nrsc

www.bhuvan.nrsc.gov.in

BHUVAN | **APPLICATIONS AND OUTPUTS**

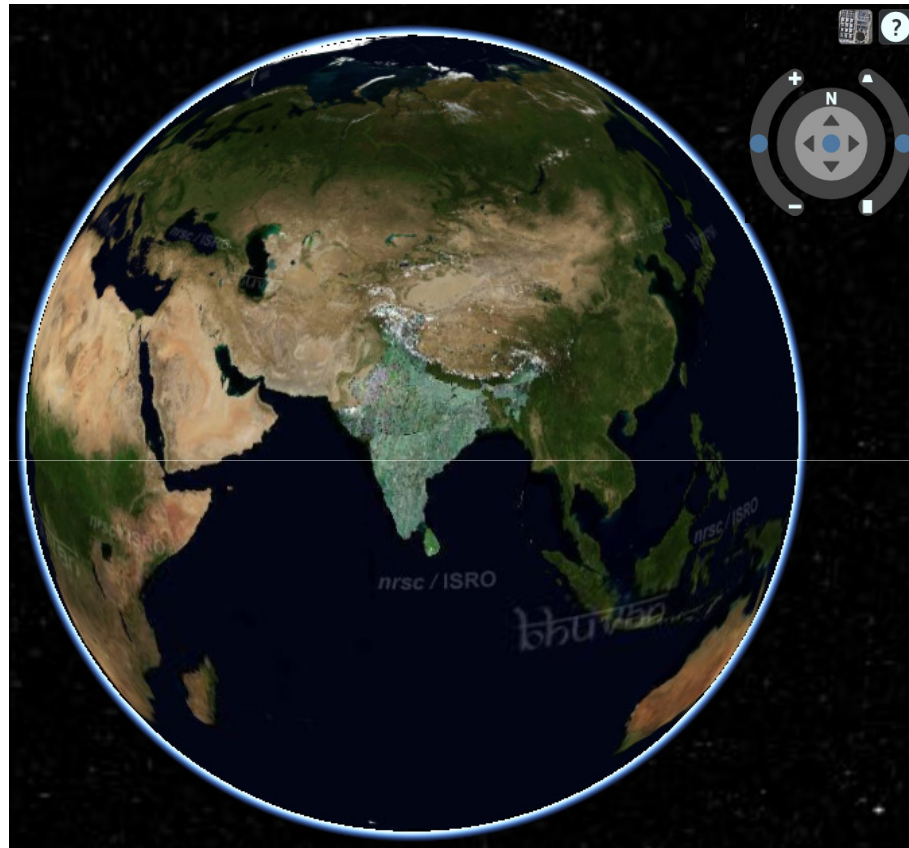इसरो isro

National Remote Sensing Centre
Indian Space Research Organisation
Hyderabad-500 037

August 2015

1	Security Classification	Public		
2	Distribution	To all Data Contributors and Users of Bhuvan in Government Departments, Academic & Research institutions, Private industry and Public		
3	Document (a) Issue:	Issue-August, 2015	(b) Revision:	0
4	Report Type	Technical Report - Bhuvan Applications and Output		
5	Report No	NRSC-DPPAWA-GWGSG-AUG-2015-TR-730		
6	Title	Bhuvan Applications and Output		
7	Collation	Pages 40	Figures	References
8	Project	BHUVAN		
9	Author(s)	Arulraj.M, Kalyandeep K, S. Hanumantha Rao		
10	Affiliation of authors	NRSC		
11	Security Mechanism	Reviewed by GD, G&WGS	Approved by DD (RSA-A), NRSC	
12	Originating unit	NRSC		
13	Date of Initiation	July, 2015		
14	Date of Publication	August, 2015		
	Abstract: This document describes about the various Bhuvan applications and output.			

3D Models

Select City Hyderabad, Telangana ▾

Remove All

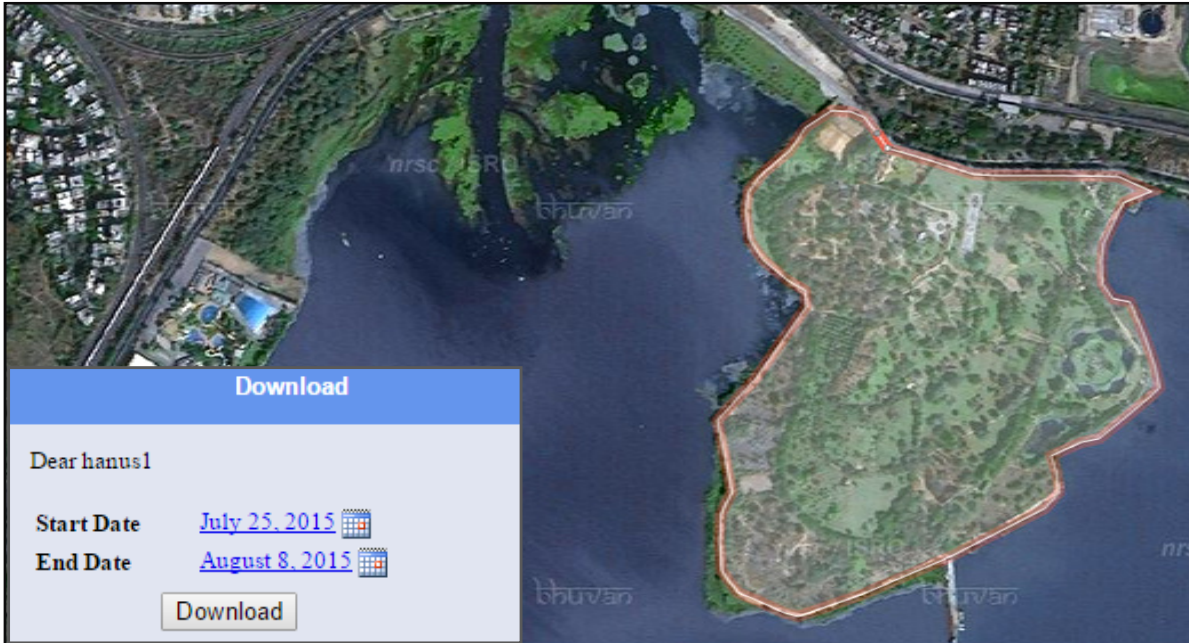Following 3D Models are available

Cyber Towers

Open Source 3D
- **Plug-in and Platform Independent 3D viewer**
- **View of Satellite/Map data with Terrain**
- **Administrative, Infrastructure, Hydrology Layers**
- **Recording & Playback to simulate Flythrough**
- **View of 3D city models**
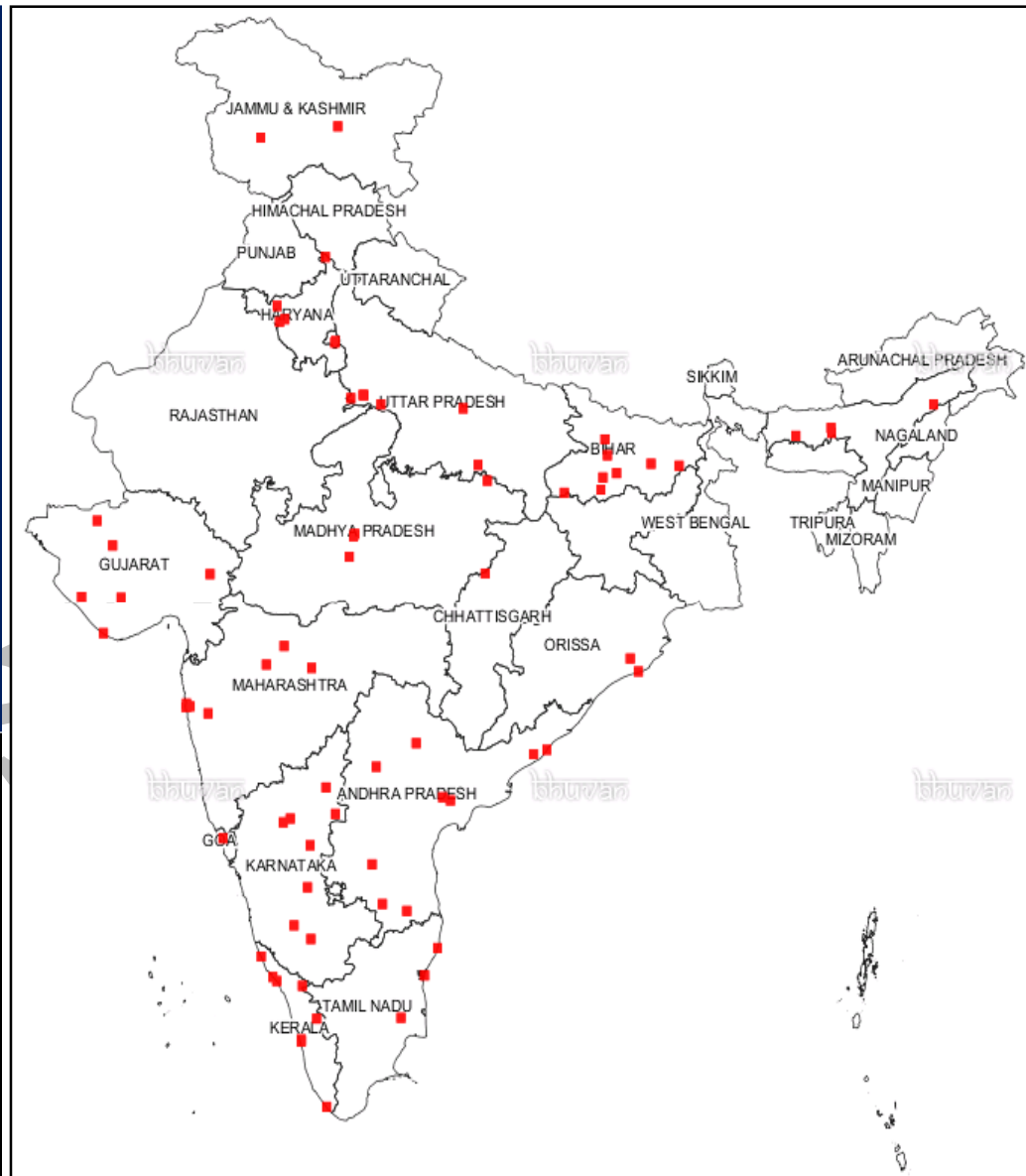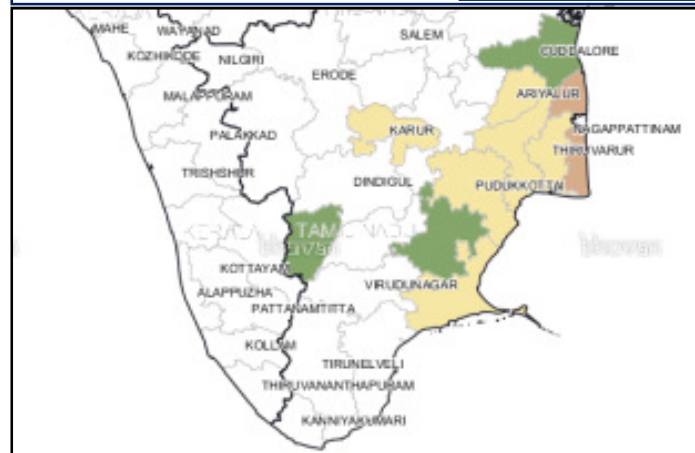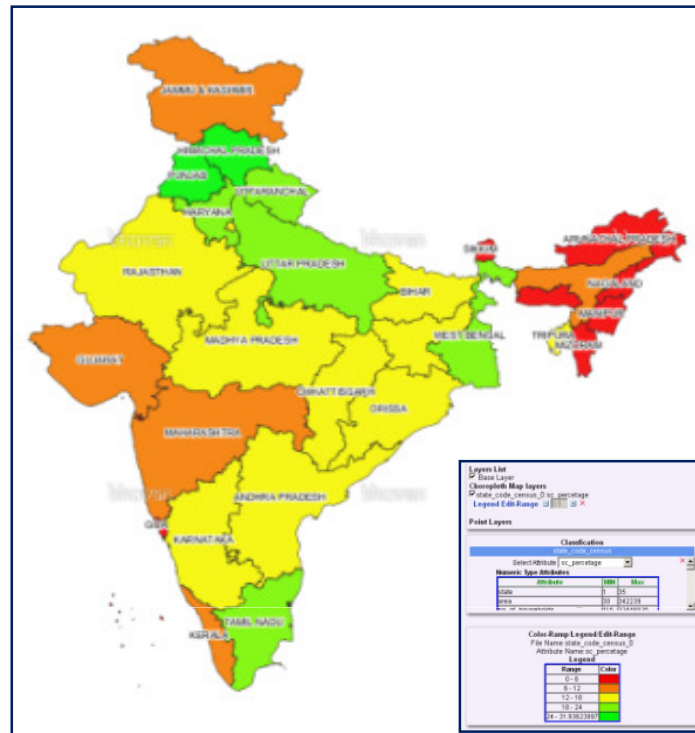
GIS Viewer

- **Creation of Maps from Text Files (Excel sheets)**
- **Maps from State and District Census code or Name (Choropleth Maps) & XY Data (Point Map)**
- **Classification based on Equal Range, Unique values (Edit-Range and color values)**

Download

Dear hanus1

Start Date July 25, 2015

End Date August 8, 2015

Download

Park

Land Use

Building

Water

Hospital

Place of Worship

Cafe

Restaurant

Area

Country Club Open Garden Restaurant

Hotel Green Park

Dr.Reddy's Office

Lifestyle

Road No. 1

ITC Kakatiya

Name

Necklace Road

One Way

☑ yes

Speed Limit

40, 50, 60...   km/h

Structure

○ Bridge

○ Tunnel

○ Embankment

○ Cutting

✗ Remove

Access

General	Unknown
Foot	Unknown
Motor Vehicles	Unknown
Bicycles	Unknown
Horses	Unknown

Enhanced Online Shape file Creation

- Platform for online mapping from HRS data
- Download the interpreted/delineated drawings as shapefile along with customised attributes
- Filtering based on date

Near Real Time Hydrological Modelling - Products & Services   NICES

Surface Runoff
05 Aug 2015
nrsc
VIC model computed - Ver 2.0
Date of Generation - 07-August-2015
Surface Runoff (mm/day)
0 10 20 30 40 50 60 70 80 90 100
© NRSC, ISRO

Surface Soil Moisture
05 Aug 2015
nrsc
VIC model computed - Ver 2.0
Date of Generation - 07-August-2015
Surface Soil Moisture (mm³/mm³)
0 0.1 0.2 0.3 0.4 0.5
© NRSC, ISRO

Evapotranspiration
05 Aug 2015
nrsc
VIC model computed - Ver 2.0
Date of Generation - 07-August-2015
Evapotranspiration (mm/day)
0 1 2 3 4 5 6 7 8 9 10
© NRSC, ISRO

KILOMETERS
0   400   800
Bhuvan
Surface Runoff (mm/day)
0   100

Product :	Surface Runoff ▼
Grid Size :	9'X9' ▼
Period :	Daily ▼
Date :	August 5, 2015

Trend for the selected Grid (Lon: 76.575°, Lat: 18.875°)

■ Surface Runoff

mm/day
25
20
15
10
5

May-13 Jun-13 Aug-13 Oct-13 Dec-13 Feb-14 Apr-14 May-14 Jul-14 Sep-14 Nov-14 Dec-14 Feb-15 Apr-15 Jun-15
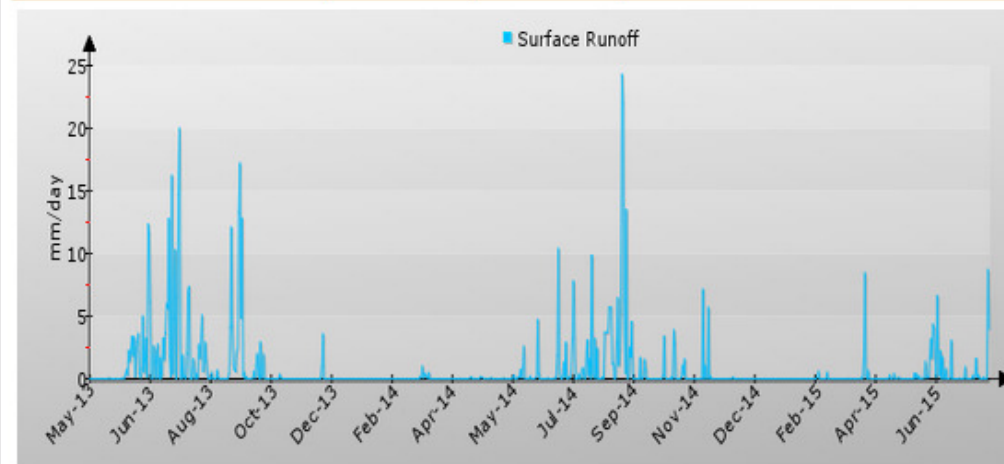
Change Time Period

Hydrological Science

- **Near Real Time Hydrological Modeling - Products & Services (Run off, Evapotranspiration, Soil Moisture)**
- **Interactive Viewer and Trend Analysis**
- **Time Series Animation**
- **Framework for Gridded Products**

ALL INDIA NOWCAST
WDSSII REFLECTIVITY FORECAST FOR DELHI AND NEIGHBOURHOOD

Map | Sat | Hyb

Afghanistan

JAMMU & KASHMIR

HIMACHAL PRADESH

UTTARANCHAL

Pakistan

RAJASTHAN

UTTAR PRADESH

Nepal

SIKKIM

ARUNACHAL PRADESH

NAGALAND

MANIPUR

MIZORAM

MADHYA PRADESH

WEST BENGAL

Myanmar

GUJARAT

CHHATTISGARH

ORISSA

MAHARASHTRA

GOA

ANDHRA PRADESH

KARNATAKA

TAMIL NADU

KERALA

Maldives

Sri Lanka

Admin Boundary - SOI

©Bhuvan: ISRO/NRSC,2014

KILOMETERS
0   200   400

Designed & Maintained by NWP, India Meteorological Department, Lodi Road, New Delhi

Back to HOME

Warning Colors	
	No Thunderstorm
	Moderate Thunderstorm
	Severe Thunderstorm
	Squall
	Hailstorm

111216

Counter reading since 24 May 2013

ALL INDIA NOWCAST

Map | Sat | Hyb

Afghanistan

JAMMU & KASHMIR

HIMACHAL PRADESH

PUNJAB

UTTARANCHAL

HARYANA

Pakistan

RAJASTHAN

UTTAR PRADESH

Nepal

SIKKIM

ARUNACHAL PRADESH

NAGALAND

MANIPUR

MIZORAM

MADHYA PRADESH

WEST BENGAL

GUJARAT

CHHATTISGARH

ORISSA

Myanmar

MAHARASHTRA

GOA

ANDHRA PRADESH

KARNATAKA

TAMIL NADU

KERALA

Maldives

Sri Lanka

Admin Boundary - SOI

©Bhuvan: ISRO/NRSC,2014

KILOMETERS
0   200   400

95.41564, 25.22461

Designed & Maintained by NWP, India Meteorological Department, Lodi Road, New Delhi

Back to HOME

Visibility Range for FOG	
	No Fog (>1000 m)
	Shallow Fog (500-1000 m)
	Moderate Fog (500-200 m)
	Dense (200-50 m)
	Very Dense (<50 m)

IST (Hrs) = GMT + 5:30

Bhuvan Framework

- **Visualization on Bhuvan**
- **Visualization of IMD Nowcast - Fog and Thunderstorm using Bhuvan services**
- **OGC Compliant Services - Bhuvan Satellite and Base map**
- **Custom application from IMD servers**

Cyclone | Drought | Earthquake | Flood | Forest Fire | Landslide

Tools | Updates | Bhuvan Store | Help | Print | Home

Support for International Disasters

Disaster Management Support (DMS) Programme of ISRO More...

Map Satellite Hybrid Terrain More

Landslide

▶ **Early Warning System**

Experimental Landslide Early Warning System for Rainfall Triggered Landslides

Route Rishikesh-Badrinath ▼

Date 2014-08-13

Remove

Technical document

Please Click on Map to get the rainfall value (3' X 3' Grid)
Lat/Lon : 30.2627/78.9156
Rainfall forecast generated on 2014-08-11 for 2014-08-13: 8.608mm
Previous 3 Days' Cumulative Rainfall :33.088mm

For Animated view

Start Prev Next Stop

Disclaimer Credit Legend

▶ Landslide inventory
▶ Landslide hazard zones
▶ Documents

Legend

■ No Warning
■ Advisory(Low to Moderate probability)
■ Watch(Moderate to High Probability)
■ Warn(High to Very High Probability)

Early Warning generated on 2014-08-11 for 2014-08-13

Discussion Forum | Send Mail

Contact us | Disclaimer | Terms

---

bhuvan
Gateway to Indian Earth Observation

Disaster Services(NDEM Public)

Nepal Earthquake
Android App Download

National Remote Sensing Centre

Welcome User Login

Cyclone | Drought | Earthquake | Flood | Forest Fire | Landslide

Tools | Updates | Bhuvan Store | Help | Print | Home

Map | ▼ Satellite Hybrid Terrain More

Forest fire

▶ Fire-2015
▶ Fire-2014
▼ Current Fire Locations

Forest Fire Locations
☑ 2015-08-02
☑ 2015-07-31
☑ 2015-07-30
☑ 2015-07-29
☑ 2015-07-28
☑ 2015-07-27

All Fire Locations
☐ 2015-08-02
☐ 2015-07-31
☐ 2015-07-30
☐ 2015-07-29
☐ 2015-07-28
☐ 2015-07-27

Last updated 2015-08-02
View satellite coverage

▶ Archived Forest Fire Locations
▶ Forest Fire Regimes

NDEM VPN-v2 User Manual

China
Afghanistan
JAMMU & KASHMIR
HIMACHAL PRADESH
Iran
PUNJAB UTTARANCHAL
Pakistan HARYANA Nepal SIKKIM ARUNACHAL PRADESH
RAJASTHAN UTTAR PRADESH NAGALAND
BIHAR MANIPUR
ited Arab Emirates WEST BENGAL TRIPURA MIZORAM
Oman MADHYA PRADESH
GUJARAT Myanmar
CHHATTISGARH ORISSA
MAHARASHTRA Laos
TELANGANA
Thailand
GOA ANDHRA PRADESH
KARNATAKA
Cambodia
KERALA TAMIL NADU

200 km

Disaster Alerts

- **Visualization of 'Landslide Early Warning' layers for current day and next two days.**
- **Facility for animated view**
- **Forest Fire alerts to beat level officers – Karnataka, Himachal Pradesh and Andhra Pradesh**
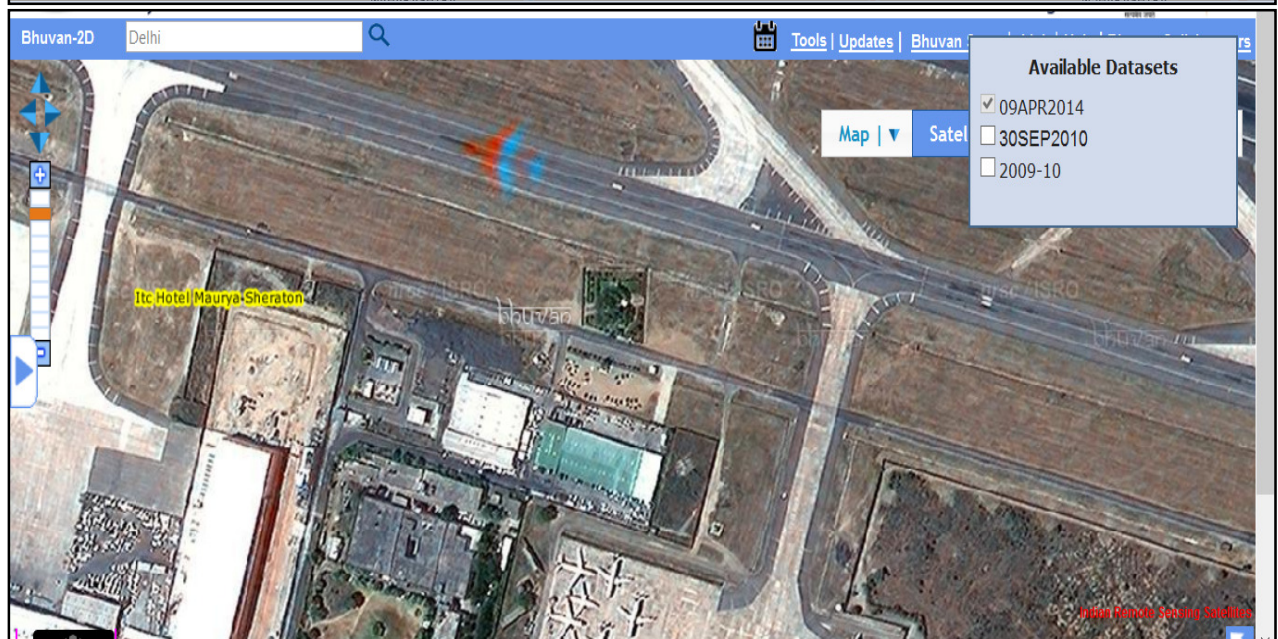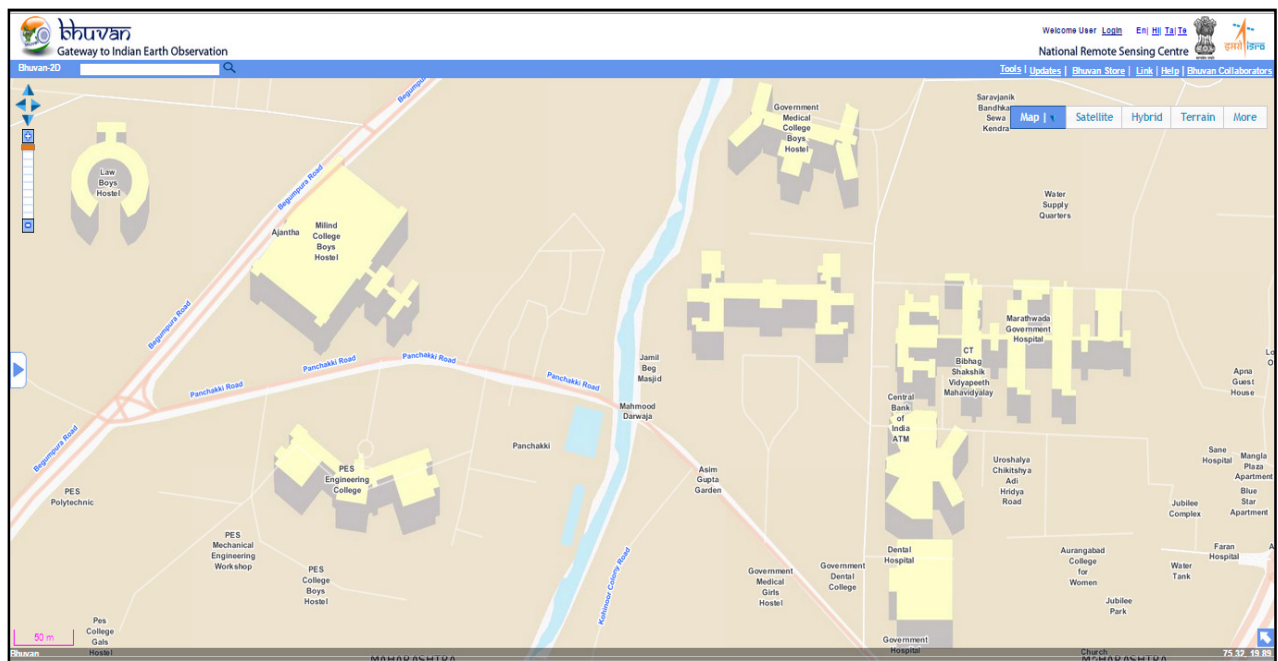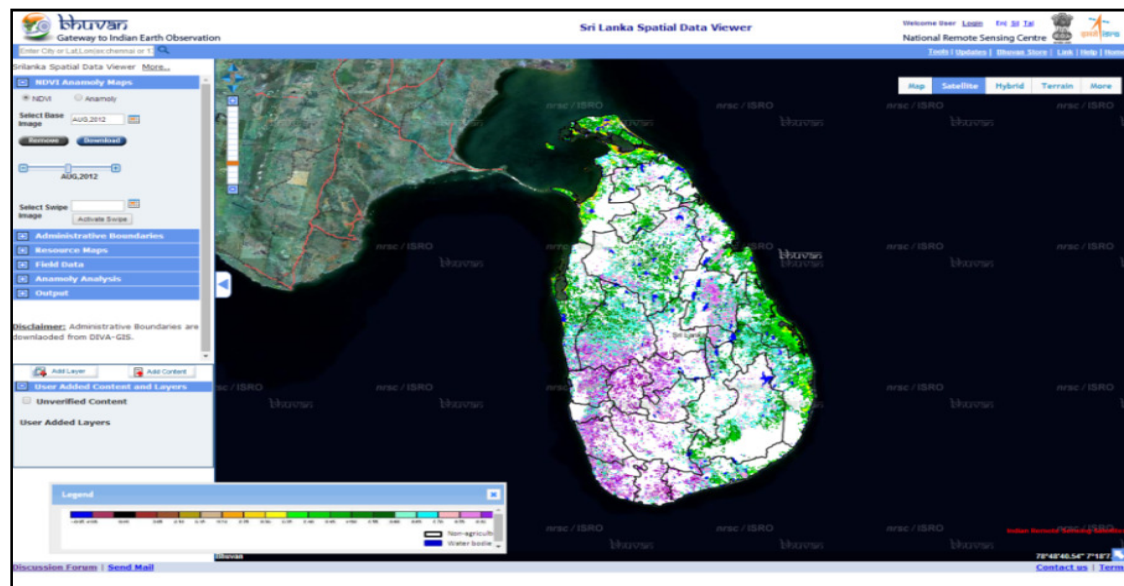
Maps

- **2.5D Depiction**
- **Large Scale Navigational Maps**
- **Rich POIs**
- **Data of Pass (DOP) for High Resolution Datasets**
- **Time Series Visualisation**
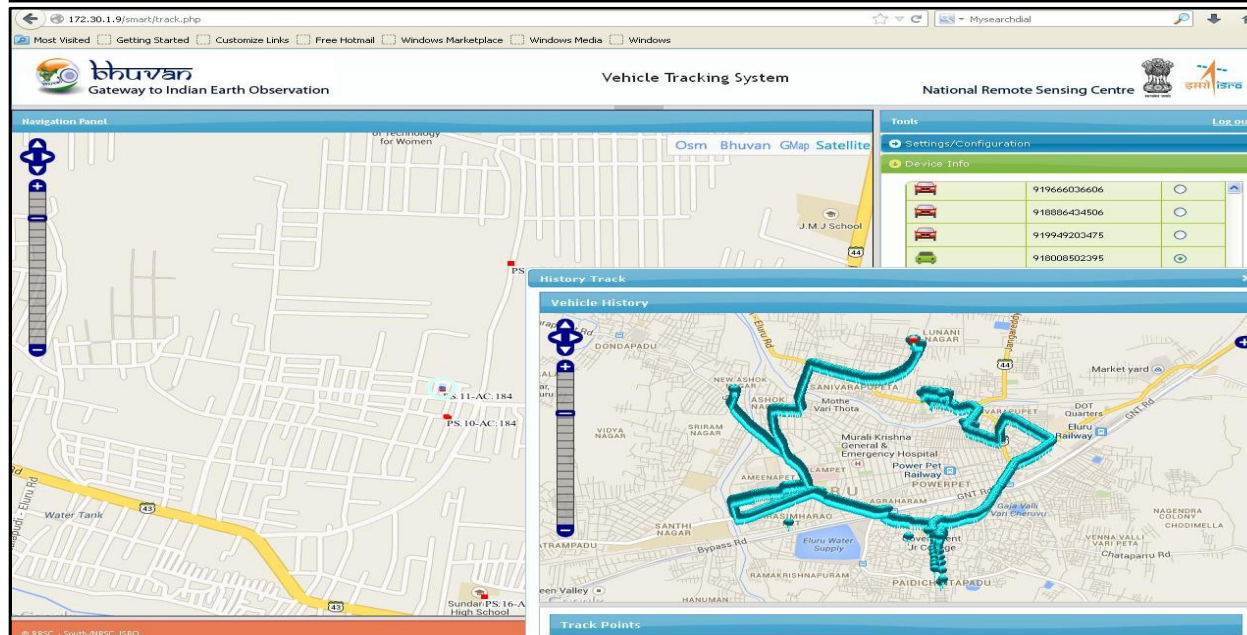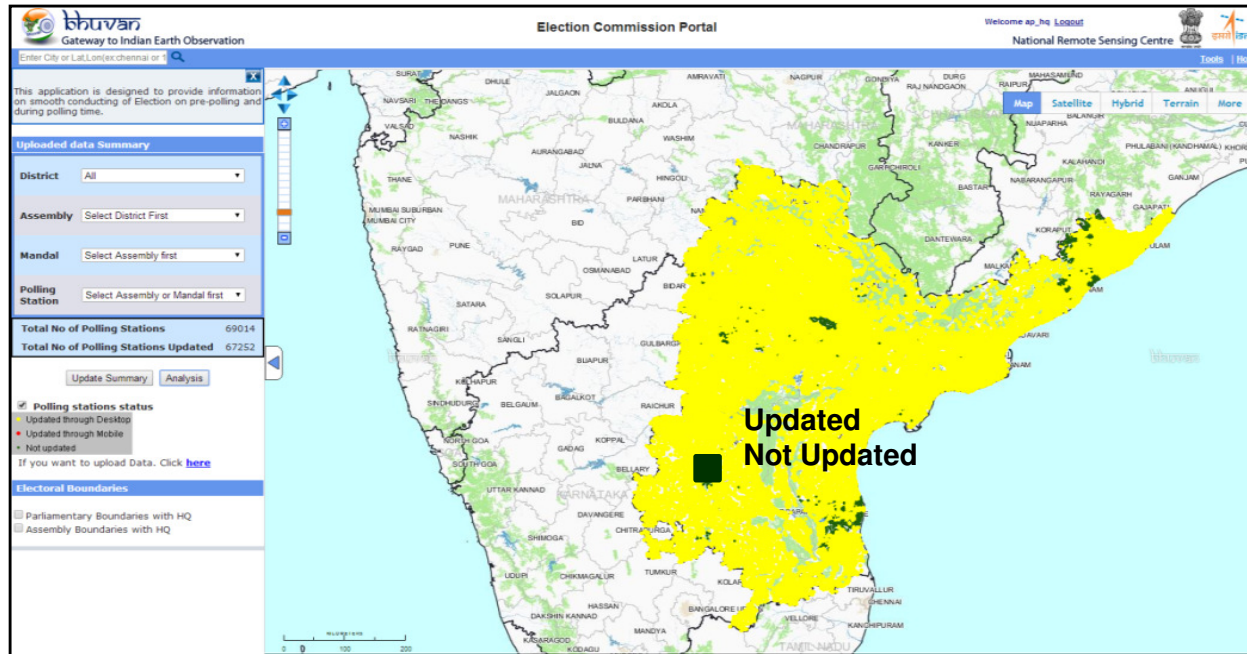
Election GIS

- **Online forms to collect Basic Minimum Features (BMF)**
- **Analysis & Reports for administrators to monitor the progress.**
- **Incident Reporting towards share various incidents by officials**
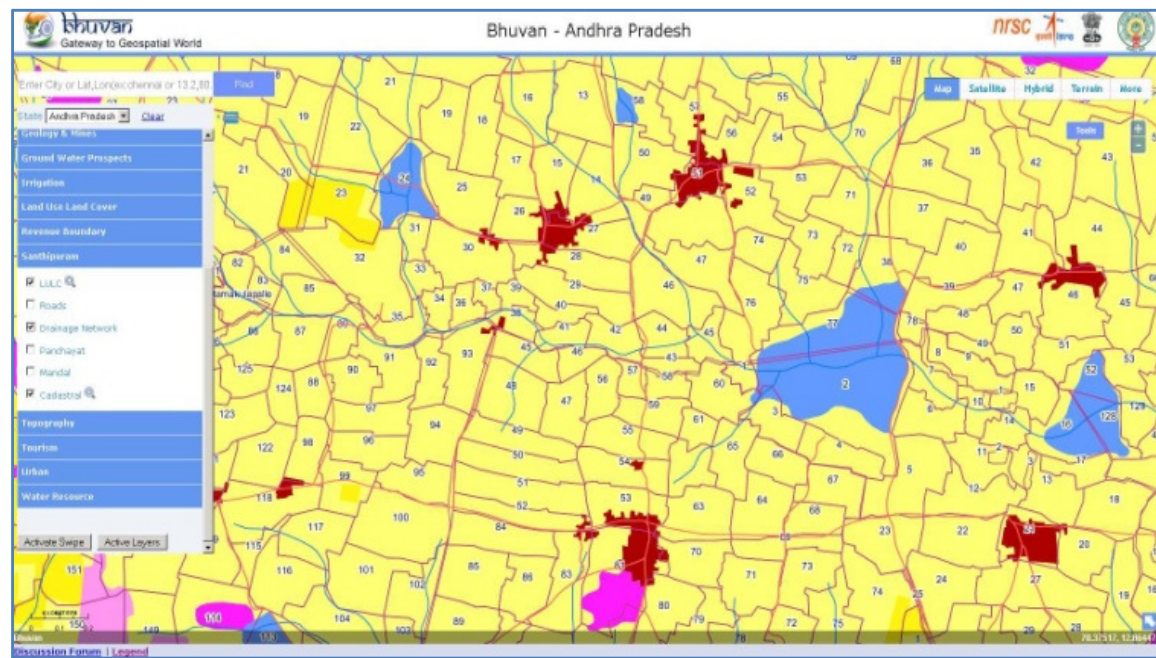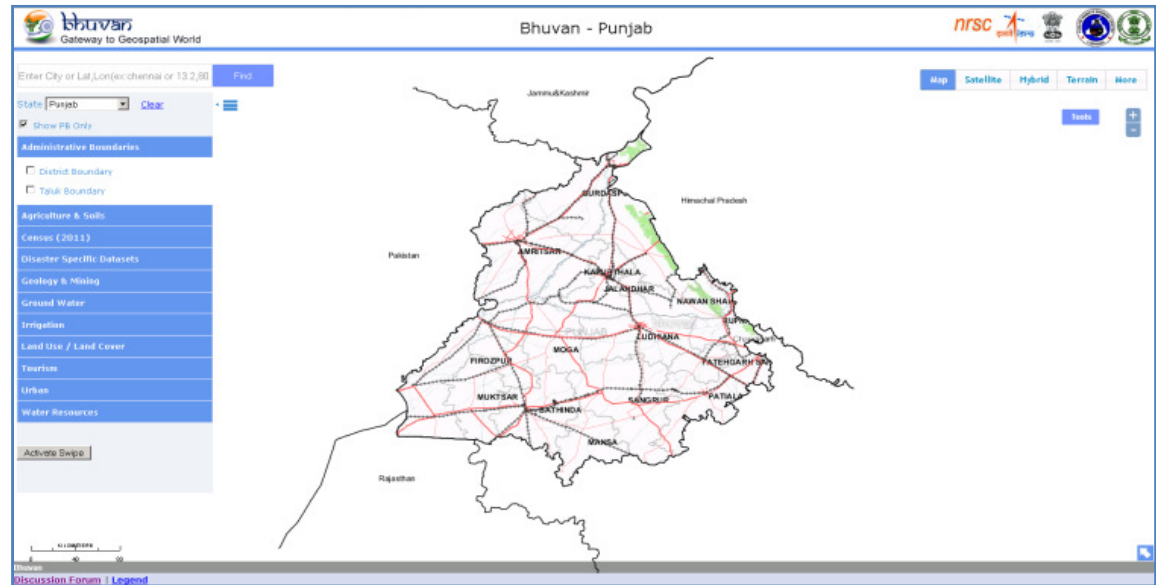- **Vehicle Tracking of all Route Officers**

Sri Lanka – Drought Monitoring

- **NDVI and Anomaly maps visualization**
- **Anomaly analysis**
- **Resource maps – Land use land cover, Crop area, Waterbody and soil visualization**
- **Field Data Collection**

State Portals

- **State specific Natural Resources, Disaster information besides Admin layers and Socio-economic details**
- **Print with active layers and legend**
- **Add Layer - KML, Raster, Shapefile, WMS**
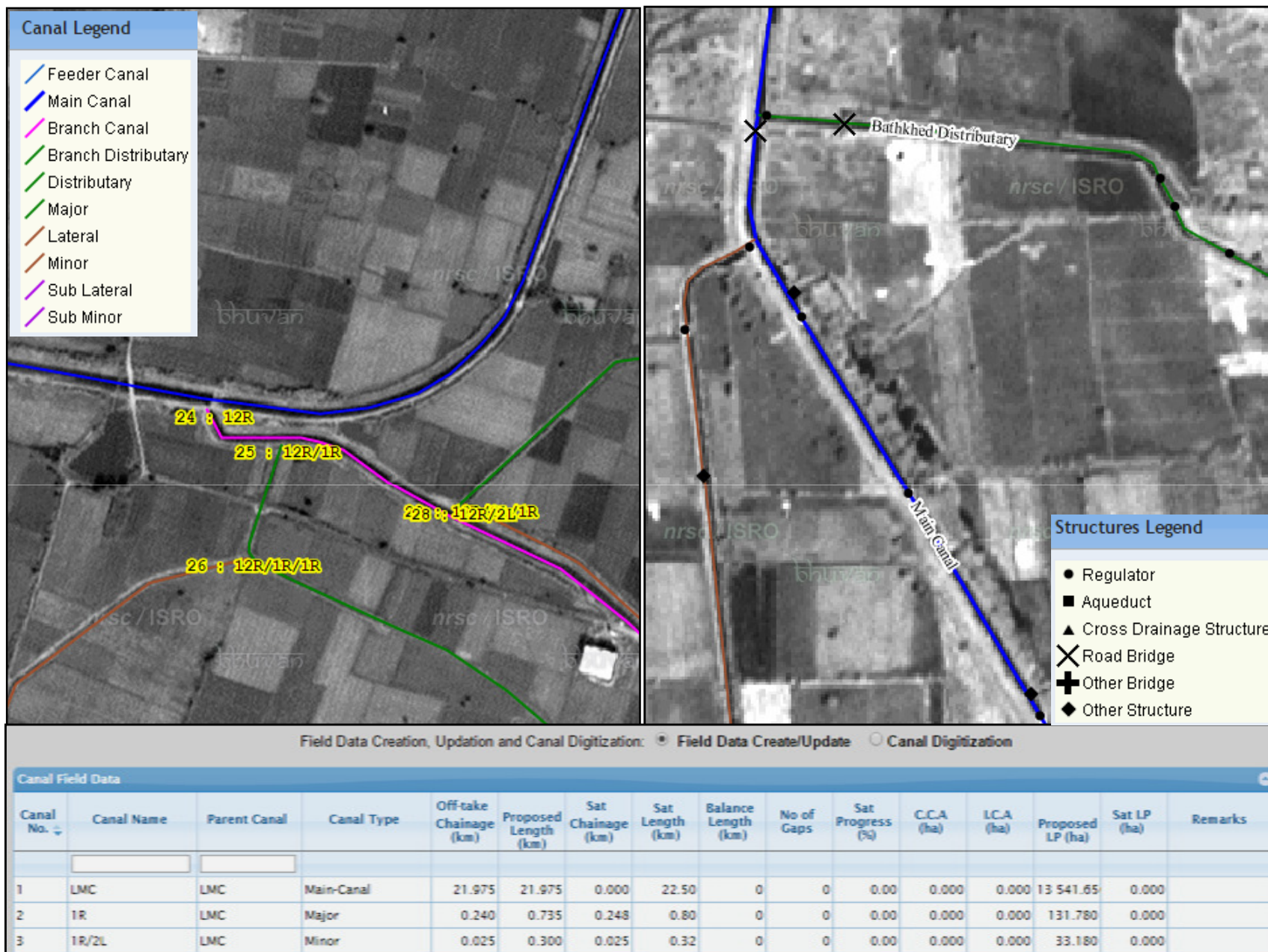- **Analysis – Query Shell and Area of Interest based processing**

Microwatershed Details	
Microwatershed Code	4D2B4g2a
Project Name	Achampet
State	TELANGANA
District	MAHABOOBNAGAR
Block	ACHAMPETA
Year	2011-12
Area Total (Ha)	4200
Area Treated (Ha)	
Status	Preparatory
Executing Agency	GO, PROJECT OFFICER, WCC ACHAMPETA
Data Available	0
DPR Uplink	1
Baseline Data	0
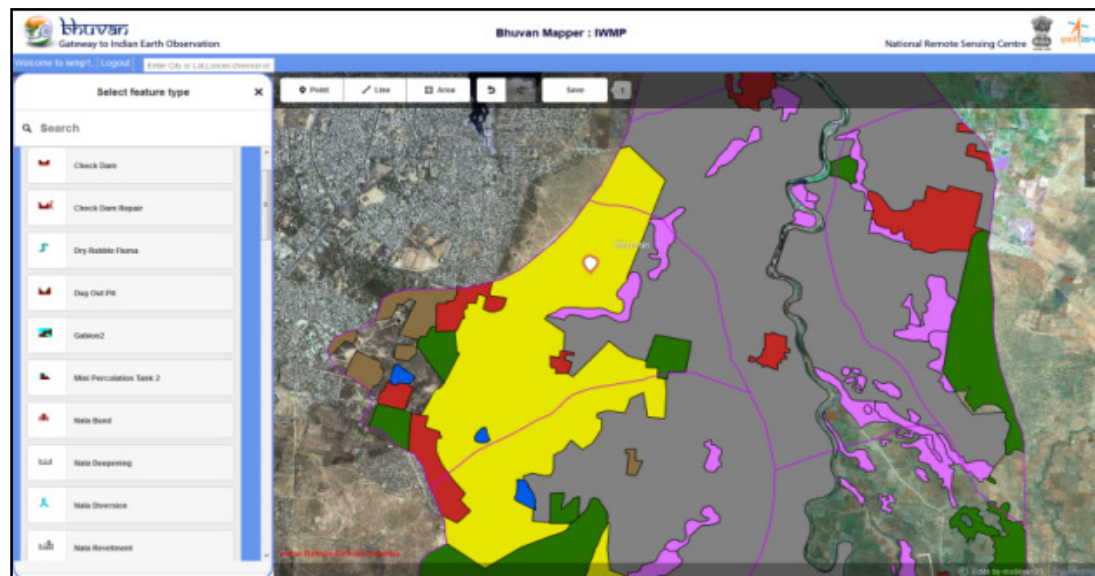
IWMP: Monitoring & Evaluation

- **Integrated Watershed Management Programme**
- **Consolidated view of Watersheds with supported datasets aimed at planners and general public**
- **Time series satellite data & Mobile data.**
- **Mapper for Activity Planning.**
- **Reports of Watersheds**

Canal Legend

- Feeder Canal
- Main Canal
- Branch Canal
- Branch Distributary
- Distributary
- Major
- Lateral
- Minor
- Sub Lateral
- Sub Minor

24 : 12R
25 : 12R/1R
228 :: 112R/2L/1R
26 : 12R/1R/1R

Bathkhed Distributary

Main Canal

Structures Legend

- ● Regulator
- ■ Aqueduct
- ▲ Cross Drainage Structure
- ✕ Road Bridge
- ✚ Other Bridge
- ◆ Other Structure

Field Data Creation, Updation and Canal Digitization: ● Field Data Create/Update ○ Canal Digitization

Canal Field Data

Canal No.	Canal Name	Parent Canal	Canal Type	Off-take Chainage (km)	Proposed Length (km)	Sat Chainage (km)	Sat Length (km)	Balance Length (km)	No of Gaps	Sat Progress (%)	C.C.A (ha)	LC.A (ha)	Proposed LP (ha)	Sat LP (ha)	Remarks
1	LMC	LMC	Main-Canal	21.975	21.975	0.000	22.50	0	0	0.00	0.000	0.000	13 541.65	0.000	
2	1R	LMC	Major	0.240	0.735	0.248	0.80	0	0	0.00	0.000	0.000	131.780	0.000	
3	1R/2L	LMC	Minor	0.025	0.300	0.025	0.32	0	0	0.00	0.000	0.000	33.180	0.000	

AIBP Monitoring

- **Accelerate Irrigation Benefit Programme**
- **Visualization of Irrigation projects – Project Boundary, Canal Network, Hydraulic Structures**
- **Online monitoring of Canal Physical & Financial Progress**
- **Irrigation Potential with graphical view**

2000 Satellite Imagery

2011 Satellite Imagery
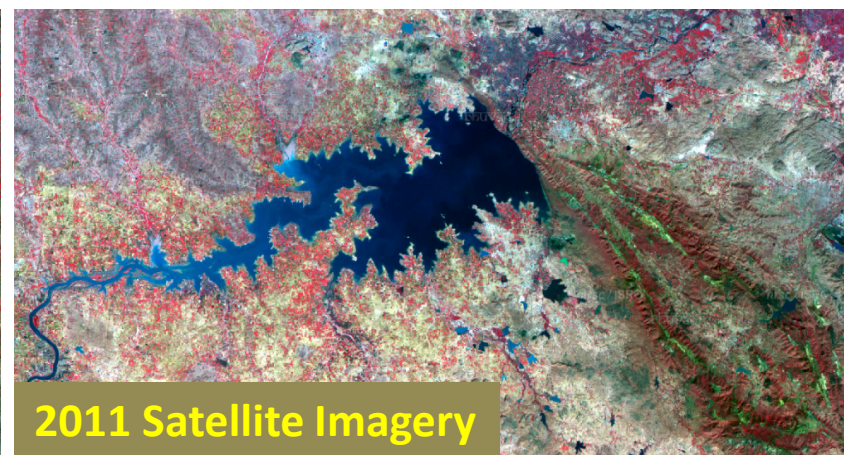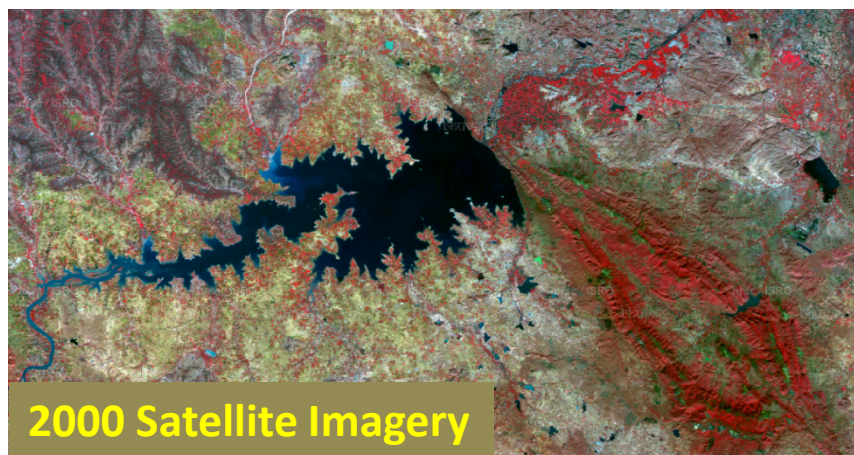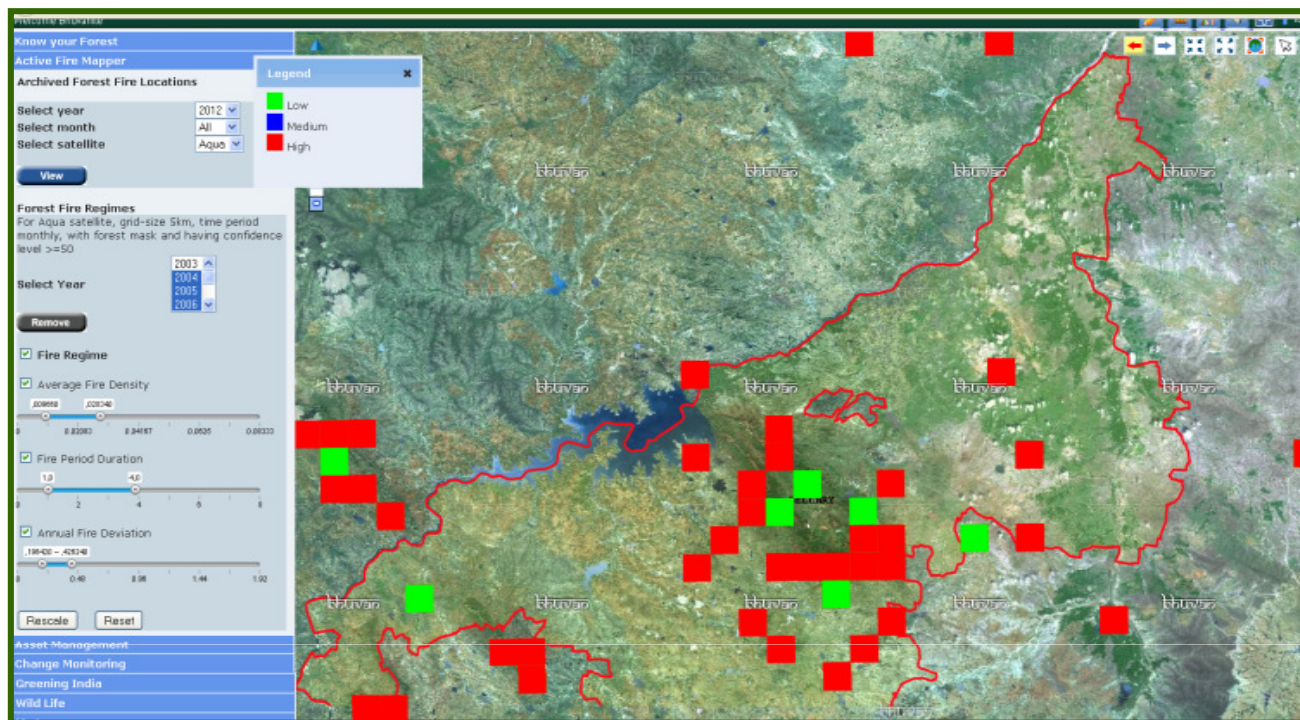
Karnataka Forest

- **Enterprise image server(EIS) providing organization wide access to spatial data and GIS tools with an emphasis on analysis, processing of spatial data**
- **Forest fire SMS alert and Regimes as online processing**
- **Change Monitoring – Forest and Mine**
- **Forest Administrative Boundaries, Plantations**

Tourism GIS

- **Top destinations and other essential services for tourism sector**
- **Routing facility to navigate to places of interest**
- **Proximity analysis to identify the near by places**
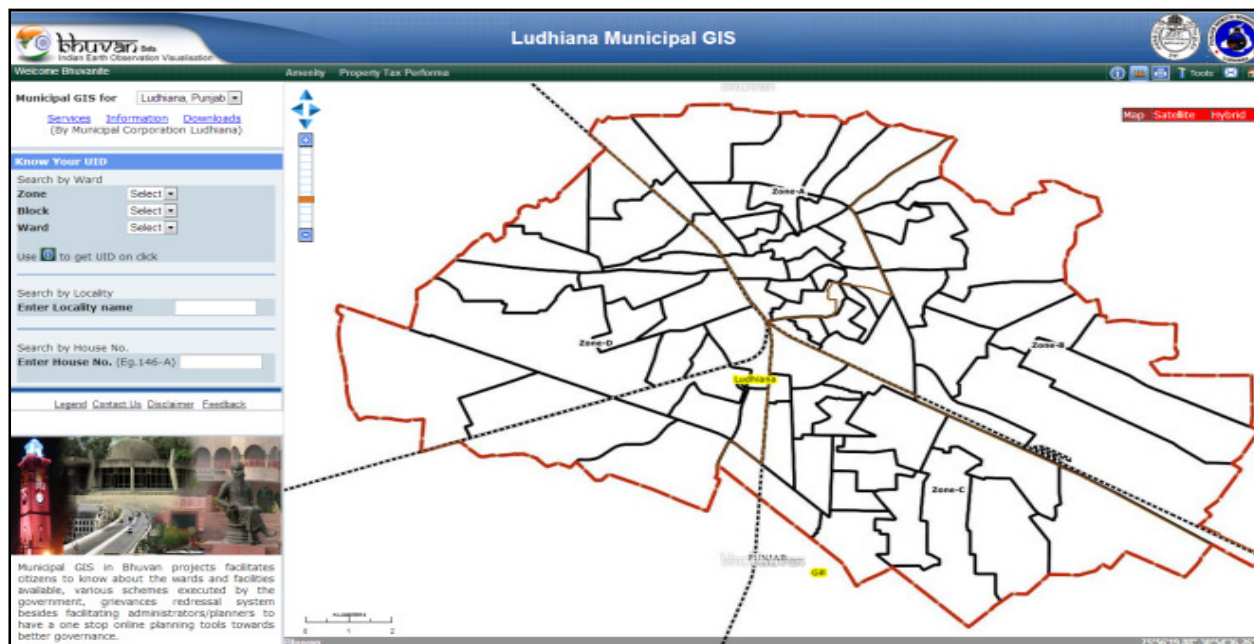- **Direct link to land to places of interest and share**
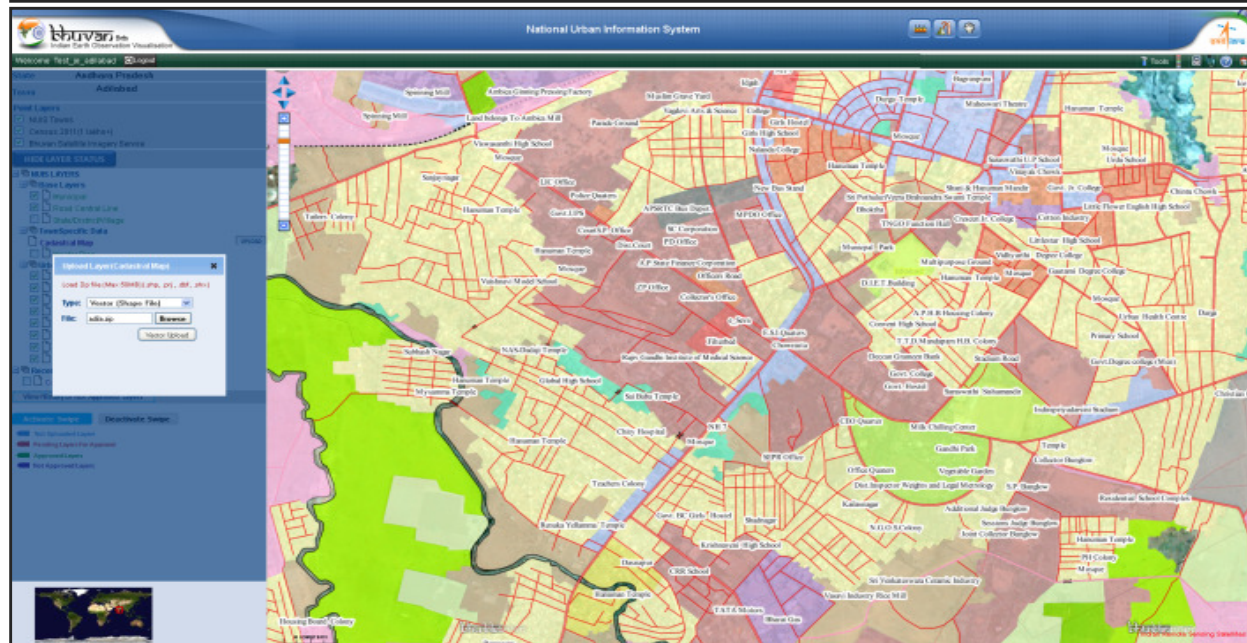
Urban Master Plan Formulation

- **Citizen view, Town Specific view and State Specific view**
- **Hierarchical log in for plan formulation**
- **Alert notifications for users for any new updates**
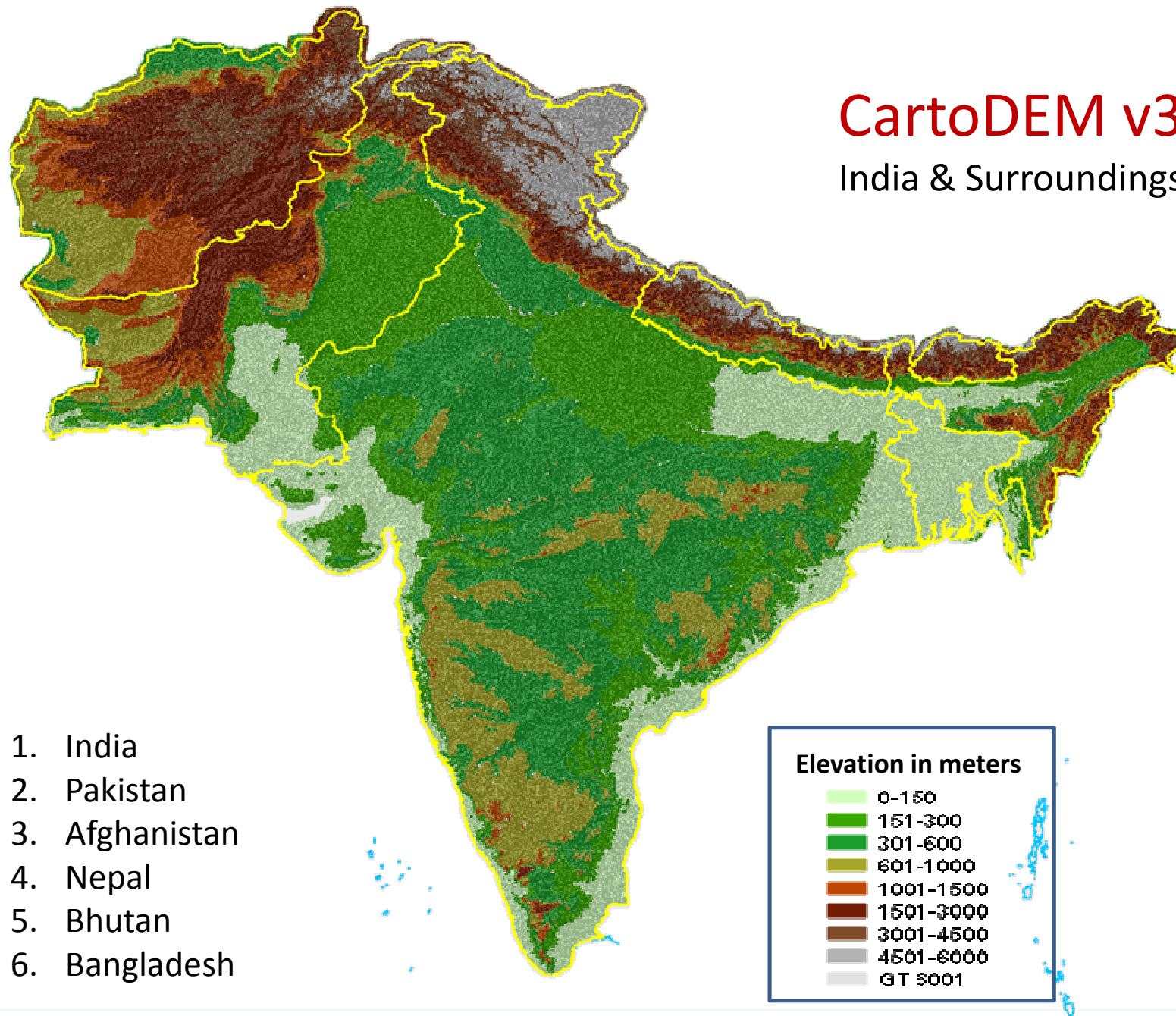- **Online communication/feedback facility**
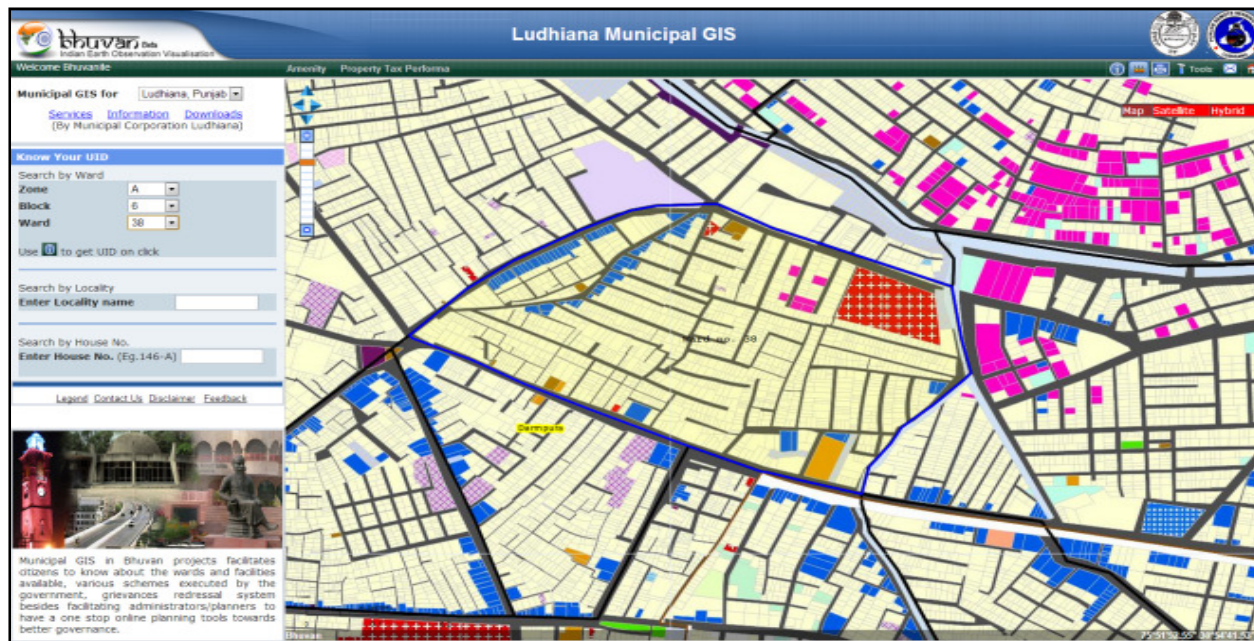
Municipal GIS

- **Search by Ward, Locality and House Number**
- **UID with photograph for houses**
- **Buffer Analysis: Finding Amenities with user defined Buffer limit**
- **Other Services, Information and Downloads specific to Ludhiana Municipal Corporation**

CartoDEM v3
India & Surroundings

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

Elevation in meters

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

CartoDEM v3

- **Version 3 is available for India and Surroundings**
- **Neighboring countries (Bangladesh, Bhutan, Nepal, Pakistan, Afghanistan) DEM data is now available**
- **Tiles selection as 1degx1deg Tiles**

Thumbnail view

Toposheet No. G44W   Date of Pass : 01jan08
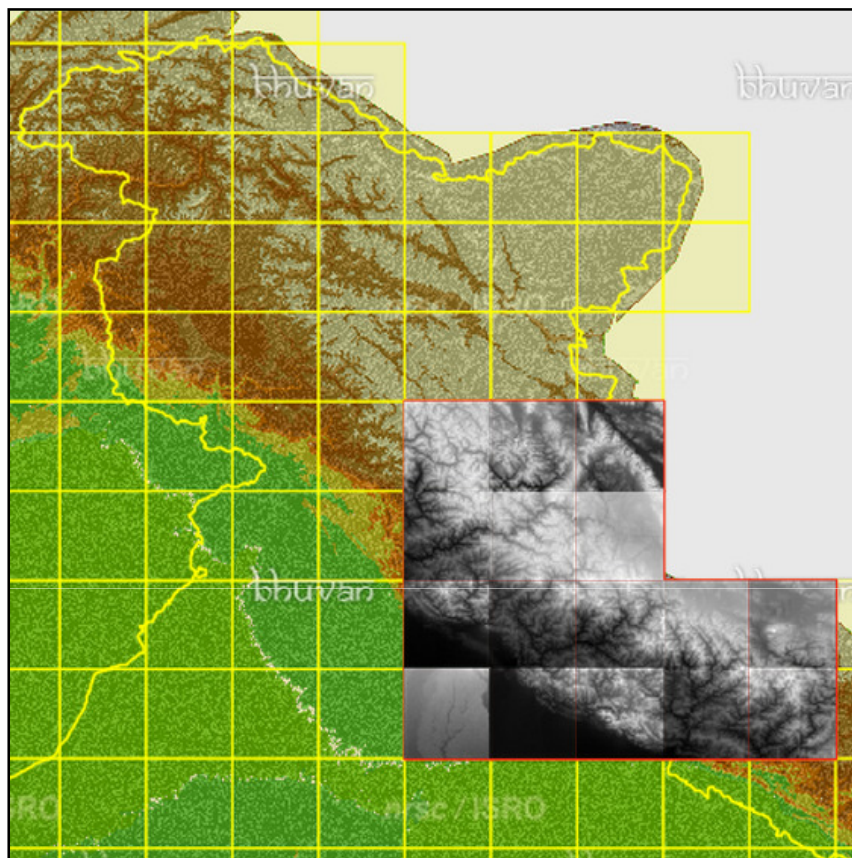
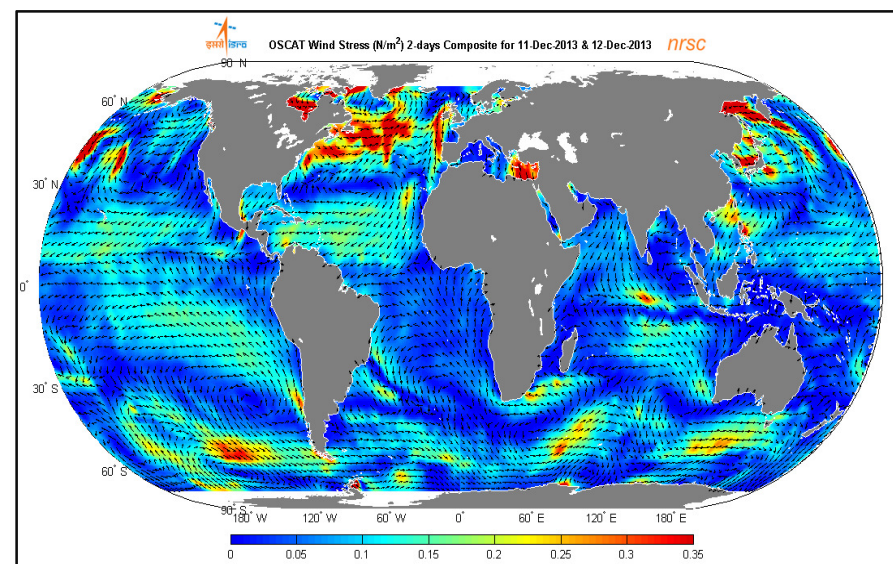| Selection for backlog	Toposheet No.	Bounding Box	Metadata	Add to Map	Download
☐	H43L	77E30N-78E31N	Metadata	Remove	Download
☐	H44G	78E30N-79E31N	Metadata	Remove	Download
☐	H44H	79E30N-80E31N	Metadata	Remove	Download
☐	H43F	77E31N-78E32N	Metadata	Remove	Download
☐	H44A	78E31N-79E32N	Metadata	Remove	Download
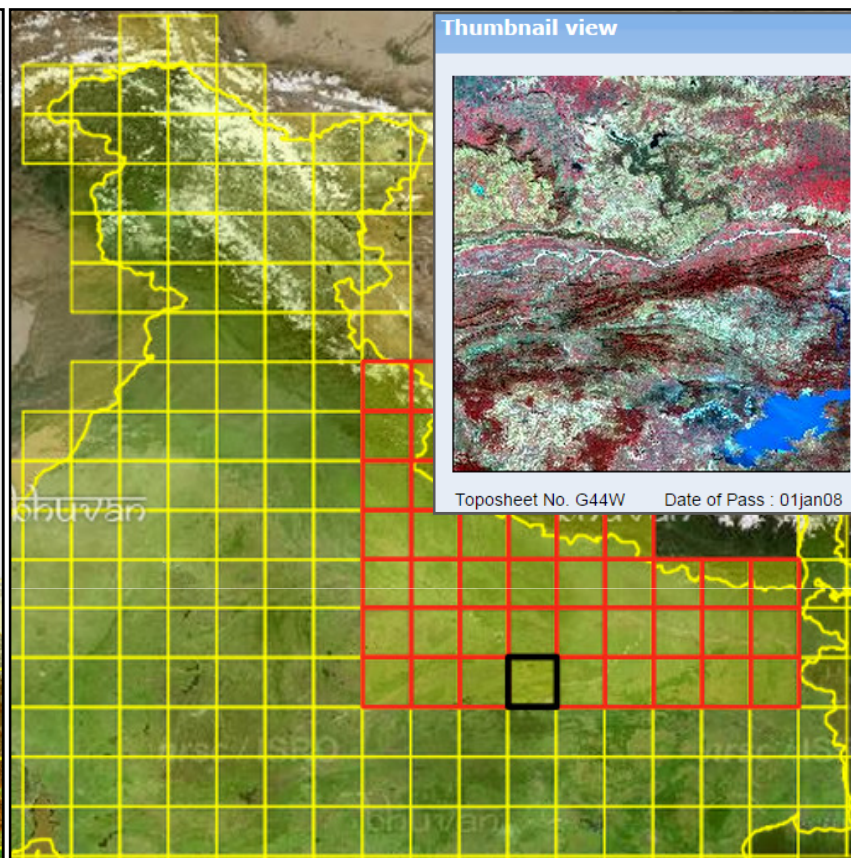
Selection for backlog	Toposheet No.	Bounding Box	Date of Pass	Metadata	Thumbnail	Download
☐	G44W	82E24N-83E25N	01jan08	Metadata	View	Download
☐	G44W	82E24N-83E25N	16Feb09	Metadata	View	Download
☐	G44W	82E24N-83E25N	02nov09	Metadata	View	Download
☐	G44W	82E24N-83E25N	06feb10	Metadata	View	Download

Open Data Archive

- **CartoDEM : 1 arc sec**
- **Resourcesat – 1/2 AWiFS Ortho : 56m**
- **Resourcesat – 1/2 LISS III Ortho : 56m**
- **IMS-1: Hyperspectral Imager: 500 m**

Ocean Mean Temparature (°C)
2015 02 03

OSCAT Wind Stress (N/m²) 2-days Composite for 11-Dec-2013 & 12-Dec-2013   nrsc
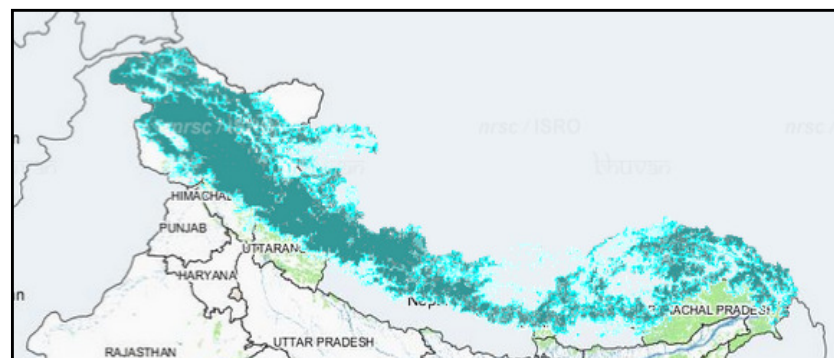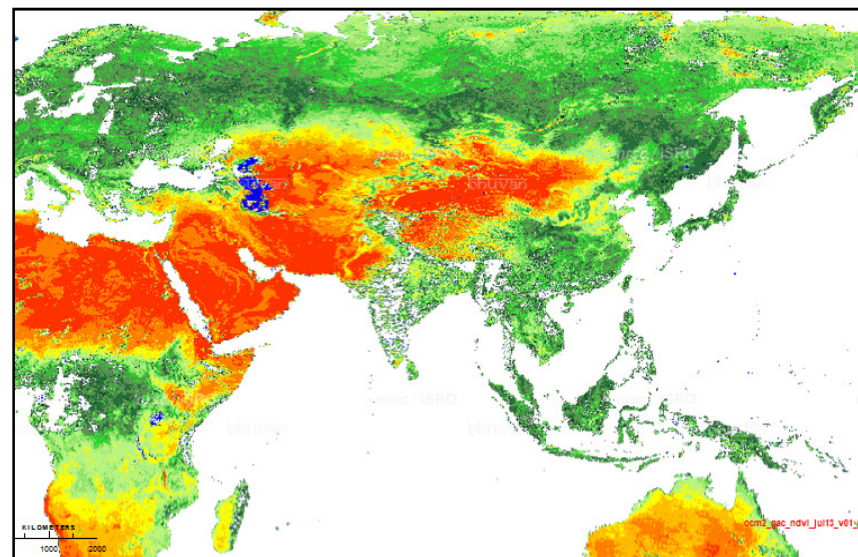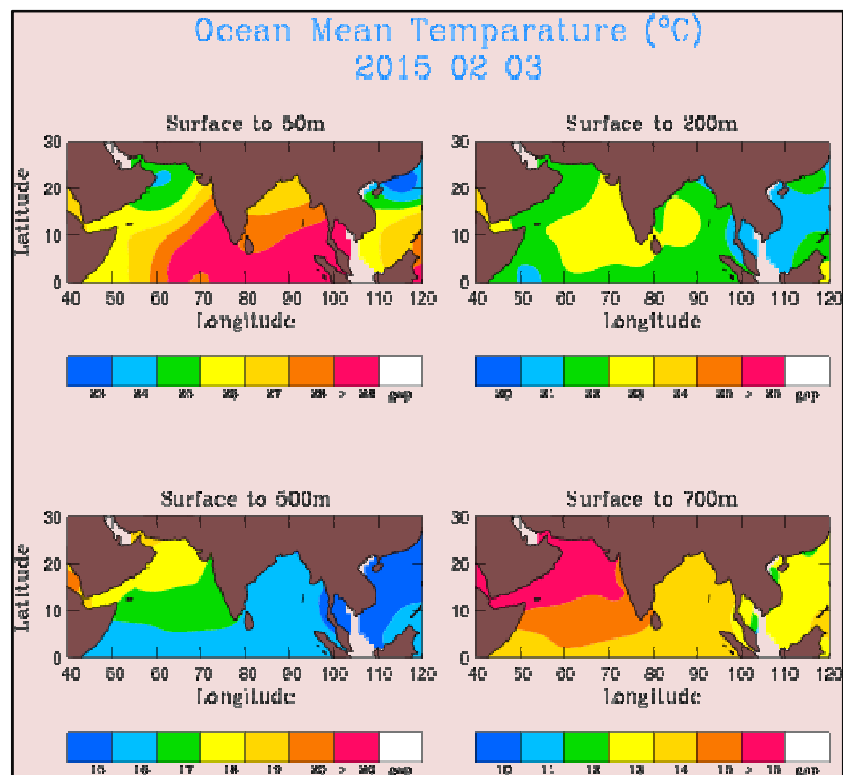
Environment & Climate Variables

Derived Tropospheric Ozone	Surface Soil Moisture - 2 Day
AWiFS: Snow Cover Fraction	Daily Ocean Heat Content of 700m Layer
AWiFS: Water Bodies Fraction	Daily Ocean Mean Temperature & Heat Content of Different Layers
Mesoscale compatible inputs for: MM5	Daily Tropical Cyclone Heat Potential
Mesoscale compatible inputs for: WRF	Model Derived Depth of 26°C ISOTHERM
OCM2: Albedo	Model Derived Tropical Cyclone Heat Potential
OCM2: Normalized Difference Vegetation Index - Global Coverage	Ocean Wind Curl
OCM2: Normalized Difference Vegetation Index - Local Coverage	Ocean Wind Stress
OCM2: Vegetation Fraction	Ocean Wind Velocity
Snow Melt and Freeze	