Bhuvan

Geo-platform of ISRO

Kalyan Deep K,
BWSD, BG&WSG,
NRSC

Bhuvan Geo-Platform

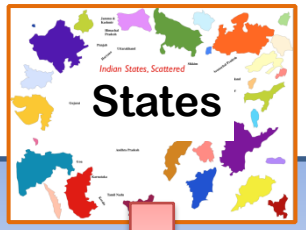
1 Visualization Platform

2 Platform for For Free Data Clearing House

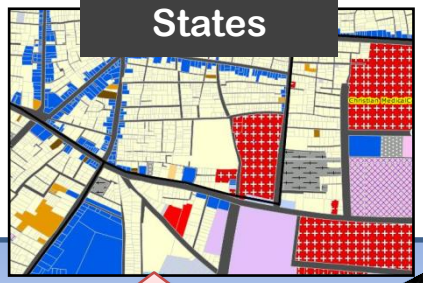
Satellite Data & Products

3 Platform for Building User Applications

4 Platform for States To Share data



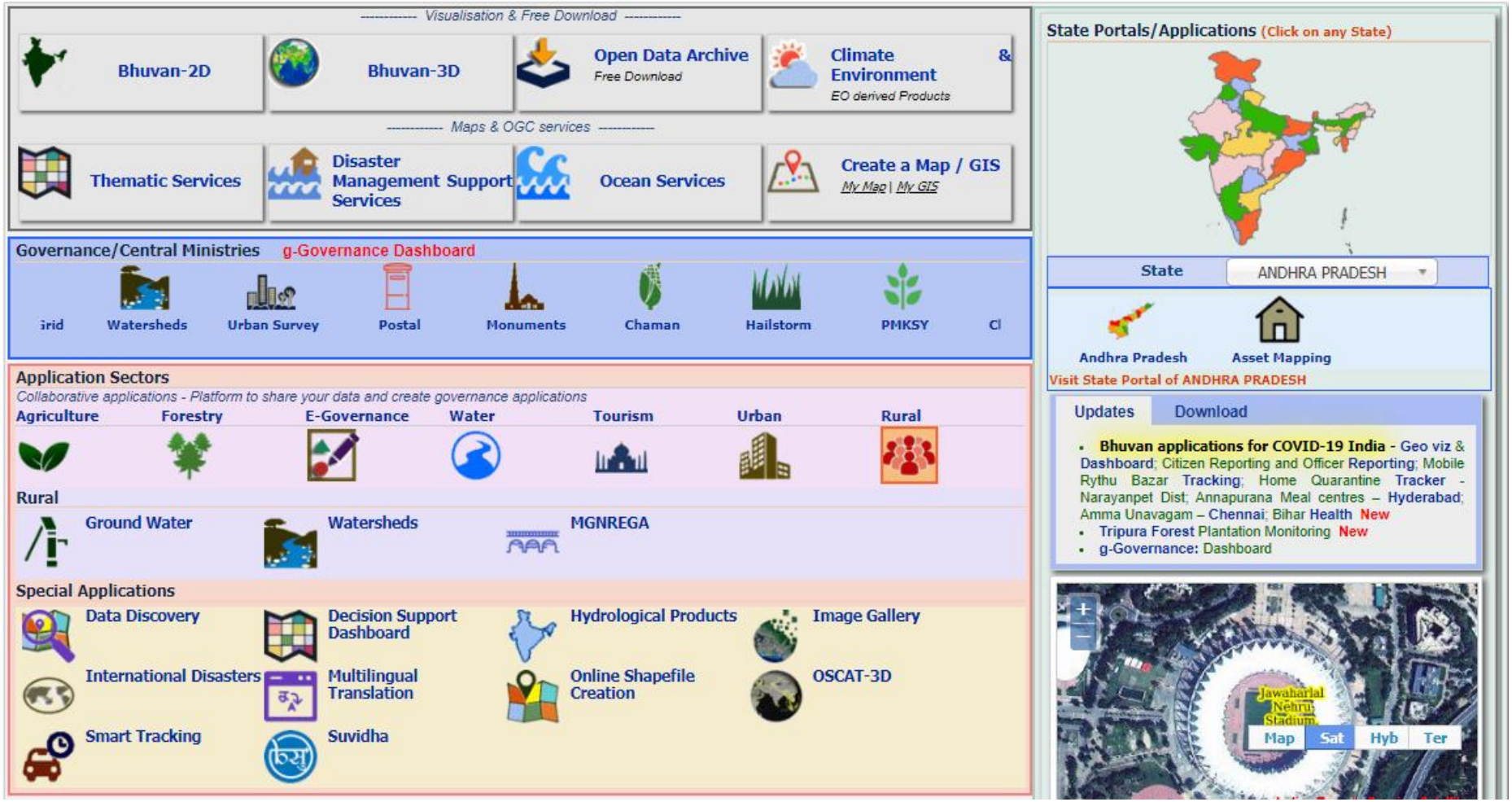
5 Applications For States



6 Platform for Mapping

7 Platform for Disaster Support

BHUVAN – Homepage



https://bhuvan.nrsc.gov.in

Data Visualisation

Visualization :
National to Local up to Cadastre

Yamarru

A PRADESH

Map |
nrsc / ISRO
bhuvan
GUJARAT

bhuvan
NRSC/ISRO

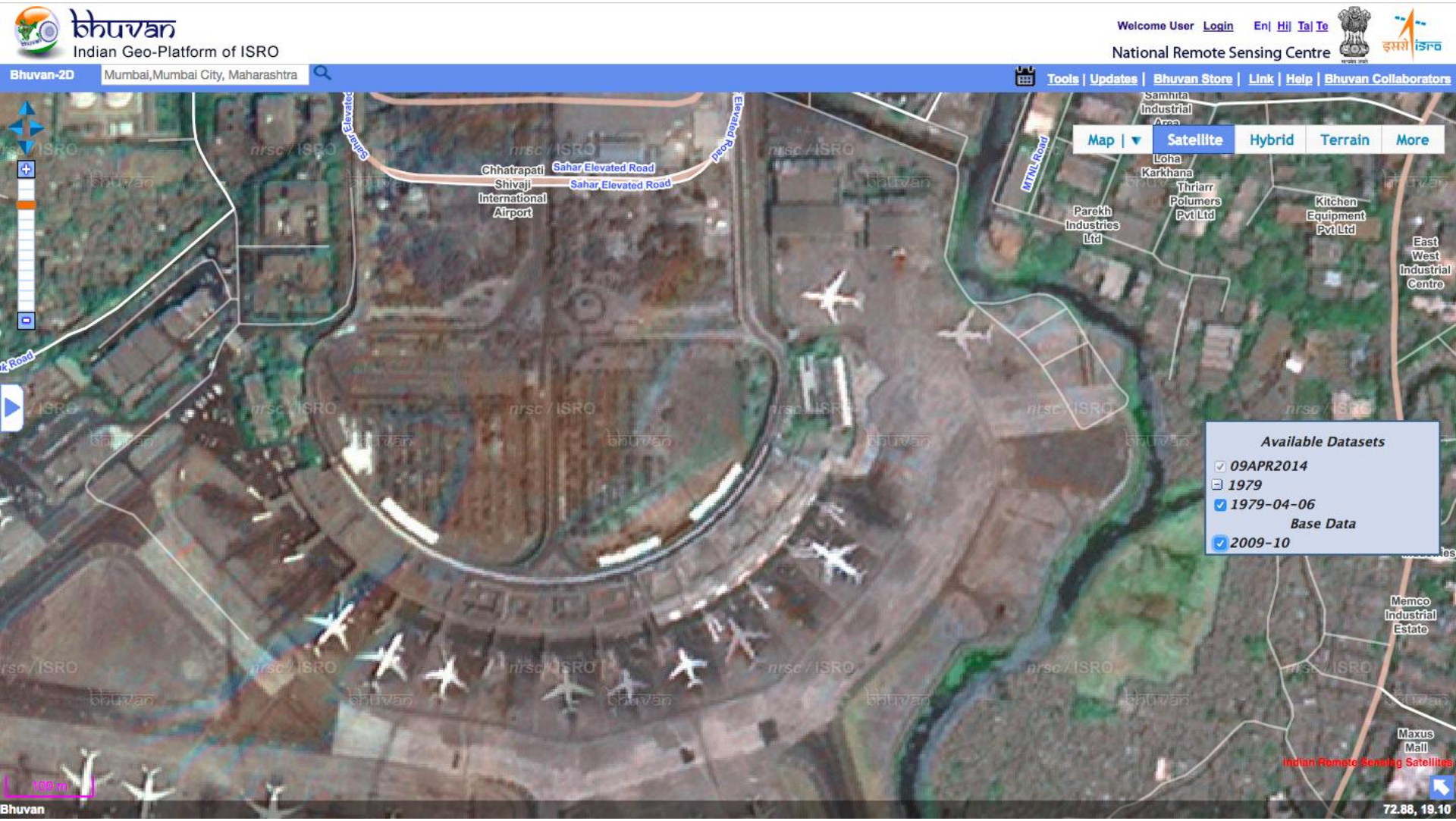
bhuvan
NRSC/ISRO

bhuvan
NRSC/ISRO

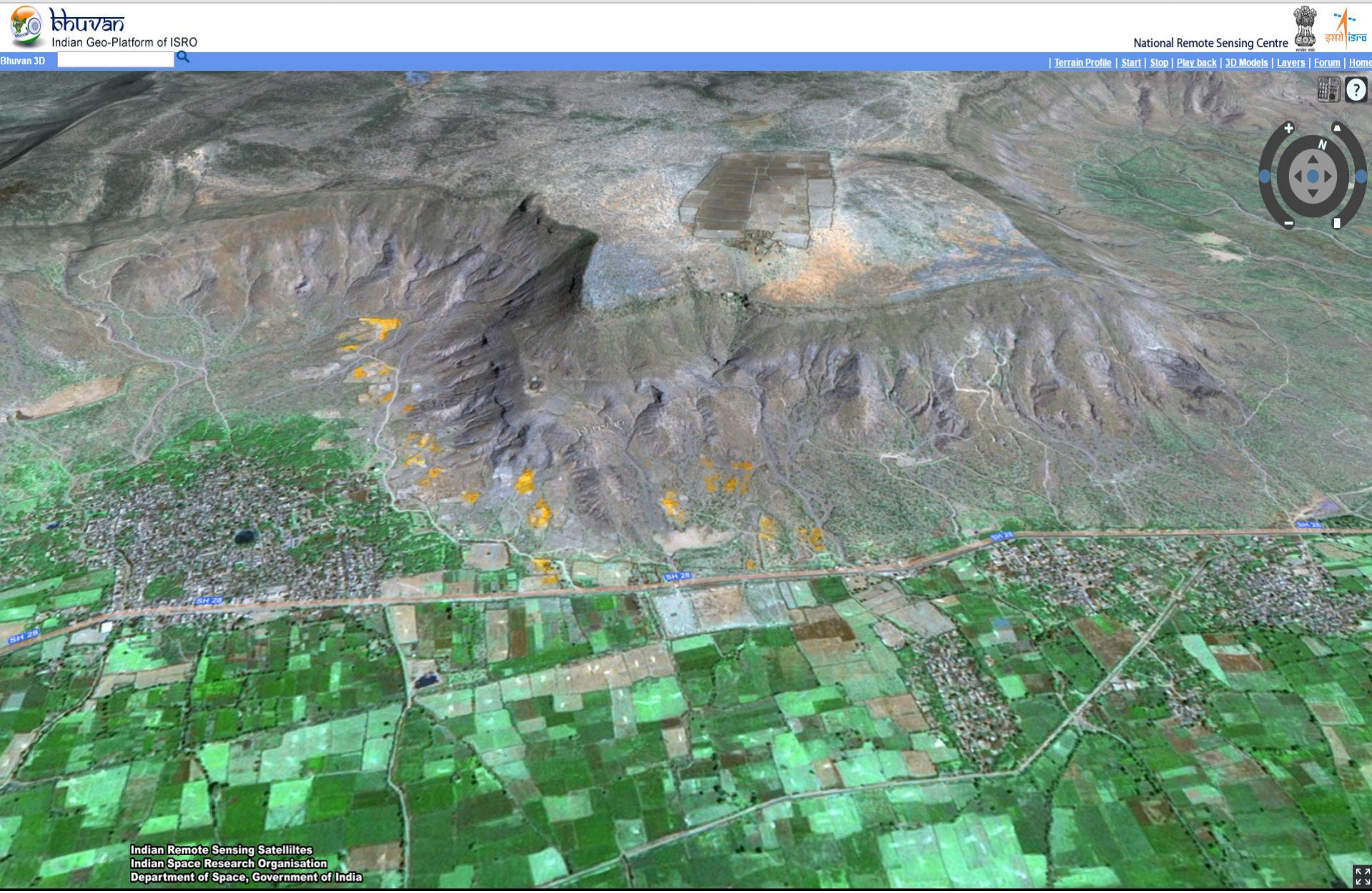
bhuvan
NRSC/ISRO

Time-lapse 2010-2015

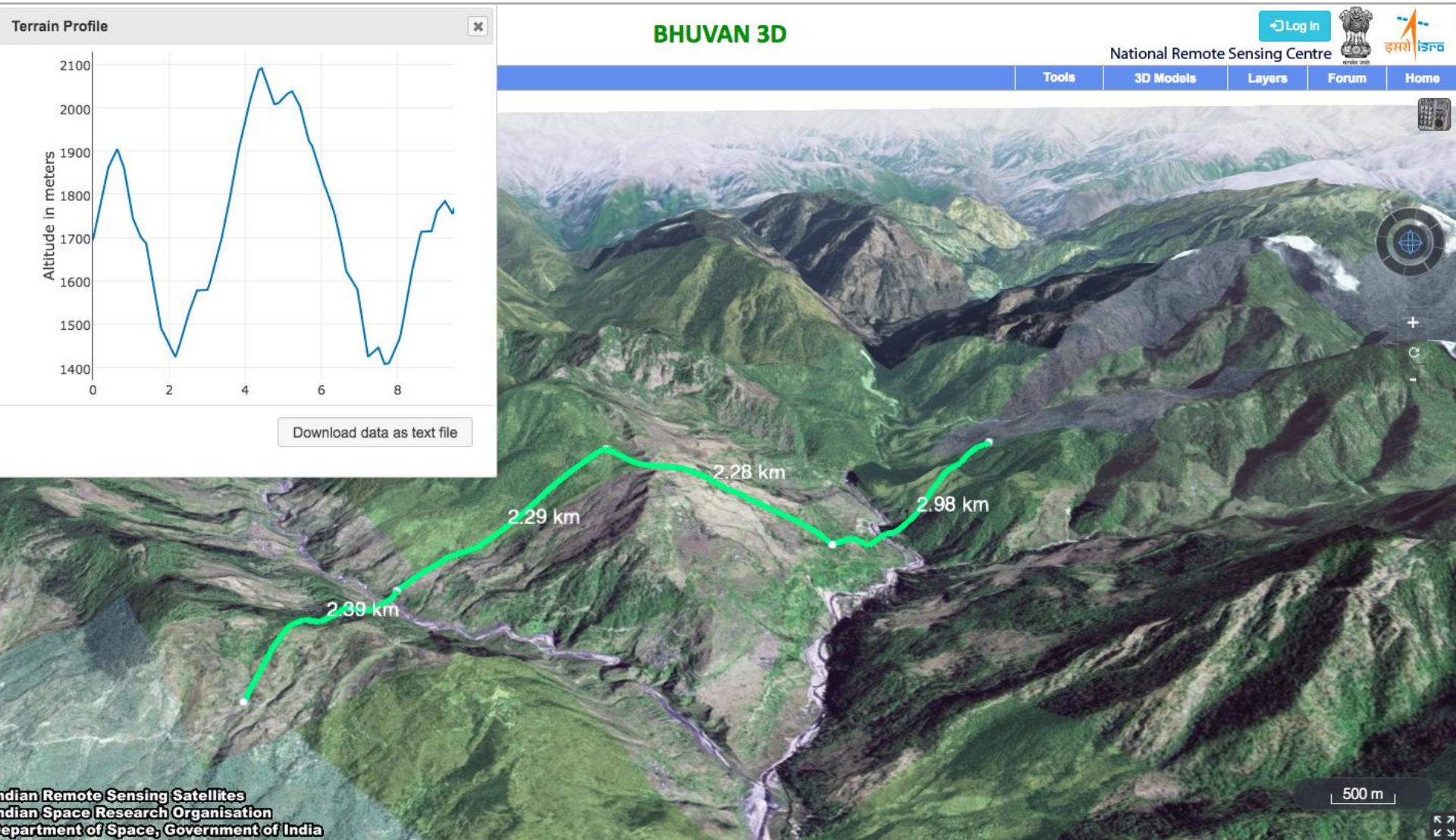
Mumbai T2



Bhuvan-3D

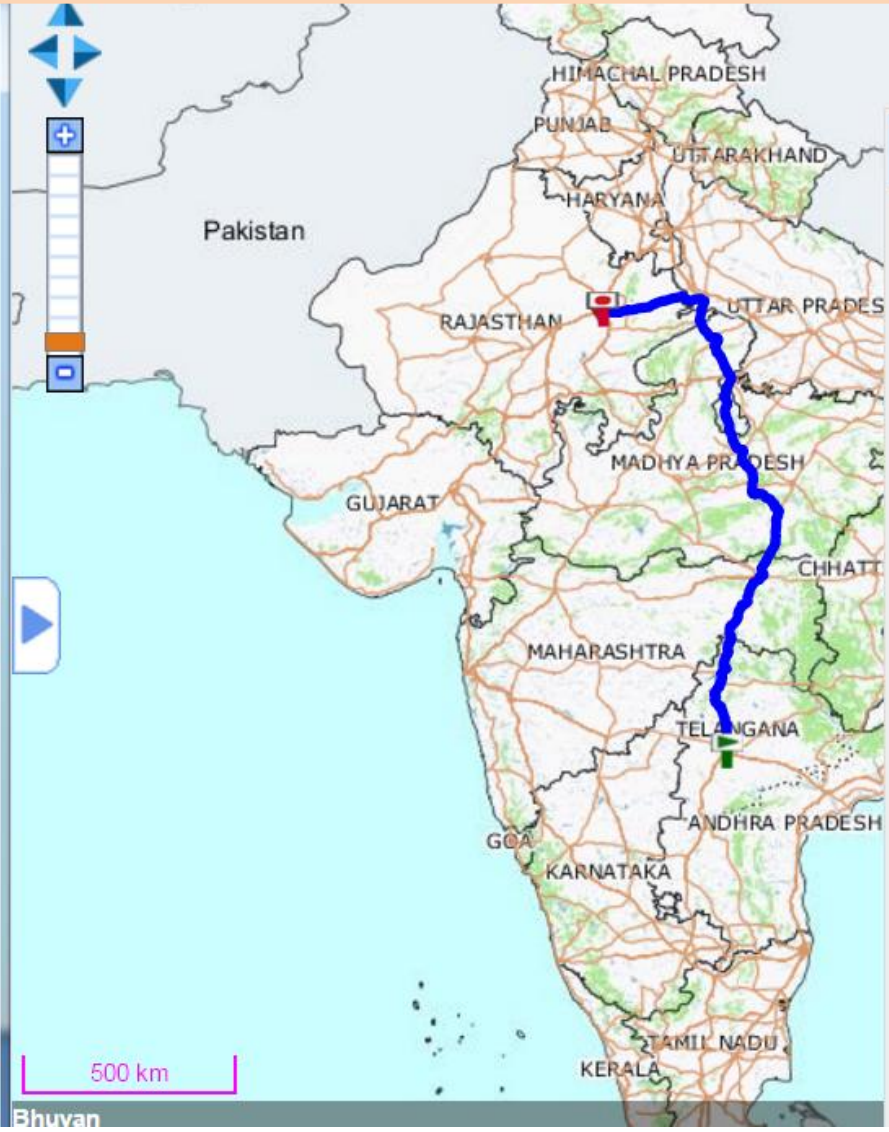

bhuvan
Indian Geo-Platform of ISRO
National Remote Sensing Centre
Bhuvan 3D
| Terrain Profile | Start | Stop | Play back | 3D Models | Layers | Forum | Home
N
SH 28
Indian Remote Sensing Satelliltes
Indian Space Research Organisation
Department of Space, Government of India

Bhuvan-3D – Terrain Profile



bhuvan
Indian Geo-Platform of ISRO
BHUVAN 3D
Log in
National Remote Sensing Centre
Bhuvan 3D
mumbai
Tools
3D Models
Layers
Forum
Home
Indian Remote Sensing Satellites
Indian Space Research Organisation
Department of Space, Government of India
30 m

Road Network and Navigation



Map | Satellite | Hybrid | Terrain | More

Get Directions

Start points	Hyderabad, Telangana, India
Via points (optional)	Enter address or Location
Destination points	Jaipur, Rajasthan, India
Route type	By Time

Get Route

Route 1	Route 2	Route 3
33 hrs 34 min	34 hrs 33 min	37 hrs 57 min
1563.1 km	1440.2 km	1561.8 km

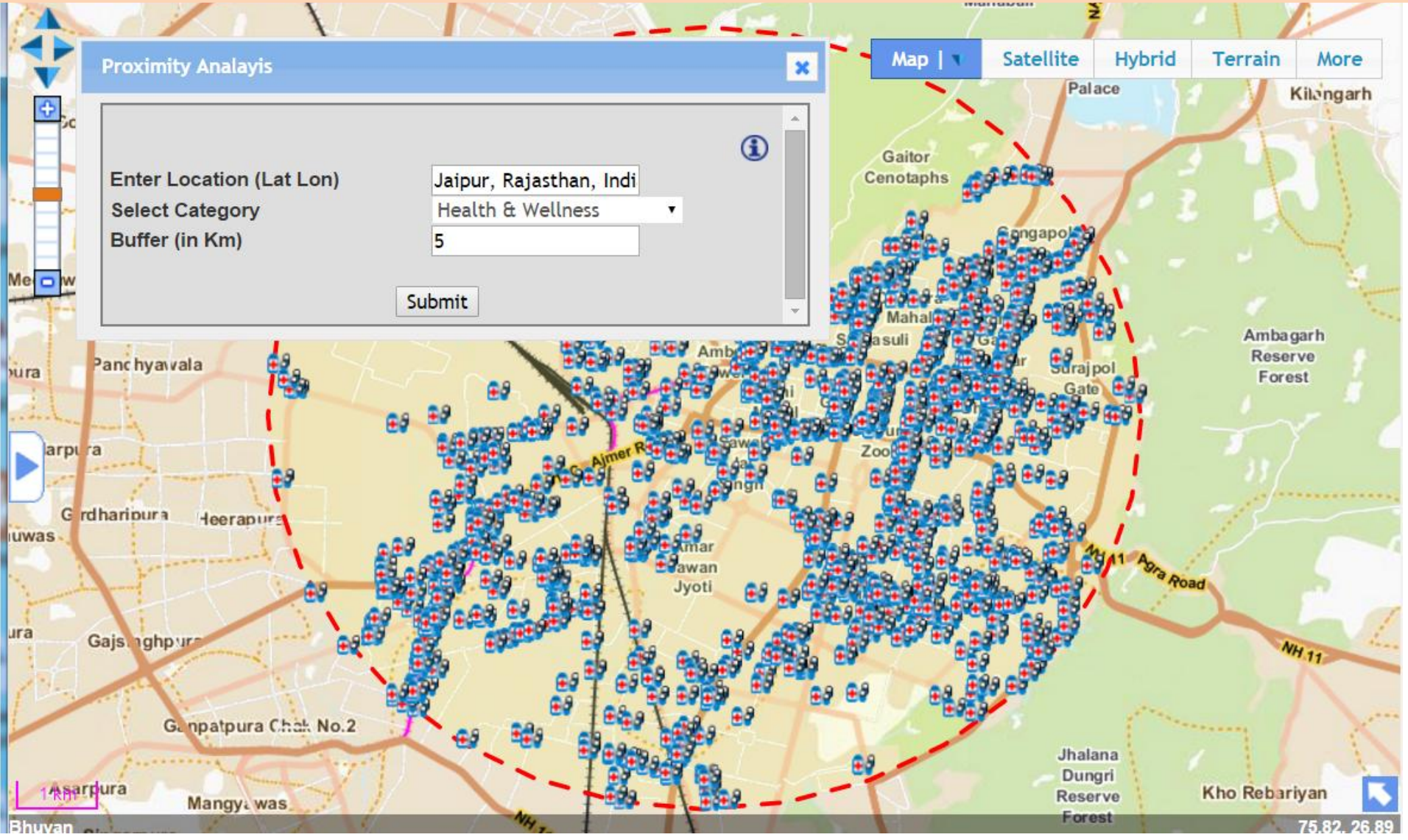
Route 1

Head west on Jawaharlal Nehru Road towards Jawaharlal Nehru Road.
Go 24 mts

Make a **sharp right** turn at NH 7.
Go 173 mts

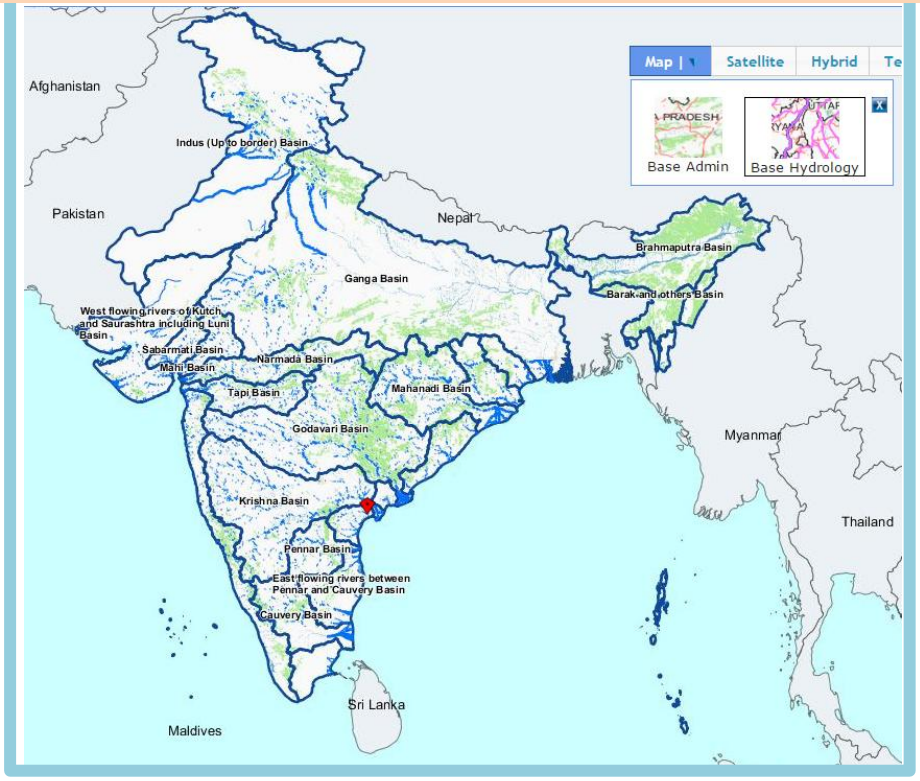
At the fork **bear right** onto NH 7 using one of the 2 rightmost lanes.
Go 1.1 km

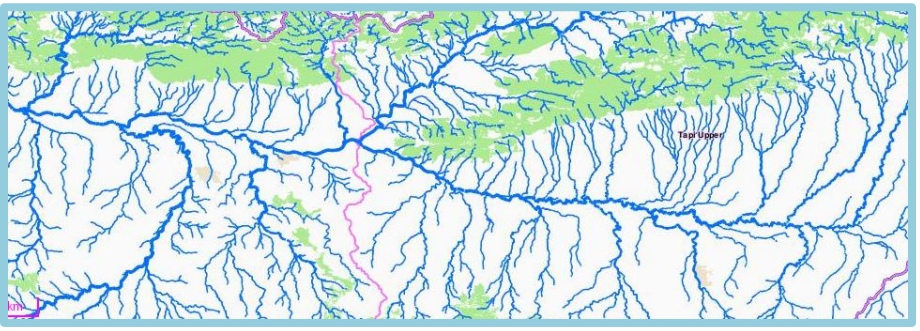
Points of Interest with Neihbourhood

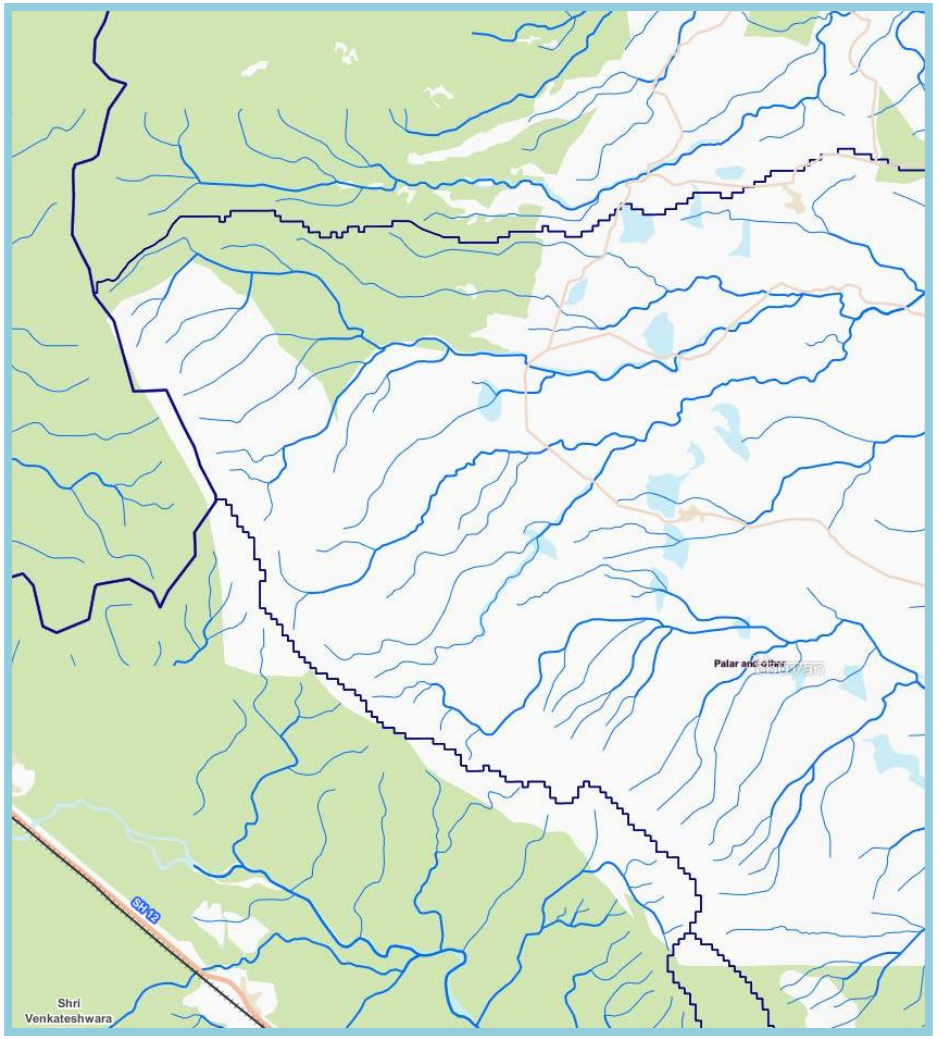


HYDROLOGIC BASE

River Basins to Micro-watersheds

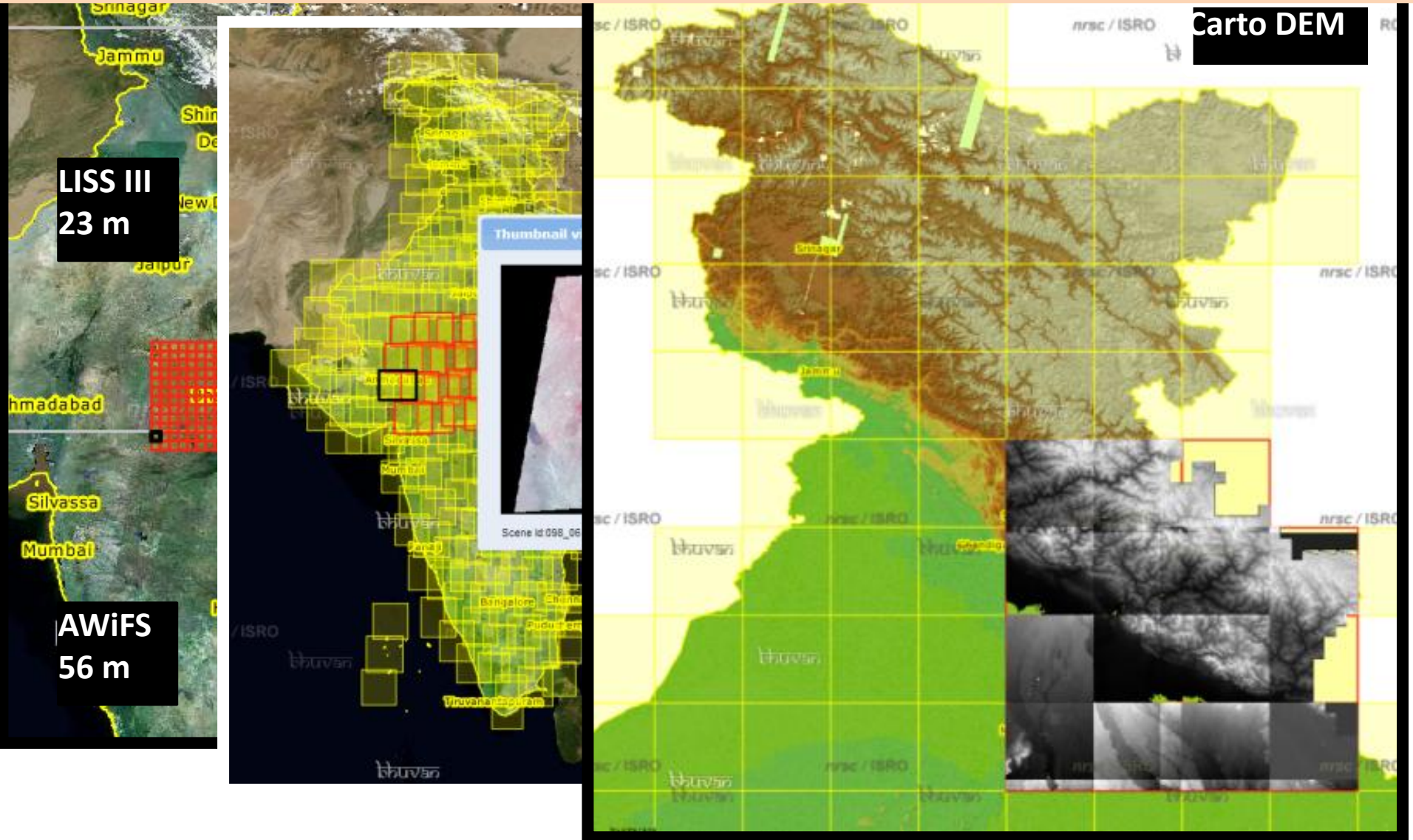






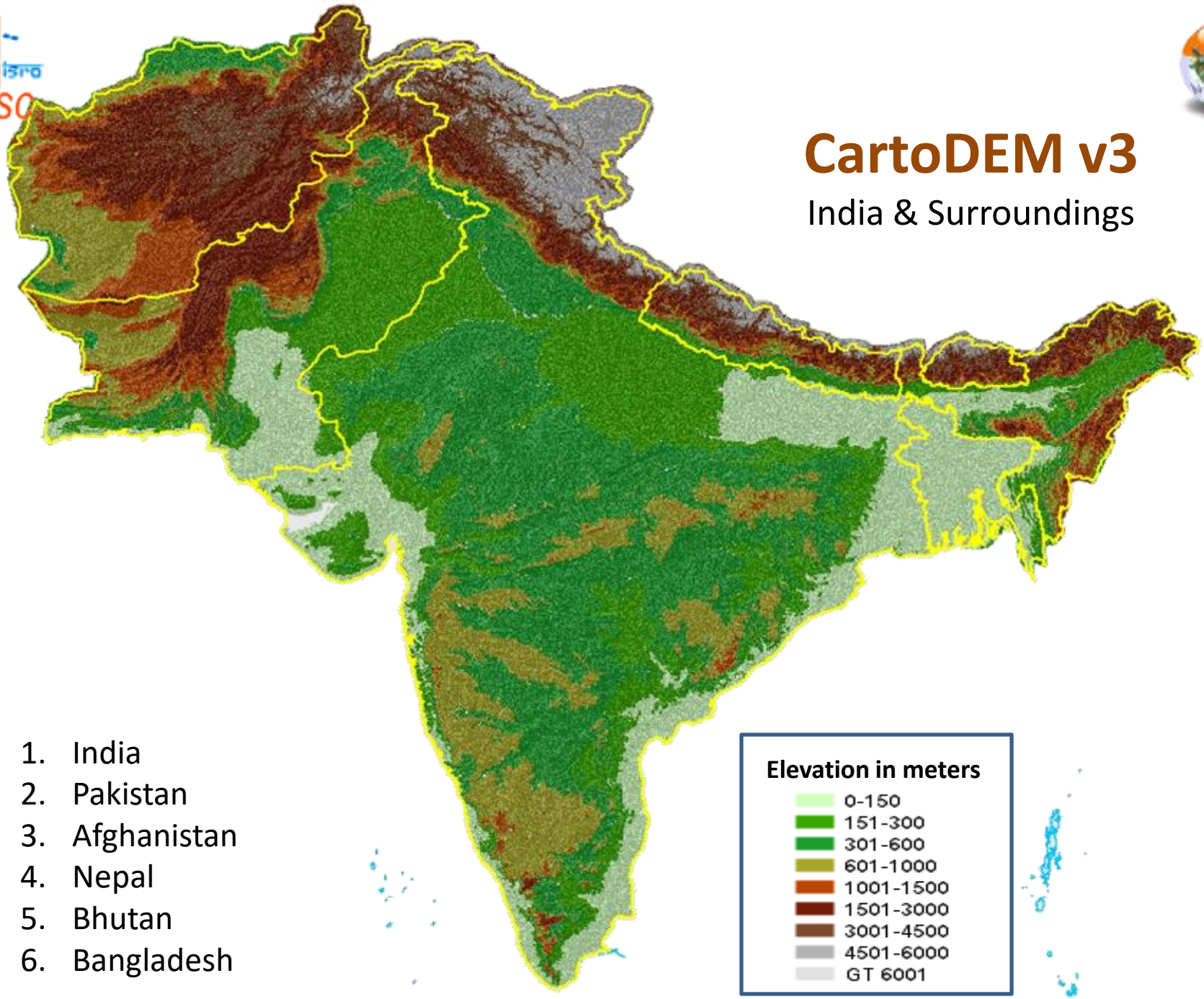
Data Downloads
&
Thematic Services

Satellite Data & Derived Products



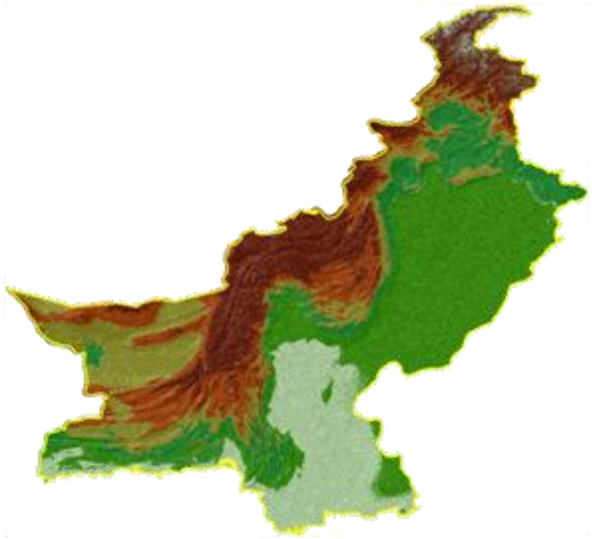
CartoDEM v3

India & Surroundings



1. India
2. Pakistan
3. Afghanistan
4. Nepal
5. Bhutan
6. Bangladesh

Afghanistan



Pakistan

Bhutan

Elevation in meters

- 0-150
- 151-300
- 301-600
- 601-1000
- 1001-1500
- 1501-3000
- 3001-4500
- 4501-6000
- GT 6001

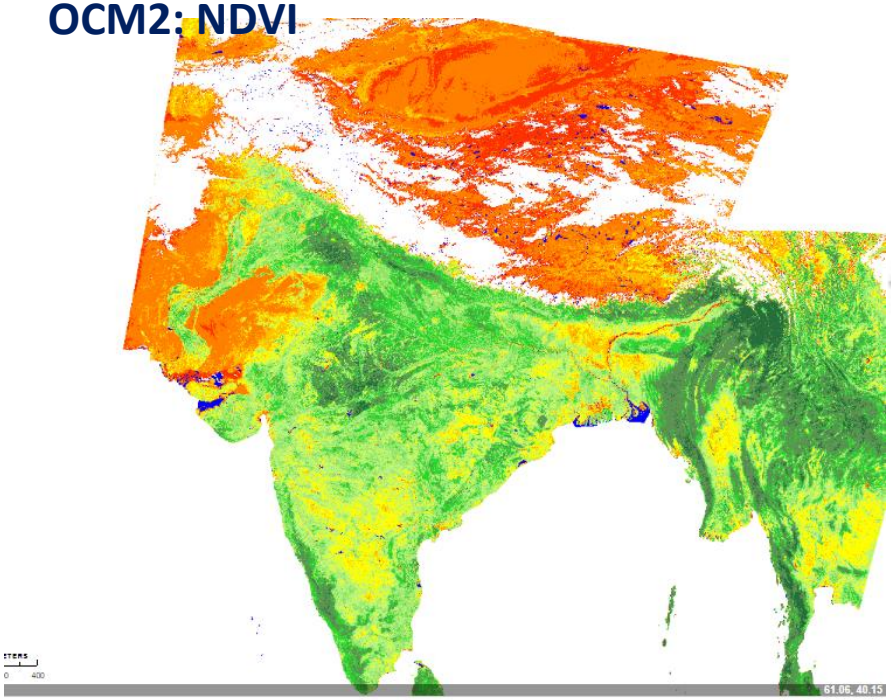
Bangladesh

Nepal

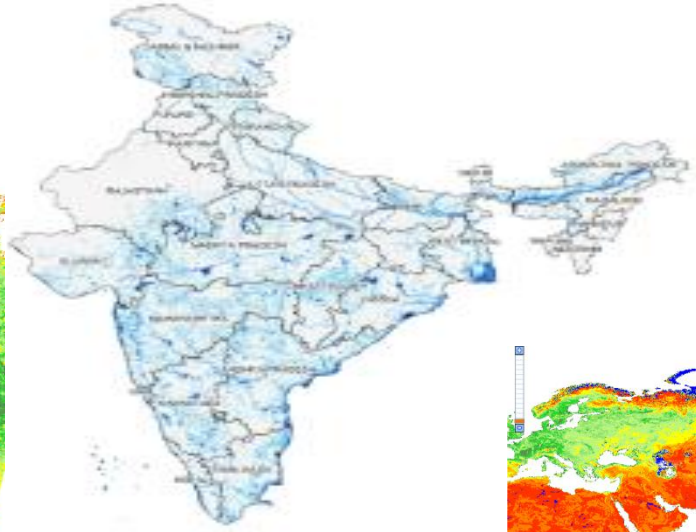
http://bhuvan.nrsc.gov.in/data

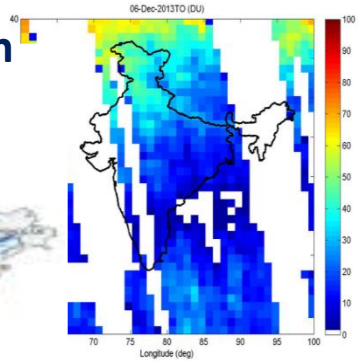
NOEDA: National Information System for Climate and Environment Studies (NICES)

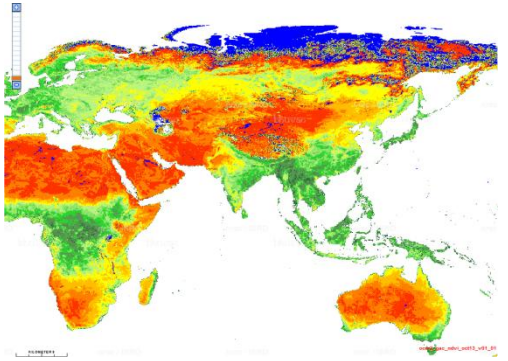
OCM2: NDVI



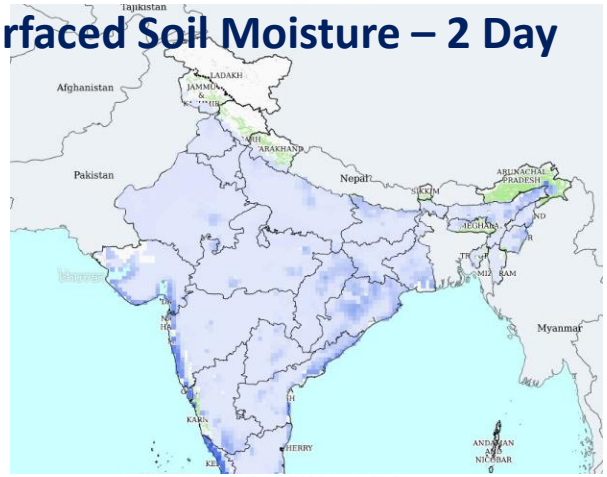
AWiFS: Water Bodies fraction

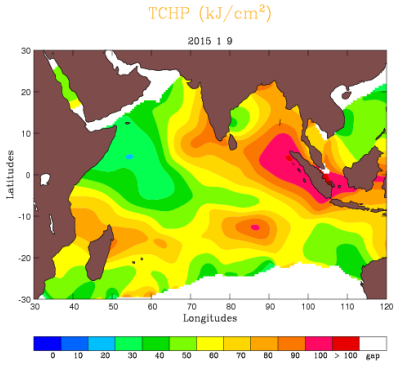


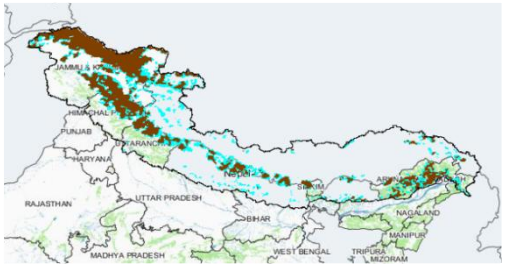


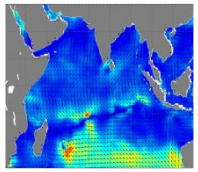


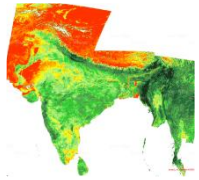
Surfaced Soil Moisture – 2 Day

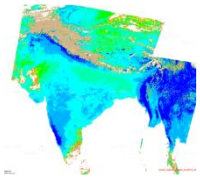










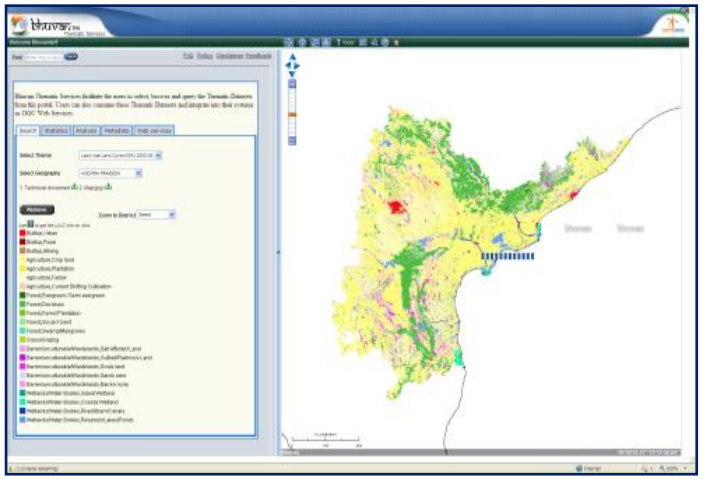


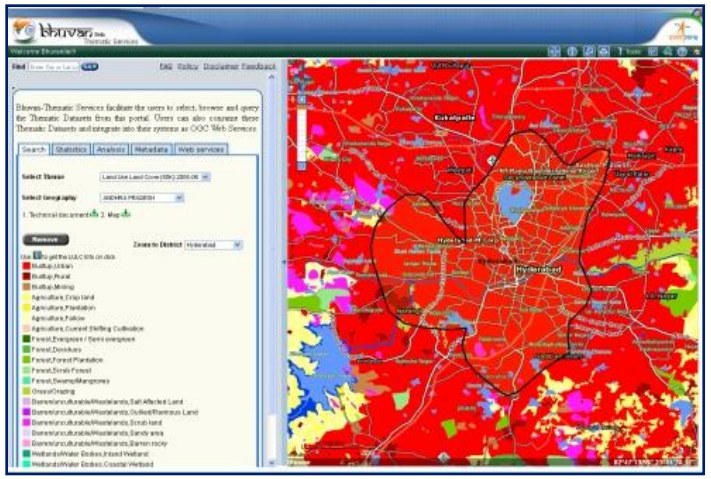
Thematic Services

"OGC Web Services (WMS, WMTS) towards interoperability"

Bhuvan-Thematic Services facilitate the users to select, browse and query the Thematic Datasets from this portal. Users can also consume these Thematic Datasets and integrate into their systems as 'OGC Web Services'.

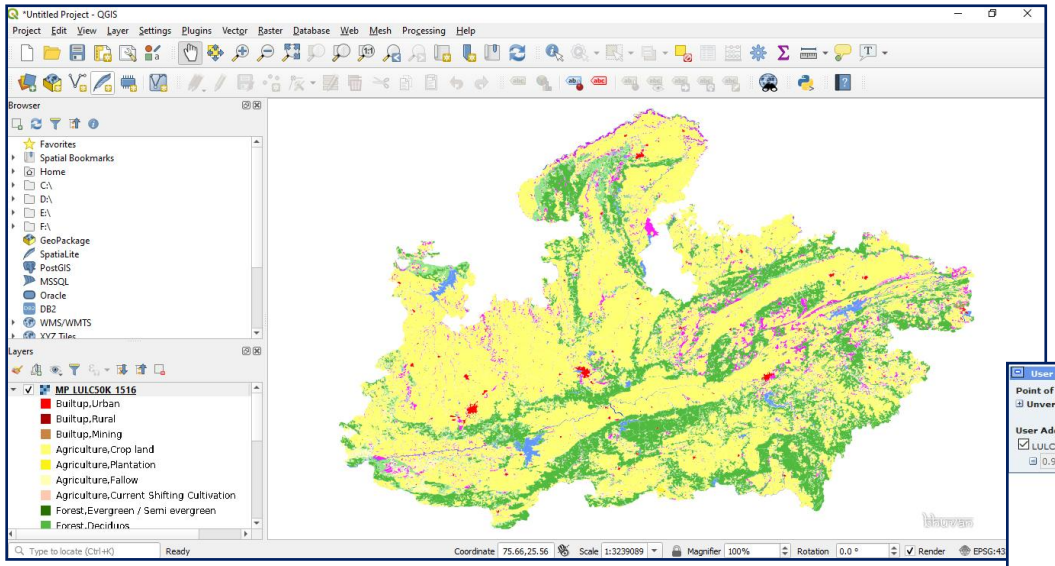
- Land Use Land Cover -50 K (2005-06, 2011-12, 2015-16)
- Land Use Land Cover -250 K (14 Cycles : 2005-06 to 2018-19)
- Land Use Land Cover -10K
- Urban Land Use: 10K
- Wasteland: 50K (2008-09)
- Geomorphology:50K (2005-06) & Lineament: 50K
- Erosion :50K (2005-06)
- Salt Affected and Water Logged Area :50K (2005-06)
- Urban Sprawl
- Water bodies
- Flood Annual Layers (1998 to 2010) – Assam & Bihar
- Flood Hazard Layer (1998-2007) – Assam ,Bihar & Orissa
- Metadata NSDI 2.0
- Analysis, Statistics, Web services, View based Print, Add WMS Layer, Clip & Ship

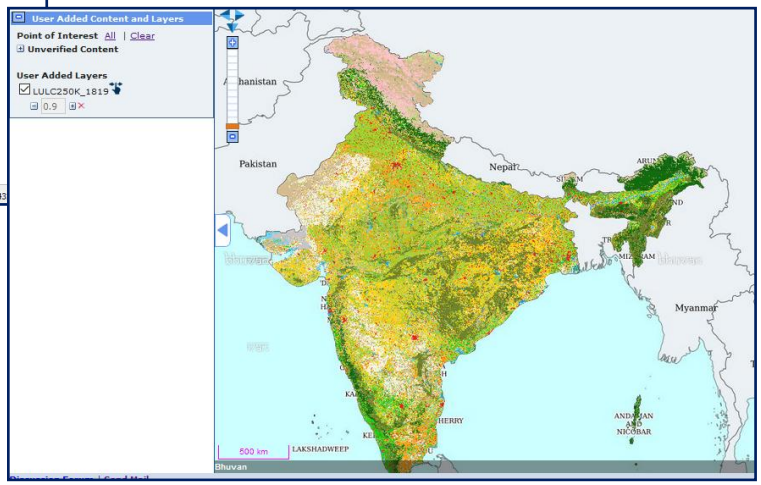




Bhuvan services are OGC compliant such as WMS (Web Map Service) and WMTS (Web Map Tile Service) towards Interoperability.

Web Map Tile Service (WMTS) and Web Map Service (WMS) for consumption through OpenLayers, Mapping Libraries and GIS Software's QGIS, uDig, ArcGIS and Other Users.

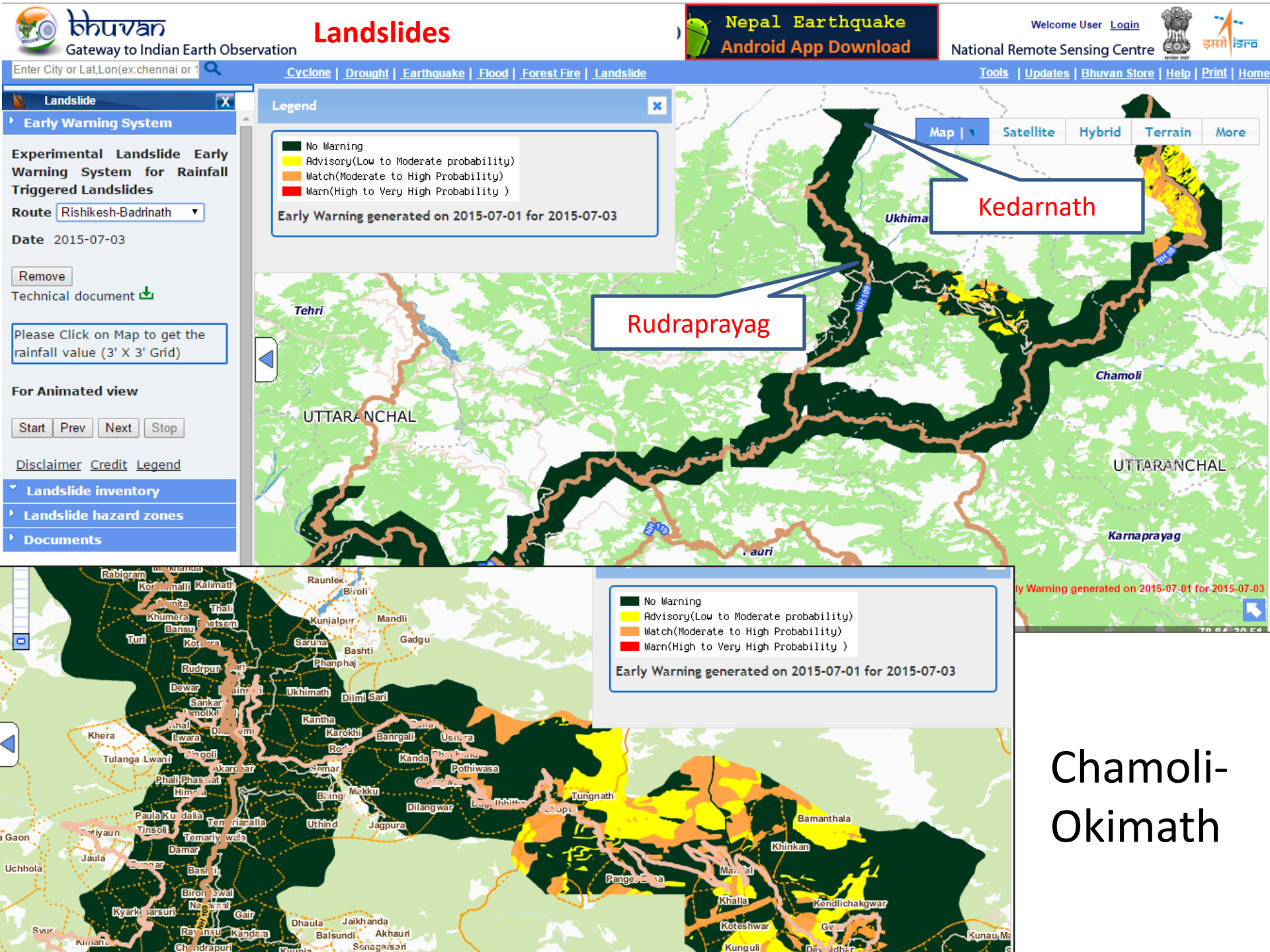




DISASTERS : Near Real Time Support

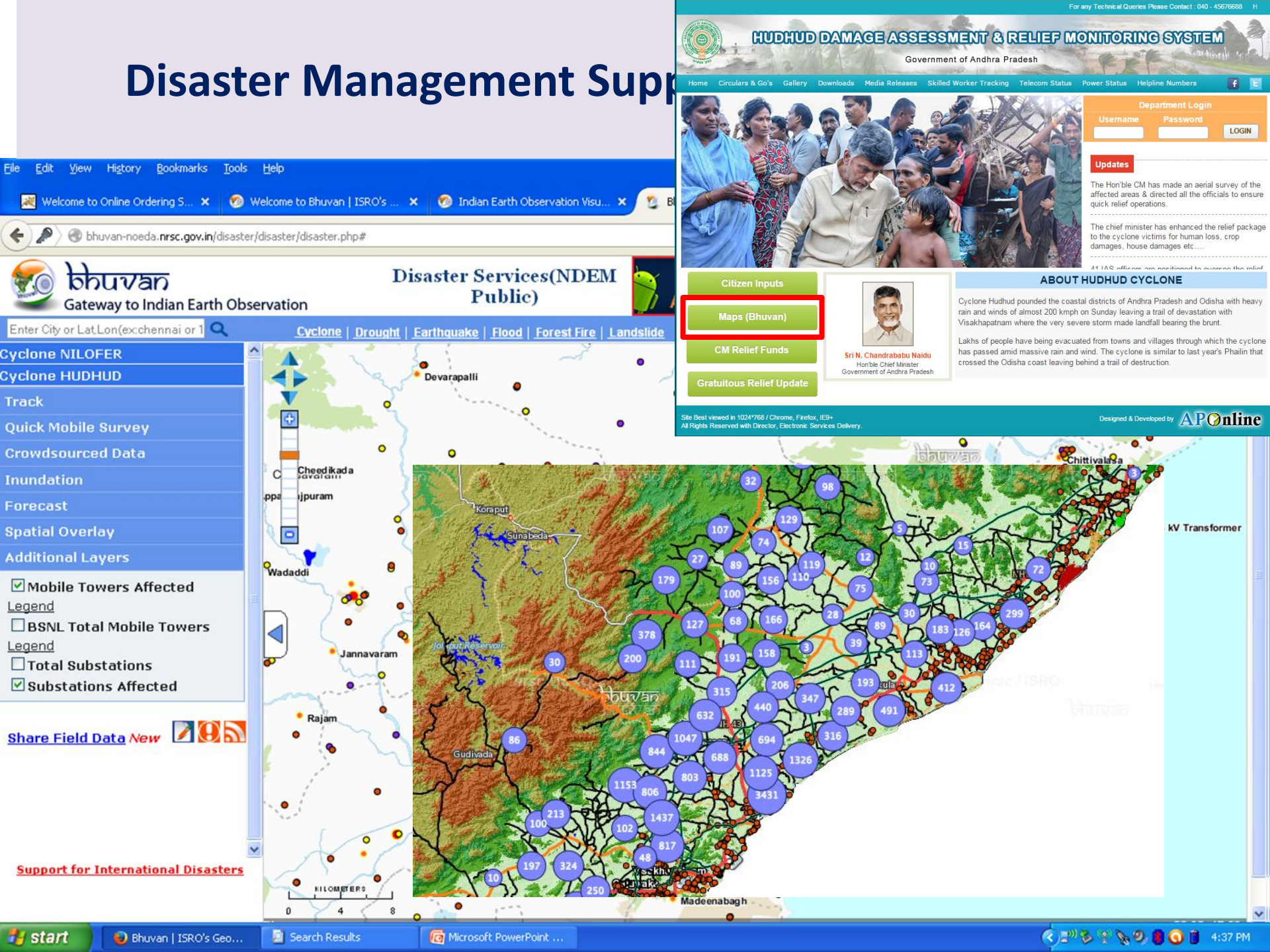
- Cyclone
- Flood
- Landslides
- Forest Fires
- Earthquake
- Droughts

- Historical Floods
- Flood Annual Layers
- Flood Hazard Layers
- Daily Forest Fires
- Drought with Indices
- Landslide Inventory
- Landslide Early Warning
- Hydrologic Processes



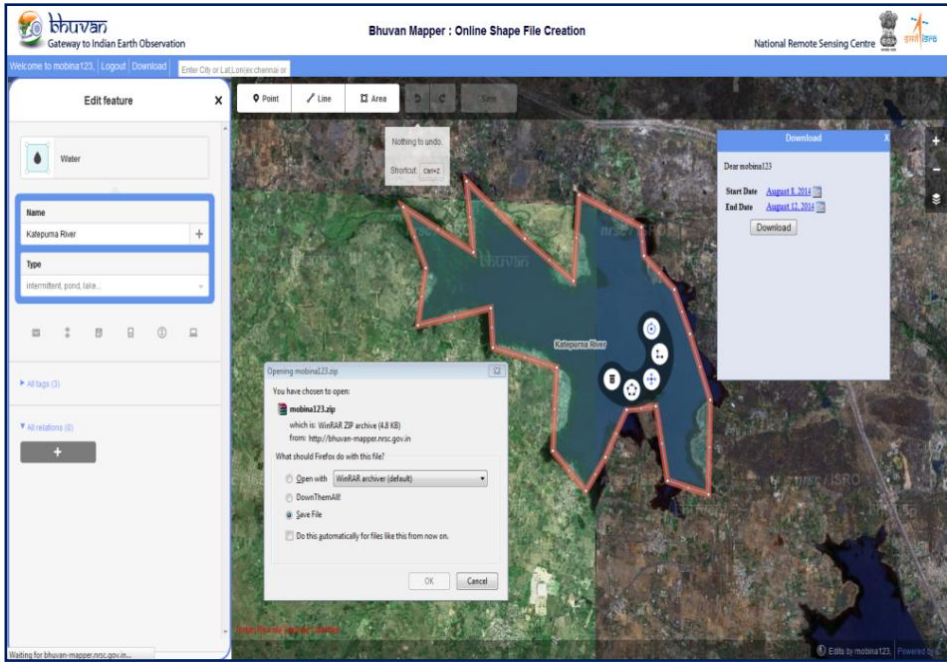
Chamoli-Okimath

Disaster Management Supp



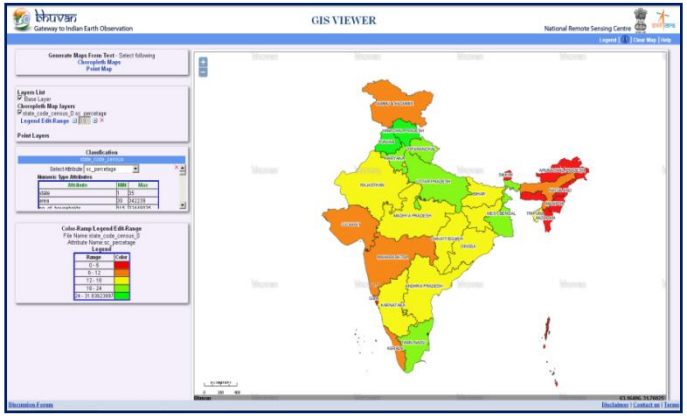
Enhanced Online Shape file Creation

- Facilitates users to download the interpreted/delineated drawings as shape file along with customised attributes.
- Editing capability
- Filtering based on date and extensible to theme



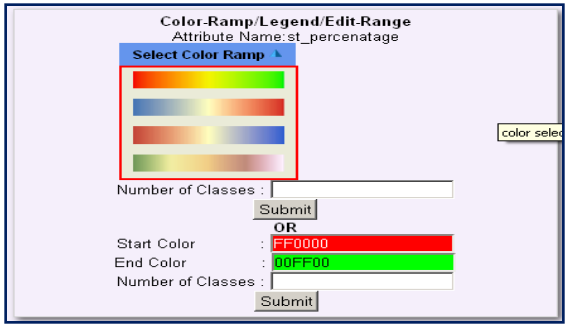
GIS VIEWER

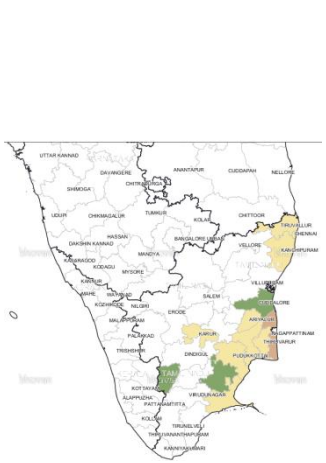
" Creation of Maps from Text Files"

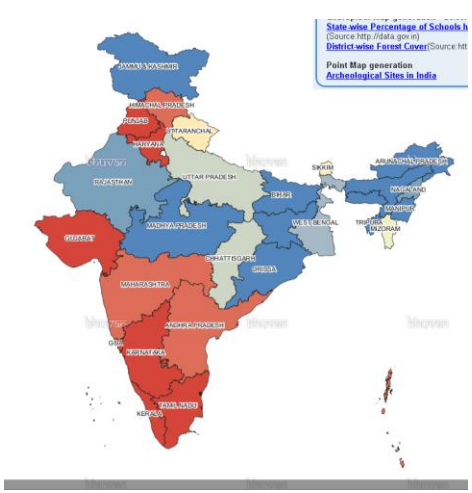


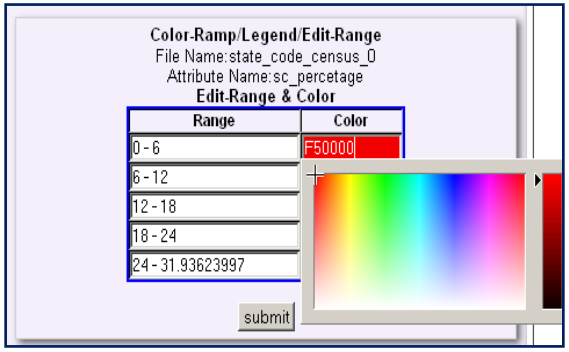
Salient Features

- Maps from State and District Census code or Name (Choropleth Maps) & XY Data (Point Map)
- Classification based on Equal Range, Unique values (color ramp or color parameters, Edit-Range and color values)





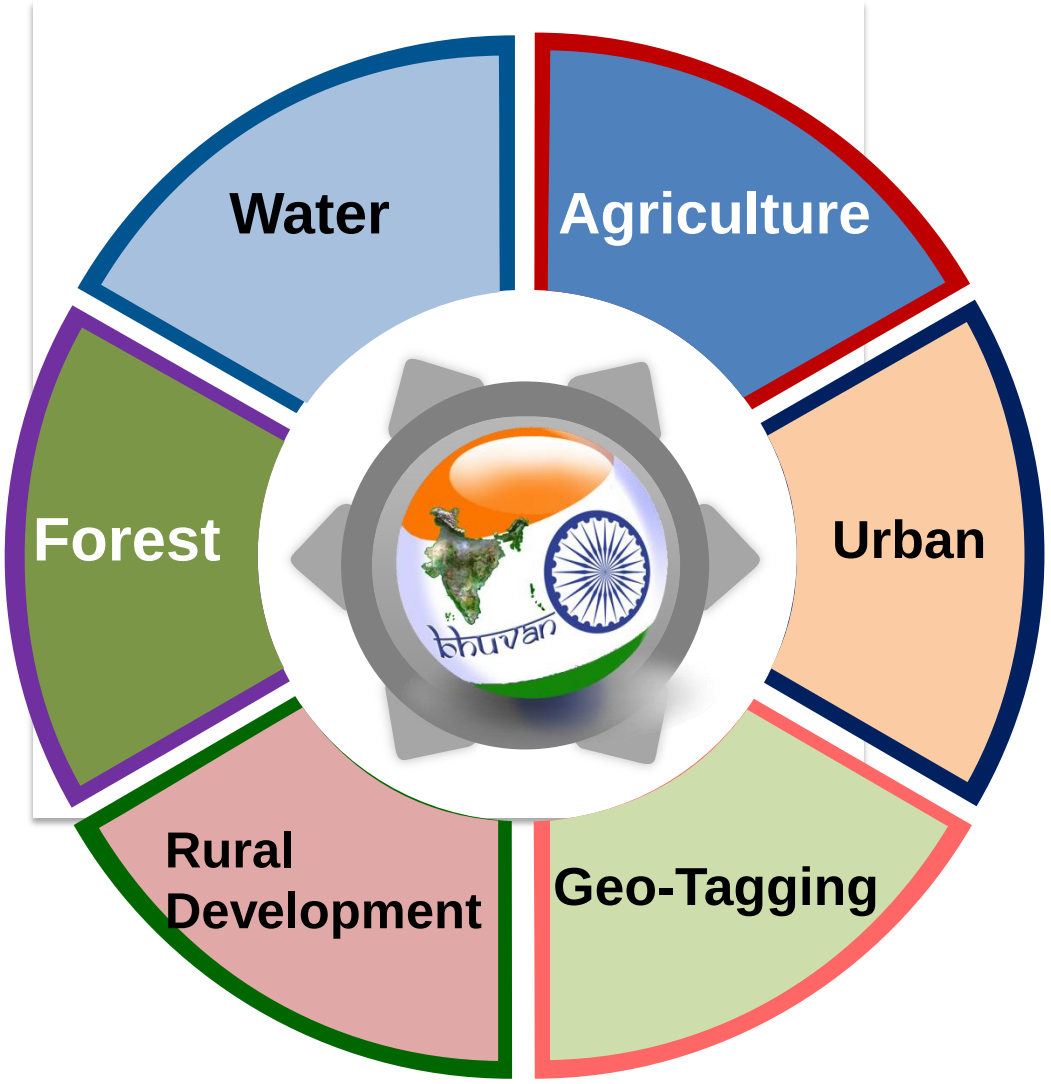




APPLICATIONS

- 100+ Apps 75+ Mobile Apps
- I m high resolution satellite data for entire India (2017)

Major Bhuvan Application Sectors



Asset Mapping and Inventory Creation

Planning & Development

Evaluation of Program Activities

Sustainable Development of Land and Water Resources

Flagship Programs : Multi-Activity Support

Governance Functions

Diversity for Building Applications

Geospatial Governance Dashboard

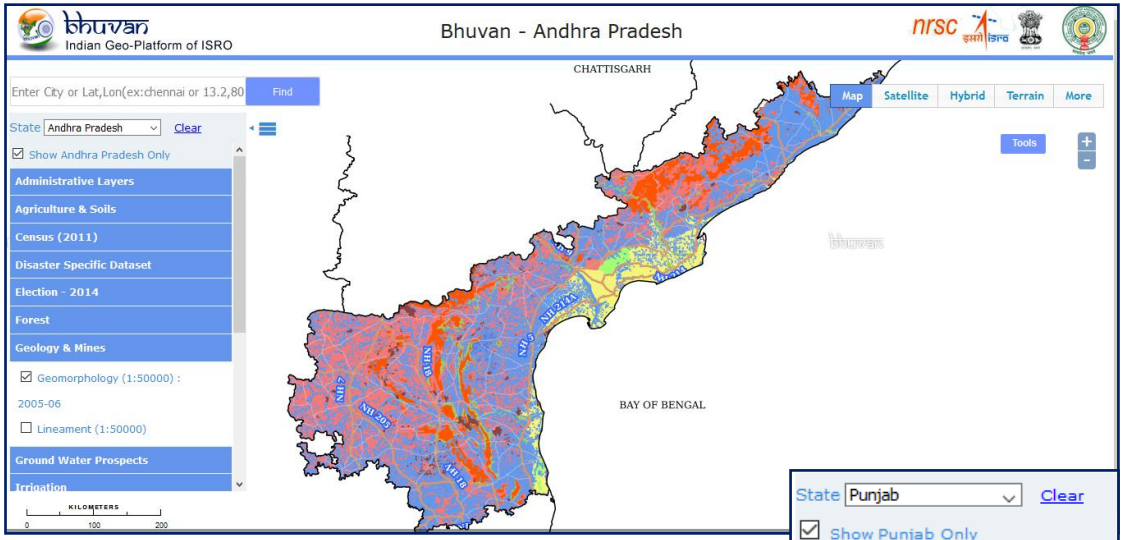
30 State Portals

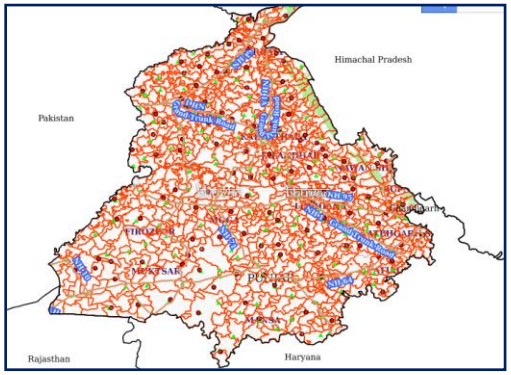
24 Ministry
9 State Dept

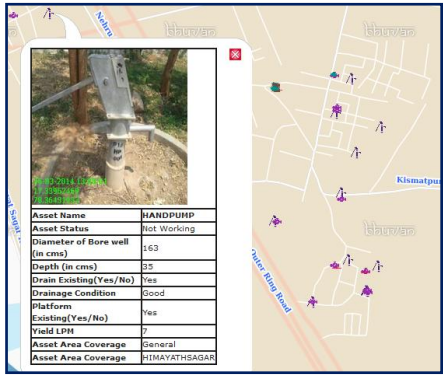
75+ Mobile Apps

State Portals

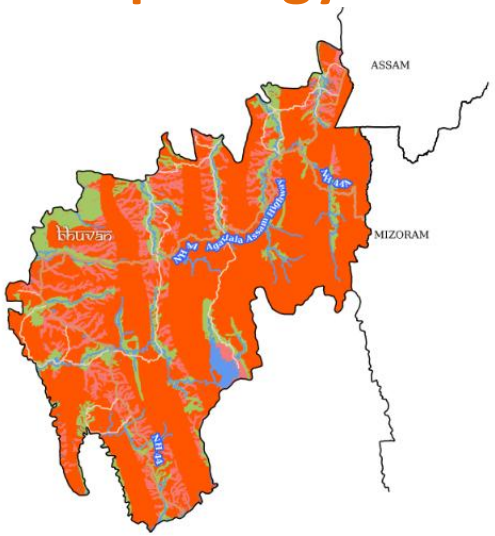
- A customized state viewer for 30 States having various Natural Resources, Admin layers, Socio-economic details
- Platform for State Remote Sensing Centres for sharing data
- Dynamic custom print with active layers and legend



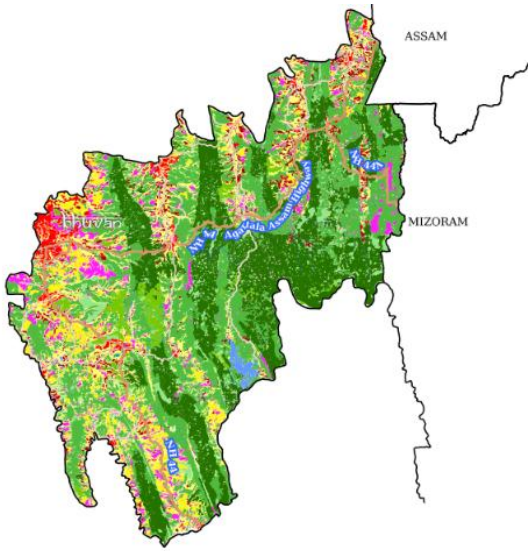




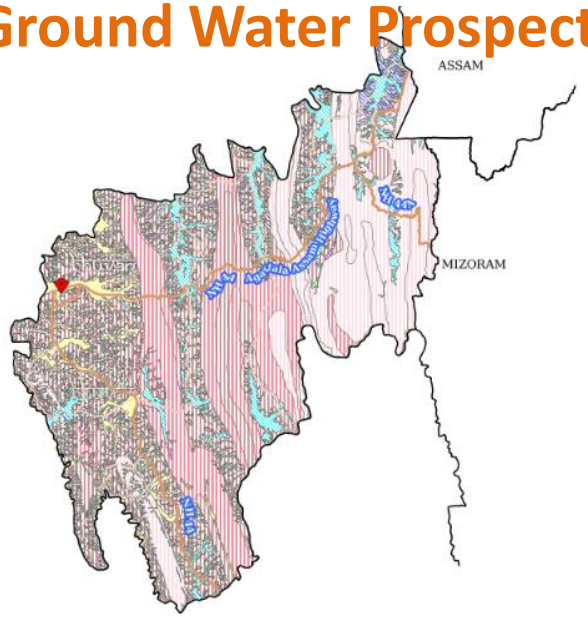
Geomorphology



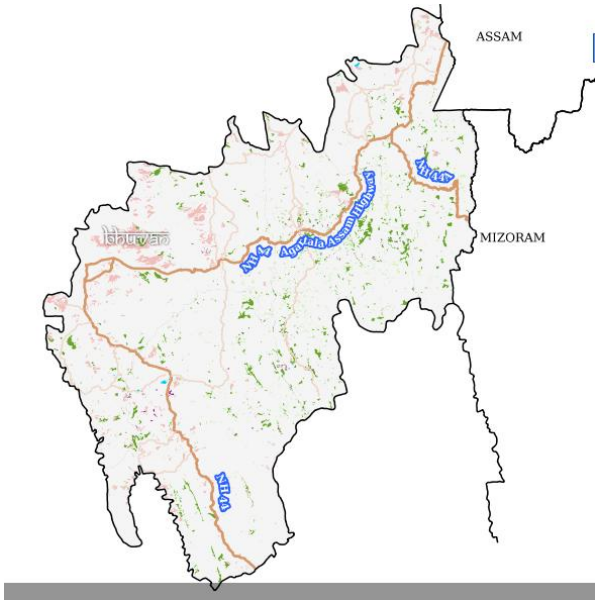
Landuse Land Cover



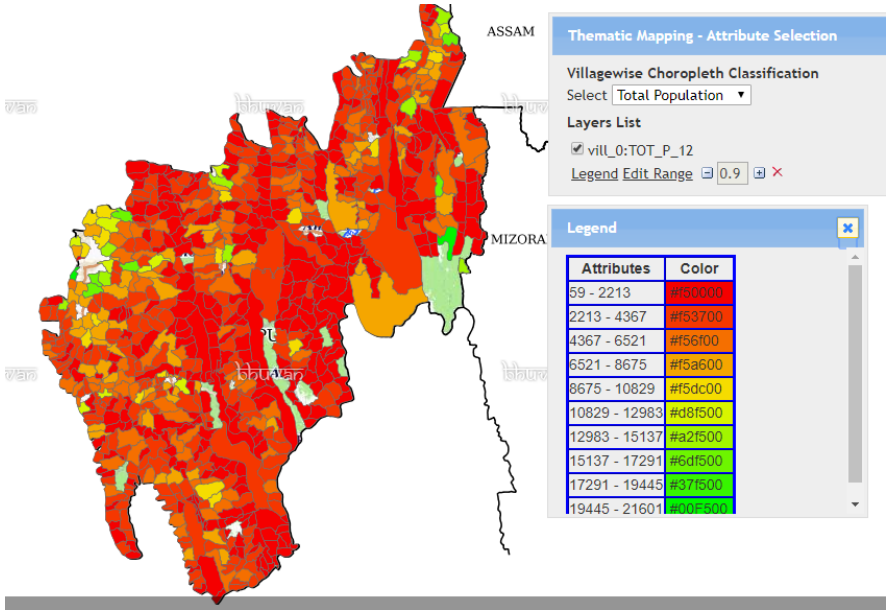
Ground Water Prospect



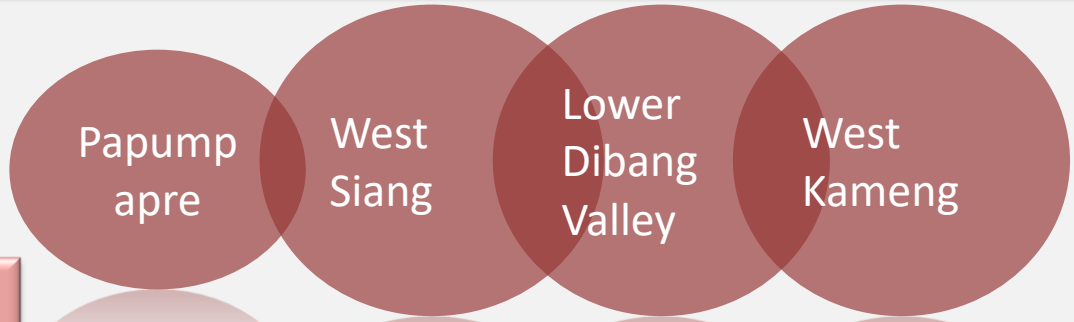
Wasteland



Village wise Choropleth Maps of Census 2011



NEDRP layers on Bhuvan



1. Administrative Data

- District Boundary
- Circle Boundary

2. Infrastructure

- Settlement Extends
- Settlement Points
- Roads(1:10K)

3. Land Resources

- Land use/cover(1:50k)
- Land use/cover II Cycle (1:50k)
- Land Degradation
- Waste Land 03
- Waste Land 0506
- Waste Land 0809
- Soil(1:250k)
- Forest Division
- Forest Cover

4. Water Resources

- Wetland Boundary 2005
- Wetland Post monsoon 2005
- Wetland Points
- Turbidity premonsoon 2008
- Watershed
- Waterbody
- Rivers

5. Bio Diversity

- Biological Richness
- Fragmentation
- Disturbance
- Vegetation type

6. Terrain

- Slope in % rise
- Contour 30m

7. Action Plan

- Aforestation
- Horticulture

8. Disaster

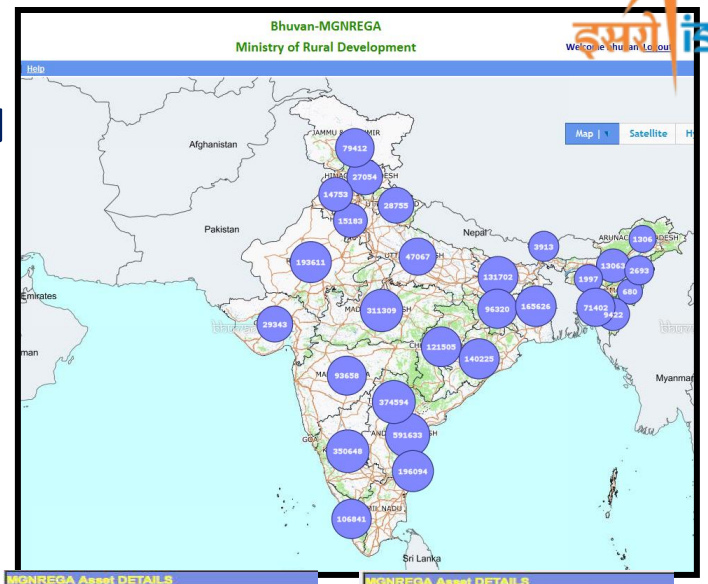
- Flood Zones
- Fire Location 1jan-30

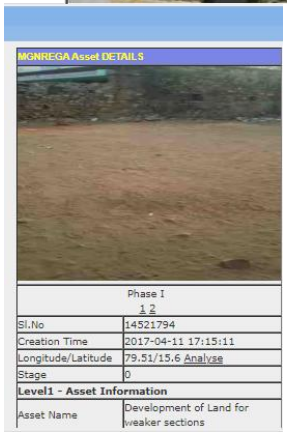
Bhuvan Applications

Bhuvan-MGNREGA

- Geo Tagging of MGNREGA assets on BHUVAN
- Support for Phase-1 and Phase-2
- User Registration and Authorization
- Central ,State ,District, Block, Panchayat
- Geoportal
  - 1.Citizen view
  - 2.Administrator View
  - 3.Moderation
  - 4.Report Generation
  - 5. Dashboard

- 17 Categories
- 153 Sub-categories





Geo-Tagging Status for the country

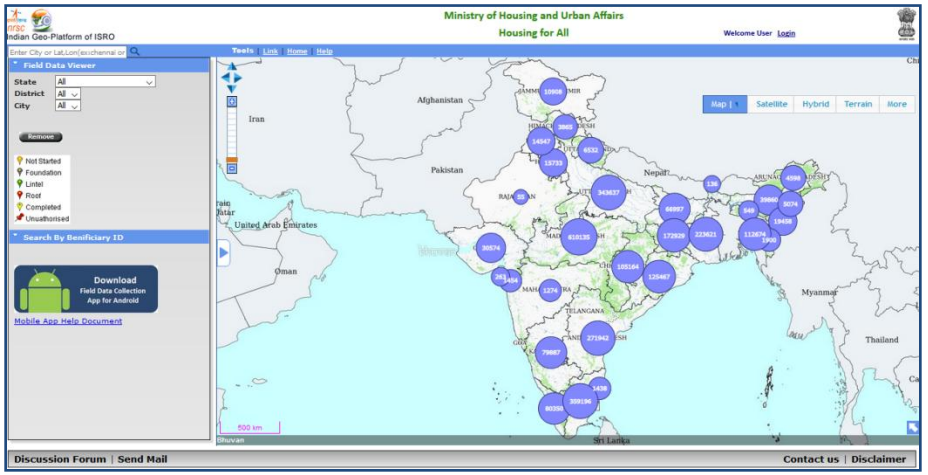
Total Assets Geotagged:6.05 Cr

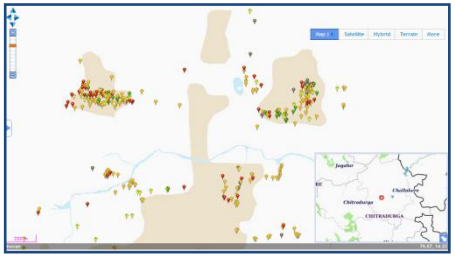
Daily Avg. Geotagging > 45K

Daily Avg. Moderation > 46K

Ministry of Housing and Urban Affairs: Housing for All

- Monitoring of more than 90 Lakh Houses across the country
- Stage wise Monitoring support
- Helping in release of funds to beneficiaries based on progress
  - Total Assets Geotagged:9305703
  - Moderated :9167014



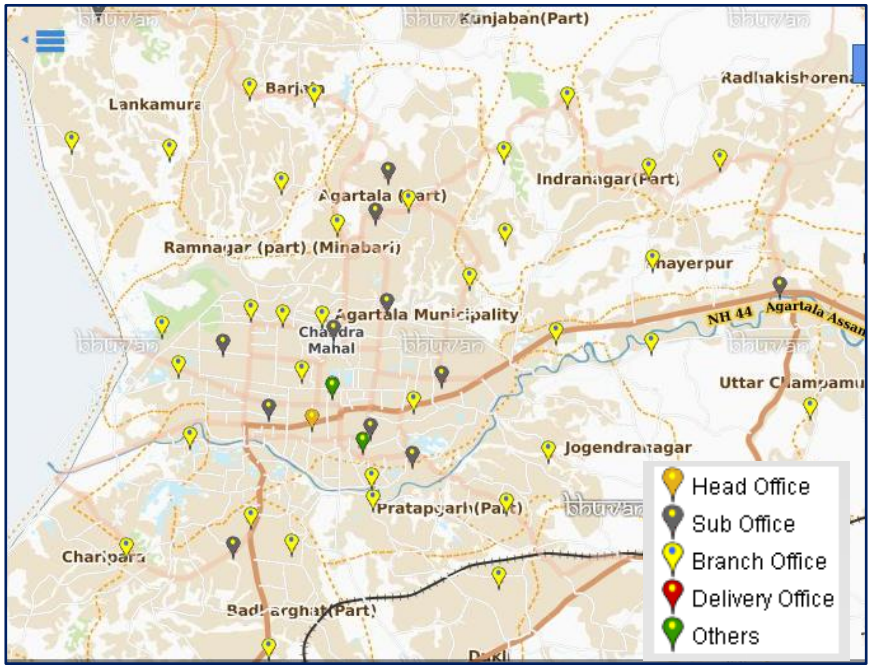


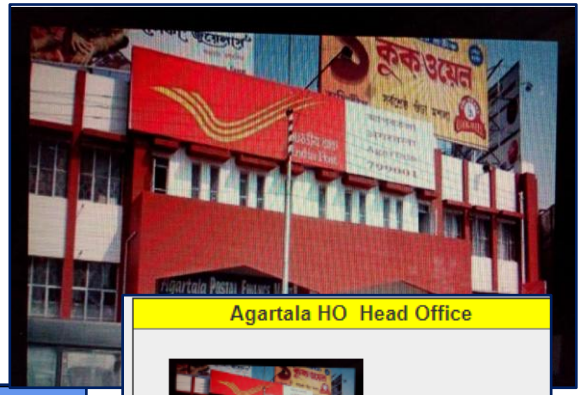
Department of Post

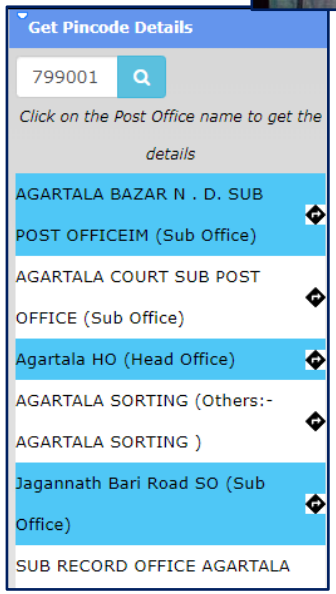
"Administrator view having 36 State level logins and Citizen having option to view, search and Pincode information system"

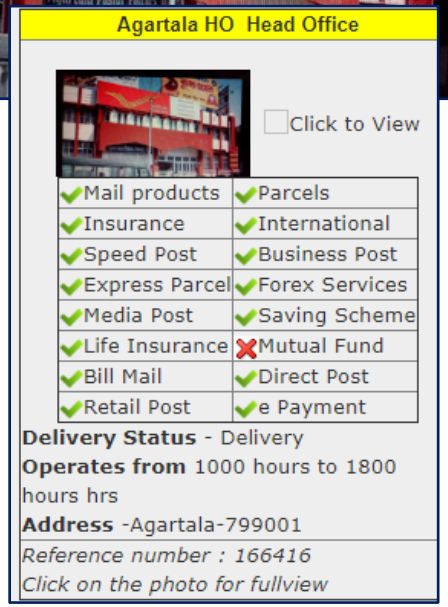
Salient Features

- **Spatial Visualization** of Geo-tagged post offices based in the filters provided
- **Moderation** by Department of Post officials
- **Search Post offices / Proximity** by Location name, Filter by Services provided
- **Pincode –** Pincode information system with Details of services offered





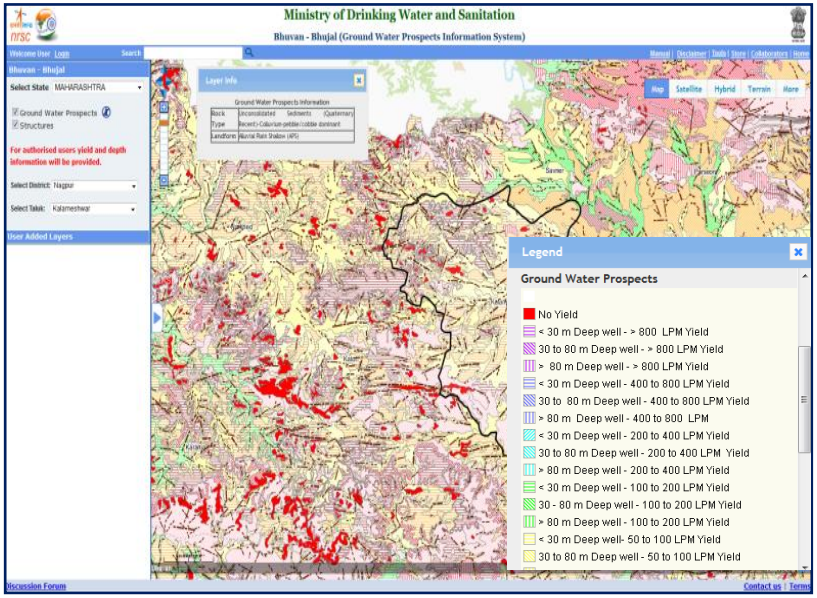


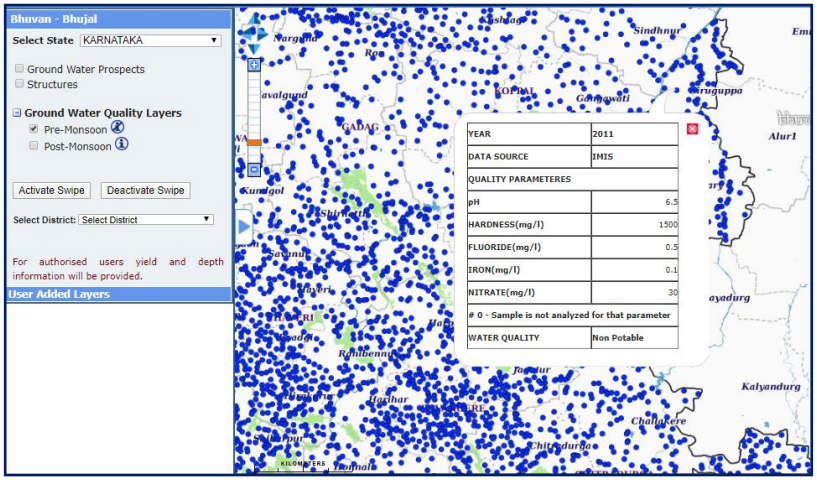


No of Offices Geotagged	177496
No of Offices Moderated	168840

Bhuvan-Bhujal: Ground Water Prospects Information System

- Facilitating visualization of State wise Ground Water Prospects and Structures information.
- Geological parameters: Lithology (rock type), Geomorphology (landform), Geological structures (fractures/faults).
- Ground water prospects (Authorized users): Probable Depth and yield range of wells
- Ground Water Quality Information
  - Pre Monsoon
  - Post Monsoon



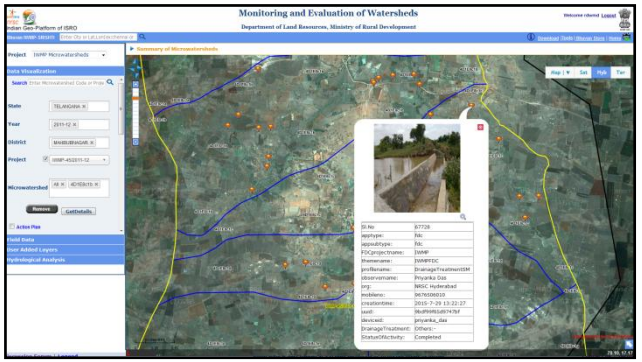


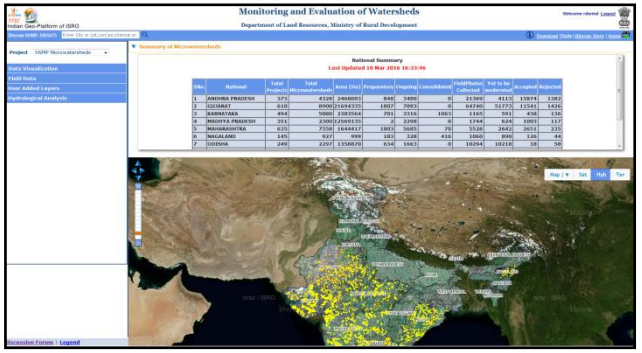
"Ground Water Prospects for 33 States"

- LITHGEOM - 33 States
- Structures – 32

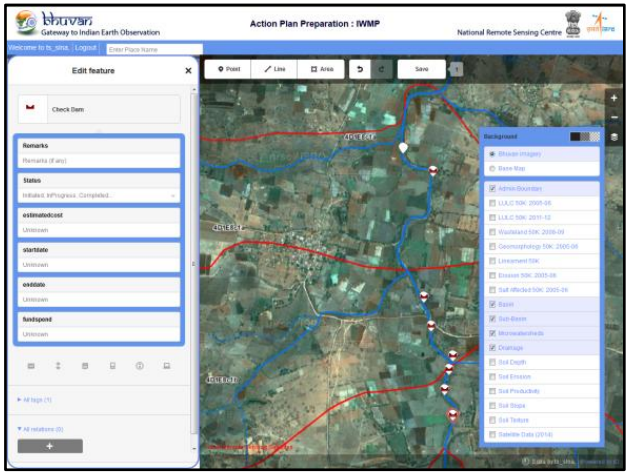
Bhuvan IWMP: Monitoring & Evaluation of Watersheds

Application facilitating the consolidated view of the Watersheds along with all supported datasets aimed at planners and general public.



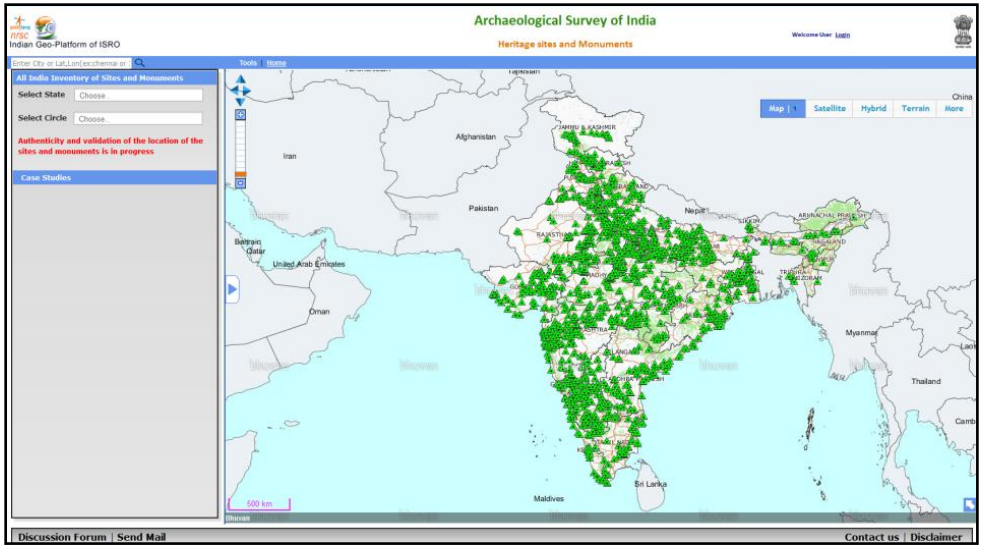


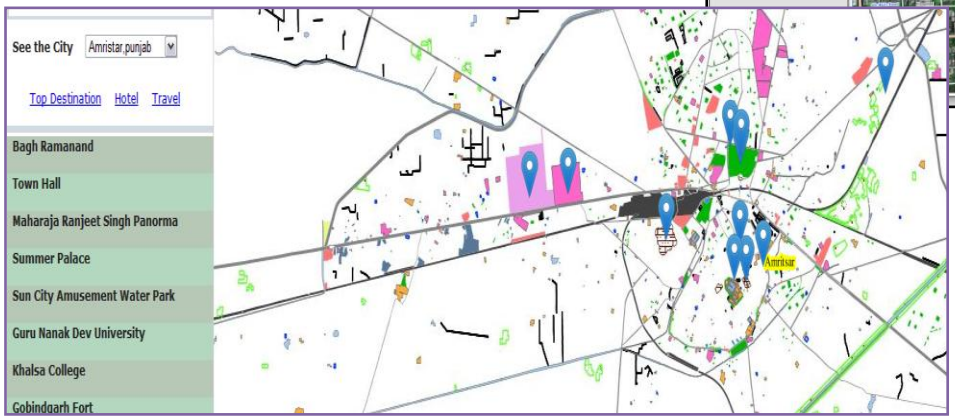
- Hierarchical Watershed Select Mechanism
- Visualization of Watershed datasets Action Plan, Cadastral Boundary, Administrative Layers etc.
- Time series satellite data for monitoring the progress.
- Year-wise IWMP Watersheds, Net Plan Visualization.
- Customized Bhuvan Mapper for IWMP Users
- Admin, Data Provider, Guest views.
- Reports of Watersheds State/District/Year-wise.



Heritage Sites and Tourism GIS

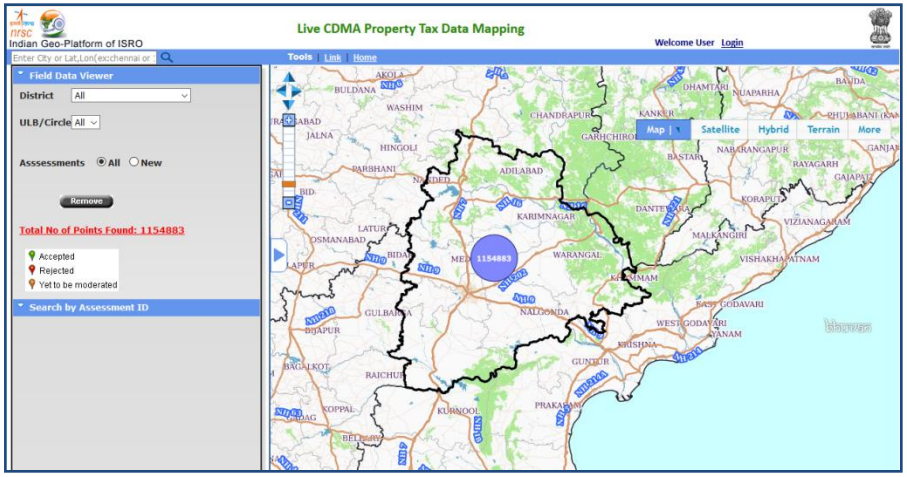
- **All India inventory of Heritage sites and Monuments.**
- **State, Circle wise selection.**
- **Monuments**
- **Protected, Prohibited, Regulated boundaries**
- **Field Photographs**
- **Web services**
  - ✓ Top Destinations
  - ✓ Hotels and Stay
  - ✓ Food Hubs
  - ✓ Tourist spots
  - ✓ Heritage walk
  - ✓ Services
  - ✓ Travel- Find Route
  - ✓ Commercial

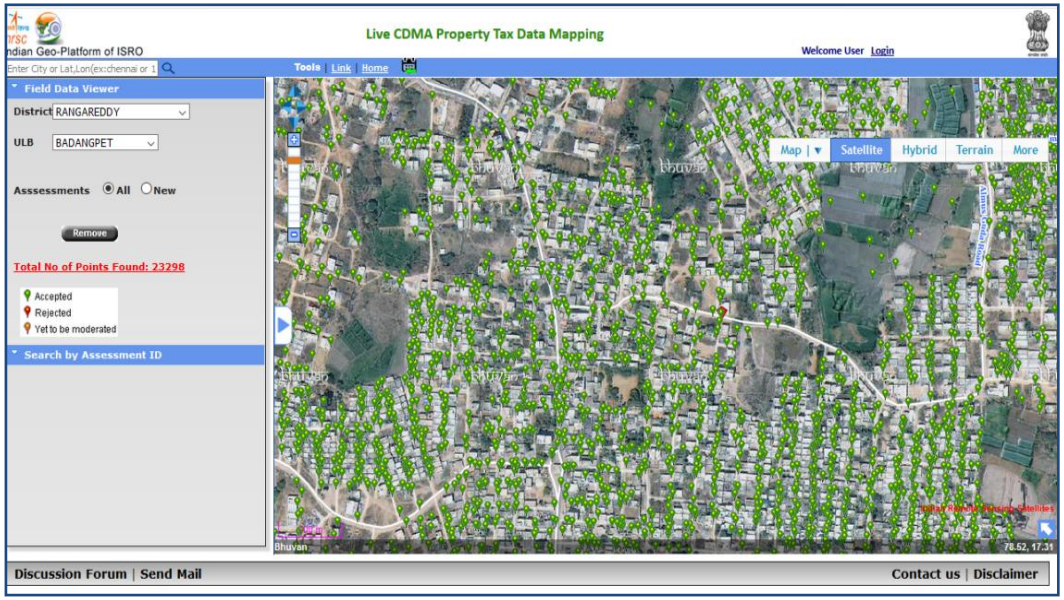


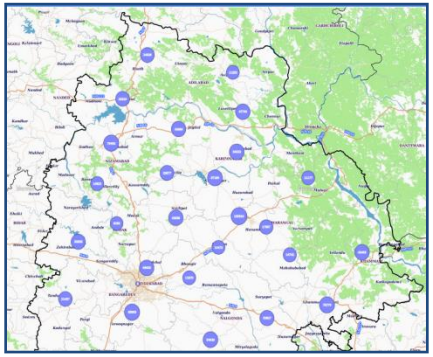


Live CDMA Property Tax Data Mapping

- Geotagging of more than 12 Lakh Assessments in Telangana
- Property Tax Mapping for 72 Urban Local Bodies under 31 Districts
- Supported in identifying under assessed and new assessments

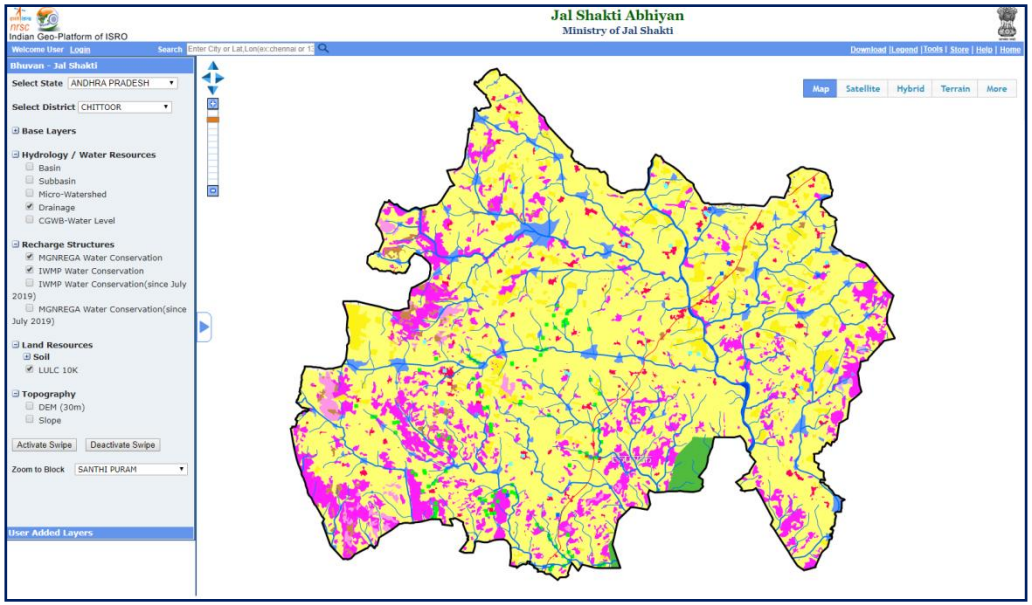


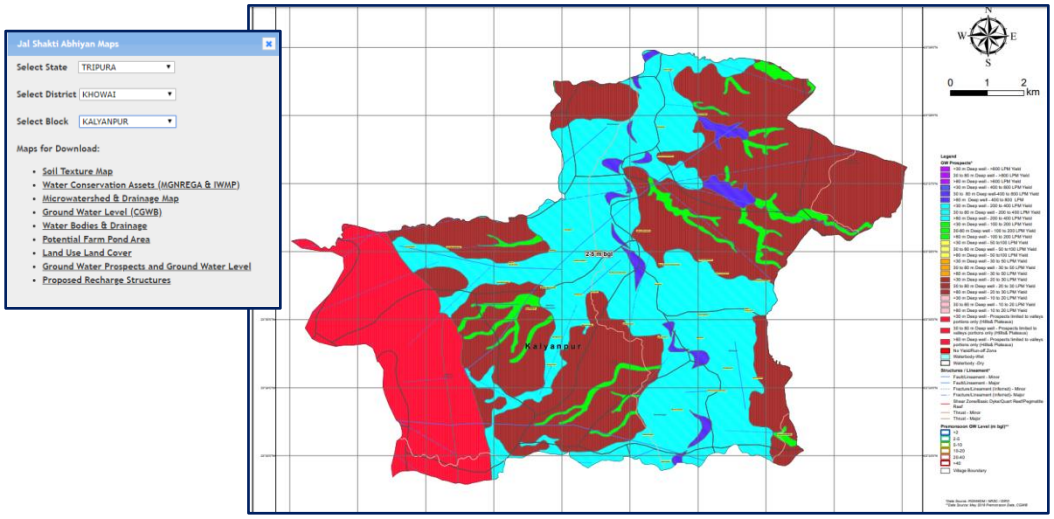




Bhuvan-Jal Shakti Abhiyan

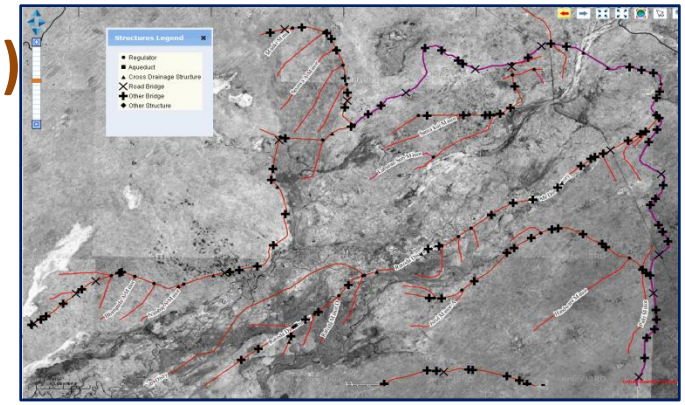
- **Bhuvan-JSA Application is envisaged to support Jal Shakti Abhiyan - a campaign for water conservation and water security by Ministry of Jal Shakti, Government of India**
- **1242 Blocks of 255 Districts (out of 1592 Blocks) data available**
- **Provides visualization of rich Thematic and Water Conservations Assets information**
  - **Base Layers**
  - **Hydrology/Water Resources**
  - **Recharge Structures**
  - **Land Resources**
  - **Topography**
- **Provides Block level Maps for 8 Themes in A0 Size PDFs and Toposheet wise Proposed Recharge Structures information**





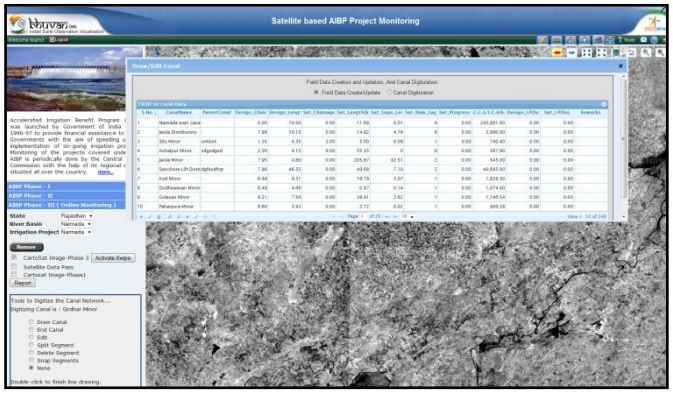
Map Download Since 1st July 2019: **43344**

Accelerated Irrigation Benefit Program (AIBP)



Inventory : 103 Projects

- Bhuvan – AIBP Portal: Facilitates Visualization of Irrigation projects carried under 2 Phases
  - Phase-I : 53 Projects
  - Phase-II: 50 Projects
  - Phase-III: Ongoing
- Datasets Available for Visualization:
  - Canal Networks,
  - Canal Boundaries,
  - Hydraulic Structures

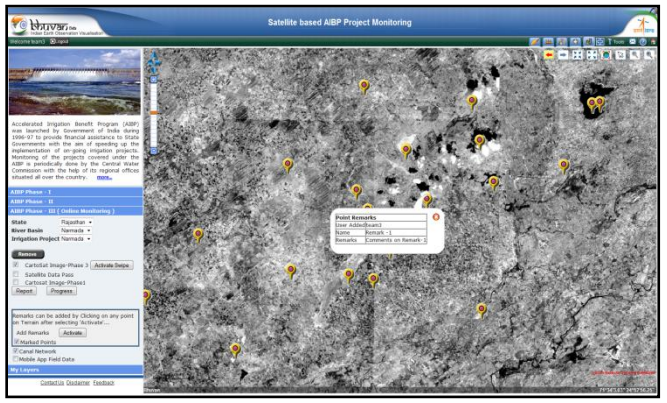


Monitoring the Canal progress on Bhuvan

Phase-III: This module is for the Ongoing projects facilitating CWC officials for the Online monitoring through Satellite data and Digitization Tools available.

Salient Features:

- Canal Digitization through help of Cartosat data.
- Add Structures, Project Boundary, Remarks
- 3 levels of Access Control
- Data Editing facility for Field Data.



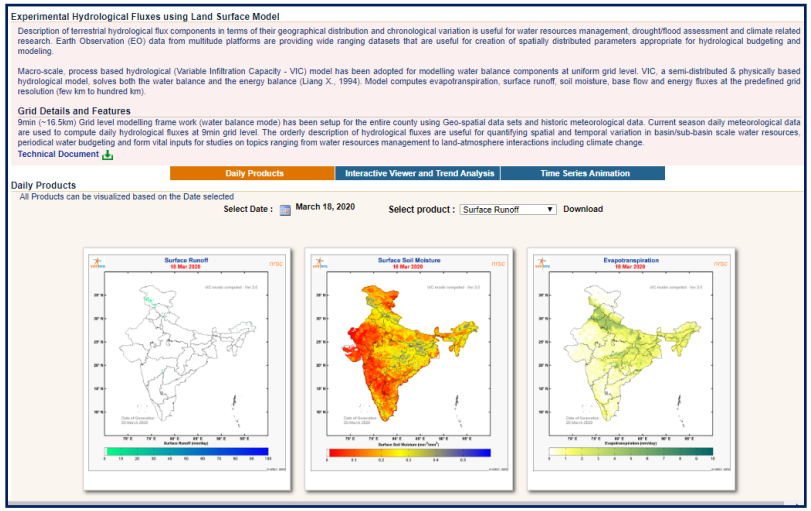
"300 Layers as WMS/WMTS, 380 GB of datasets"

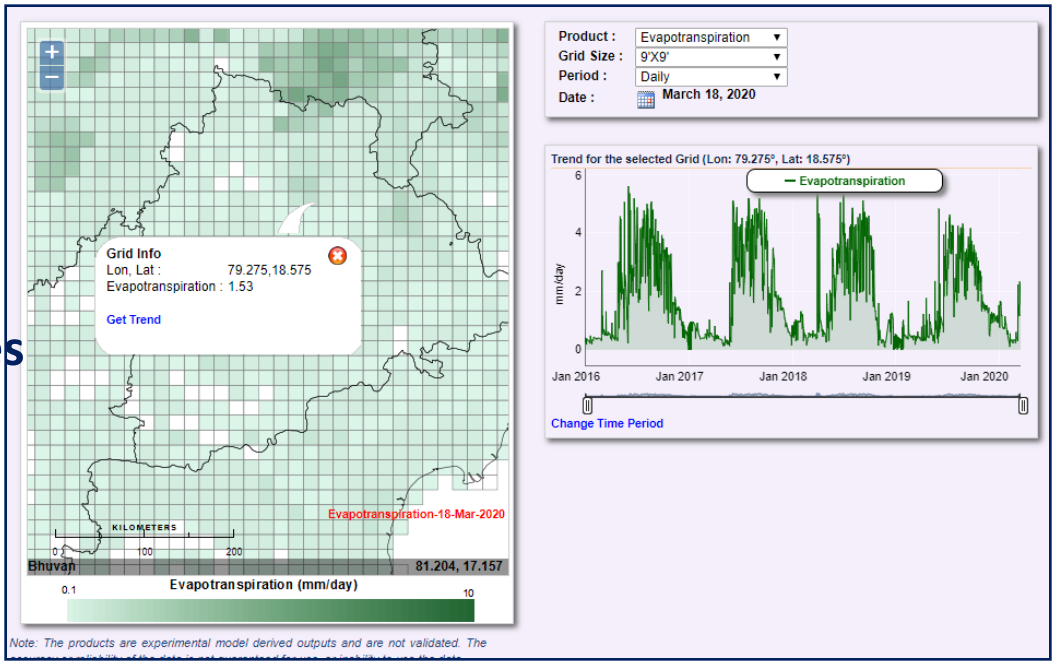
http://bhuvan3.nrsc.gov.in/applications/aibp/aibphome/aibp.html

Hydrological Science

Near Real Time Hydrological Modelling - Products & Services

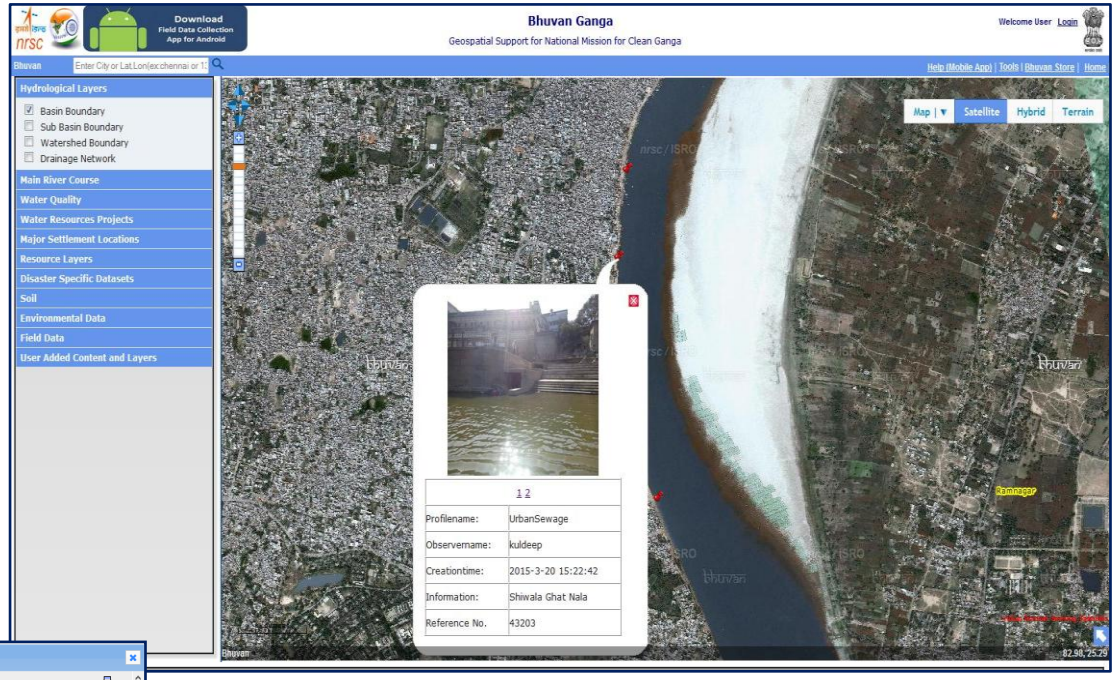
- Hydrological Fluxes
  - 0.15° Spatial Resolution
  - 0.05° Spatial Resolution
- Visualization & Time Series Animation
- Trend Analysis
  - Surface Runoff
  - Evapotranspiration
  - Surface Soil Moisture
- Download of Products
- Basin Scale Fluxes
- Basin Wise Hydrological Fluxes

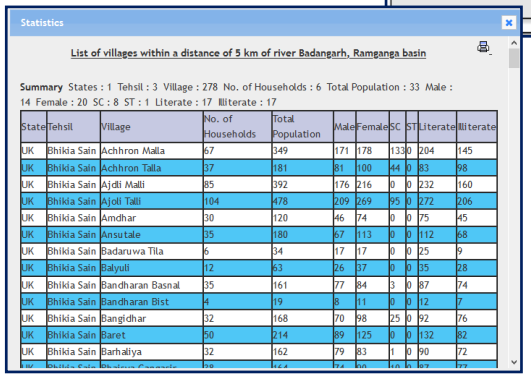




Bhuvan – Ganga Portal

Platform for crowd sourcing to monitor pollution in river Ganga and enable decision makers to prioritize interventions by enabling public to collect and report information on various pollution sources that affects water quality of river Ganga



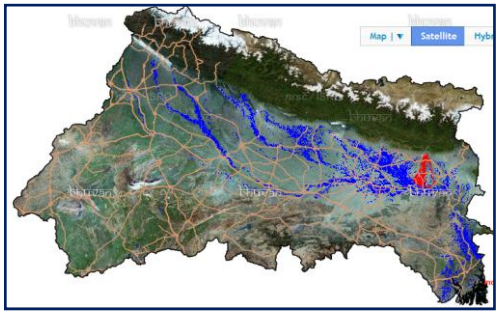


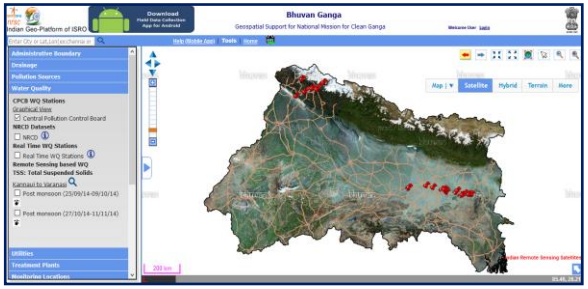
Statistics

List of villages within a distance of 5 km of river Badangarh, Ramganga basin

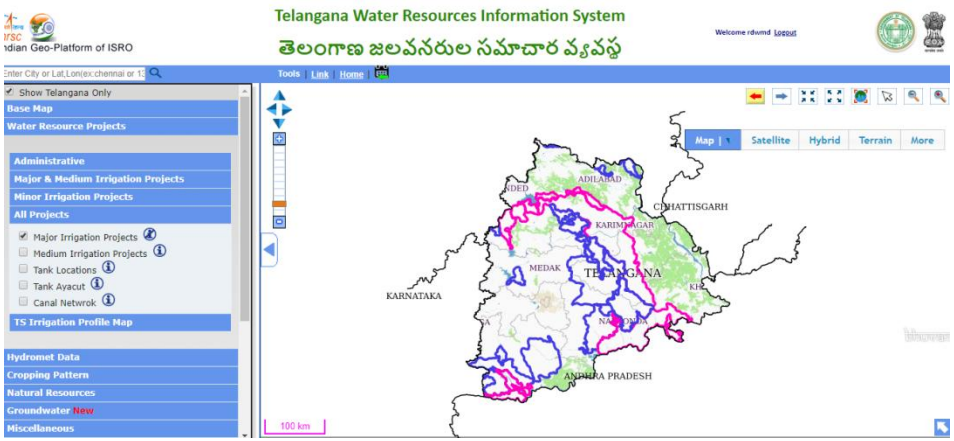
Summary States : 1 Tehsil : 3 Village : 278 No. of Households : 6 Total Population : 33 Male : 14 Female : 20 SC : 8 ST : 1 Literate : 17 Illiterate : 17

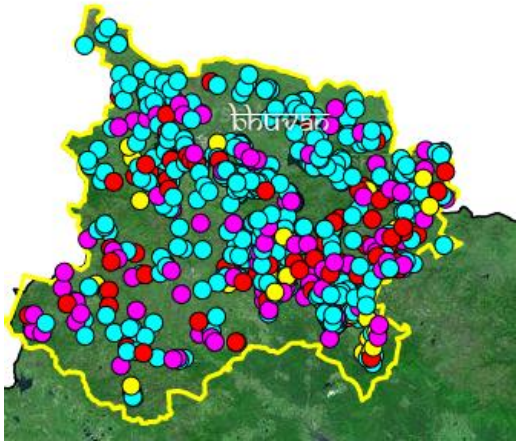
State	Tehsil	Village	No. of Households	Total Population	Male	Female	SC	ST	Literate	Illiterate
UK	Bhikia Sain	Achhron Malla	67	349	171	178	1	3	204	145
UK	Bhikia Sain	Achhron Talla	37	181	81	100	44	0	83	98
UK	Bhikia Sain	Ajdli Malli	85	392	176	216	0	0	232	160
UK	Bhikia Sain	Ajoli Talli	104	478	209	269	95	0	272	206
UK	Bhikia Sain	Amdhar	30	120	46	74	0	0	75	45
UK	Bhikia Sain	Ansutale	35	180	67	113	0	0	112	68
UK	Bhikia Sain	Badaruwa Tila	6	34	17	17	0	0	25	9
UK	Bhikia Sain	Balyuli	12	63	26	37	0	0	35	28
UK	Bhikia Sain	Bandharan Basnal	35	161	77	84	3	0	87	74
UK	Bhikia Sain	Bandharan Bist	4	19	8	11	0	0	12	7
UK	Bhikia Sain	Bangidhar	32	168	70	98	25	0	92	76
UK	Bhikia Sain	Baret	50	214	89	125	0	0	132	82
UK	Bhikia Sain	Barhaliya	32	162	79	83	1	0	90	72

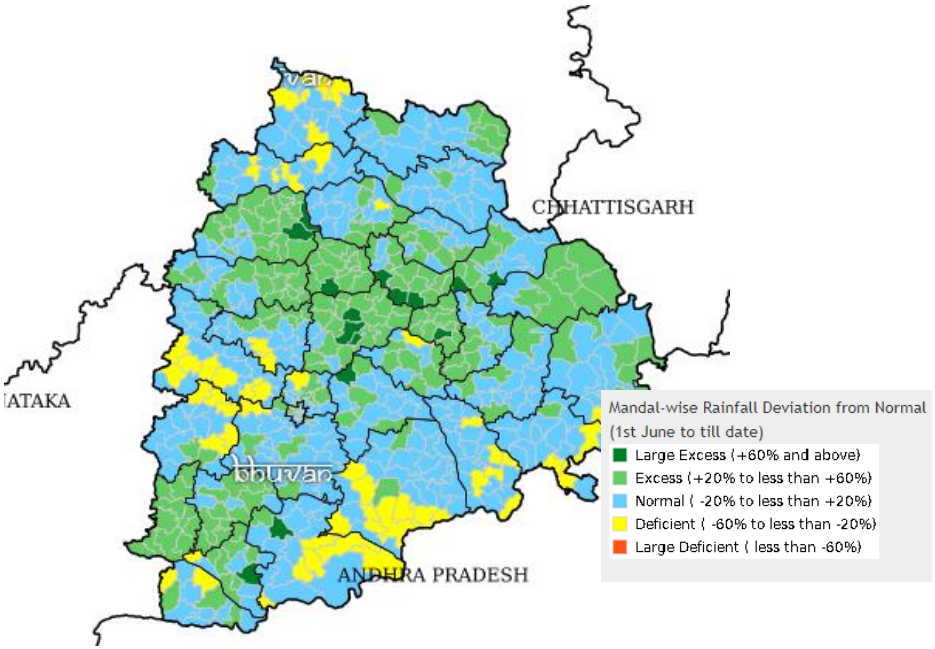


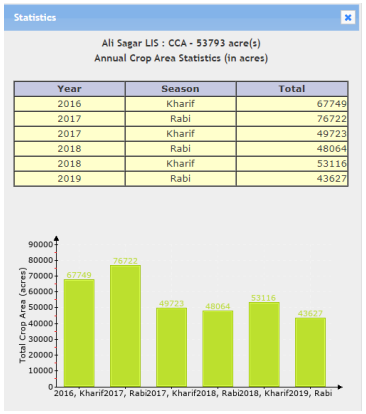


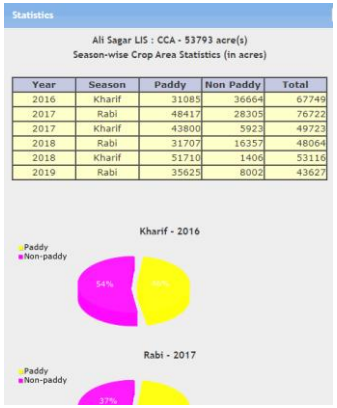
Telangana Water Resources Information System





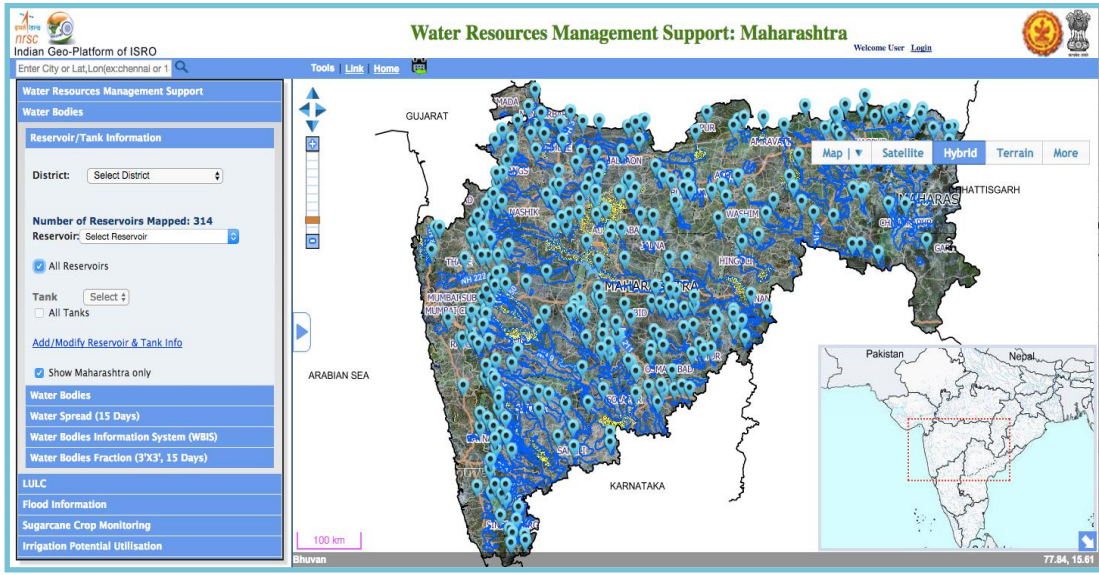


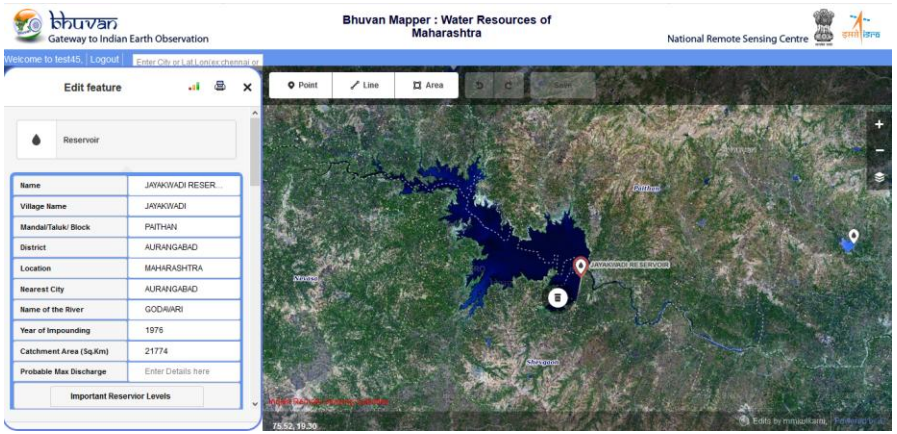


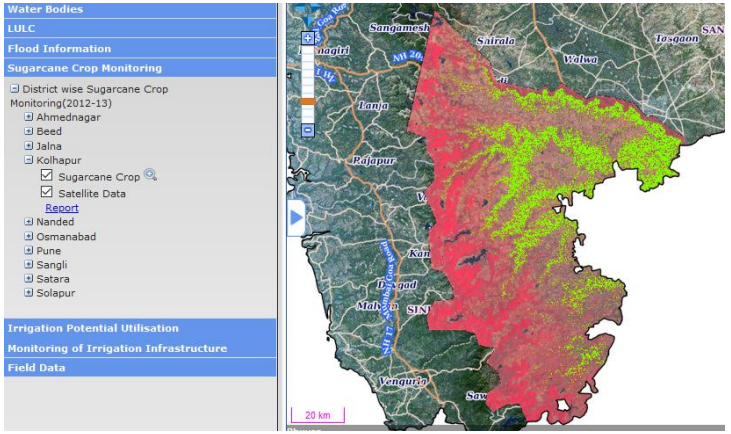


Water Resources Management Support: Maharashtra

- Platform for Mapping Reservoir and Tanks
- Customized Tool with detailed Attributes
- Tools for Reports and updating Reservoir Capacity
- Visualization of District wise Sugarcane Crop Monitoring

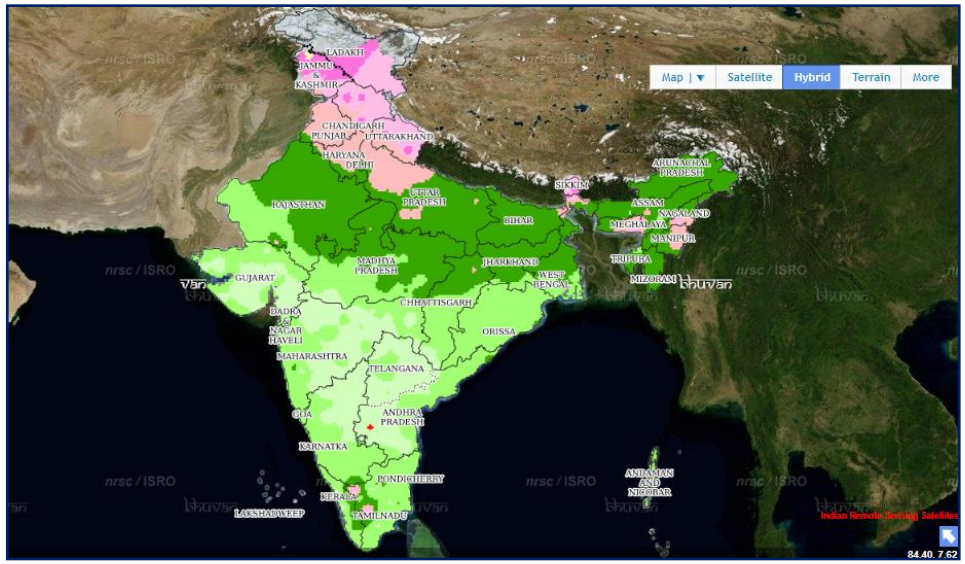


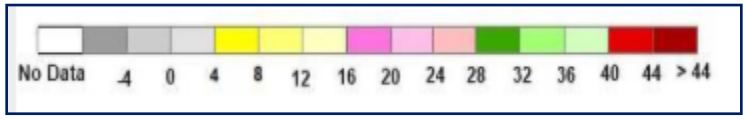


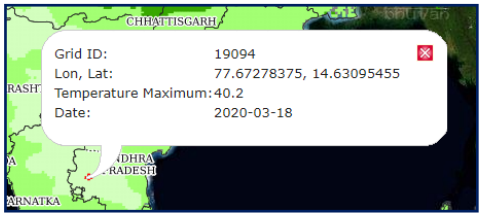


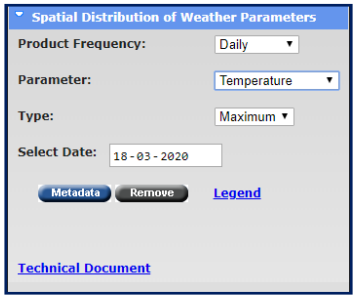
Bhuvan - IMD Weather Products

- Visualization IMD products through Bhuvan spatial platform
- Daily, Weekly, Fortnight, Monthly, Seasonal Weather Products
- Products
  - Temperature
  - Relative Humidity,
  - Wind Speed
  - Cloud
  - Rainfall
- Grid info

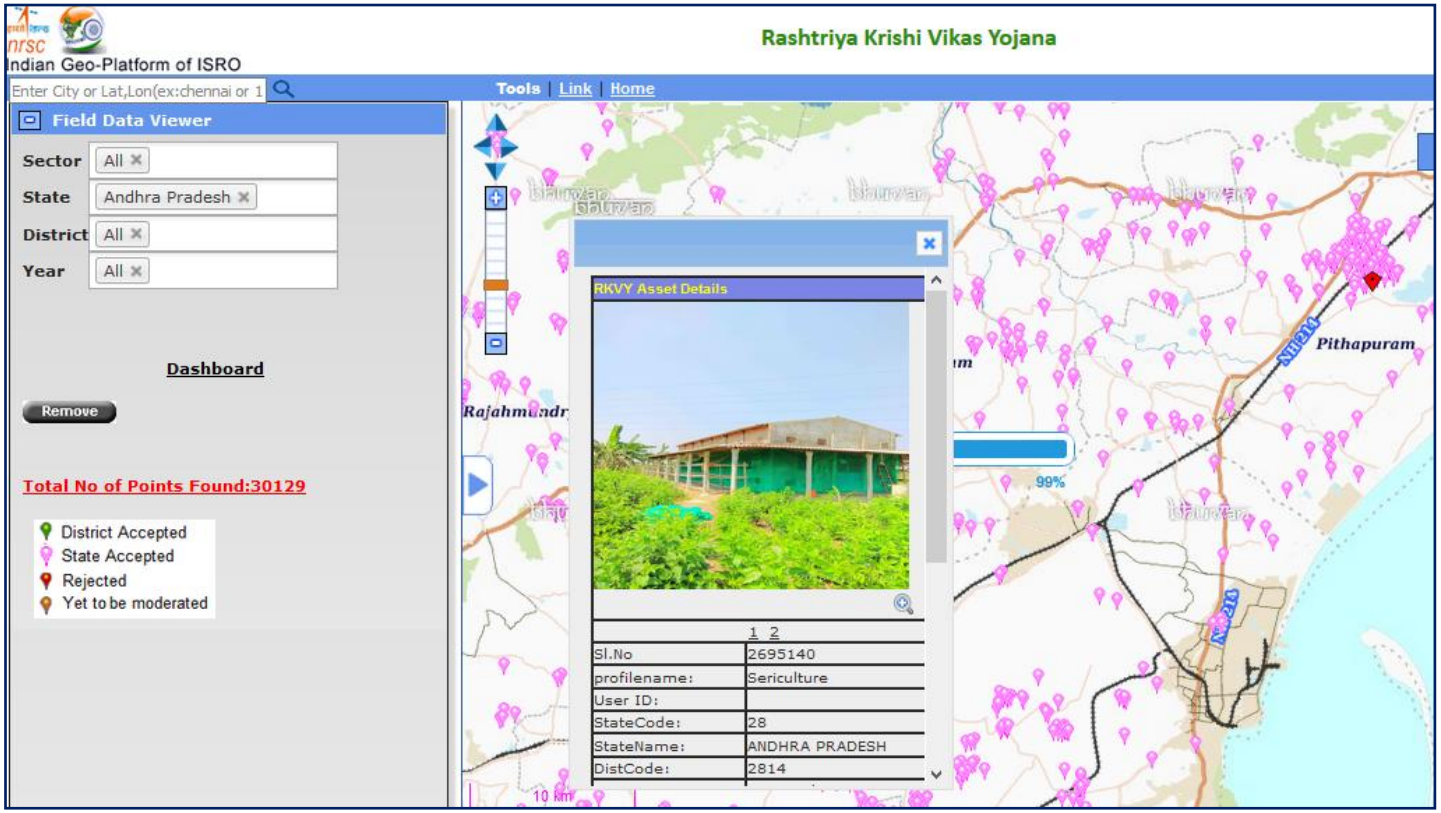








Geo-tagging of Rashtriya Krishi Vikas Yojana (RKVY) Assets



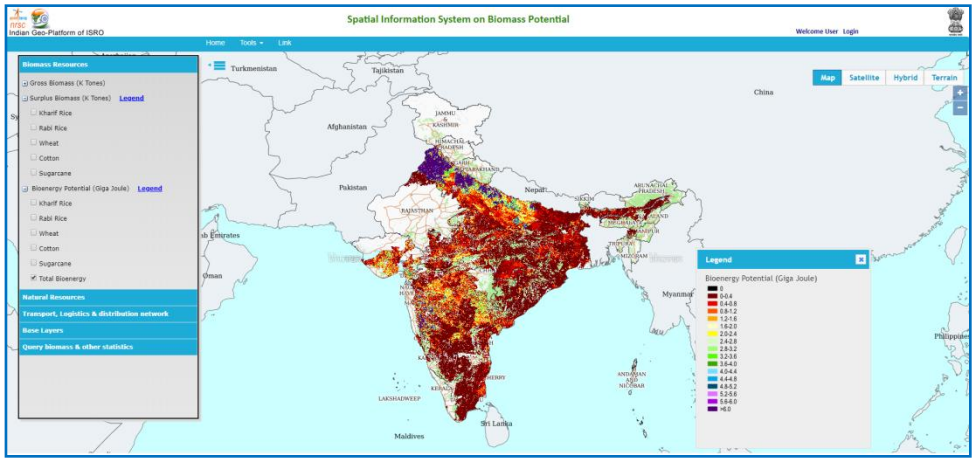
- RKVY has been the flagship scheme of DAC&FW for achieving and sustaining the desired growth rate of agriculture and allied sectors in the country
- Geotagging using android app to locate RKVY assets through Bhuvan
- Total RKVY Assets Geotagged:408223

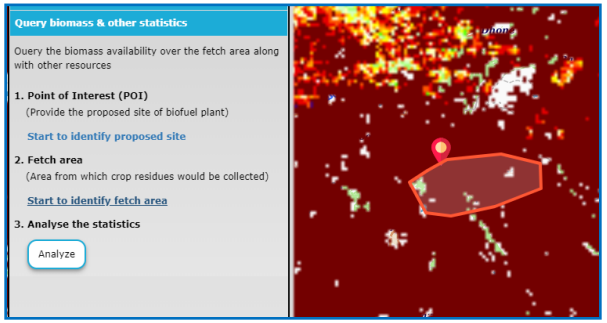
CHAMAN

Coordinated Programme on Horticulture Assessment and Management using Geoinformatics

Spatial Information on Biomass Potential

- Spatial Information System on Biomass Potential from crop residues over India using geospatial techniques
- Biomass Resource layers
  - Gross Biomass
  - Surplus Biomass
  - Bio Energy Potential
  - Rice, Wheat, Cotton, Sugarcane Crop information
- Natural Resources
  - LULC, Hydrological Layers
- Transport and Base Layers
- Spatial Query - Site suitability analysis for bio-fuel plants
  - Helps in planning, designing and sustaining a biofuel/biogas plants
  - Options to select point of interest (POI) for biofuel plant, fetch area
  - Analyze the data under the fetch area based on the selected layers
- Detailed Report and Statistics with Details on Site Location and Information on Biomass Resources
- Report in PDF format along with LULC Maps



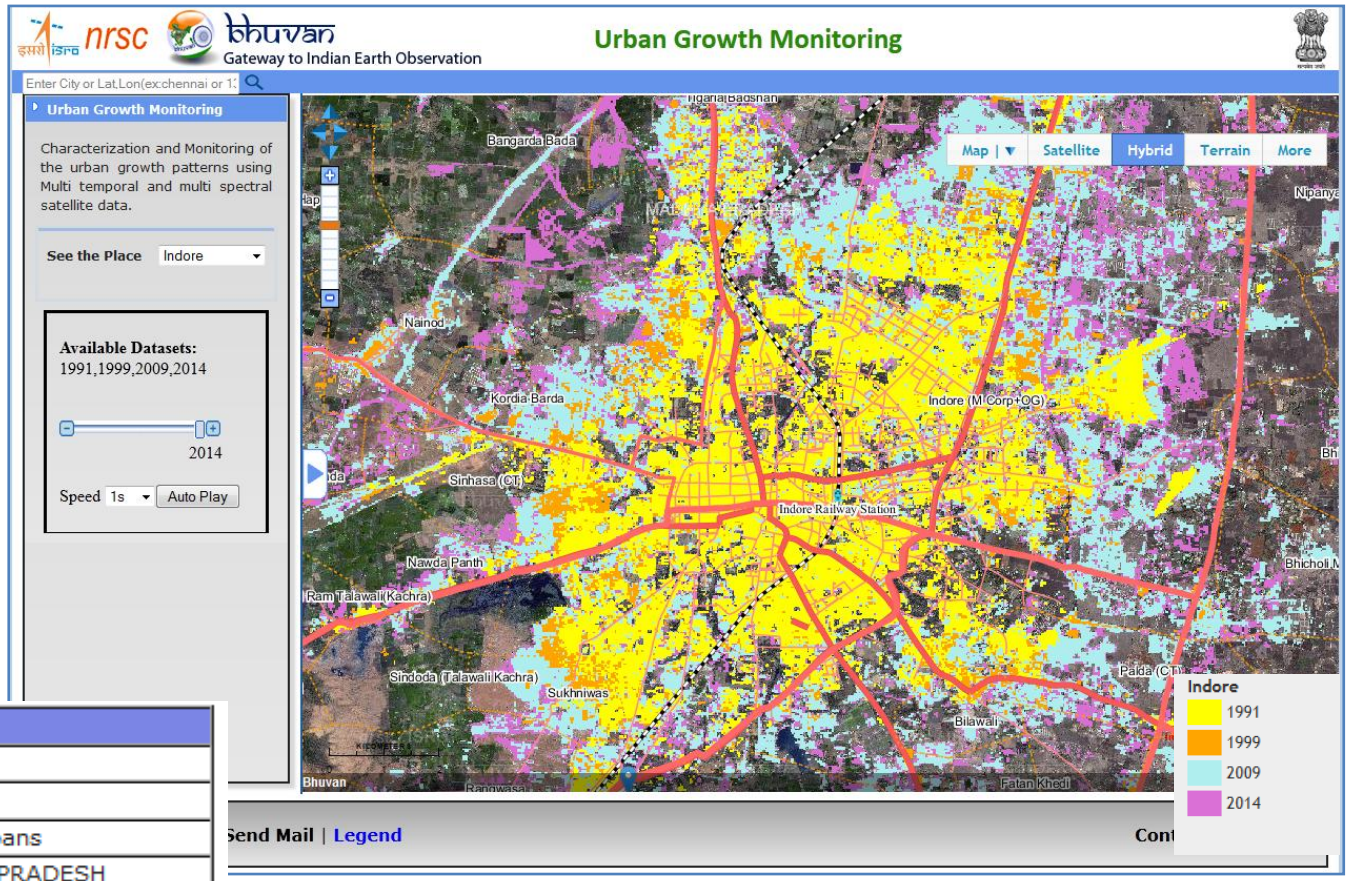


Basic Information of the Site Location & Fetch Area		
1	Fetch Area (in Sq. Km.)	14541.57
2	Coordinate of Site Location	Latitude : 17.53418, Longtitude : 78.20068
3	State of Site Location	Telangana
4	District of Site Location	Medak District
5	City of Site Location	Isnapur
6	Locality of Site Location	Not available
7	Nearest Railway Station	Patancheru Railway Station, 7.807 Kms away
8	Nearest Petrol/Gas Station	Indian Oil Petrol Pump, 1.912 Kms away

Information of the available Biomass/Bioenergy Resources	Kharif Rice	Rabi Rice	Wheat	Cotton	Sugarcane	Total
Gross Biomass over fetch area (K Tones)	NA	NA	NA	NA	NA	NA
Surplus biomass over fetch area (K Tones)	NA	NA	NA	NA	NA	NA
Bioenergy potential over fetch area (GJ)	505.76	NA	NA	3611.51	NA	4603.73

Urban Growth

Characterization and Monitoring of the urban growth patterns using Multi temporal and multi spectral satellite data.



City Details	
City/Town Name	Indore
Population(2011)	1960631
Category	Major Urbans
State	MADHYA PRADESH
More Detaills	

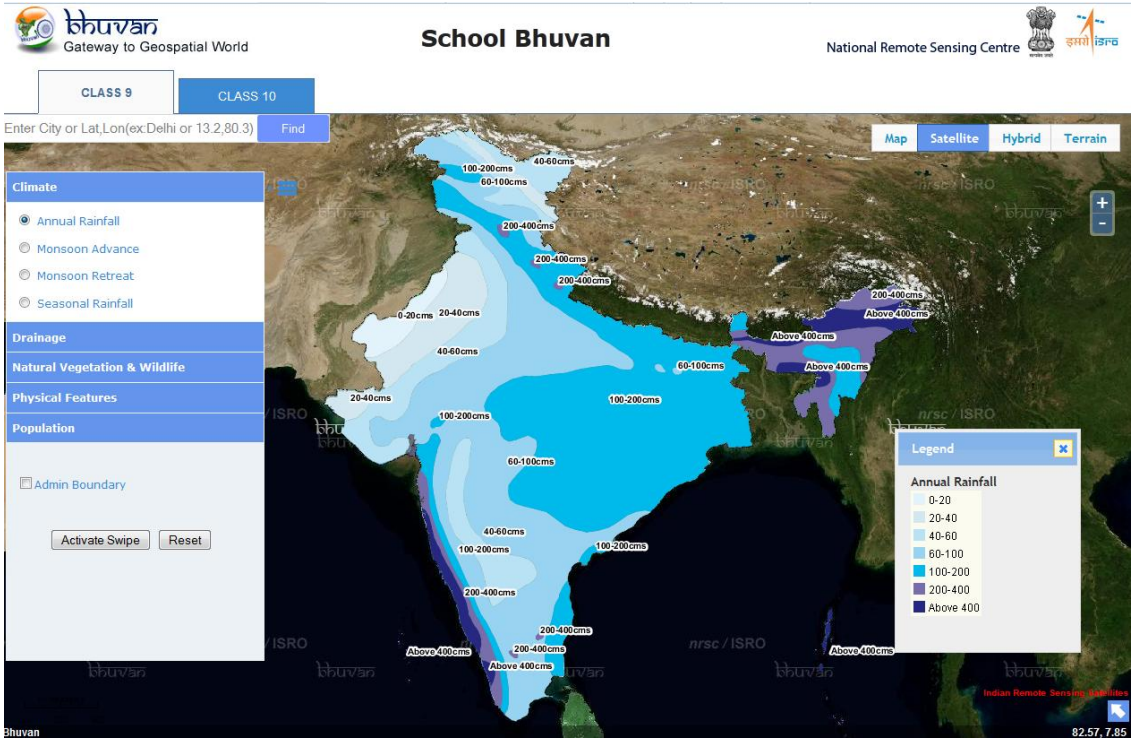
School Bhuvan

An e-learning portal for the students

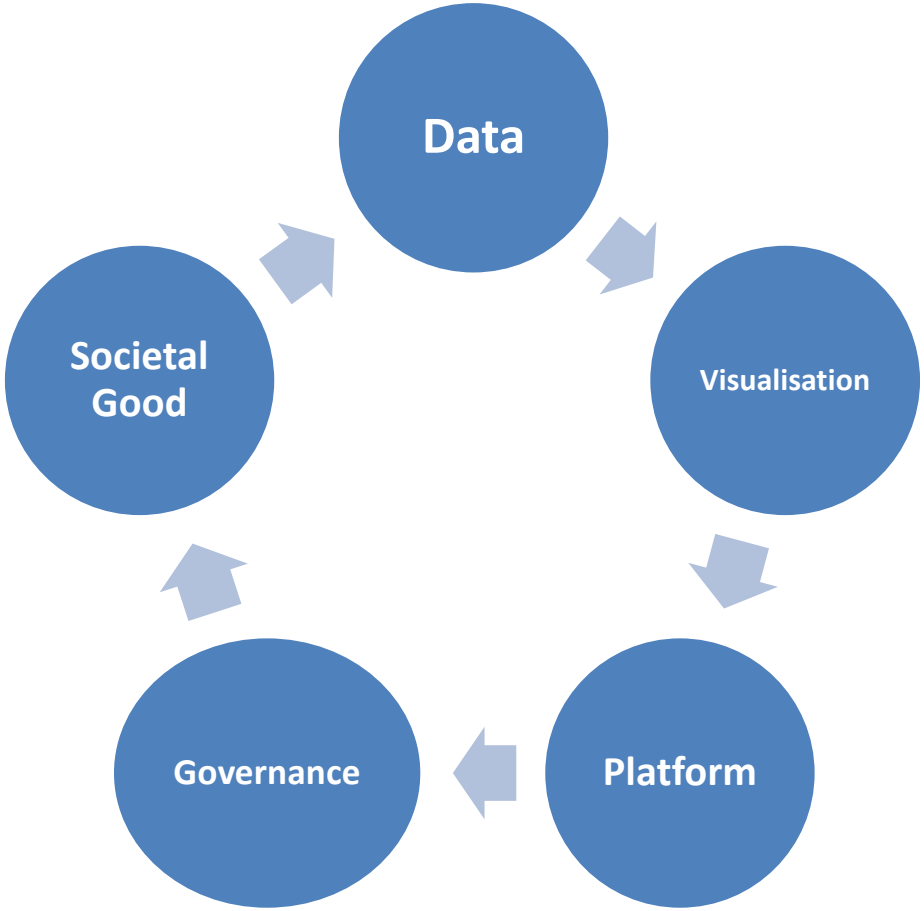
A portal providing map based learning to bring awareness among the students about country's natural resources, environment and their role in sustainable development.

Salient Features

- Visualization of 9th ,10th class maps of various categories (Agriculture, Water, Soil, Mineral etc) based on NCERT syllabus
- Provision to swipe the layers to know the ground reality
- Provision to take print the maps in PDF format



Thank You



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