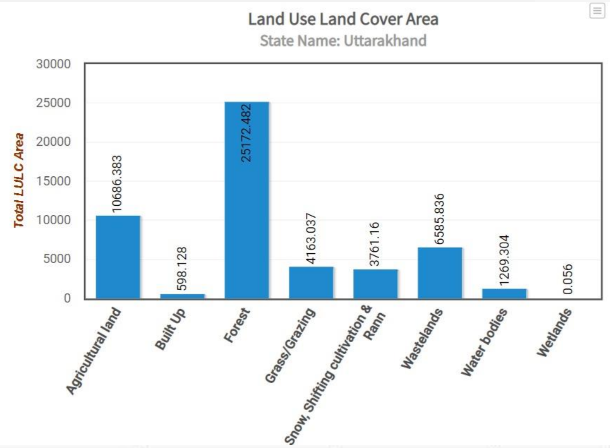
5th MI | 4th MI | Compare

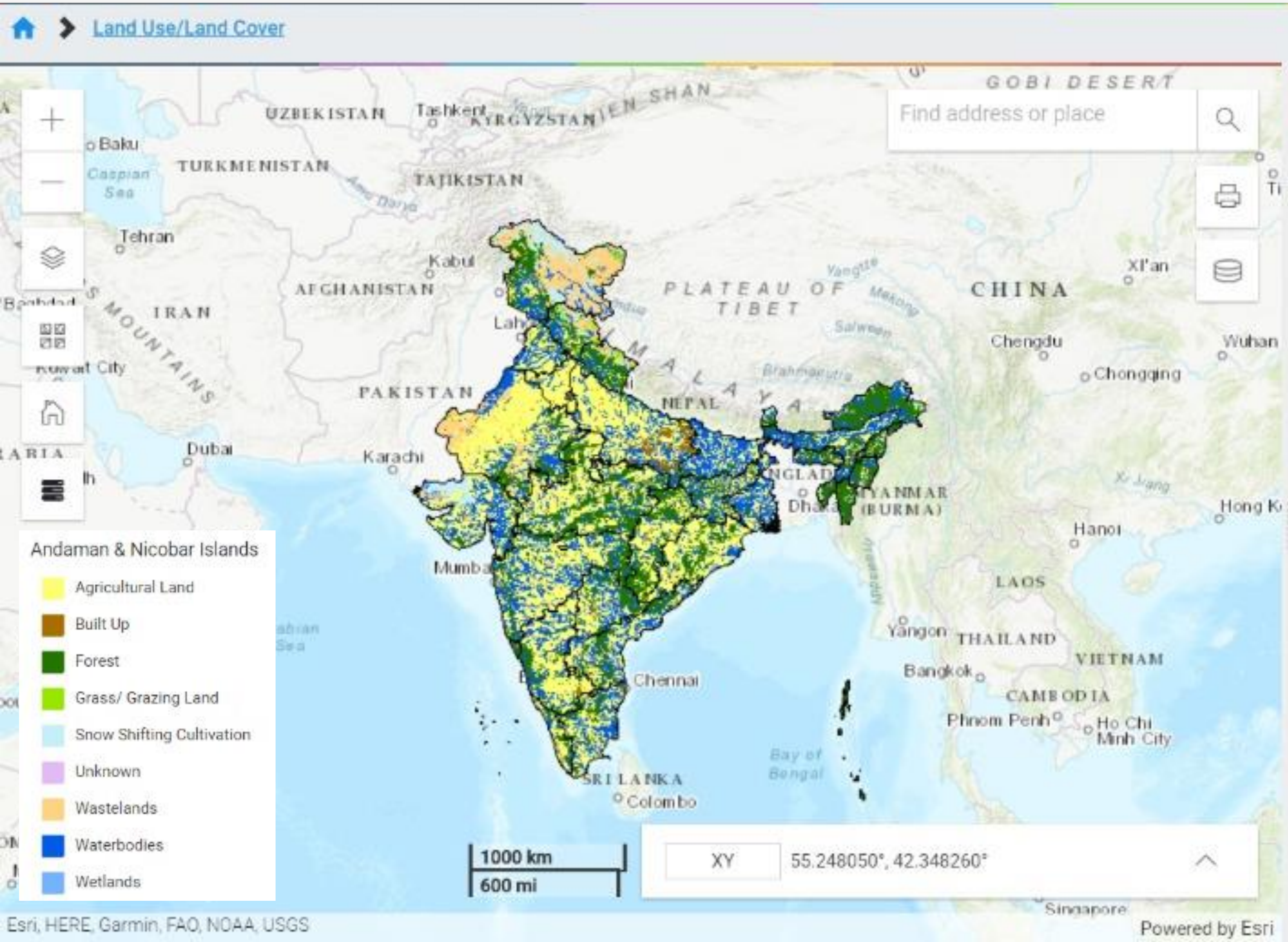
S. No	State	Dugwells (Nos)	Shallow Tubewells (Nos)	Deep Tubewells (Nos)	Total (Nos)
1	Andaman & Nicobar	1334	23	-	1357
2	Andhra Pradesh	212030	398205	377950	988185
3	Arunachal Pradesh	21	15	27	63
4	Assam	215	127267	623	128105
5	Bihar	22877	607833	12787	643497

Pages: 1 2 3 4 5 6 7 8 Next Last 1 of 8

2.6 LULC

Land use/land cover maps (1:50000 scale) by National Remote Sensing Centre (NRSC).





Country : India

Statistics | Chart

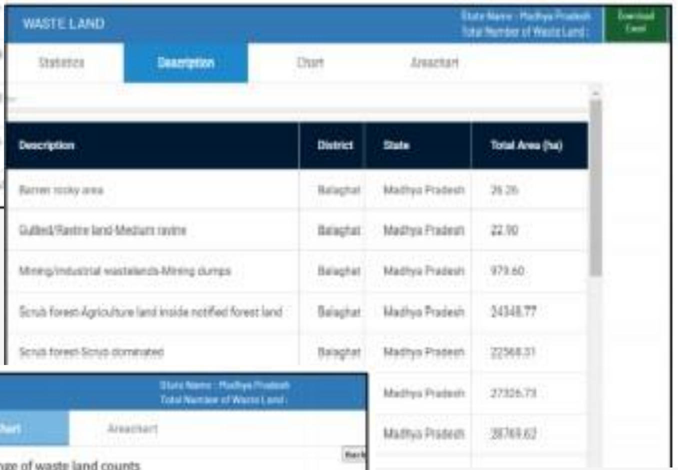
Filter

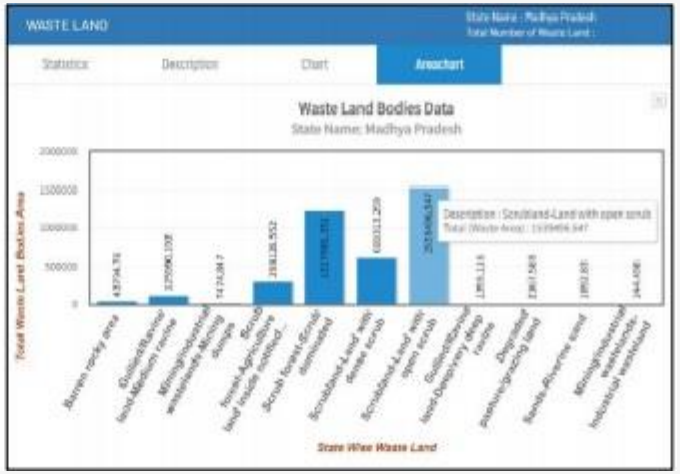
Id	State	Land Use Level Three	Land Use Main Class	Land Use Level Two	Area Sqkm
1	Andaman & Nicobar	Agricultural Plantation	Agricultural Plantation	Agricultural Land	57.40
2	Andaman & Nicobar	Lagoon, creeks, mud flats etc.	Coastal	Wetlands	91.15
3	Andaman & Nicobar	Saltpans	Coastal	Wetlands	0.91
4	Andaman & Nicobar	Cropped in 2 seasons	Cropland	Agricultural Land	2.73
5	Andaman & Nicobar	Cropped in more than 2 seasons	Cropland	Agricultural Land	0.06
6	Andaman & Nicobar	Kharif	Cropland	Agricultural Land	216.62
7	Andaman & Nicobar	Rabi	Cropland	Agricultural Land	70.16

2.7 Wasteland

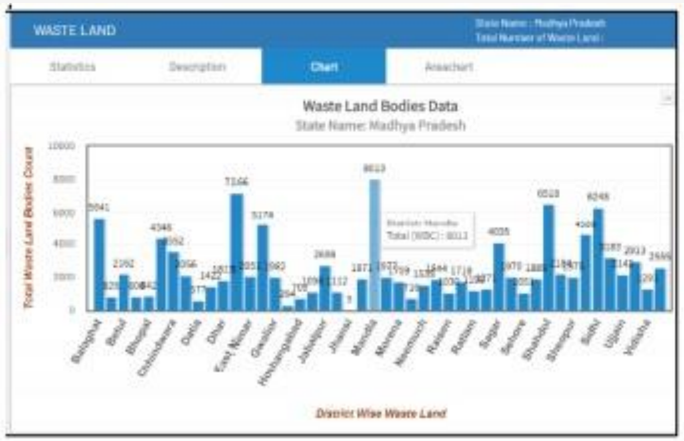
- Distribution and the spatial extent of the wasteland
- based on 2005-06 satellite data (prepared by NRSC in collaboration with various partner institutions

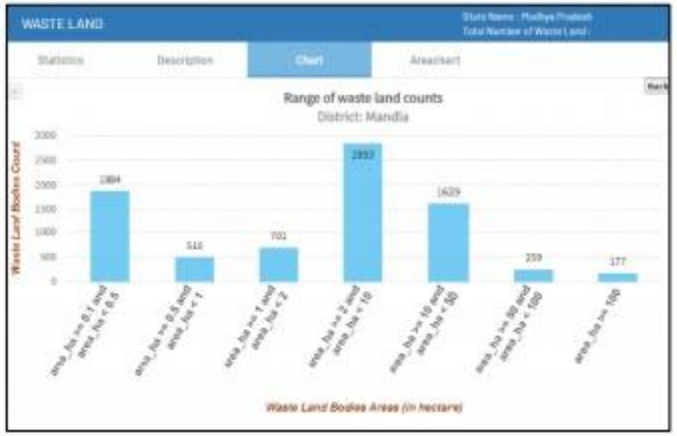
Unit-wise selection and statistics





Classes under wasteland statistics and charts



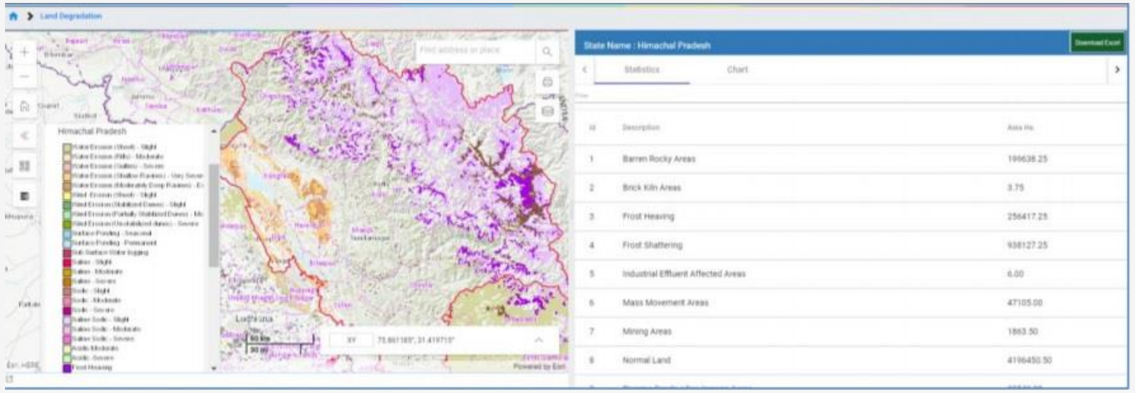


Number of wastelands in unit selected with area class wise distribution chart

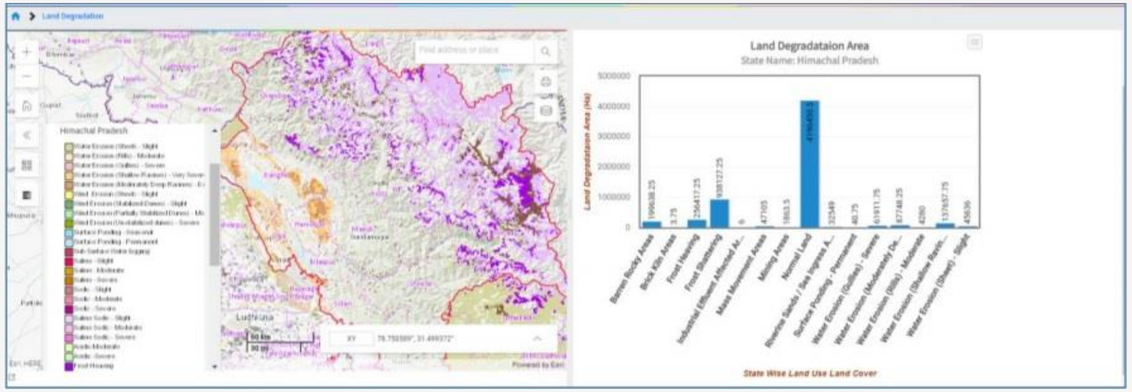
2.8 Land Degradation

-Spatial distribution, extent and the area under land degradation (available for 8 states only)

- It represents areas under various forms of land degradation processes, its type and severity level.



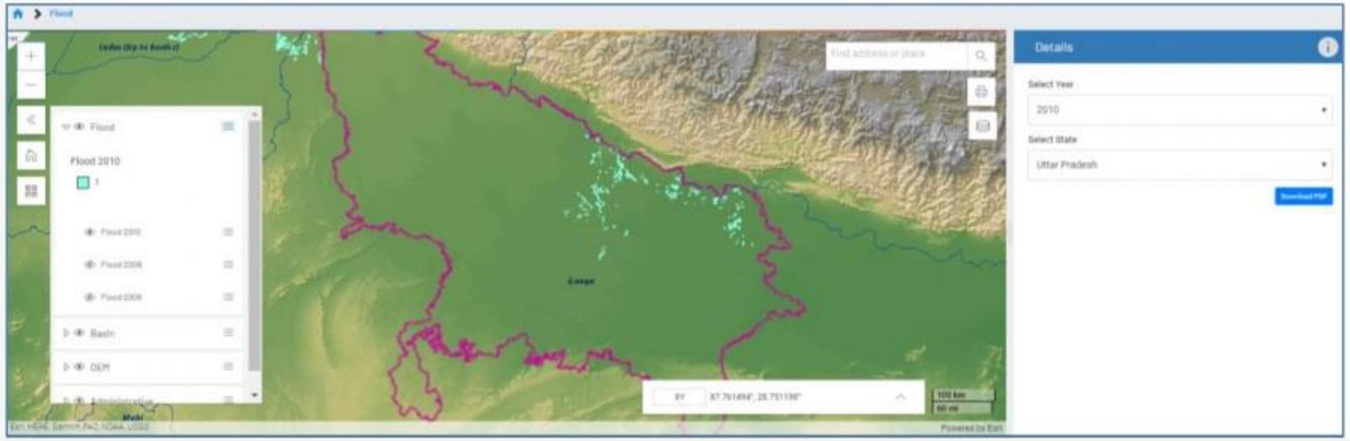
State Selection and Statistics



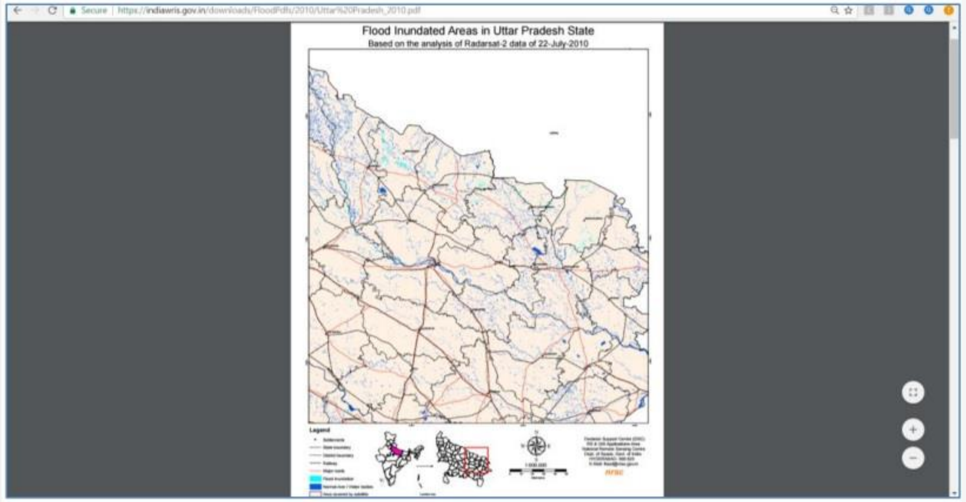
State selection and Chart

2.9 Hydro-met Extremes

- Flood inundated area based on satellite derived images for three years viz., 2008, 2009 and 2010

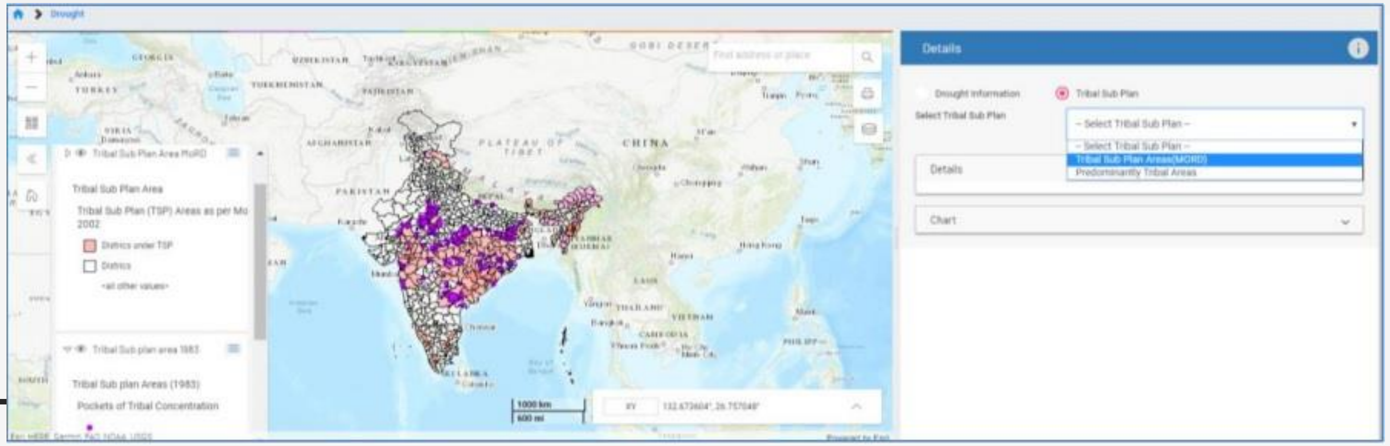


Flood - State selection and pdf downloads

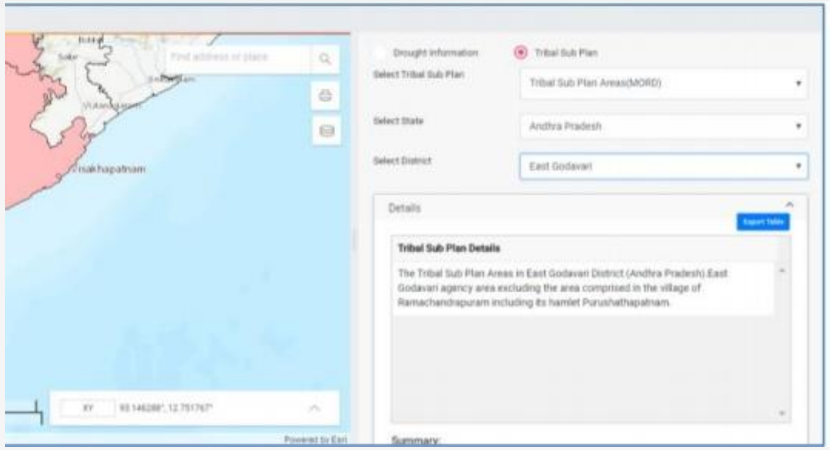


Flood pdfs

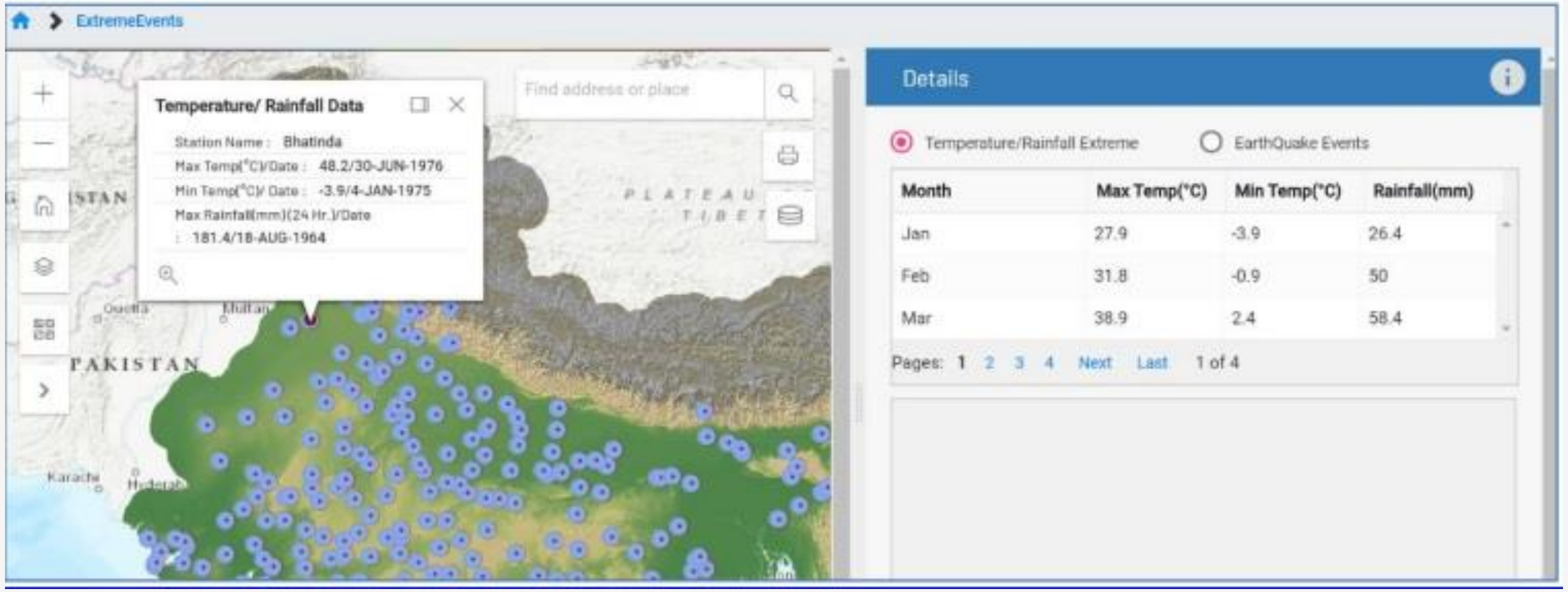
- Drought Prone Area based on the information generated under two main themes i.e. Areas under Drought Prone Development and Desertification Development & Tribal Sub -Plan Areas in the Country



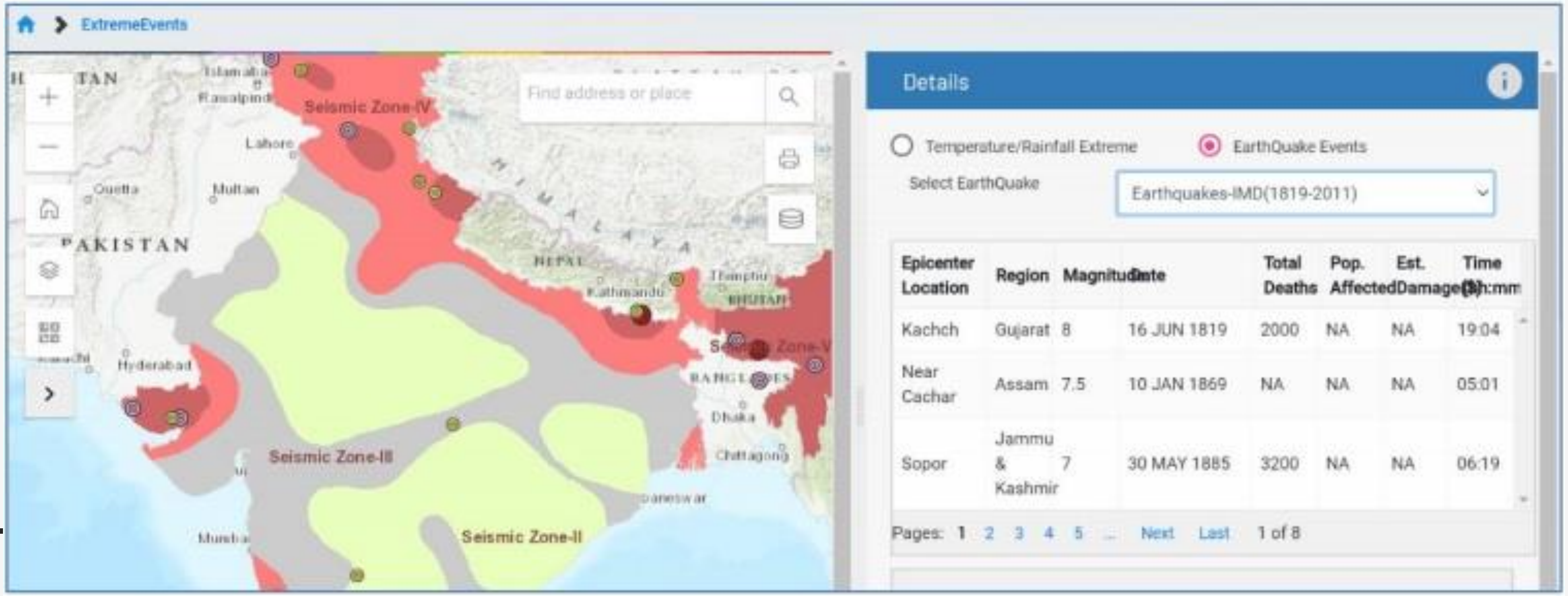
Drought Tribal sub plan



Drought District selection and statistics



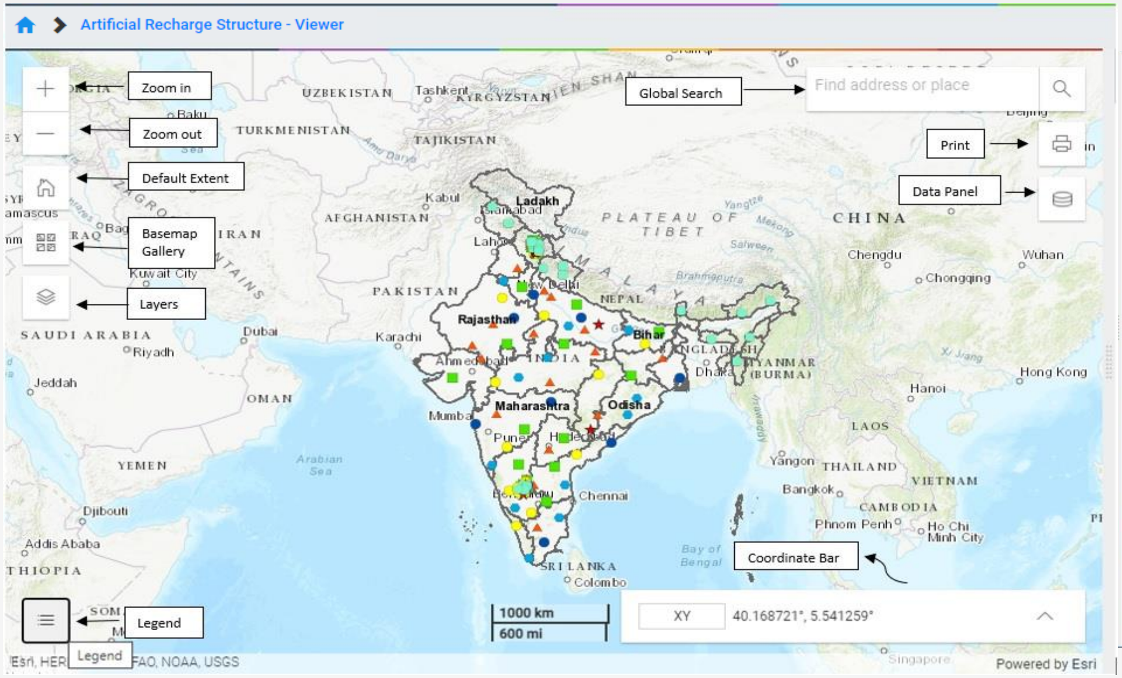
Temperature / Rainfall Extremes

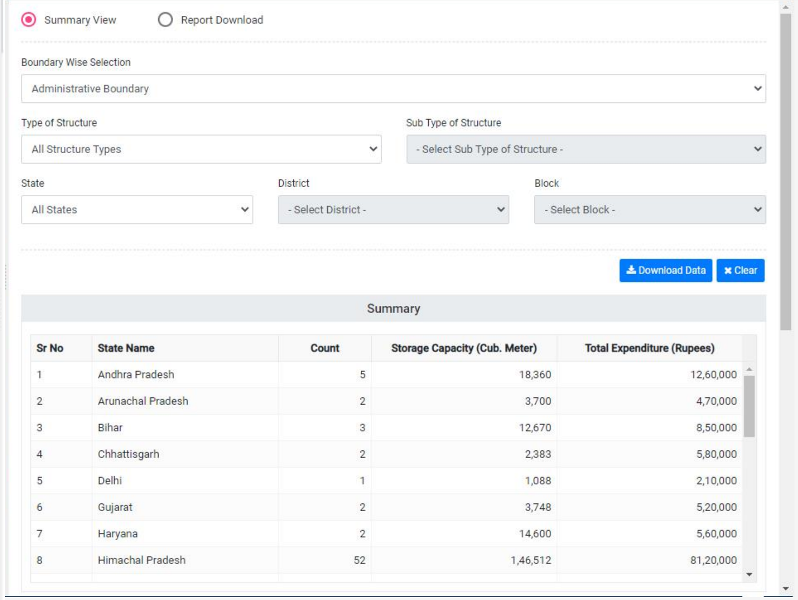


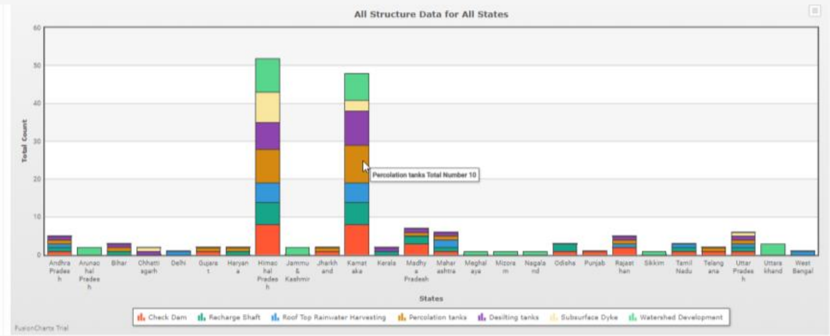
Earthquake

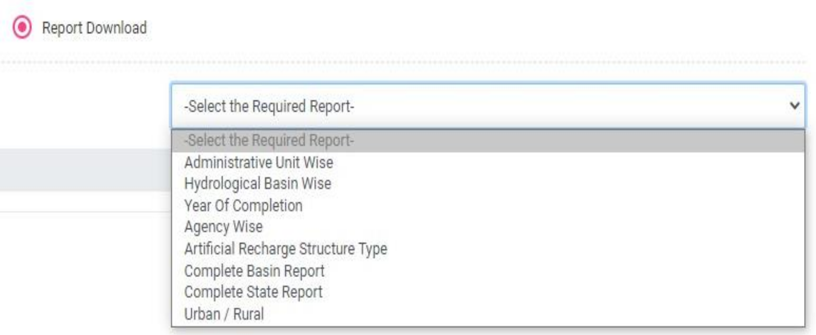
2.10 Artificial Recharge Structure - Viewer

- Provides holistic picture of the existing artificial recharge structures in a structured manner.
- User can view/download the data through map or in the form of tables .
- Pre-generated Reports are available for easy and quick access of the information
- 9 types of reports





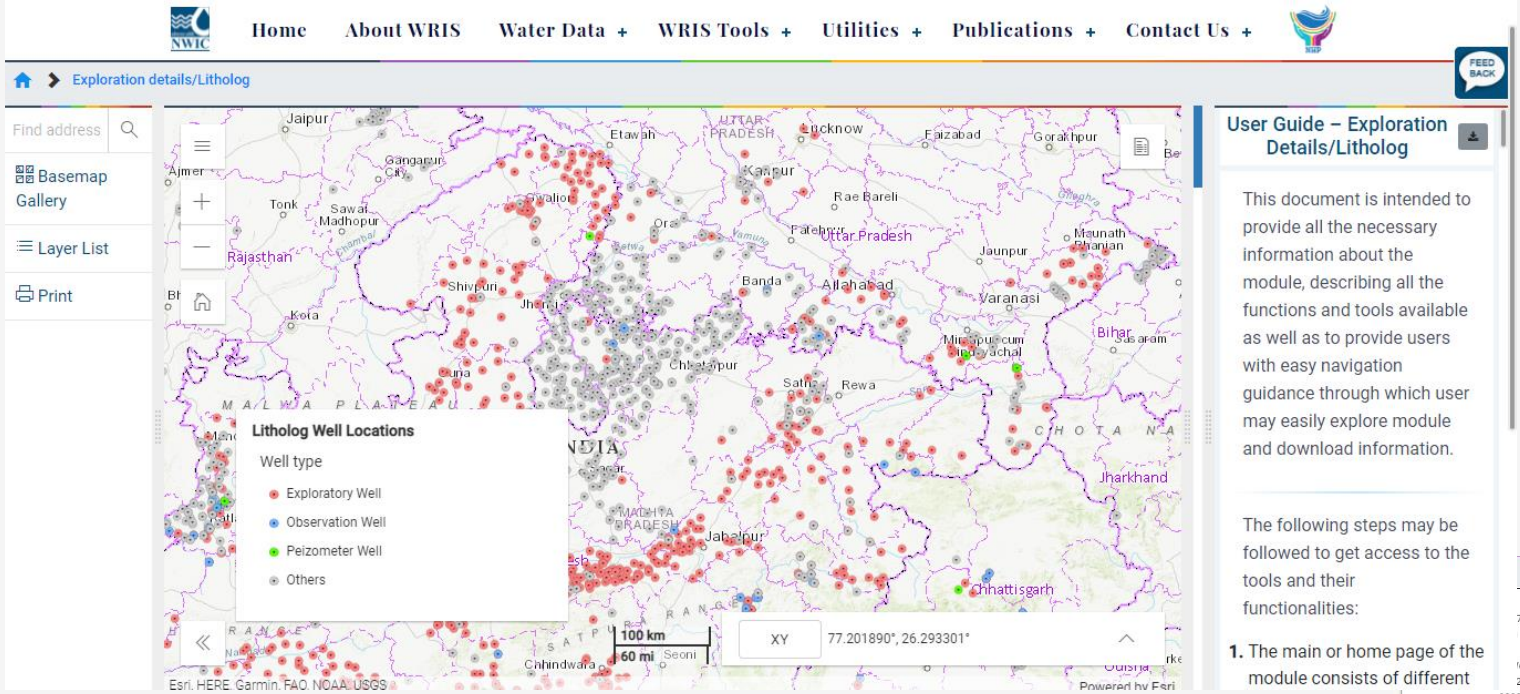




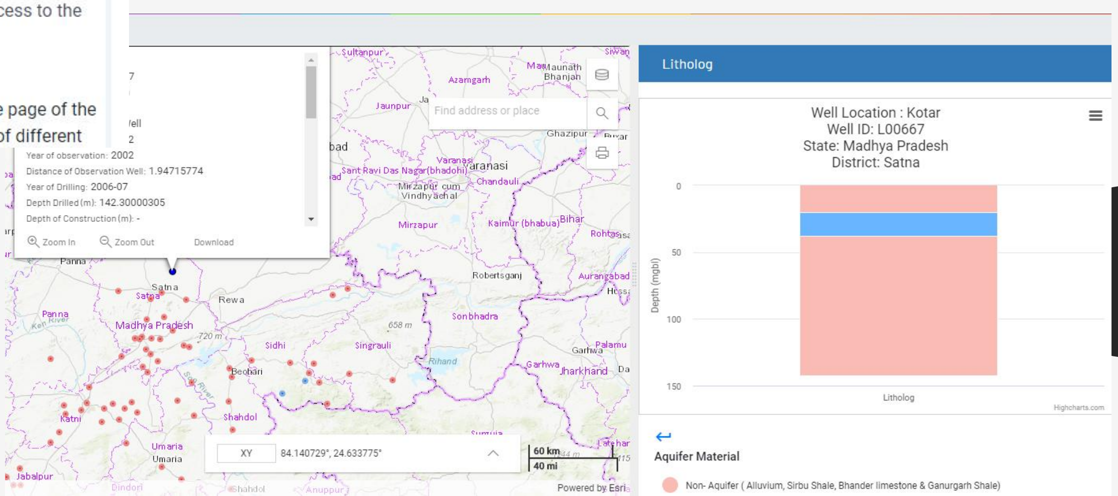
3. Static Modules

3.1 Exploration details/Litholog

- Provides the litholog of boreholes
- Information provided in terms of major lithology & aquifer zones (encountered / tapped)
- Individual bore logs with static parameters have been represented graphically .



Individual Bore details



3.2 Aquifer-2D

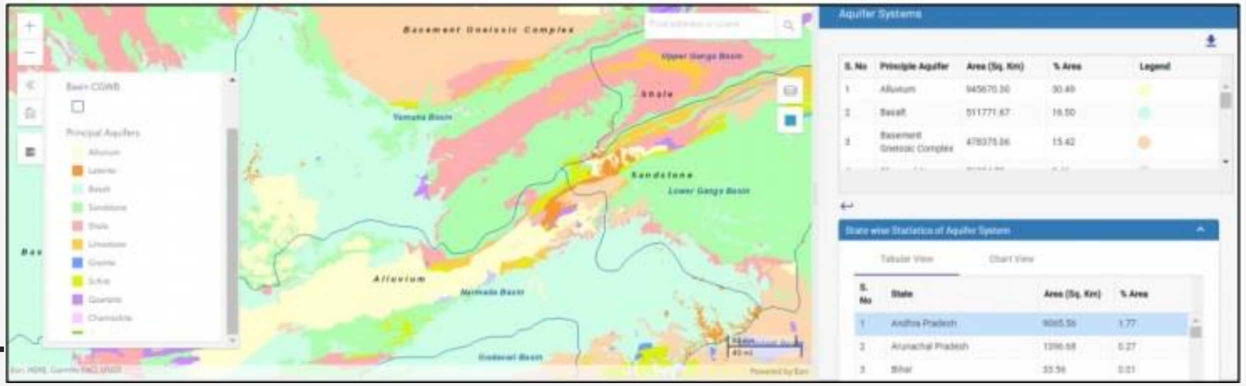
- 14 Principal Aquifer Systems &
- 42 Major Aquifers .
- In addition, Aquifer thickness, depth of first aquifer and aquifer material
- Map is available for view for the states having lithology data .

3.3 Surface Water Bodies

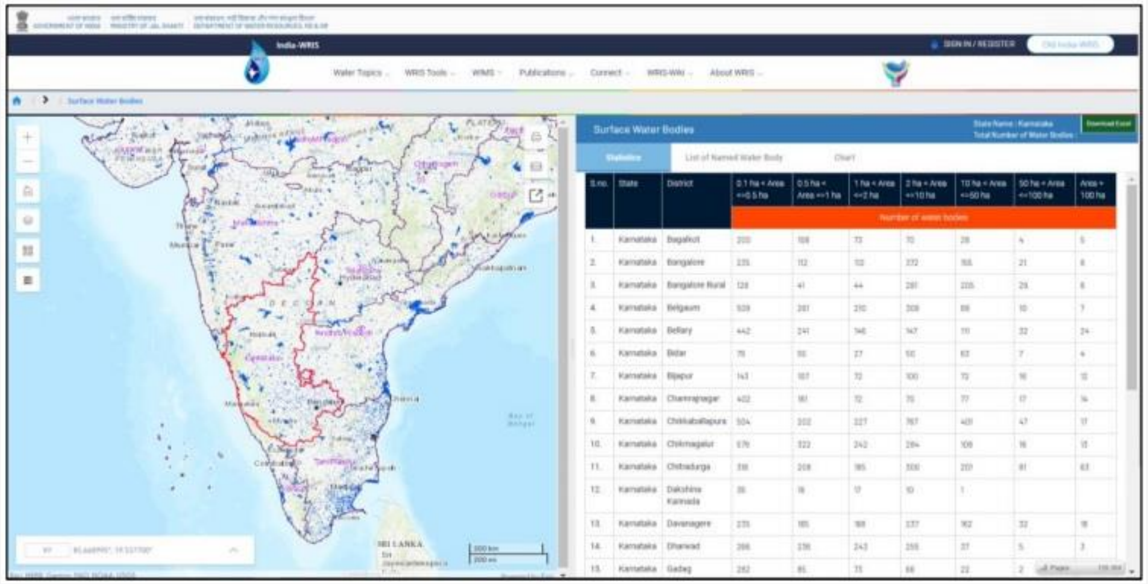
-Spatial distribution, extent and no. of surface Water Bodies mapped across nation .

- waterbodies under different area classes.

Aquifer Systems



Aquifers statistics state level



Surface Water Bodies *Unit Selection - Statistics*

Drill down charts

3.4 River Information

- Provides various hydrological boundaries (basin, sub-basin and water shed along with river layer) by different agencies

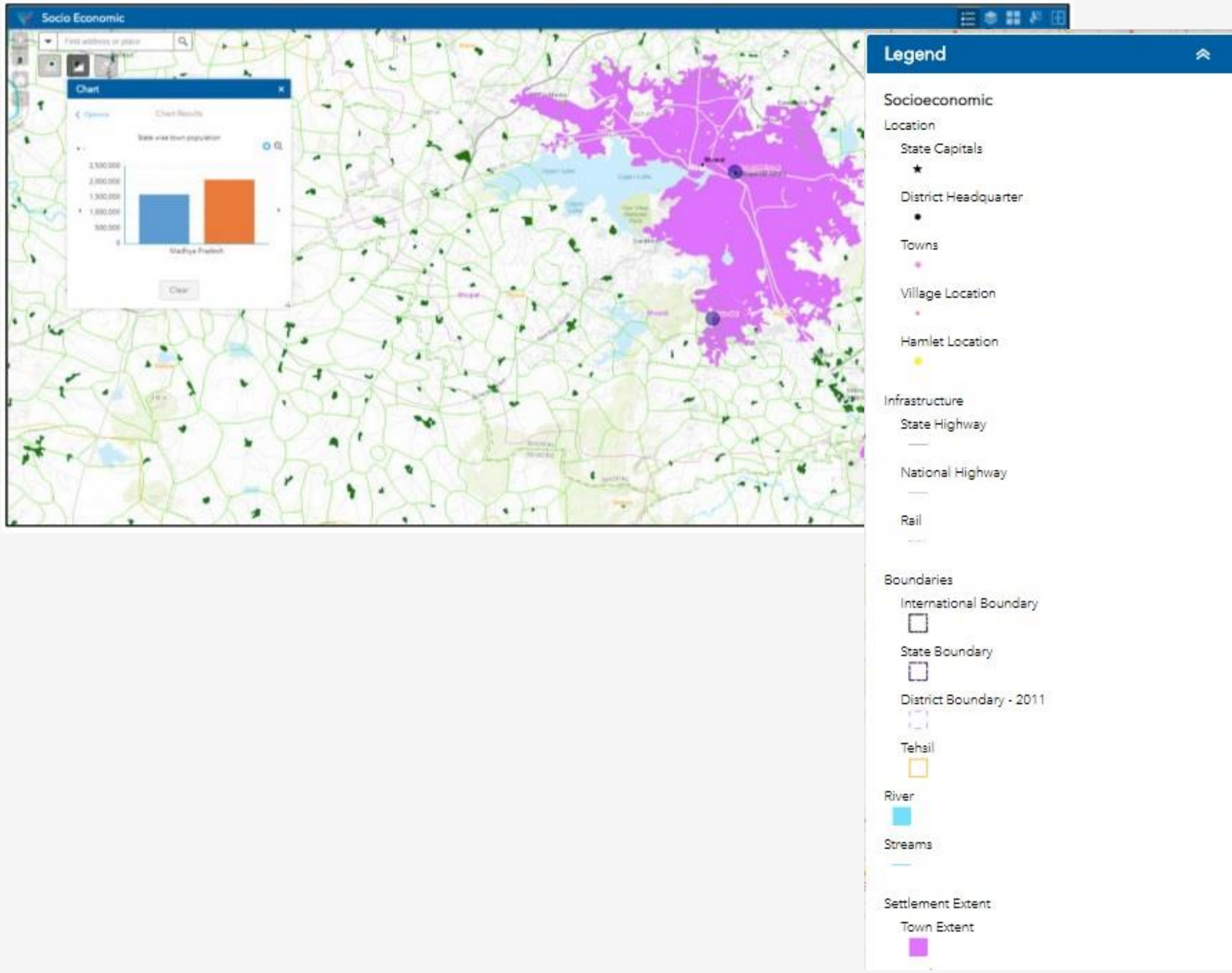
Global search

Zoom to feature

3.5 Socio Economic Census

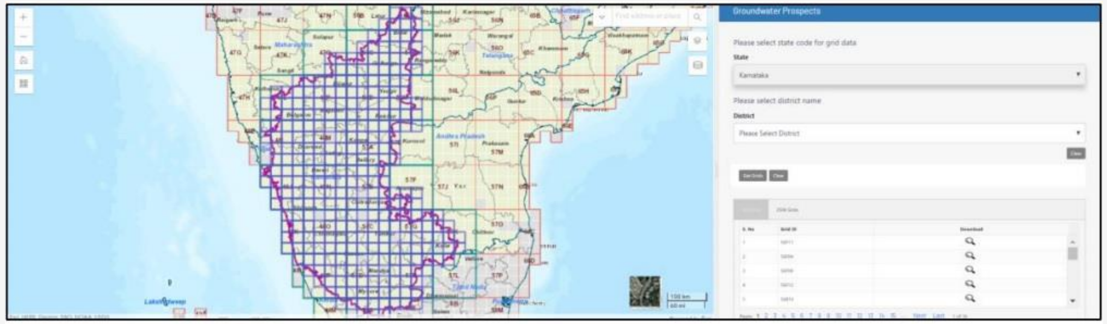
-Information regarding hierarchy of Administrative boundaries, settlement information for urban and rural sets

- Village boundary layer (declared by SOI) also provided

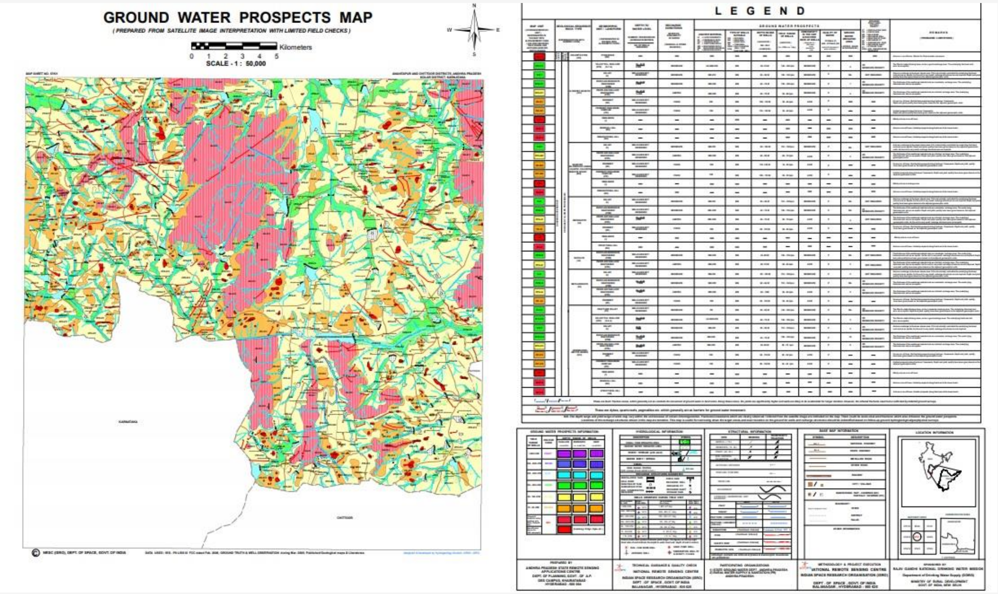


3.6 Groundwater Prospects

- Provides information regarding potential areas in terms of ground water availability (both quantity and quality).
- Maps are provided on 1:50,000 scale.



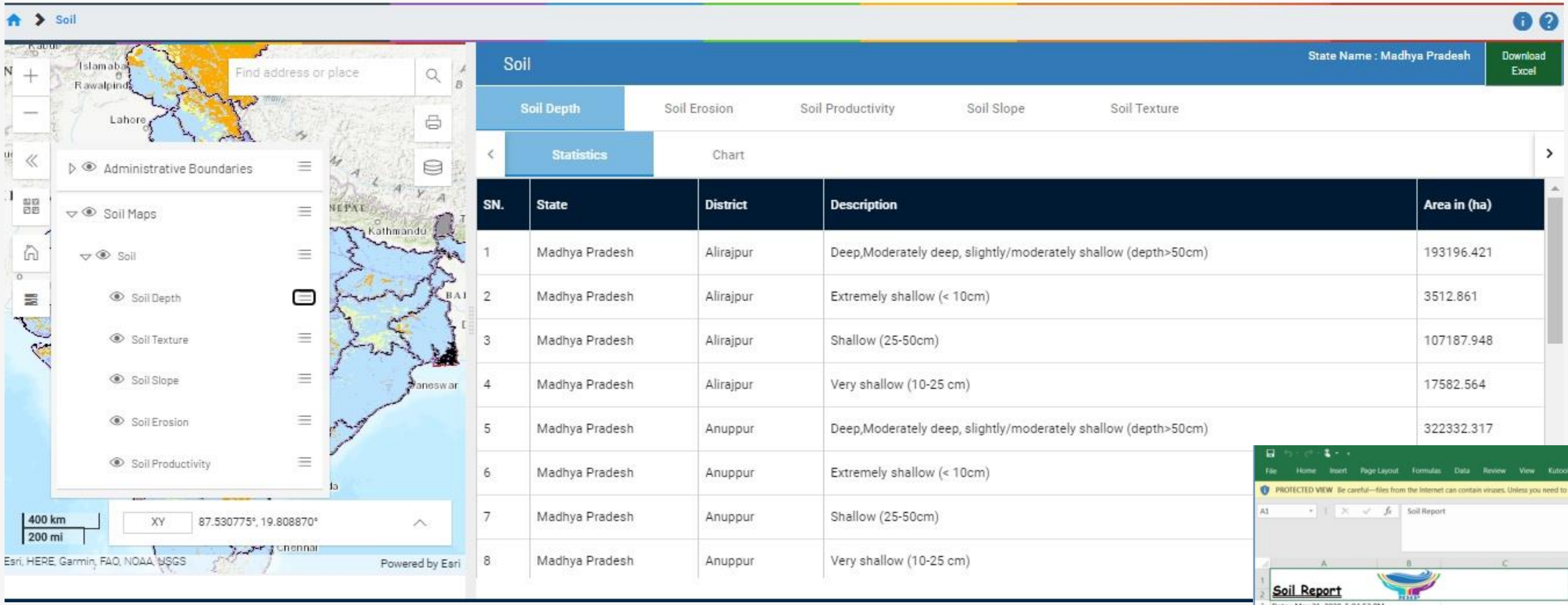
Groundwater Prospects Grid in selected state



Downloads View of the map with legend

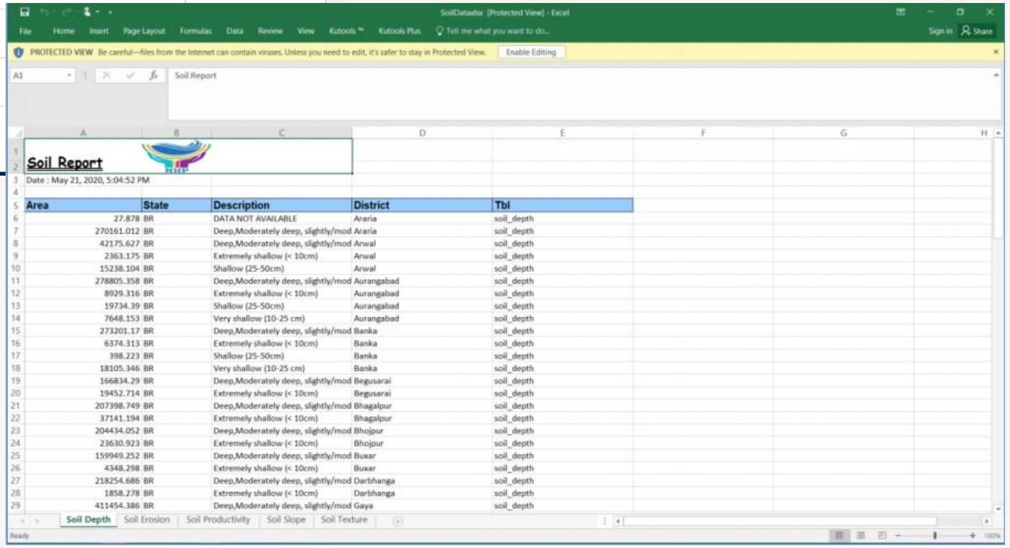
3.8 Soil

- Distribution of soil layer for entire country
- represents variation of soils in terms of texture, depth, slope, erosion and productivity.



SN.	State	District	Description	Area in (ha)
1	Madhya Pradesh	Alirajpur	Deep,Moderately deep, slightly/moderately shallow (depth>50cm)	193196.421
2	Madhya Pradesh	Alirajpur	Extremely shallow (< 10cm)	3512.861
3	Madhya Pradesh	Alirajpur	Shallow (25-50cm)	107187.948
4	Madhya Pradesh	Alirajpur	Very shallow (10-25 cm)	17582.564
5	Madhya Pradesh	Anuppur	Deep,Moderately deep, slightly/moderately shallow (depth>50cm)	322332.317
6	Madhya Pradesh	Anuppur	Extremely shallow (< 10cm)	
7	Madhya Pradesh	Anuppur	Shallow (25-50cm)	
8	Madhya Pradesh	Anuppur	Very shallow (10-25 cm)	

State Selection and Statistics



Soil Report

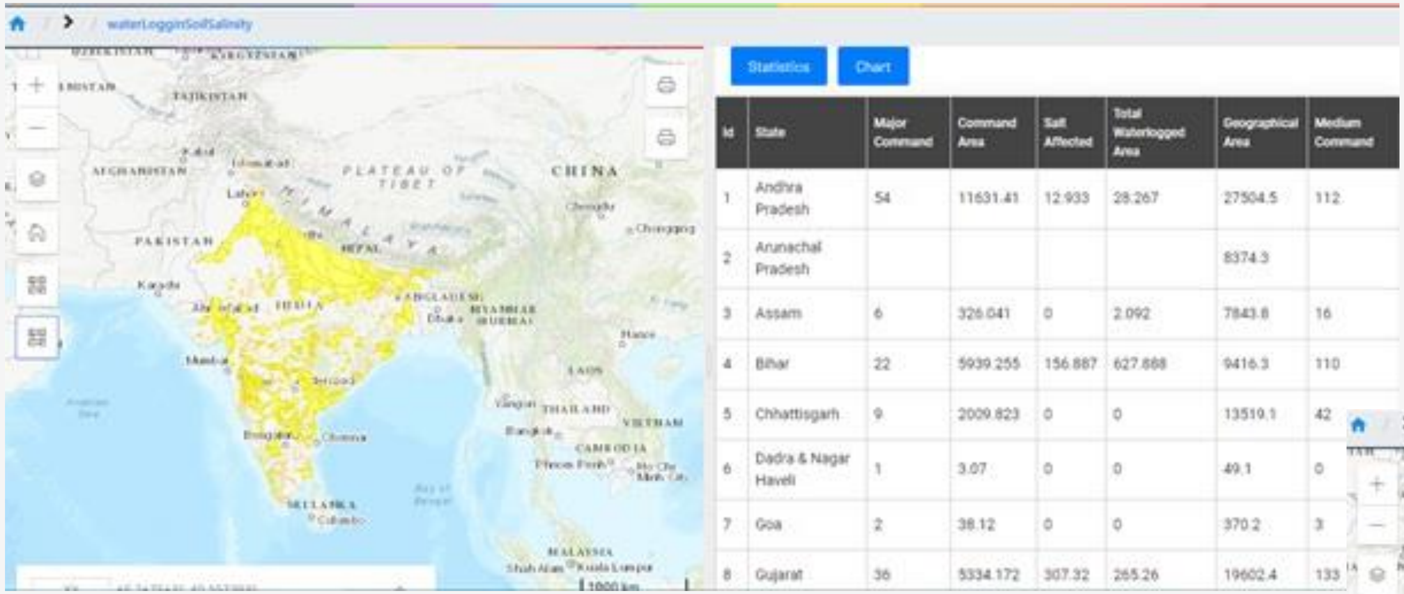
Date : May 21, 2020, 5:04:52 PM

Area	State	Description	District	Tbl
27.878	BR	DATA NOT AVAILABLE	Araria	soil_depth
270161.012	BR	Deep,Moderately deep, slightly/mod	Araria	soil_depth
42175.627	BR	Deep,Moderately deep, slightly/mod	Arwal	soil_depth
2363.175	BR	Extremely shallow (< 10cm)	Arwal	soil_depth
15238.104	BR	Shallow (25-50cm)	Arwal	soil_depth
278805.358	BR	Deep,Moderately deep, slightly/mod	Aurangabad	soil_depth
8929.316	BR	Extremely shallow (< 10cm)	Aurangabad	soil_depth
19734.39	BR	Shallow (25-50cm)	Aurangabad	soil_depth
7648.153	BR	Very shallow (10-25 cm)	Aurangabad	soil_depth
273201.17	BR	Deep,Moderately deep, slightly/mod	Banka	soil_depth
6374.313	BR	Extremely shallow (< 10cm)	Banka	soil_depth
398.223	BR	Shallow (25-50cm)	Banka	soil_depth
18105.346	BR	Very shallow (10-25 cm)	Banka	soil_depth
166834.29	BR	Deep,Moderately deep, slightly/mod	Begusarai	soil_depth
19452.714	BR	Extremely shallow (< 10cm)	Begusarai	soil_depth
207398.749	BR	Deep,Moderately deep, slightly/mod	Bhagalpur	soil_depth
37141.194	BR	Extremely shallow (< 10cm)	Bhagalpur	soil_depth
204434.052	BR	Deep,Moderately deep, slightly/mod	Bhojpur	soil_depth
23630.923	BR	Extremely shallow (< 10cm)	Bhojpur	soil_depth
159949.252	BR	Deep,Moderately deep, slightly/mod	Buxar	soil_depth
4348.298	BR	Extremely shallow (< 10cm)	Buxar	soil_depth
218254.686	BR	Deep,Moderately deep, slightly/mod	Darbhanga	soil_depth
1858.278	BR	Extremely shallow (< 10cm)	Darbhanga	soil_depth
411454.386	BR	Deep,Moderately deep, slightly/mod	Gaya	soil_depth

Data in Excel format

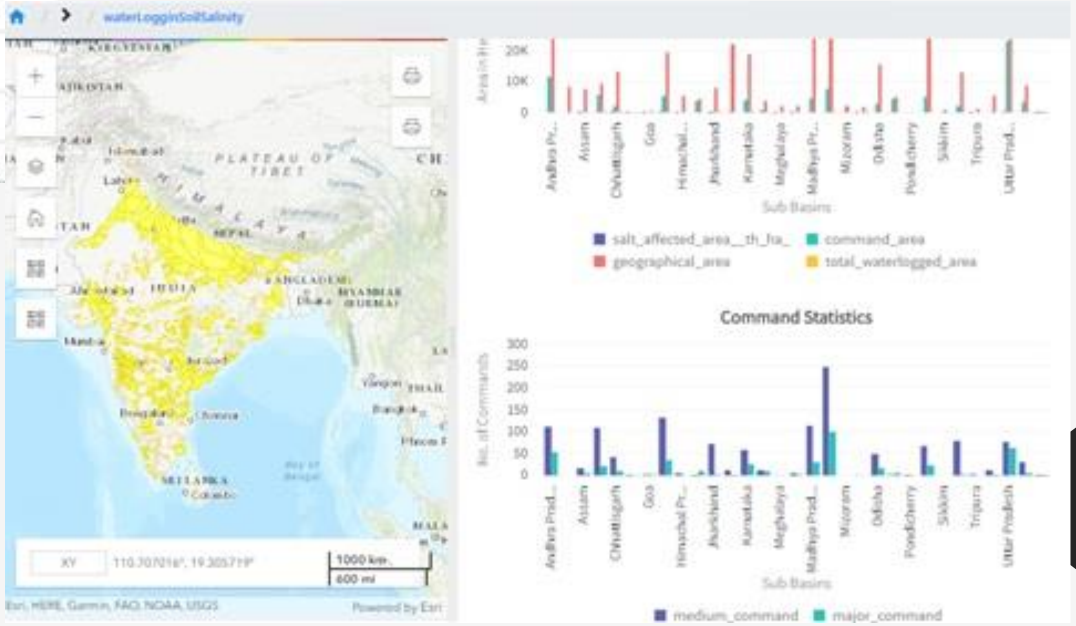
3.9 Water logging & Soil salinity

- Provides statistical analysis of water -logging area and soil salinity under major and medium commands in different State along with chart view.



Id	State	Major Command	Command Area	Salt Affected	Total Waterlogged Area	Geographical Area	Medium Command
1	Andhra Pradesh	54	11631.41	12.933	28.267	27504.5	112
2	Arunachal Pradesh					8374.3	
3	Assam	6	326.041	0	2.092	7843.8	16
4	Bihar	22	5939.255	156.887	627.888	9416.3	110
5	Chhattisgarh	9	2009.823	0	0	13519.1	42
6	Dadra & Nagar Haveli	1	3.07	0	0	49.1	0
7	Goa	2	38.12	0	0	370.2	3
8	Gujarat	36	5334.172	307.32	265.26	19602.4	133

Water Logging and Soil Salinity Module

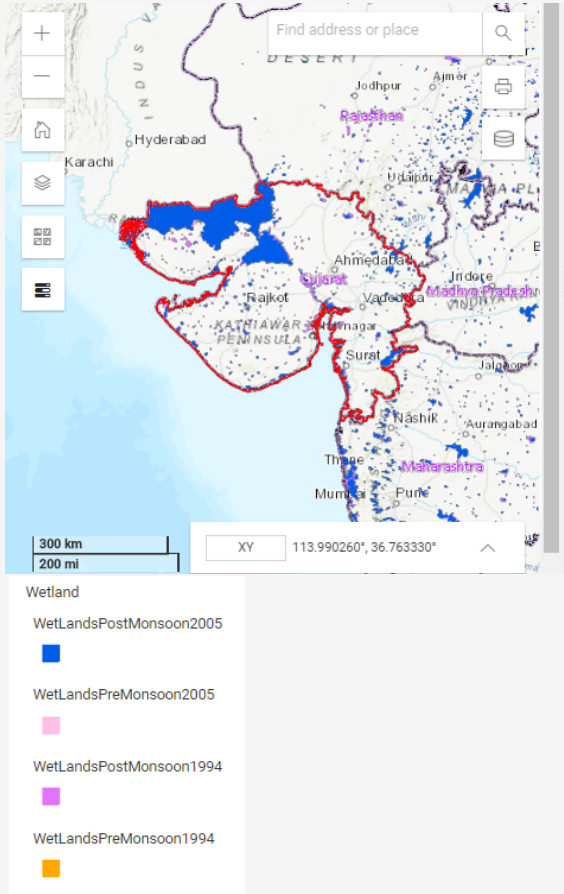


Statistics and Charts

3.10 Wet Lands

-Spatial distribution and extent of wetlands for the year 1994 & 2005 (pre and post monsoon)

- Satellite based product



State Name : Gujarat

List of Wetlands | Statistics | Chart | Download Excel

Filter

SN.	State	District	Location of Wetland	Nature of Wetland	Basin	Sub Basin	Type of Wetland	Wet Name	Wet Time	Area
1	Gujarat	Ahmadabad	Inland	Natural	Sabarmati	Sabarmati Lower	Ox-bow lakes/cut off meanders		WetLandsPostMonsoon1994	58.3
2	Gujarat	Ahmadabad	Inland	Natural	Sabarmati	Sabarmati Lower	Lake/ponds		WetLandsPostMonsoon1994	1596
3	Gujarat	Ahmadabad	Inland	Natural	Sabarmati	Sabarmati Lower	Lake/ponds		WetLandsPostMonsoon1994	7940
4	Gujarat	Ahmadabad	Inland	Man-made	Sabarmati	Sabarmati Lower	Reservoirs		WetLandsPostMonsoon1994	141.
5	Gujarat	Ahmadabad	Coastal	Natural	Sabarmati	Sabarmati Lower	Sand/beach/spit/bar		WetLandsPostMonsoon1994	81.3
6	Gujarat	Ahmadabad	Coastal	Natural	Sabarmati	Sabarmati				

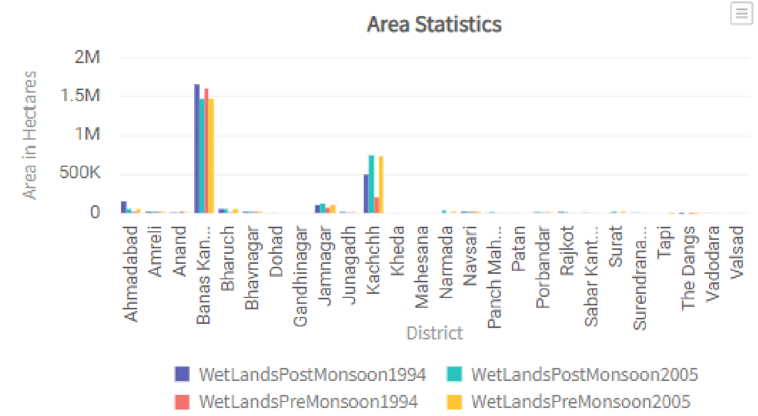
State Name : Gujarat

List of Wetlands | Statistics | Chart | Download Excel

SN.	District	WetLands Post Monsoon 1994 (Area (Ha))	WetLands Post Monsoon 2005 (Area (Ha))	WetLands Pre Monsoon 1994 (Area (Ha))	WetLands Pre Monsoon 2005 (Area (Ha))
1	Ahmadabad	164343.409	56361.360	22562.365	50663.856
2	Amreli	19665.688	18458.501	14537.872	13911.876
3	Anand	9362.729	9660.722	17612.530	9793.457
4	Banas Kantha	1656868.764	1485024.998	1619283.244	1480469.808
5	Bharuch	53121.648	52327.808	10696.383	51730.916
6	Bhavnagar	27311.142	30875.074	15610.027	25066.474
7	Dohad	2700.005	5694.024	1110.373	1226.156
8	Gandhinagar	459.647	84.101	149.130	59.738

State Name : Gujarat

List of Wetlands | Statistics | Chart

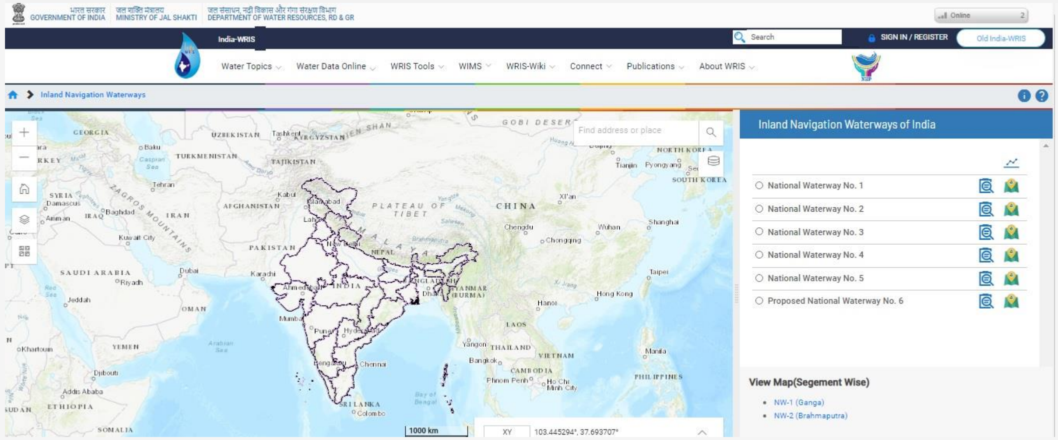


3.11 Inland Navigation Waterways

- Brief summary of all inland waterways along with the maps as well as all relevant information .
- 5 Navigation Waterways namely,

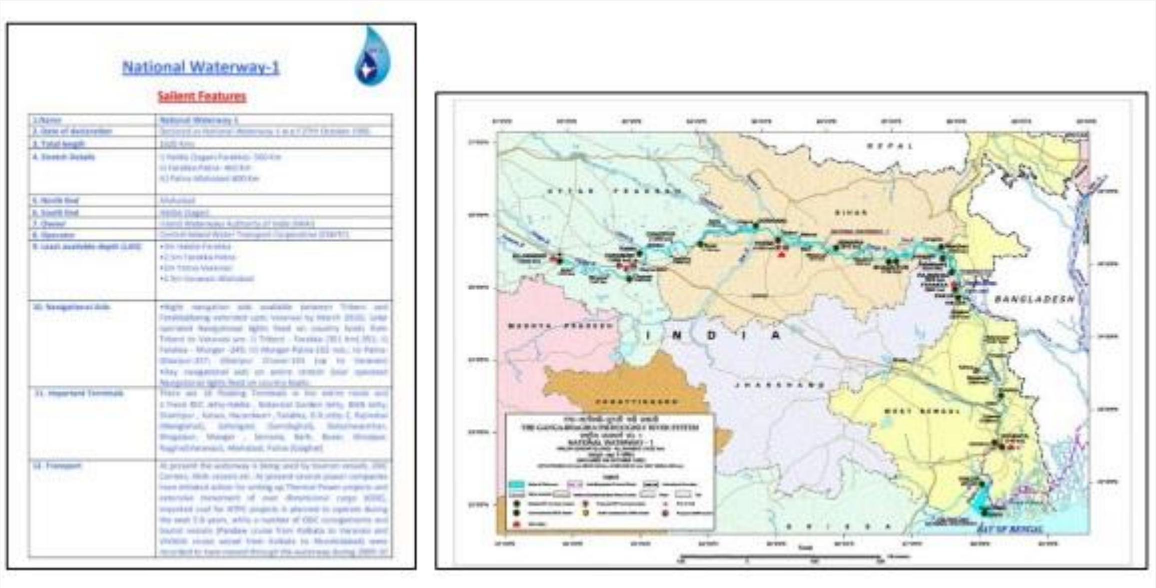
(a) the Ganga (NW-1), (b) the Brahmaputra (NW-2), (c)the West Coast Canal (NW-3), (d) Kakinada -Puducherry Canals system along with Godavari and Krishna rivers (NW-4) and (e) East Coast Canal with Brahman River and Mahanadi delta (NW-5).

- Sixth proposed navigation waterway (The Barak – NW-6).



Inland Navigation Waterways

Overview of Waterway



Downloads Salient features and Map

3.12 Interbasin Transfer Links

- Information and maps of the various components of the Inter Basin Transfer Links.
- Detailed structures and water bodies associated for Peninsular component
- Published maps of NWDA in .pdf format are available for Himalayan component .

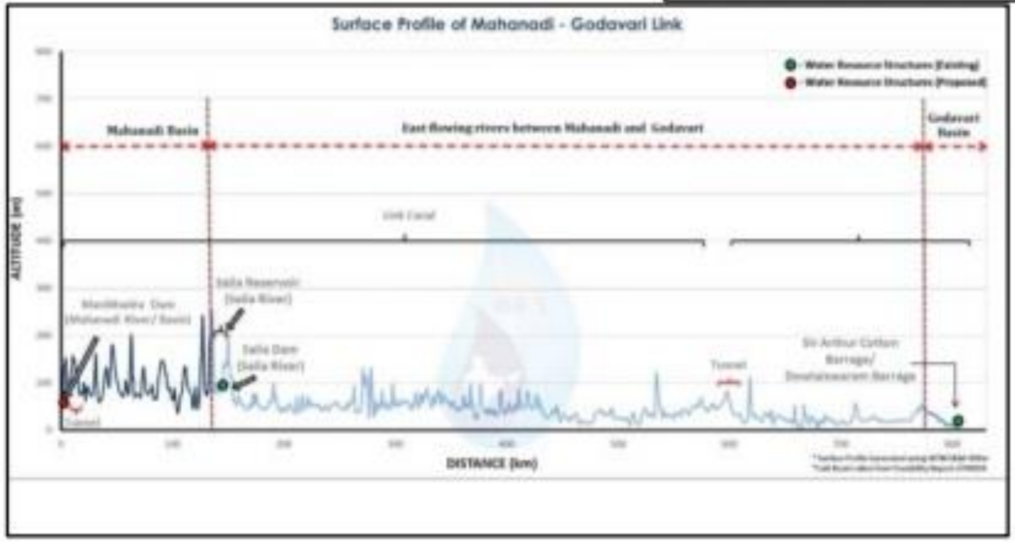
Himalaya Inter Basin Transfer Link

Zoom to link on click

Downloads Map view of links

Salient Features of Mahanadi - Godavari Link Project

1.	Name of the project	Mahanadi (Manibhadra) – Godavari (Dowlaiswaram) Link Project
2.	Purpose	Diversion of 12165 Mm^3 of Mahanadi waters to meet en route irrigation, domestic and industrial needs in Orissa and Andhra Pradesh States and to deliver a quantum of 6500 Mm^3 at upstream, of the Dowlaiswaram barrage on the Godavari river to meet part requirement of Godavari delta.
3.	Quantum of water diversion (Mm^3)	12165
4.	En route Irrigation/Utilisation	
a)	In Orissa State	
	i) C.C.A (ha)	256770
	ii) Annual Irrigation (ha)	351786
	iii) Annual Utilisation (Mm^3)	3184
b)	In Andhra Pradesh State	
	i) C.C.A (ha)	107189
	ii) Annual Irrigation (ha)	91110
	iii) Annual Utilisation (Mm^3)	606
c)	Total	
	i) C.C.A (ha)	363959
	ii) Annual Irrigation (ha)	442896
	iii) Annual Utilisation (Mm^3)	3790

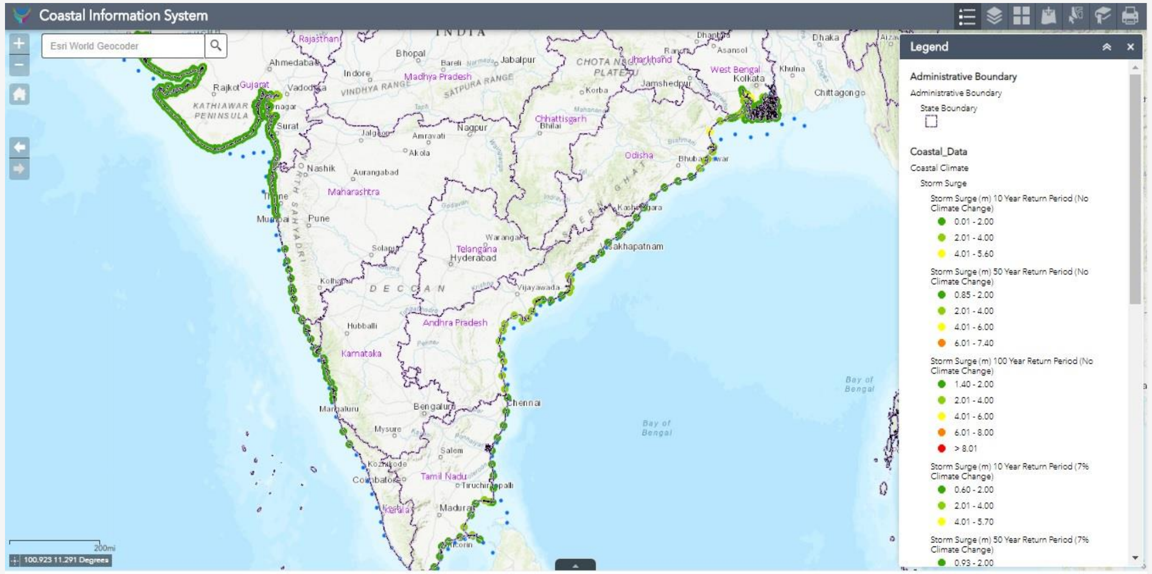


3.13 Storm Surge Study

-Provides a comprehensive database related to oceanographic and meteorological data for the entire coast of India

-The oceanographic and meteorological variables considered includes Strom surge, Cyclone, Wave and Sea - Level Rise

-Storm Surge and Cyclone data are provided at a distance of 10 km for Gujarat, Maharashtra, and West Bengal and rest of the coast line at 50 km interval.

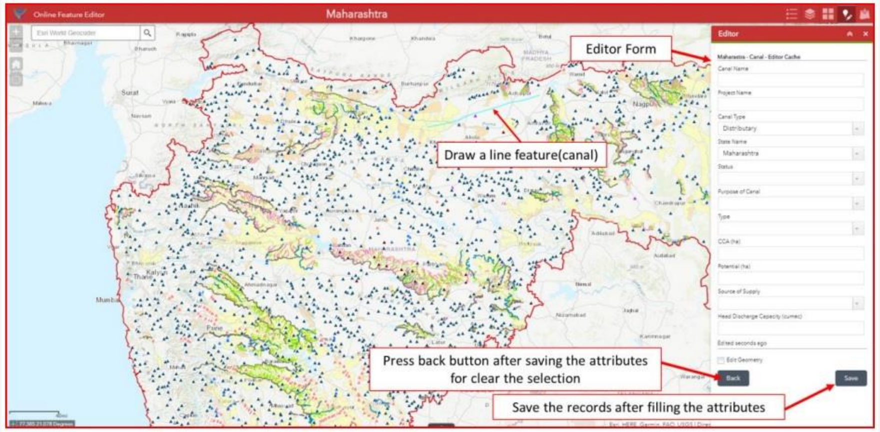


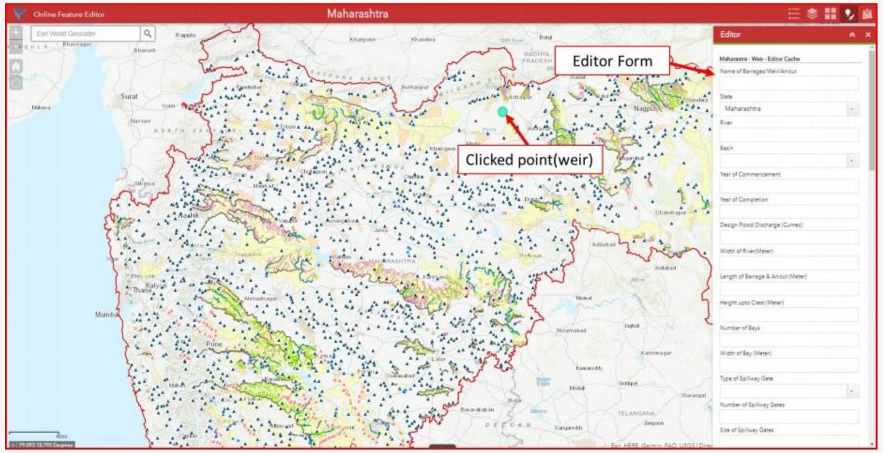
Coastal Information System

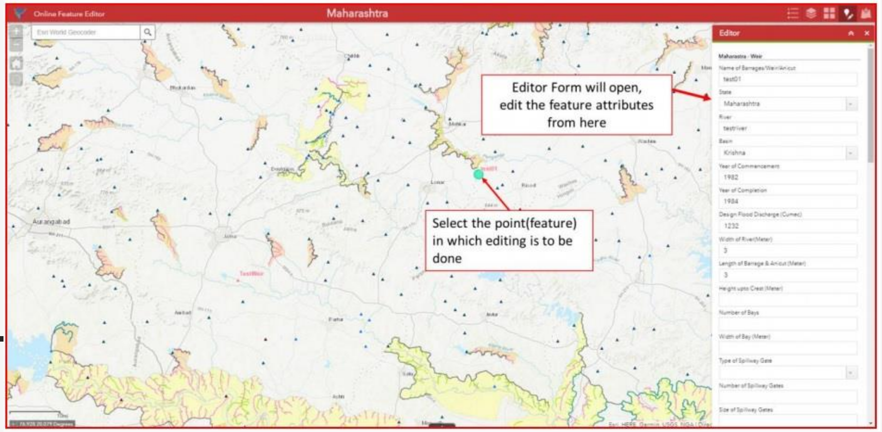
4. Tools

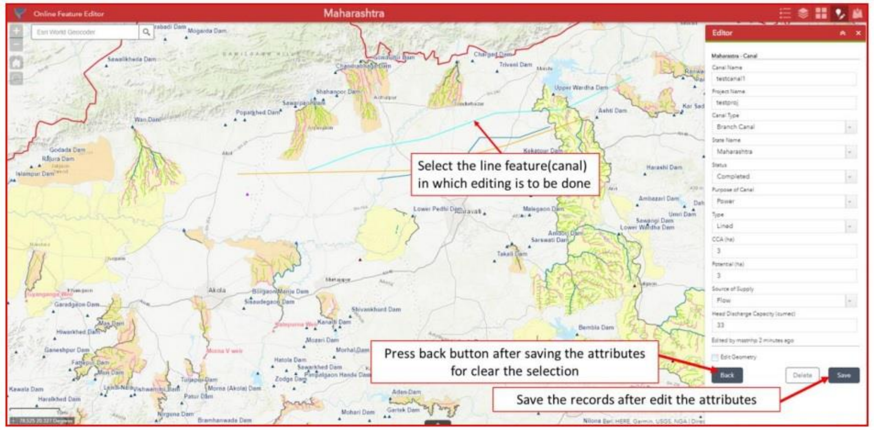
4.1 Online Web Editor

- To provide a platform for the state agencies to upload the water resources information
- Add/edit/delete the features and attributes online for six themes namely, dam, barrage, weir, anicut , lift and canal for further dissemination at India -WRIS platform.
- State users can update Irrigation Projects with authorized access.









4.2 ARS – Data Entry

- Data Entry Platform to ingest the attribute data directly into the India WRIS database .

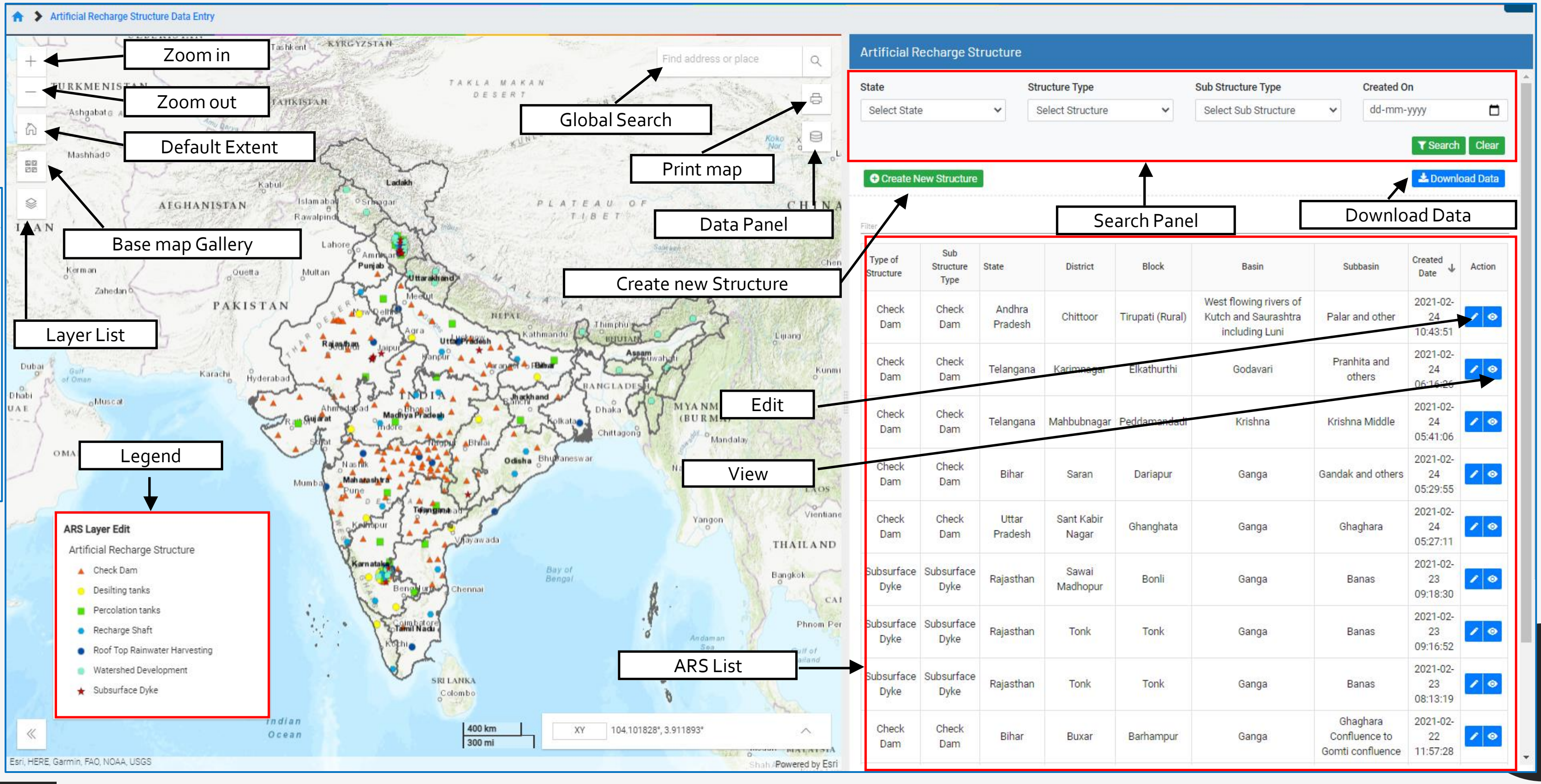
- ➢Create features such as
- ➢Edit Existing features
- ➢Download Data

2 sections in Data Entry Form:

Part A: Primary Field *Related To 'Location Details'*

Part B: Secondary field *are for 'structure details'* such as like width, height, storage capacity etc.

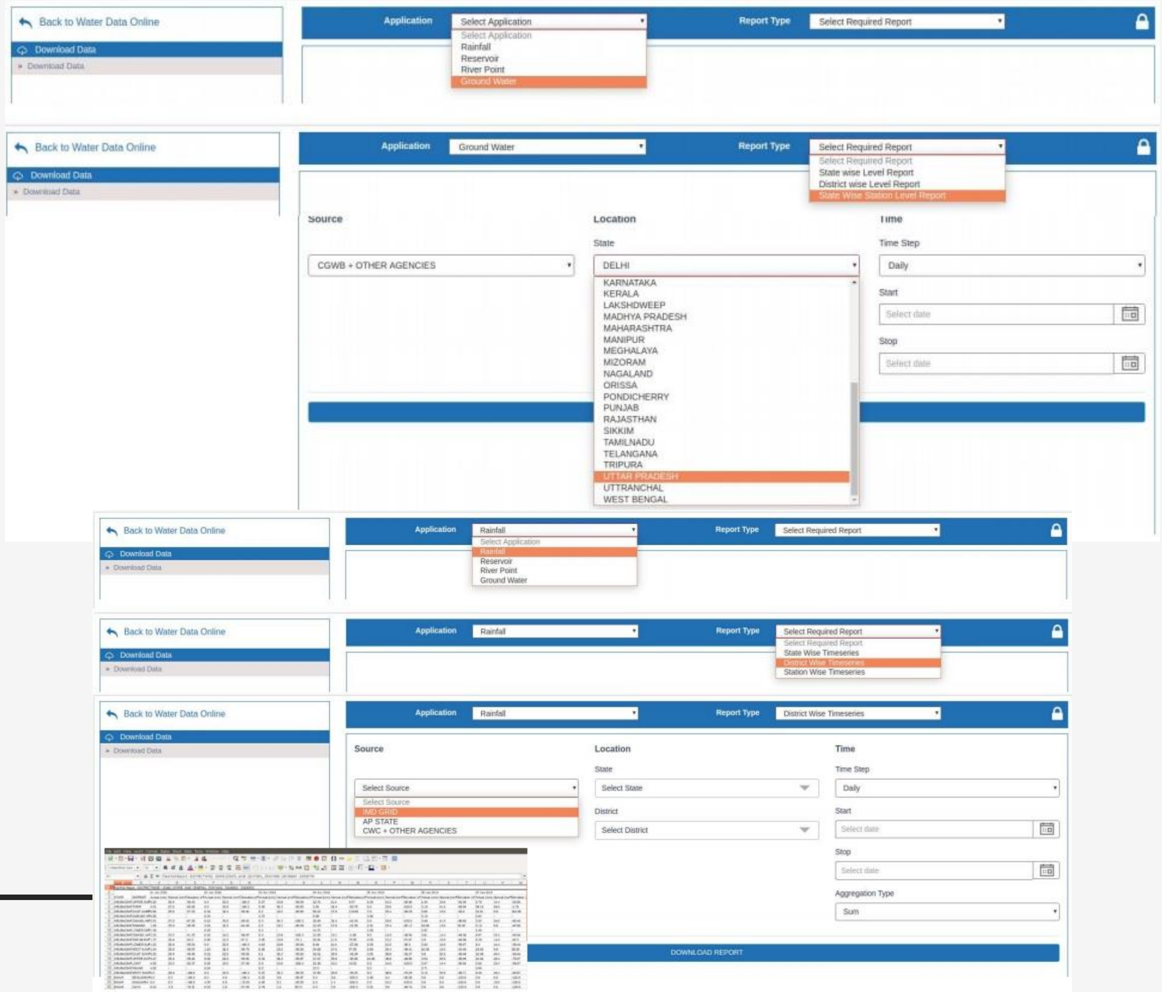
Login Based

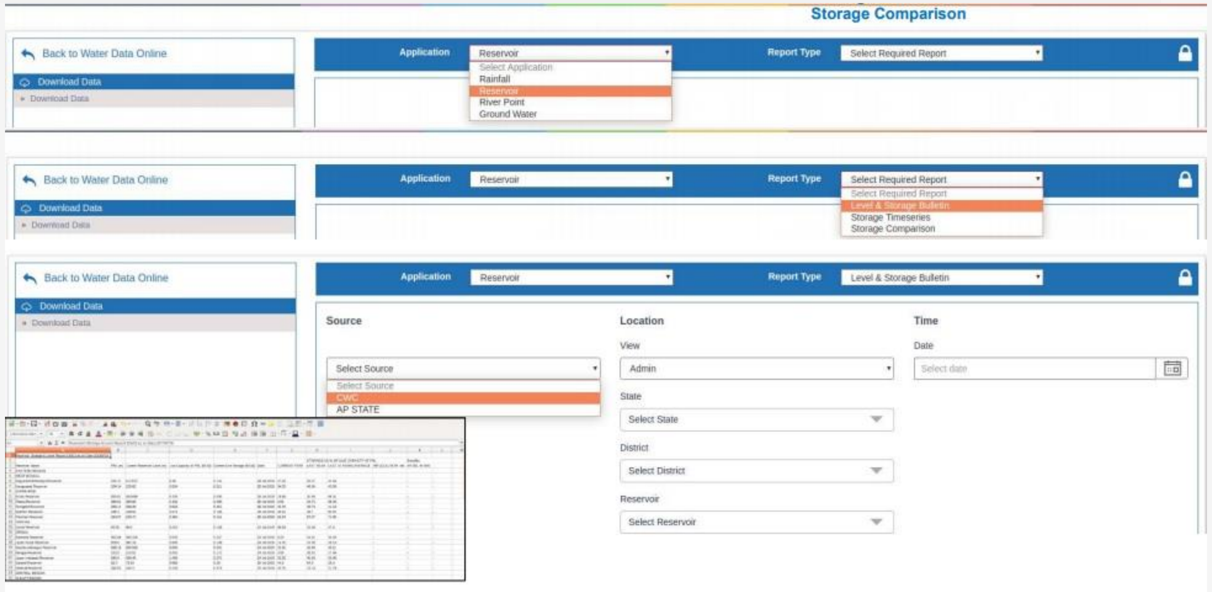


5. Utilities

5.1 Data/Report Download (Tabular)

- Offers download of time series data
- Various types of reports already generated, for ease of data assessment and usage.
- Also has a comparison dashboard for comparing the reservoirs and river points data.





5.2 Data Availability

-Availability of time series data of telemetry and manual stations as per State/Agency/Basin wise.
-Color code is provided to display the recent data availability and availability report download for selected unit is also provided through this module.

5.3 Geoviewer

- Tool to visualize all the different sets of data on a single application for a comparative and interlinked view to derive a holistic picture with overlay.

5.4 WRIS Wiki

- Comprehensive information for the water resources assets and projects of the country is made available through WRIS Wiki application.

5.5 Metadata

- Metadata module offers the information about the different GIS layers, its source, Citation and other details.

5.6 District at a glance

- acts as a tool to provide first level of information of at a glance .
- Overview of the national level scenario of water resources at a district level scale .

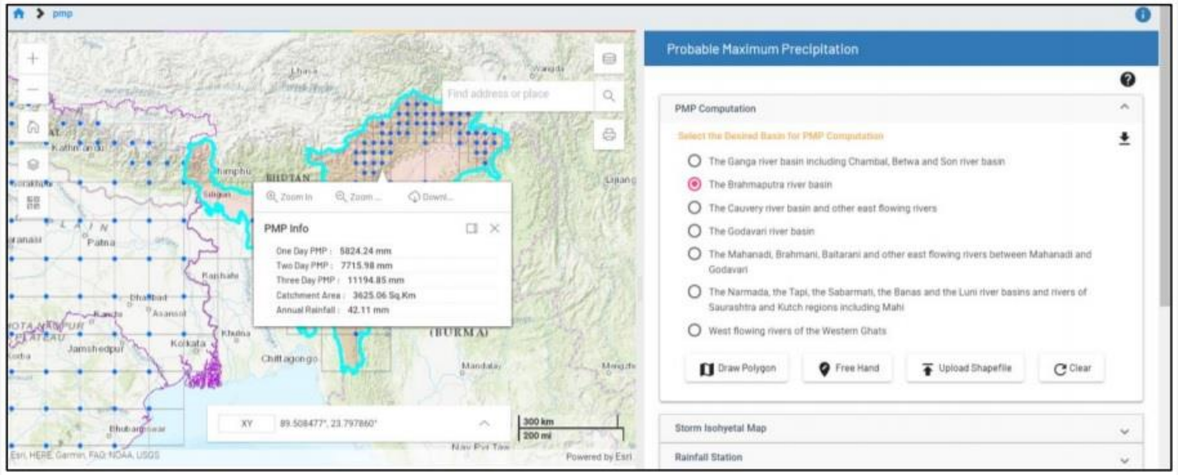
District Name: South West Delhi

Export Clear

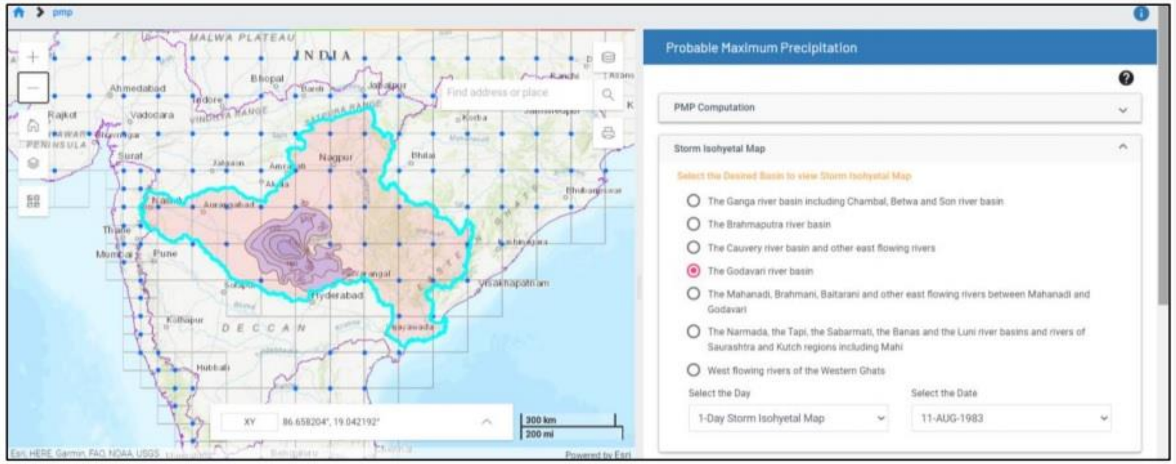
Sr No	Name	Description
1	District	South West Delhi
2	State	DL
3	Area in SqKms	395
4	Population	2292958
5	Growth Rate	30.65
6	Sex Ratio	840
7	Literacy	88.28
8	Density	5445
9	Seismic Zone	Seismic Zone-IV
10	Water Resources	
10.1	Dams (in Nos)	null
10.2	Barrage (in Nos)	null
10.3	Lift (in Nos)	null
10.4	Power House (in Nos)	null
10.5	Water Bodies (in Nos)	4
11	Minor Irrigation(5th Census)	
11.1	Ground Water Schemes	3458
1	Dugwells (in Nos)	0
2	Shallow Tubewells (in Nos)	144
3	Deep Tubewells (in Nos)	3314
11.2	Surface Water Schemes	0
1	Surface Flow (in Nos)	0
2	Surface Lift (in Nos)	0
11.3	Water Distribution Devices	3457
1	Open Water Channel (in Nos)	3449
2	Underground Pipe (in Nos)	4
3	Surface Pipe (in Nos)	4
4	Drip (in Nos)	0
5	Sprinkler (in Nos)	0
6	Others (in Nos)	0
11.4	Culturable Command Area(in ha)	7245.23
11.5	Irrigation Potential Created(in ha)	13531.02
11.6	Irrigation Potential Utilized(in ha)	11490.94

5.7 Probable Maximum Precipitation (PMP)

- PMP value will be computed for an area of interest
- Query area limit is 500 Sq. km.



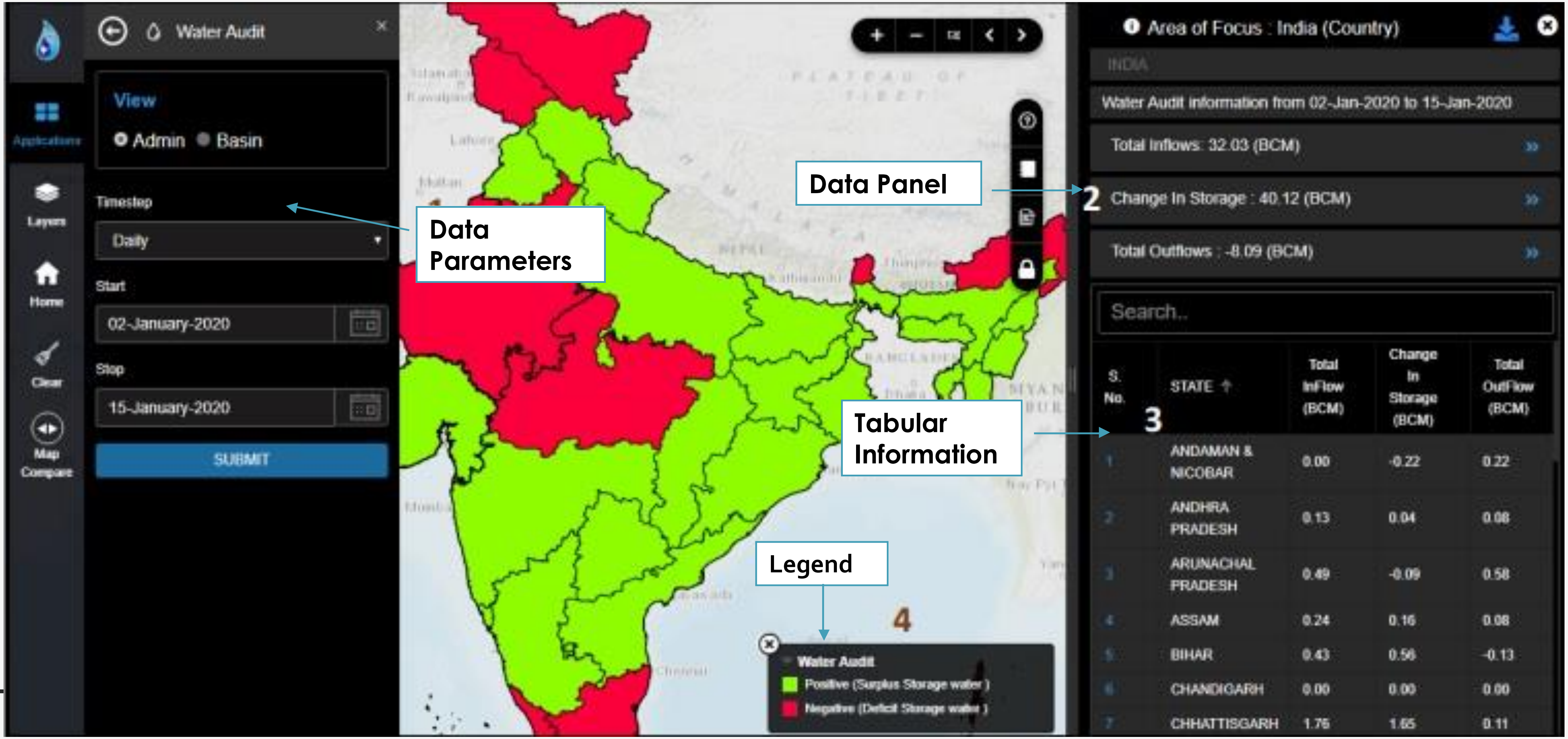
PMP Computation - Result

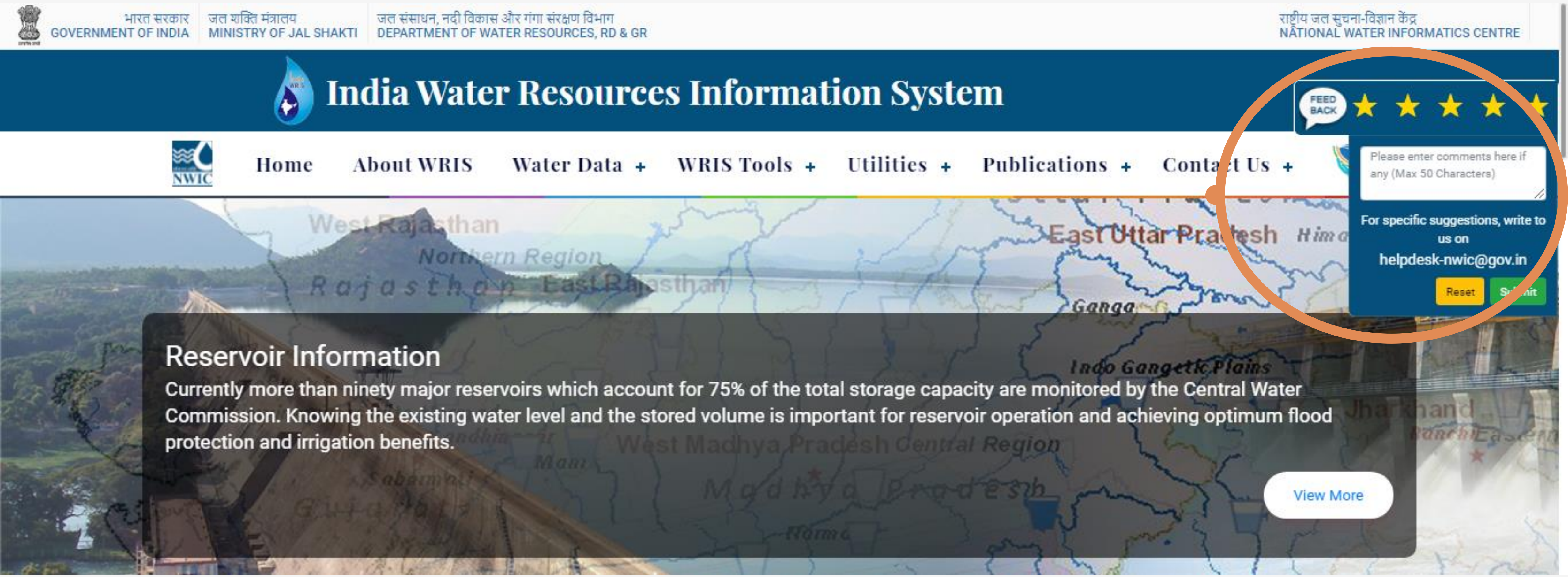


Storm Isohyetal Map

5.8 Surface Water Audit

- Inflows and outflows in an area and its change in storage for a particular time period .
- displays the excess and low water storage in different parts of the country





Contact Us at helpdesk-nwic@gov.in

Thank you