GWF
GEOSPATIAL WORLD FORUM
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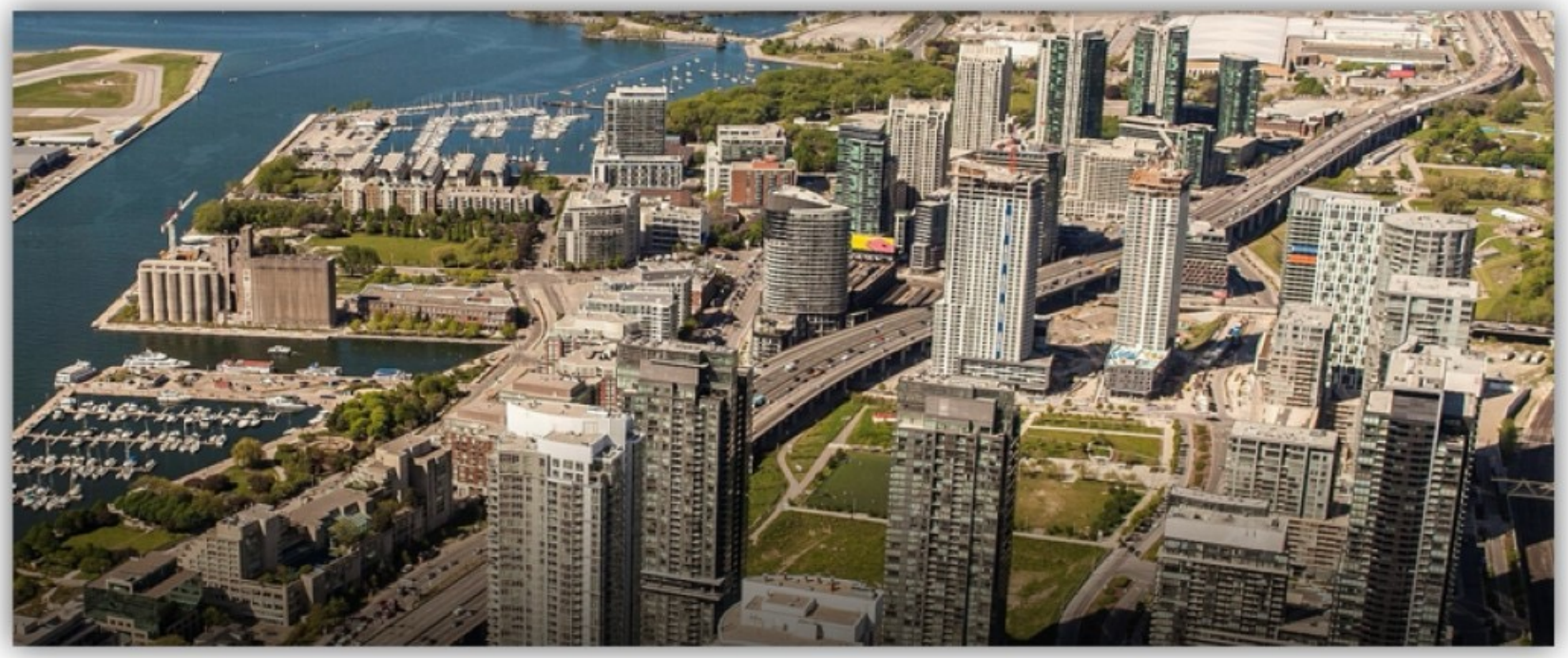
NeoGeo
NeoGeoInfo Technologies Pvt. Ltd.

Commercial Space Industry Unlocking Potential of Image Intelligence

GWF 2024

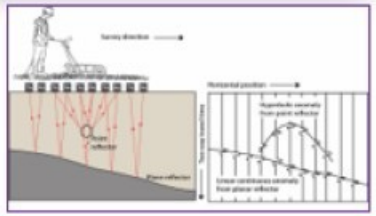
GV Sreeramam



ISO 27001 CERTIFIED

CMMI LEVEL 3

CERTIFIED ISO 9001:2015 CERTIFIED



Map

Model & Build

Enable with real-time data

Manage

NeoGeoInfo Offers...

NeoGeo
NeoGeoInfo Technologies Pvt. Ltd.

Map

- ✓ High Resolution Satellite Imagery
- ✓ Drone and LiDAR Survey
- ✓ GPR – Sub Surface Utility Mapping
- ✓ Positioning as a Service
- ✓ IoT Sensors & other Devices
- ✓ Data Conversion & Updating Existing Data
- ✓ Defining Right Data Structure for Collection

Model

- ✓ Creation of DEM/ DTM/ ORI
- ✓ Data Processing for Drone/ LiDAR/ GPR
- ✓ Models for Data Processing
- ✓ IoT Sensor Data Analysis
- ✓ Predictive Analytics for Maintenance
- ✓ Models for Continuous Evaluation and Tracking

Manage

- ✓ Integrated Web/ Mobile Solution for Asset Management
- ✓ GIS Lab Set up
- ✓ Integration with Legacy and MIS systems
- ✓ Systems of Engagement with Public/ Stake holders
- ✓ Crowd Sourcing of Inputs
- ✓ Capacity Creation/ Trainings

NeoGeo
NeoGeoInfo Technologies Pvt. Ltd.

Navigate Geospatial World Confidently

Navigate Geospatial World Confidently

- ✓ **NeoGeo the fastest growing GIS Services Provider company** with 2500+ man years experience, 200+ Engineers, expertise on the cutting edge technologies (LiDAR, Satellite Images, CORS and GPR)
- ✓ **Rich experience in System Integration, Application Development** to provide engineering solutions across Pipeline Networks, CGD, Highways, Utilities
- ✓ **Design and Consultancy Services** for Smart/ Safe cities, Geo-enabling Property Taxes and developing Digital Models for cities
- ✓ Rated as the **10 Leading Startups in India working on Geo-Intelligence & Emerging Technology Space,** Recognized for **Making an Impact on Indian Economy** at Geospatial Artha Summit
- ✓ **Proficient in Cognitive Technologies** (AI/ Machine Learning/ Robotic Process Automation), Analytics and in developing solutions using web/ mobile technologies.
- ✓ **Worked on Complex & Big projects with majority of government agencies, corporates** across sectors in India
- ✓ **Partner of Choice for** major players (Trimble, ESRI, Maxar) in the Industry
- ✓ **Experience in providing services across platforms** - agnostic to the underlying technology stack

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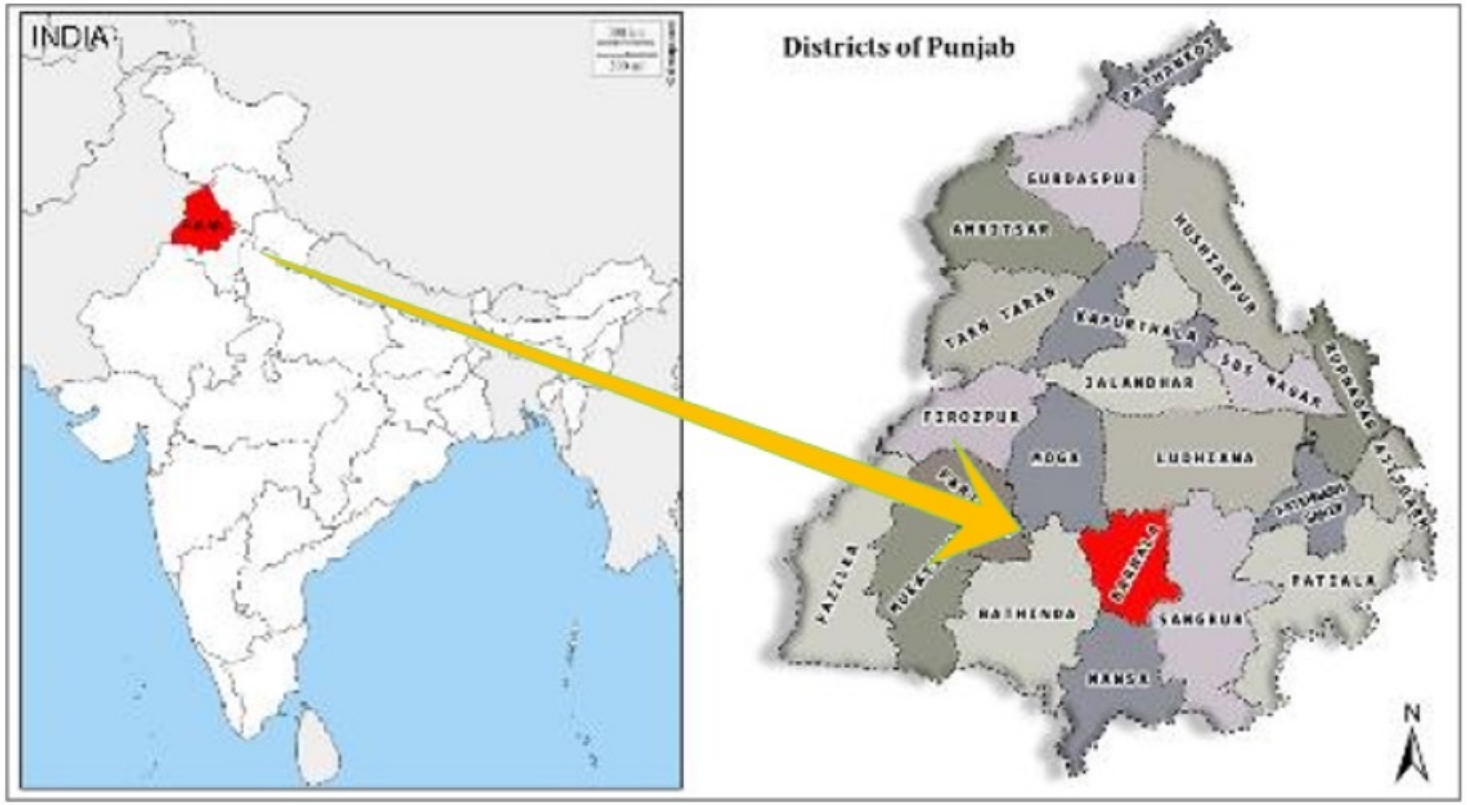
Navigate Geospatial World Confidently

PROJECT:

Formulation of GIS-based Master Plan for Barnala city, Punjab



Mission:

Atal Mission for Rejuvenation and Urban Transformation

Client:

Punjab Municipal Infrastructure Development Company

Decadal Urban Growth

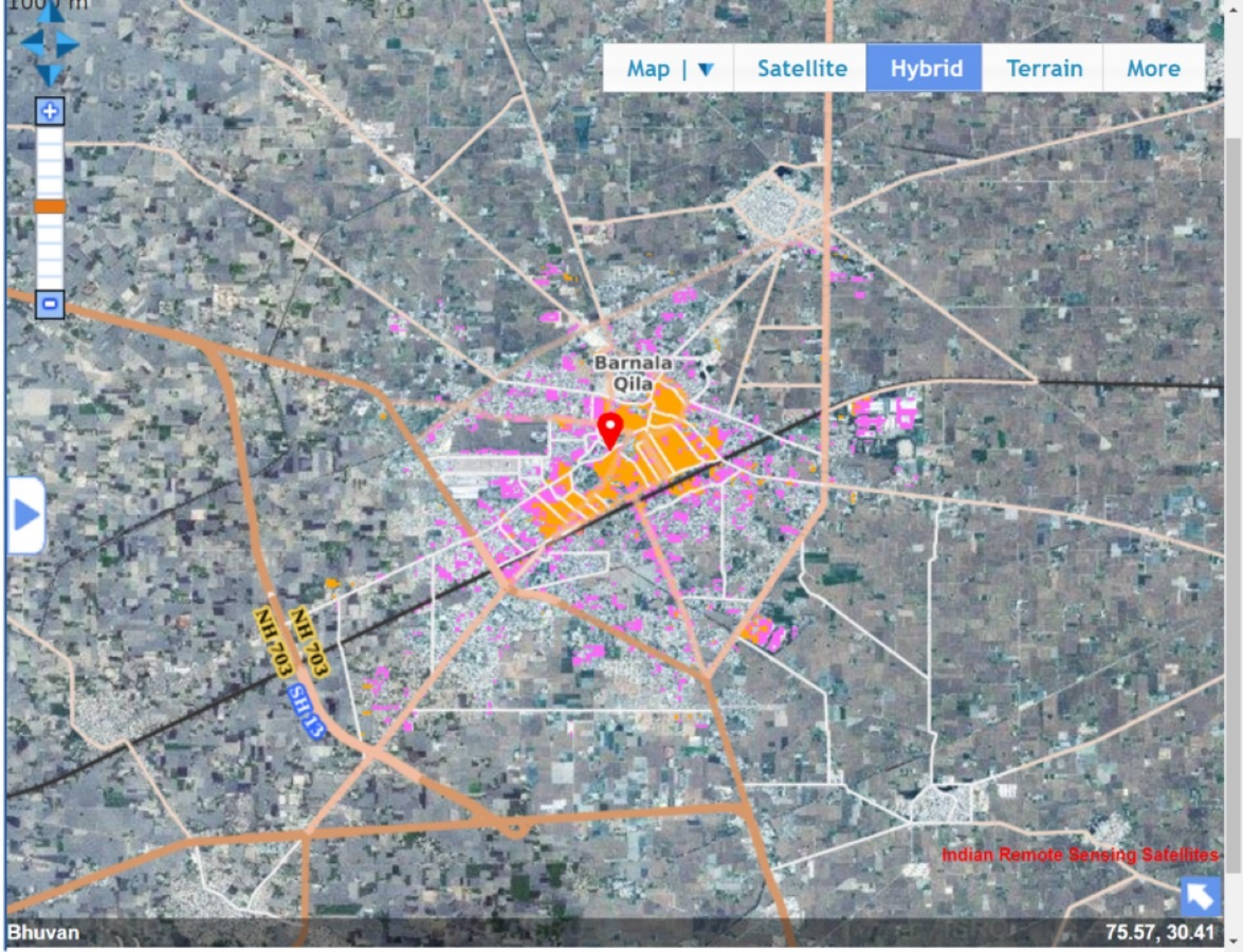
Available Datasets:
1991,1999,2009,2014

1999

Speed 1s Auto Play

Enable Statistics

Barnala
- 1991
- 1999
- 2009
- 2014
- Major Urbans
- Mega Cities
- Class-I



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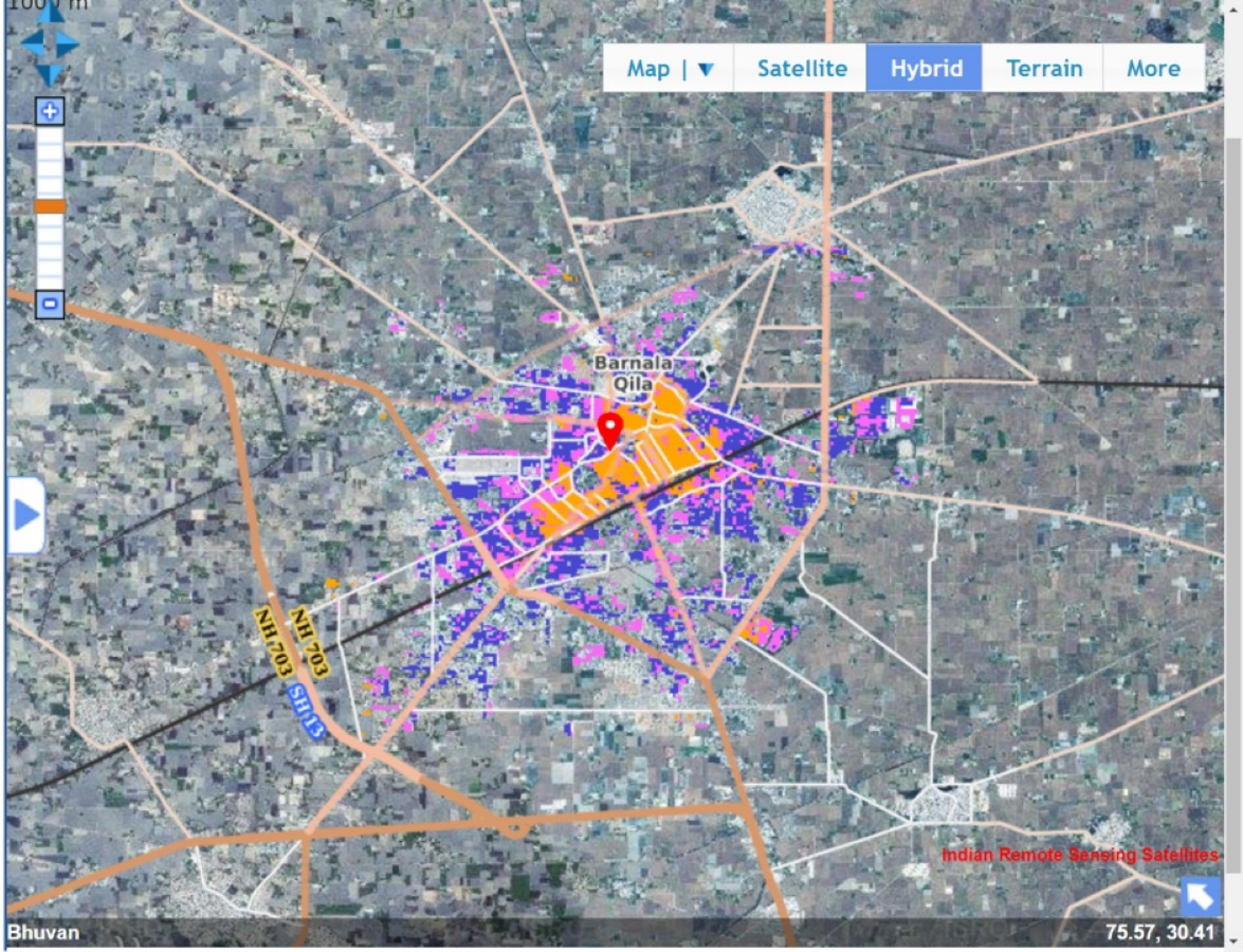

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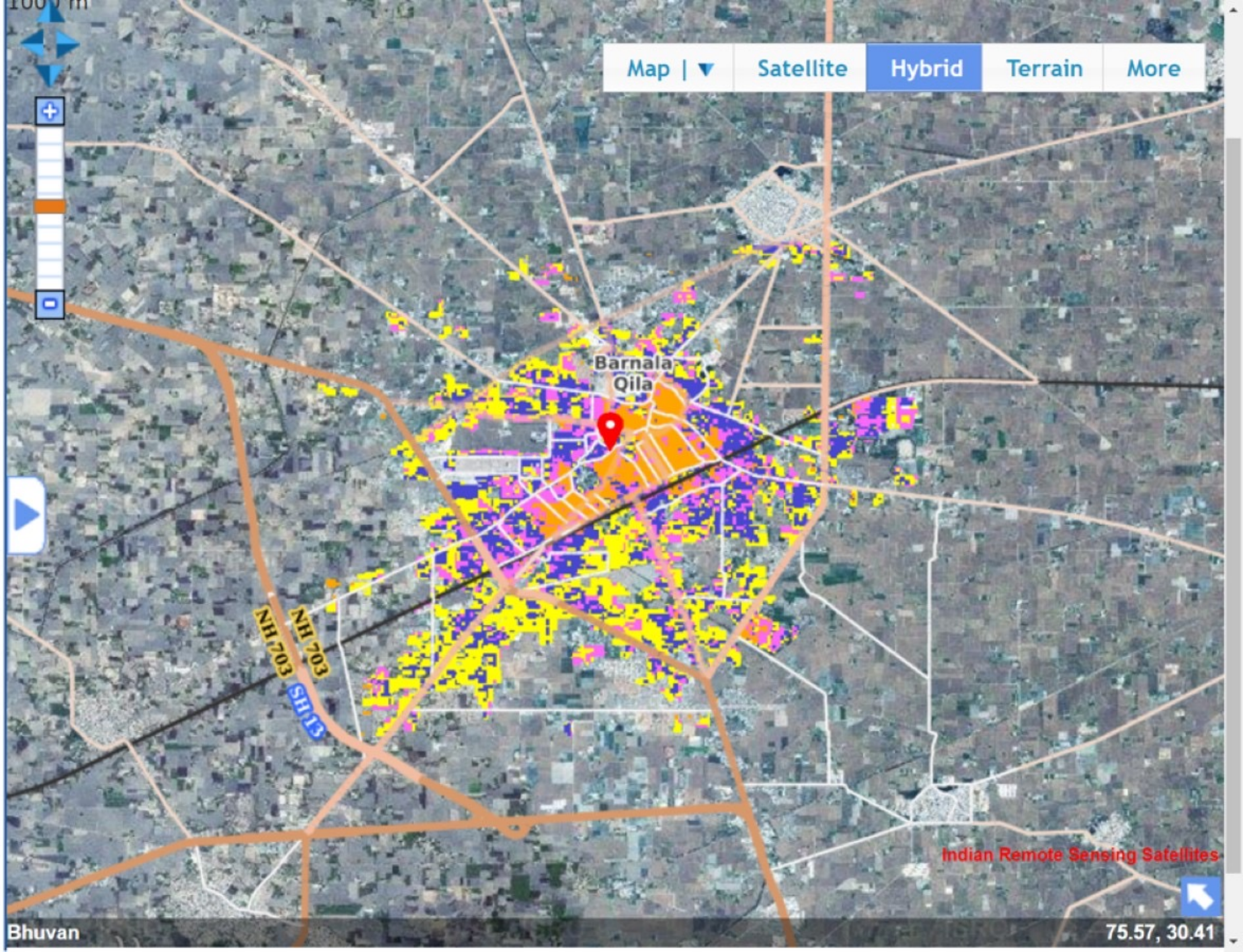


Urban Growth Pattern

Available Datasets:
1991,1999,2009,2014

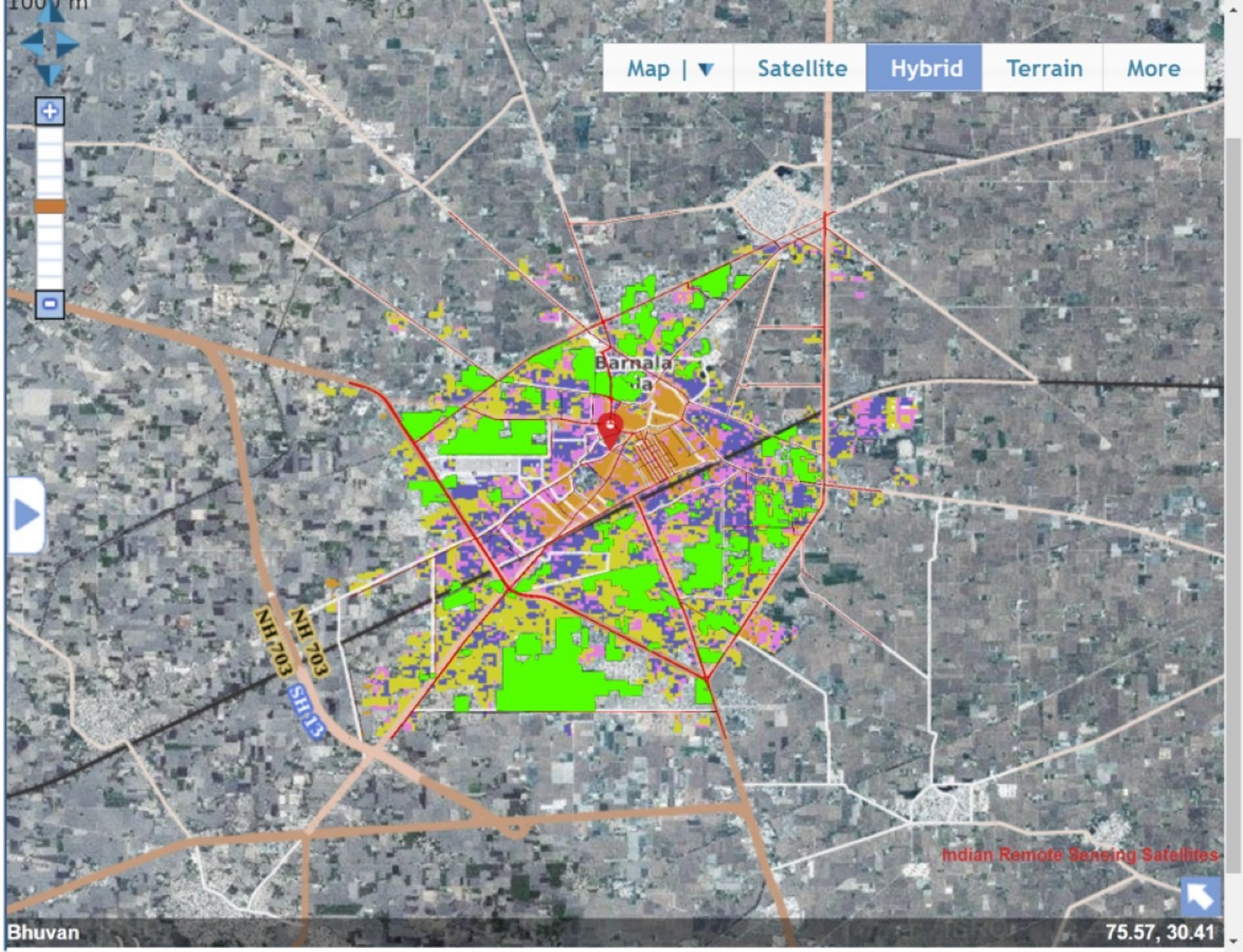
2014

Speed 1s Auto Play

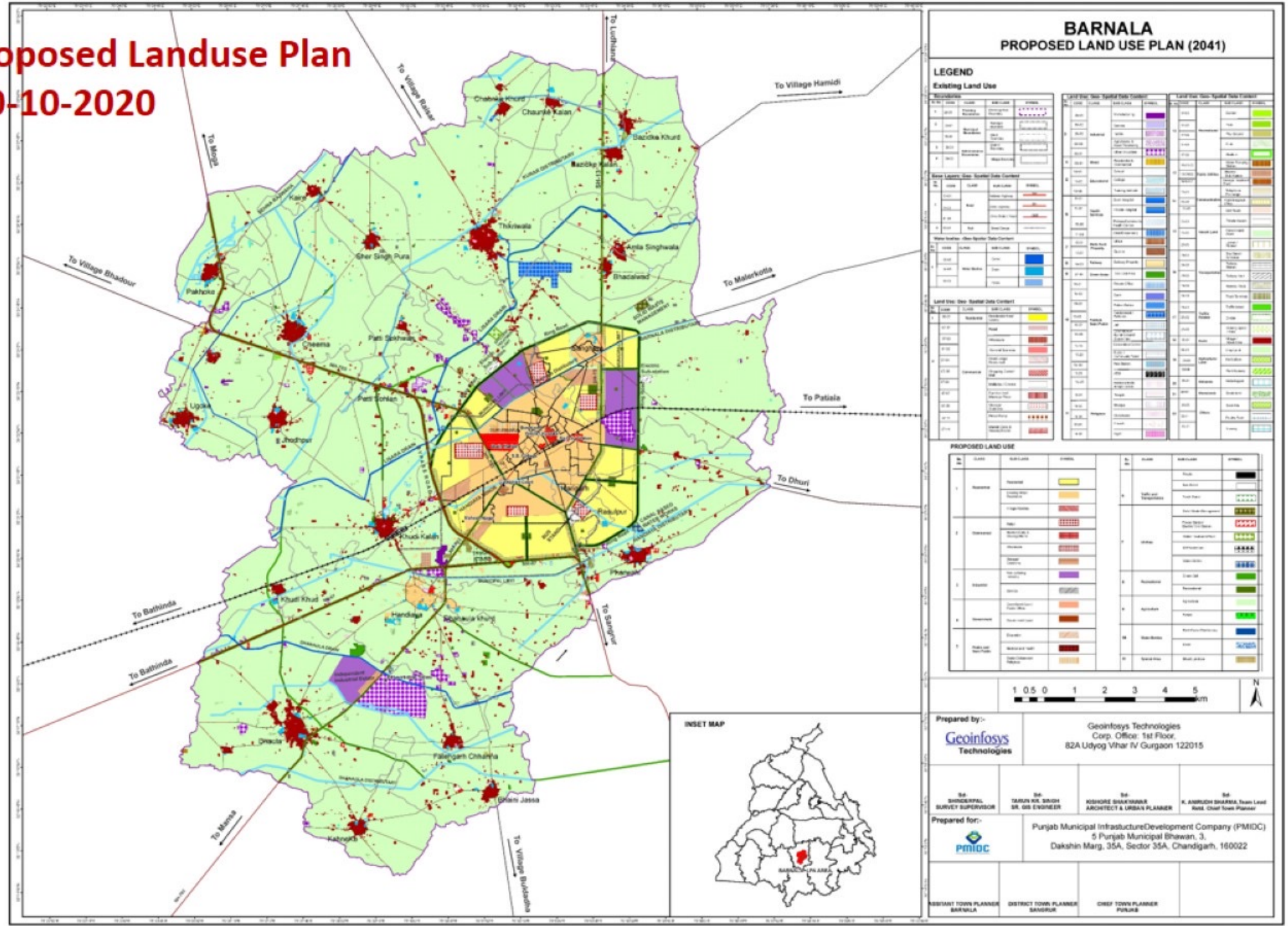
Enable Statistics

Barnala

- 1991
- 1999
- 2009
- 2014
- **Agriculture Pockets**
- Mega Cities
- Class-I



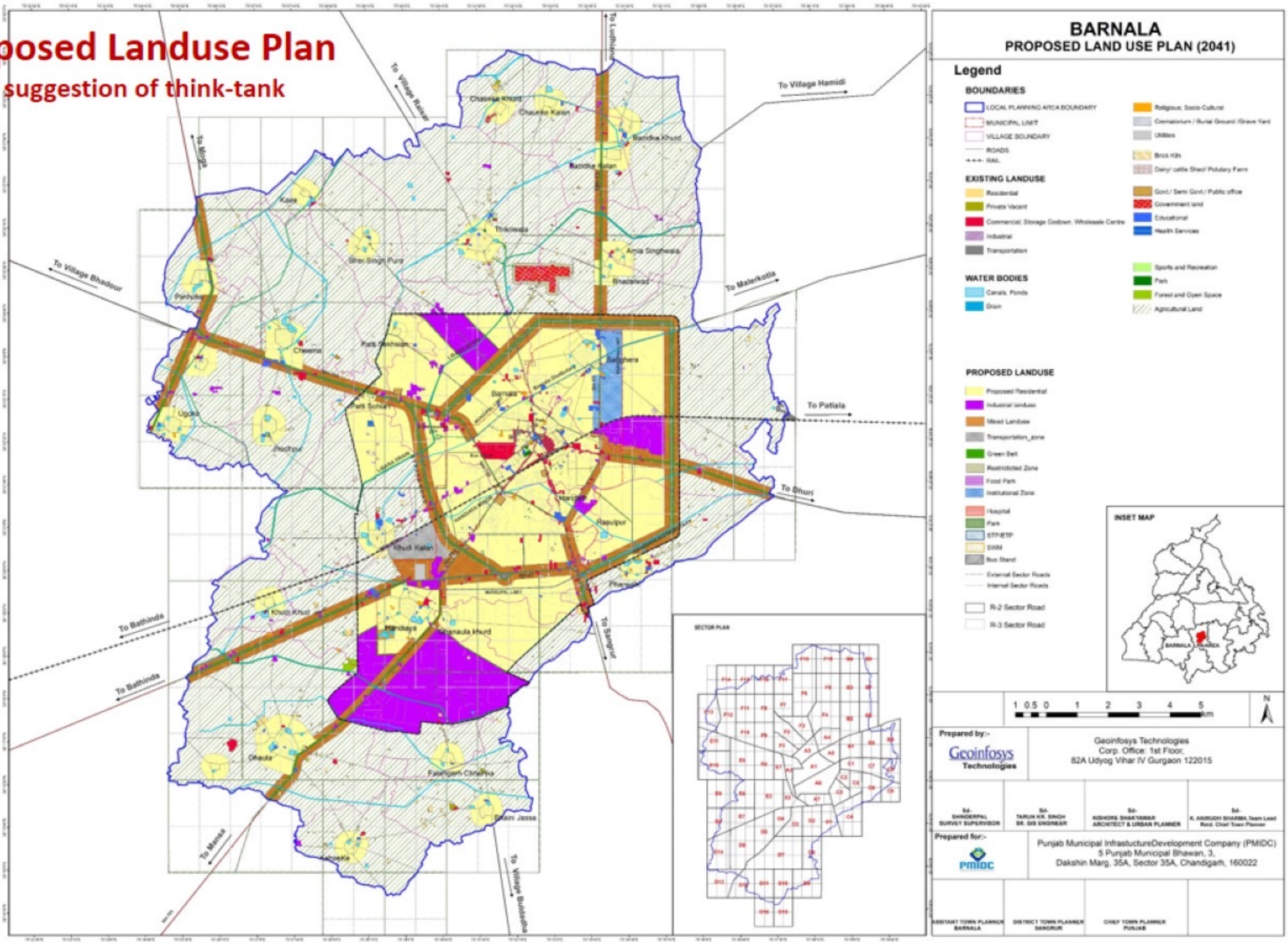
Draft Proposed Landuse Plan
As on 30-10-2020



Final Proposed Landuse Plan

Incorporating suggestion of think-tank

As approved.



Ground Slope

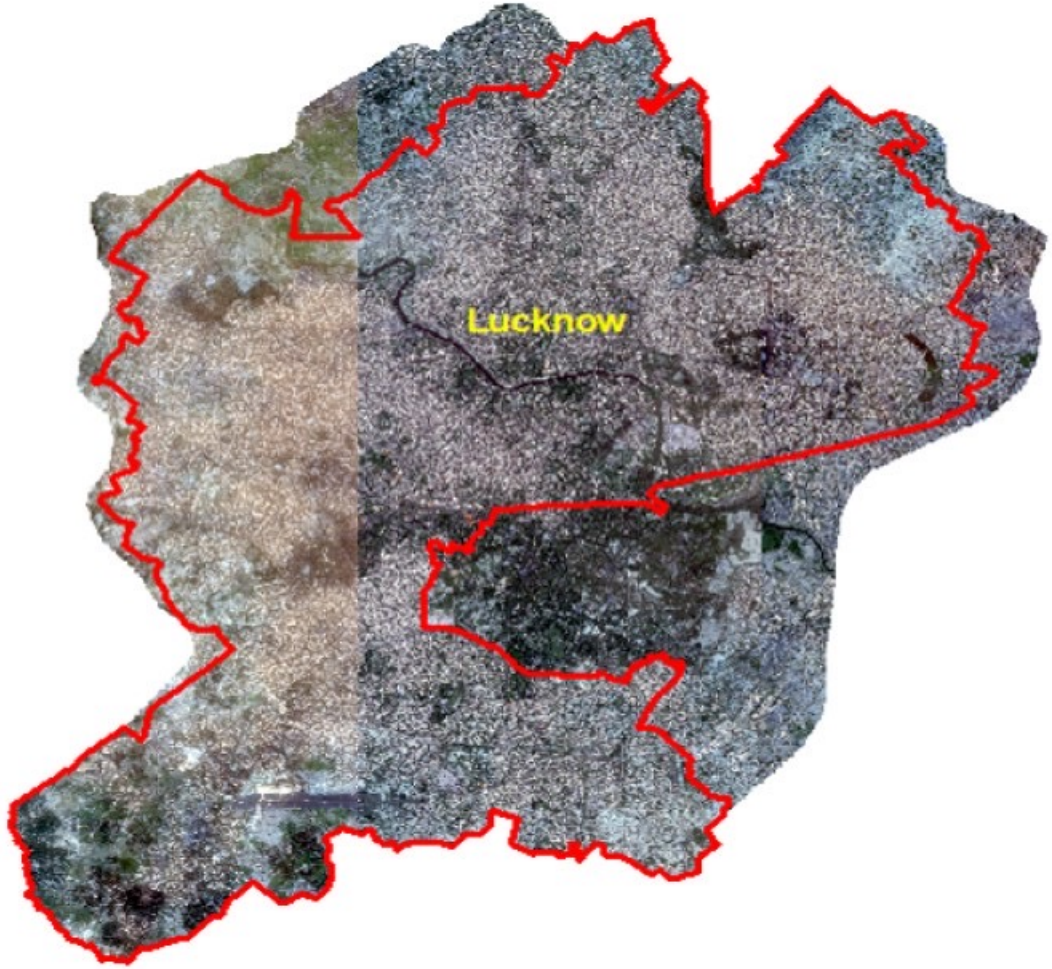
Wind Direction

Tasks Accomplished till date

- GIS Base map of all 3 cities supplied (Lucknow, Prayagraj and Ghaziabad) and submitted Inception Reports.
- World's Best Resolution Digital Globe World View 3 & World View 4 with 30 cm accuracy high-resolution satellite imagery procured and submitted for all 3 cities.
- GCP Collection for Image Processing completed using DGPS.
- Total Survey done: **16,88,047+** properties against **10,81,059 RFP no.** detailed as below in each city
  1. Lucknow: Properties as per RFP **5,53,819** - Surveyed Properties **8,39,190 = 152%**
  2. Ghaziabad: Properties as per RFP **3,20,268** - Surveyed Properties **6,17,708 = 207%**
  3. Prayagraj: Properties as per RFP **2,06,972** - Surveyed Properties **2,31,149 = 112%**
- GIS-based Enterprise Property Tax Management System (PTMS) developed and deployed as per all requirements of Urban Local Bodies & UP Government.
- Mobile Based Property Survey application developed and deployed for property survey.

AOI & Boundaries of LUCKNOW Municipal Corporation

Satellite Image of AOI Boundary



Zone Boundaries

Zone- 4 georeferenced image using ground Control points:

DGPS points - Zone-4

DGPS Control points Report(Lucknow zone-4,Gomti Nagar)

Sr.N	Control point		Description of Geo coordinates (WGS-84) Observation of control points					Remark
	Control point	Number of Point	Latitude	Longitude	Northing(In meter)	Easting(In meter)	M.S.L(In meter)	
1	2	3	4	5	6	7	8	9
1	DGPS	LKO9	26° 51' 27.97648" N	80° 56' 14.44869" E	2970683.802	493776.0823	56.0133	Zone-44

Detail Of DGPS

1	Serial number of machine	GM210364008	Total time taken for observation	
2	Product Name	ZENITH 10/20	Starting time	20/10/2019 13:05
3	Height(In meter)	1.103	Ending time	20/10/2019 13:42:00 pm

Details of control points

Picture

Detail of Surveyor

Name of Surveyor	Rahul Singh
Checked by	Anup Singh

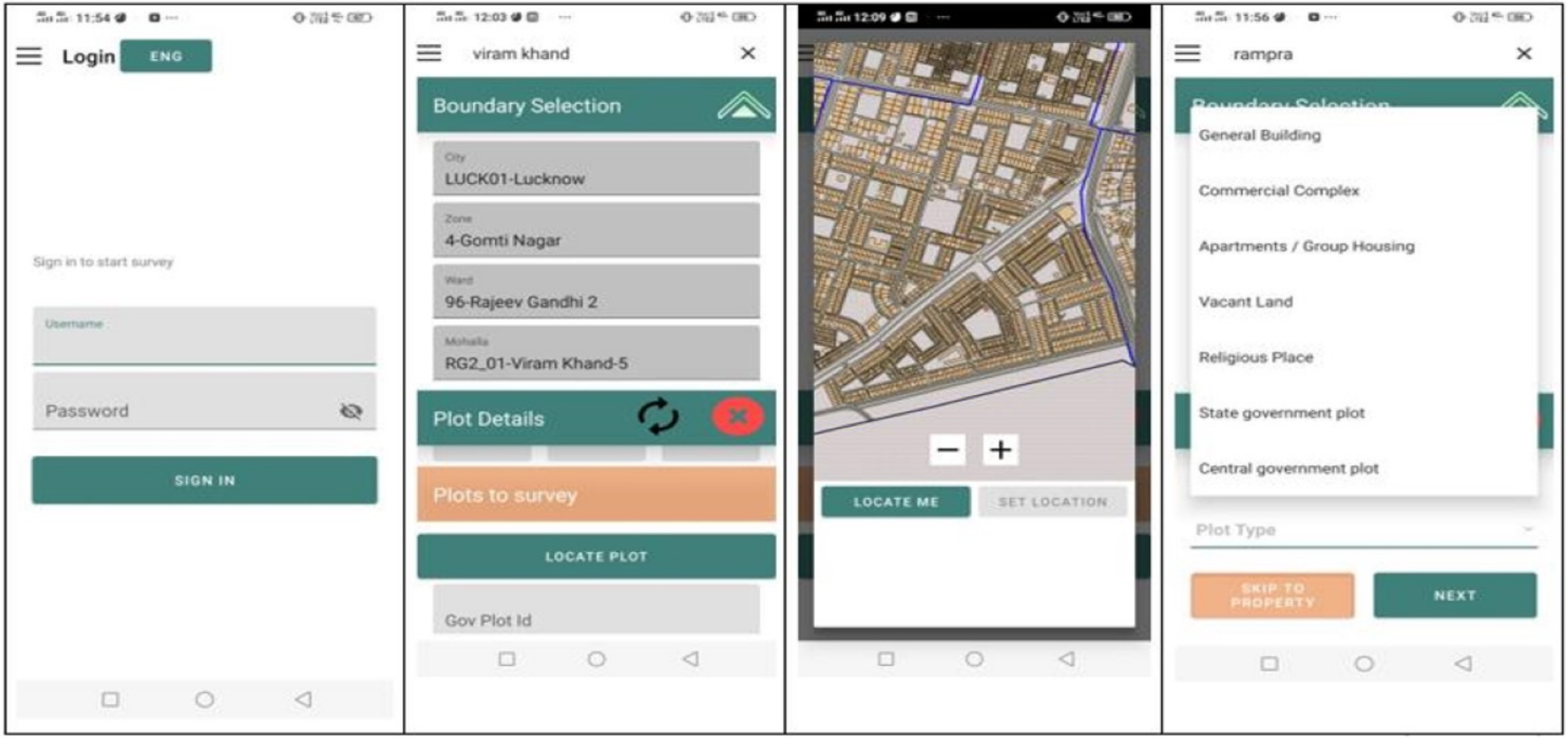
DGPS Ground Control points Report

high resolution satellite image & Updated Base map:

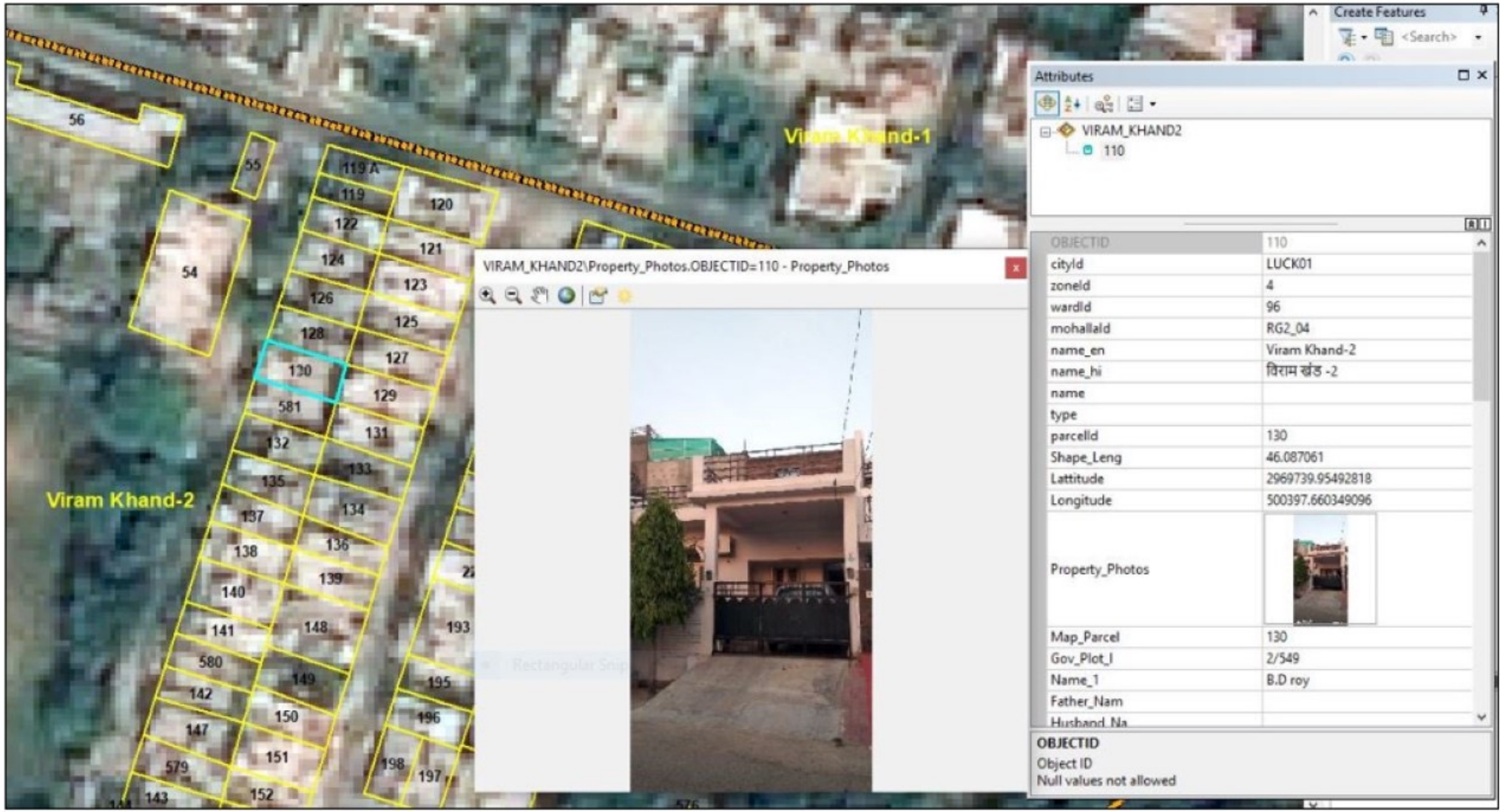
High Resolution Satellite Imagery
(30cm World View 3/4)

Digitized Base map

Property Survey Mobile Application:



Property management system:

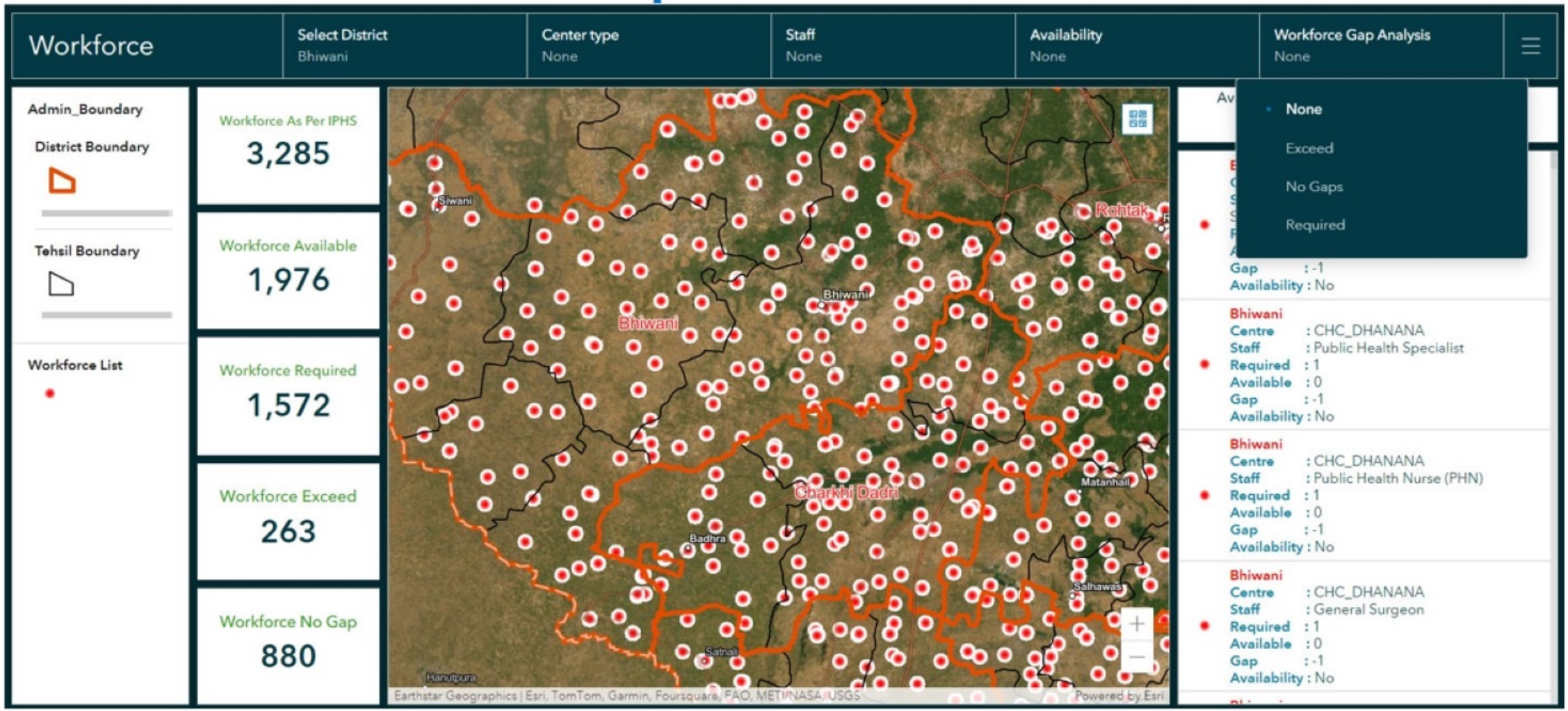


Property's Document & Pictures

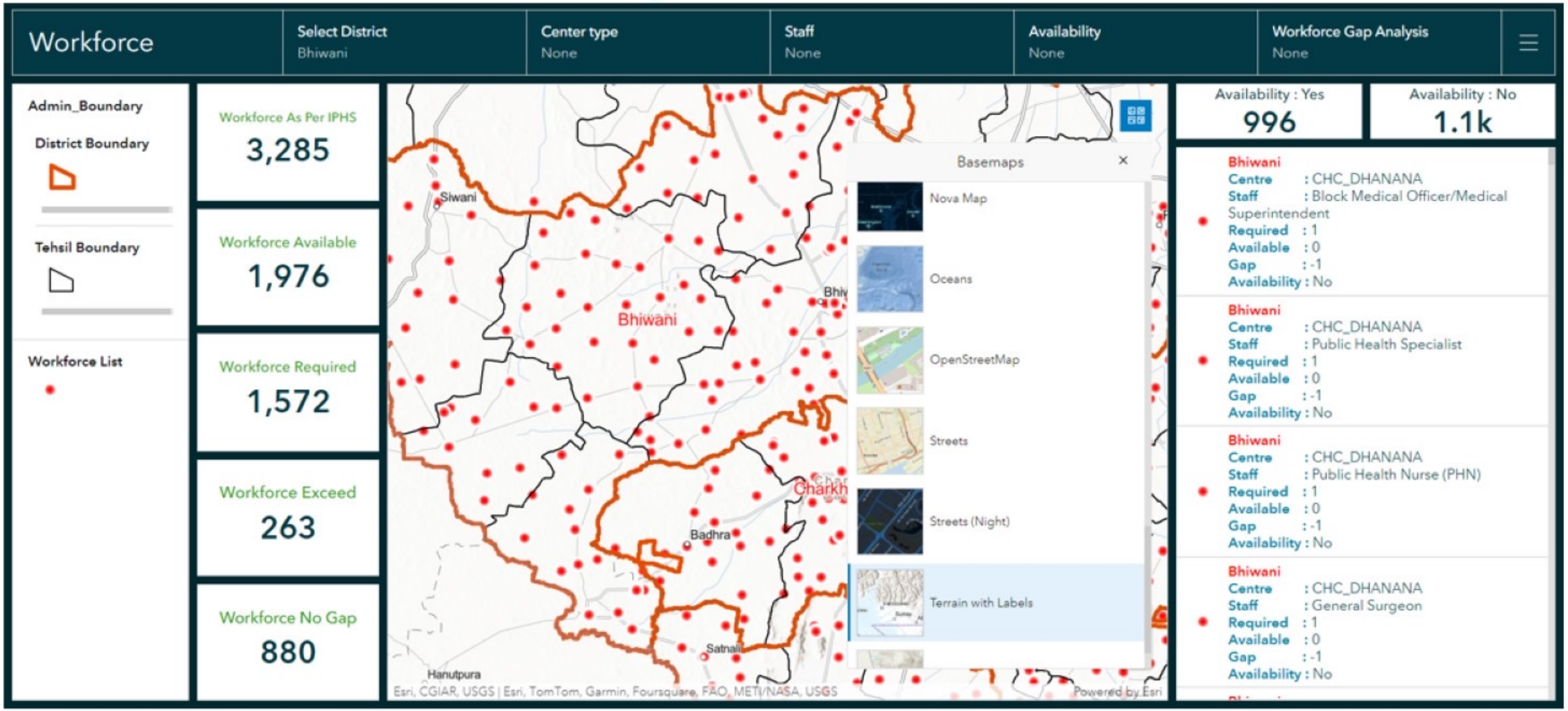
LMC: City wise progress & old vs new tax comparison

Sr. No.	Zone	Total Wards	LMC: Property, Water & Sewerage Tax after GIS Survey					
			Existing Properties as per RFP	Nigam Properties as per Latest Data	Total Surveyed Properties	New Properties	Total Existing Tax	Total Current Tax
1	LALBAGH (Z-1)	14	5,53,819	53,649	65,885	12,236	77,95,97,139	84,84,41,260
2	AISHBAGH (Z-2)	12		47,546	59,503	11,957	25,82,44,566	30,52,08,187
3	Aliganj (Z-3)	19		1,06,415	1,44,512	38,097	63,51,00,549	99,14,63,235
4	Gomti Nagar (Z-4)	8		51,088	63,091	12,003	94,51,31,997	1,67,82,48,527
5	ALAMBAGH (Z-5)	10		49,002	73,445	24,443	27,78,32,190	84,78,18,639
6	BALAGANJ (Z-6)	22		1,17,027	1,74,565	57,538	36,94,27,678	62,87,43,470
7	Indira Nagar (Z-7)	13		86,034	1,29,759	43,725	50,99,76,179	1,37,75,44,039
8	Sec N Aur (Z8)	12		71,612	1,28,430	56,818	55,82,45,135	1,34,99,87,197
	Total	**110**	**5,53,819**	**5,82,373**	**8,39,190**	**2,56,817**	**4,33,35,55,432**	**8,02,74,54,553**

Helping Policymakers, Healthcare Administrators & Public Health Professionals to Improve Healthcare Facilities and Services



Helping Policymakers, Healthcare Administrators & Public Health Professionals to Improve Healthcare Facilities and Services



Preventing Train Accidents for Indian Railways – the Largest Network in the World

- Signal is Passed At Danger (SPAD) is when a train passes a stop signal - one of the potential precursors to railway accidents.
- Project Focuses on Gradient/ Slope, Braking Distance from Signal, Speed and OHE lines

Preventing Train Accidents for Indian Railways – the Largest Network in the World

- Drone + LiDAR for High Resolution/ High Accuracy
- Referencing Multiple Sets of Data
- Z-Axis – for gradient of rail/ building/ mast heights
- Web Hosting to Enable Inter-Disciplinary teams to Access

Preventing Train Accidents for Indian Railways – the Largest Network in the World

Disaster Management Cycle Model

An Integrated, Four Phase Planning System

Reduction/ Mitigation

(Construct, operate and maintain the pipeline in such a way that an emergency is avoided whenever possible)

Readiness/ Preparedness

(build an emergency response plan and practice it to ensure it can be effectively carried out in the unlikely case of an emergency)

Response

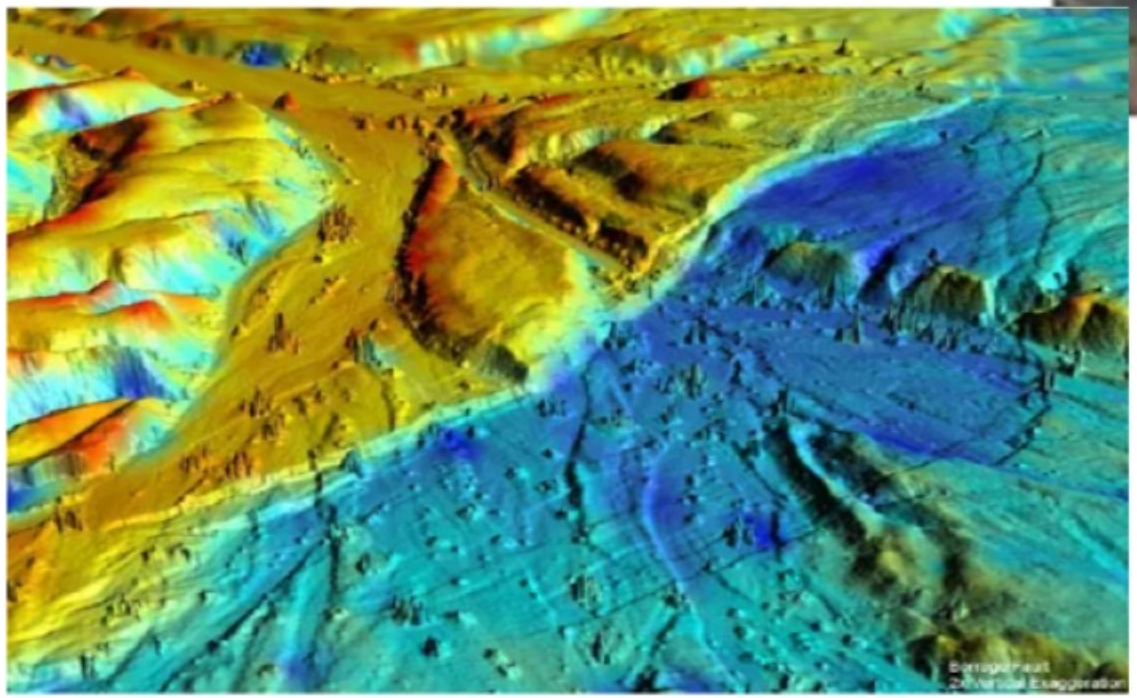
(Carry out the emergency response plan to protect people and environment)

Recovery

(Remediate the location of the emergency and repair any damage to the community or environment and resume operations)

Geospatial Data for Disaster Management

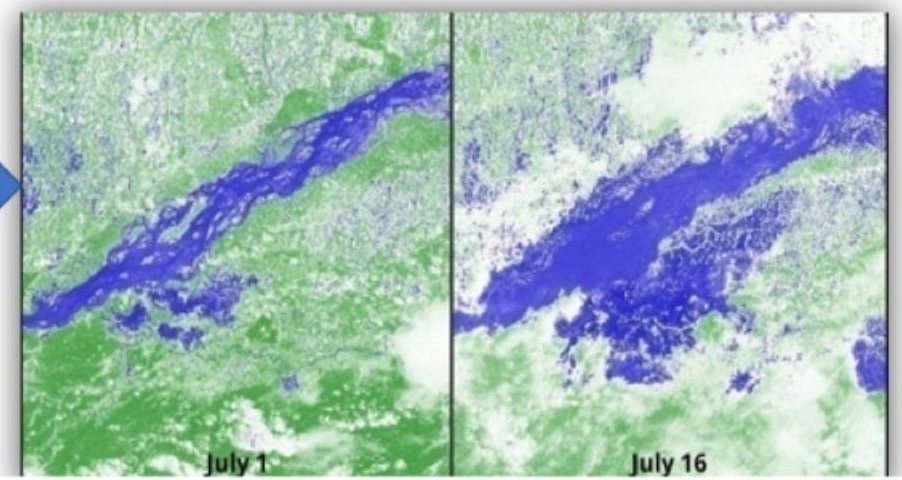
High Resolution Satellite Imagery along with Dem/DTM of the affected areas can help assess the extent of the damage to buildings and infrastructure.



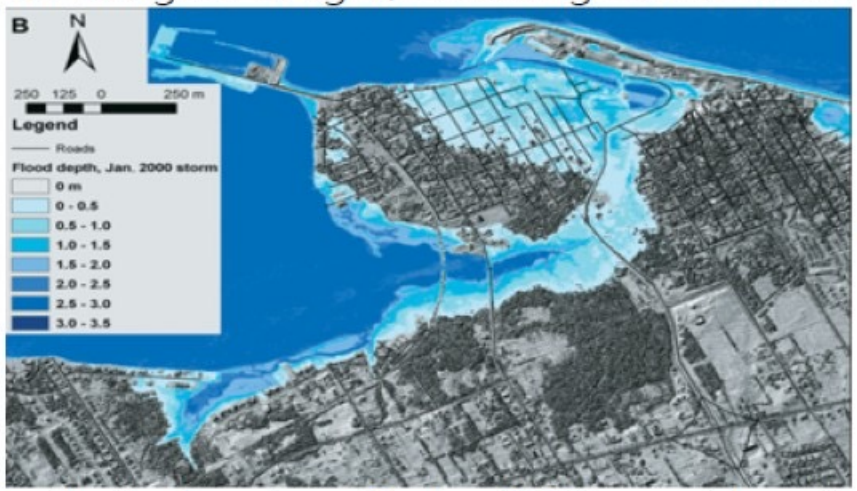
LiDAR (Light Detection And Ranging) - to create 3D models for detailed information on the extent of the damage and help guide repair efforts

Geospatial Data for Flood Monitoring

High Resolution Satellite Images (HRSI) can provide information about the Extent & Severity of Flooding over a large area



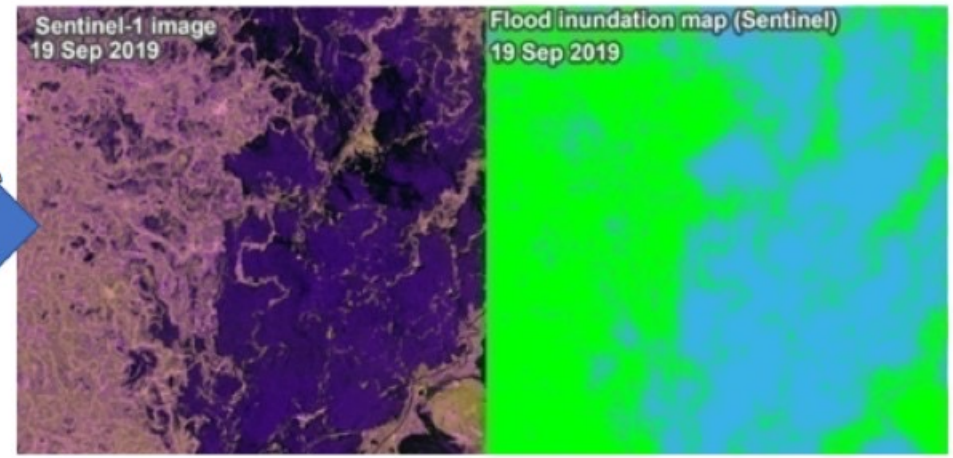
Different types of Sensors on Satellites can capture Different Wavelengths of light, revealing Different Characteristics of Flood



LiDAR helps create high-resolution 3D models of the Earth's surface - used to map Floodplains & to Estimate floodwater depth

Synthetic Aperture Radar (SAR) provides all-weather imaging capability - for estimating Floodwater Depth & to track changes in the flood over time

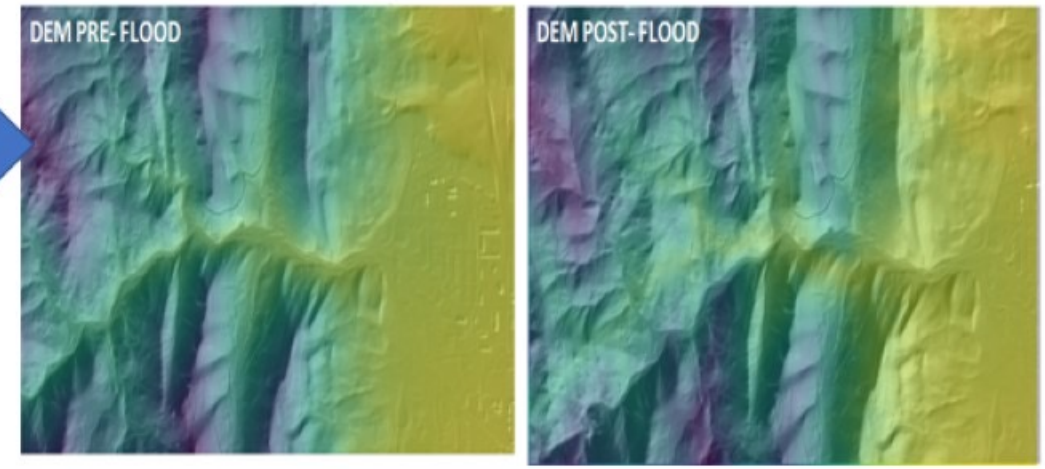
Classification result based on Sentinel-1 data (dark blue: perennial water; light blue, flood inundation areas; green: other areas)

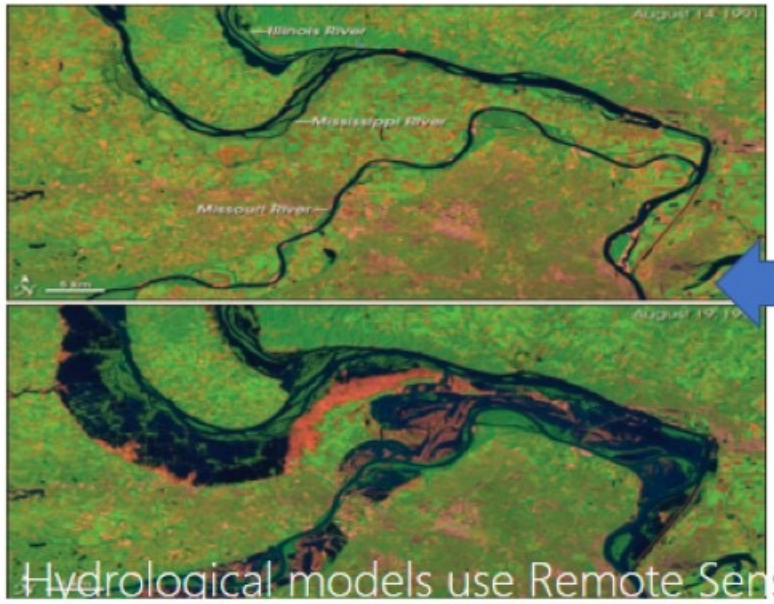


Geospatial Models for Flood Monitoring

Digital Elevation Models provide info of the elevation of the Earth's surface, - used in predicting areas that are prone to flooding

DEMs can be derived from LiDAR data, Satellite Images, or Other Sources.





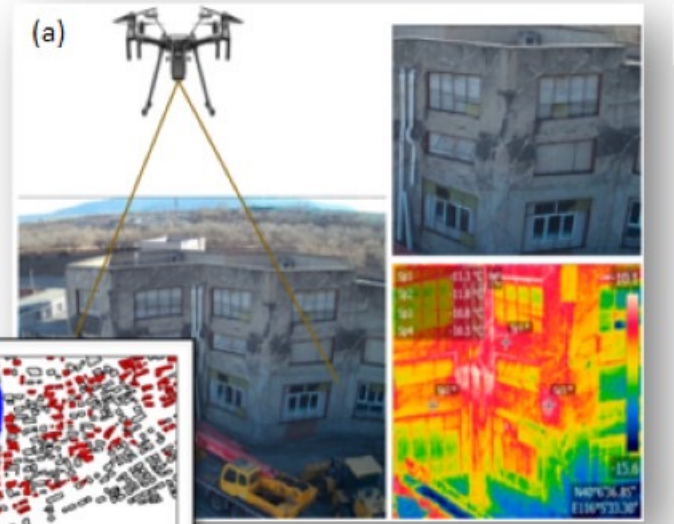
Thermal data can be used to detect areas of flooding where water is cooler than the surrounding land. This can be useful for identifying the extent of flooding, especially in areas where floodwaters are not visible in other types of imagery

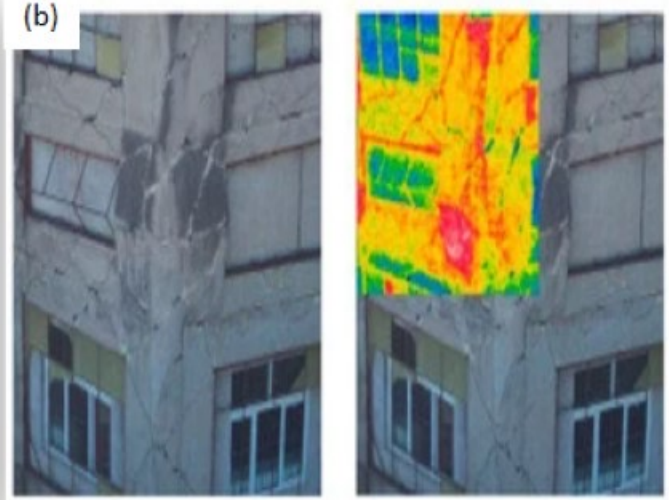
Hydrological models use Remote Sensing data + Rainfall data, to simulate the flow of water in a AoI

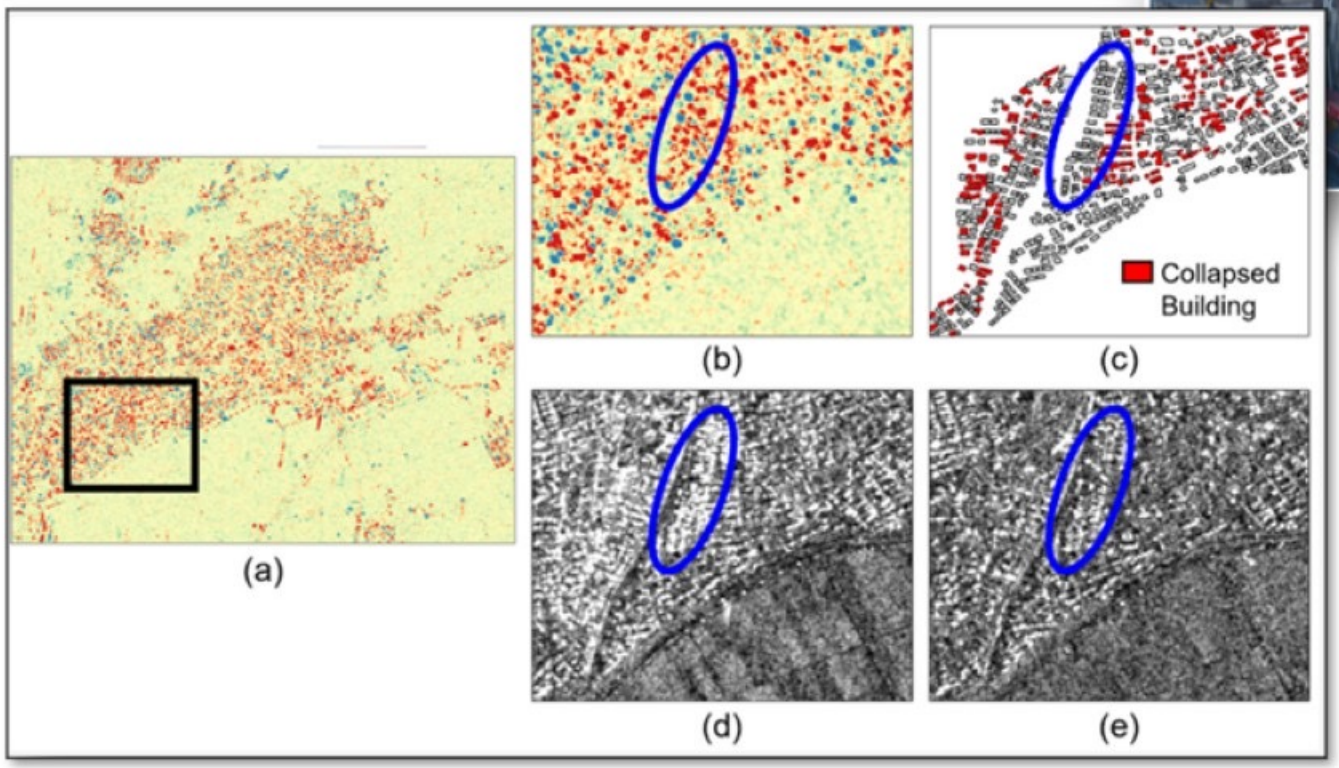
Simulates AoIs to be affected by flooding & estimates floodwater Depth/ Duration

Geospatial Data for Disaster Management

Thermal Imaging to detect Changes in Temperature that may indicate structural damage such as fires or water leaks.







SAR (Synthetic Aperture Radar) data to detect ground deformation caused by the earthquake and monitor changes in the landscape.

Rethink Business