

## **Key Note Address on**

# **“Geospatial in Exploration & Mining”**

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***Central Mine Planning & Design Institute, Ranchi***

# Geospatial Technology

- Remote Sensing
- GIS
- GPS
- LiDAR
- Digital  
Photogrammetry

*Geospatial Technology is Associated with all stages of Mining*

# Geospatial Technology in Exploration & Mining

## ❖ **Pre-mining Stage:** :

- ✓ Topographical Survey
- ✓ Mineral Exploration
- ✓ Land use/cover Pattern
- ✓ Potential Ground Water Zone

# Geospatial Technology in Exploration & Mining

## ❖ **Syn-mining Stage :**

- ✓ Excavation Measurement
- ✓ Operator Independent Mine Management System
- ✓ Subsidence and Roof Failure
- ✓ Coal Mine Fire

# Geospatial Technology for Mine disaster management

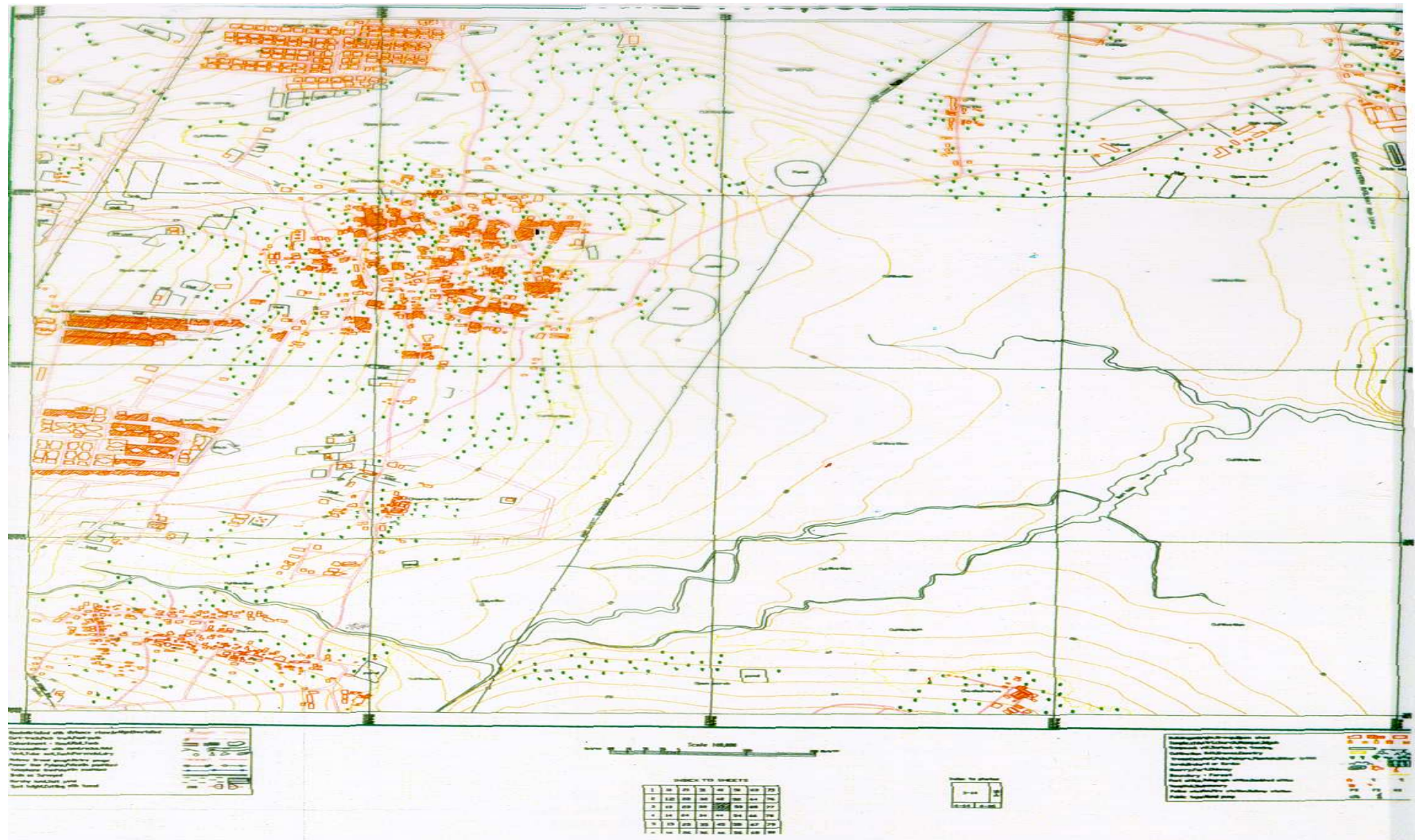
- ✓ Coal Mine [Fire](#)
- ✓ Slope Stability monitoring using microwave remote sensing
- ✓ Subsidence measurement using DInSAR

# Geospatial Technology in Mining & Exploration

## ❖ Post-mining Stage :

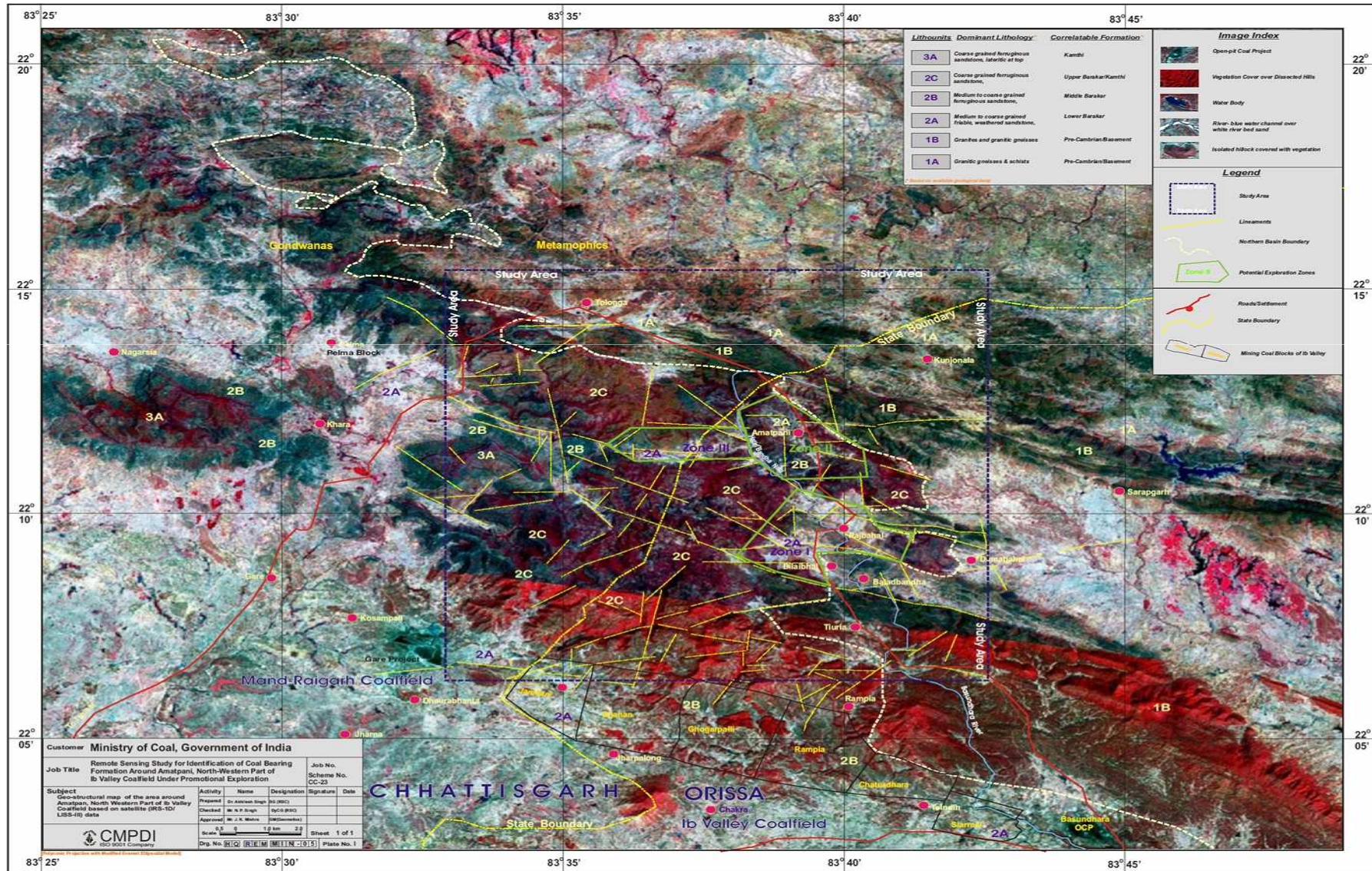
- ✓ Land reclamation and mine closure monitoring
- ✓ Erosion and siltation assessment from mining areas

# Topographical Mapping



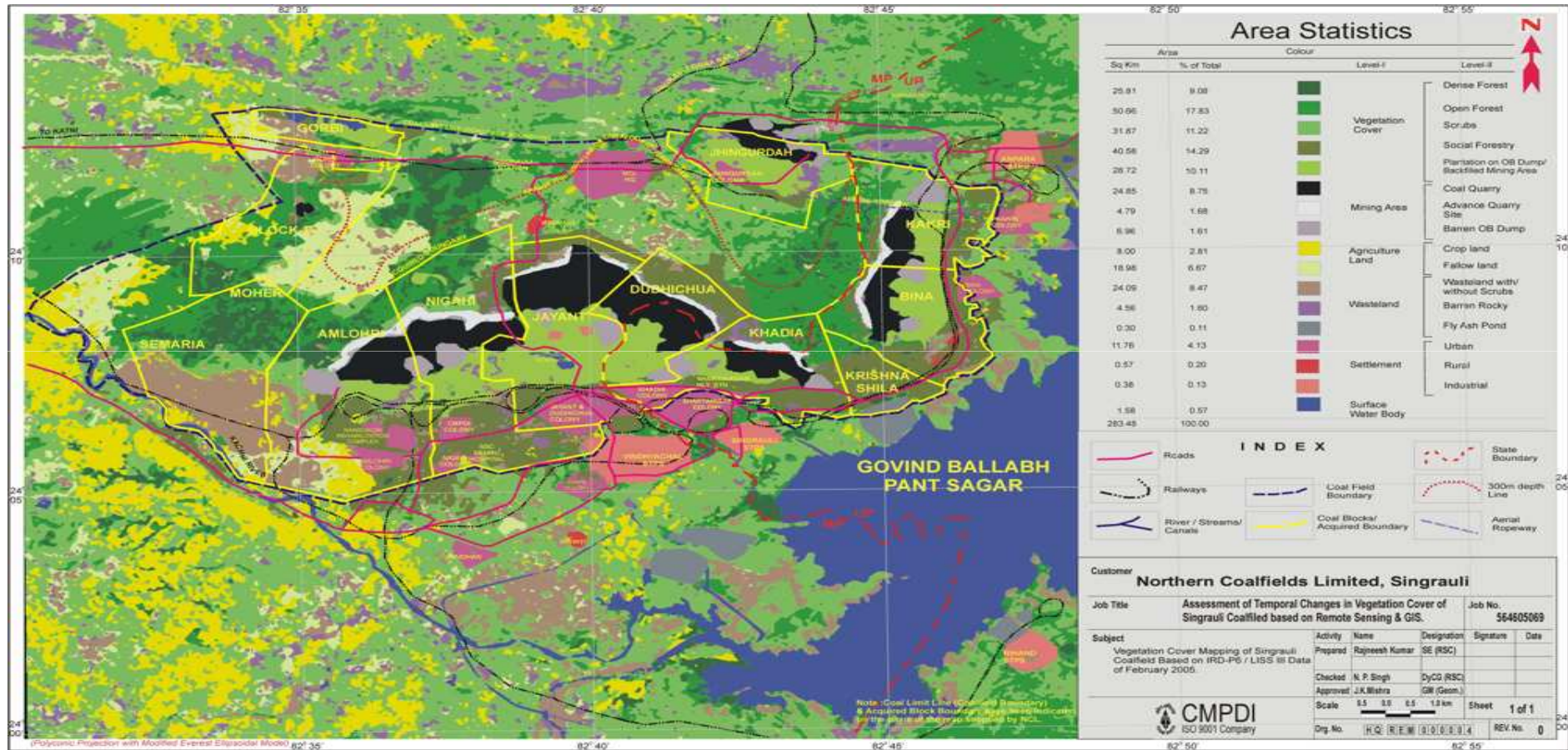


# Satellite data analysis for locating potential coal exploration zone



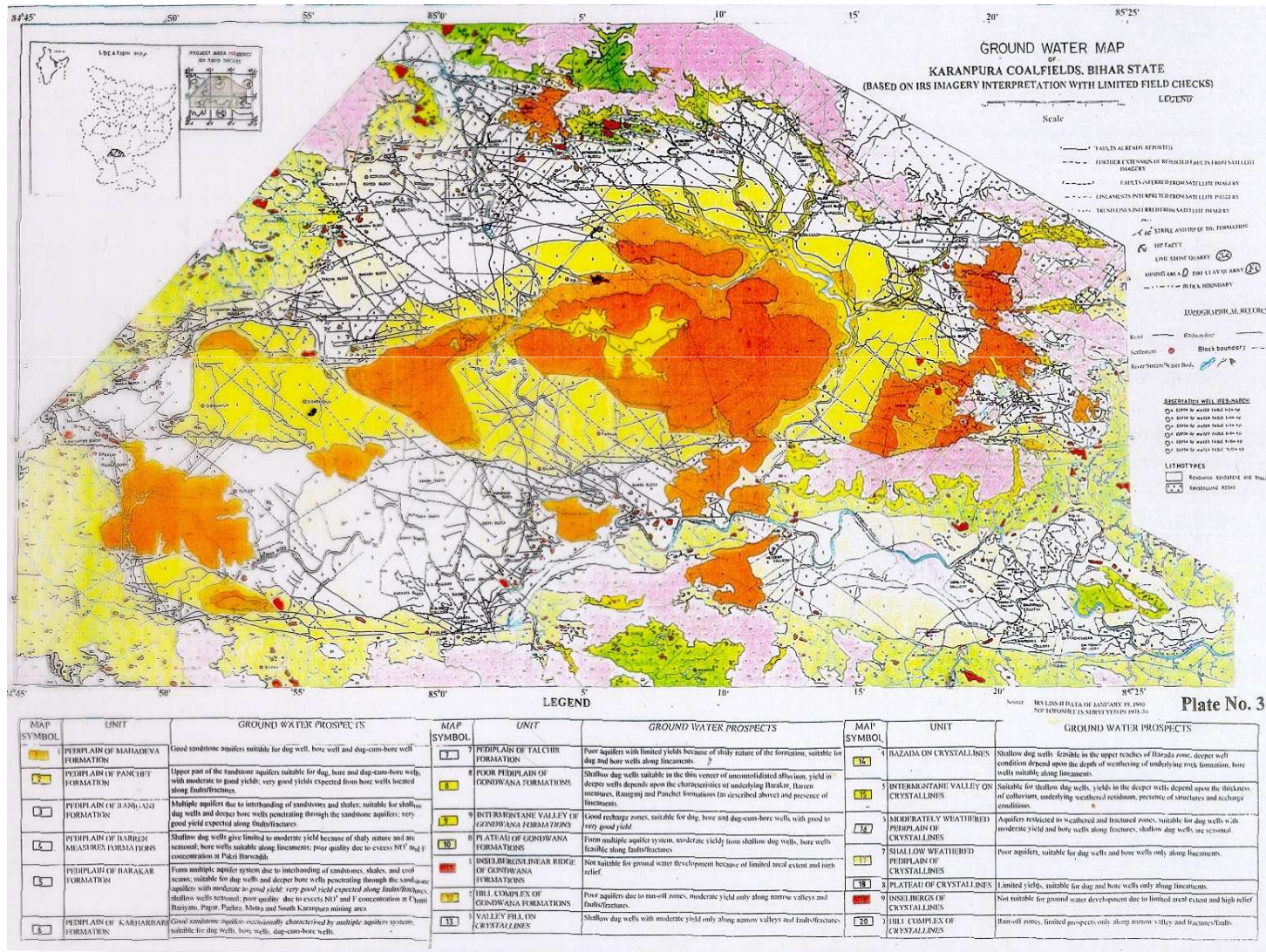


## Land use/cover map of Singrauli Coalfield, India

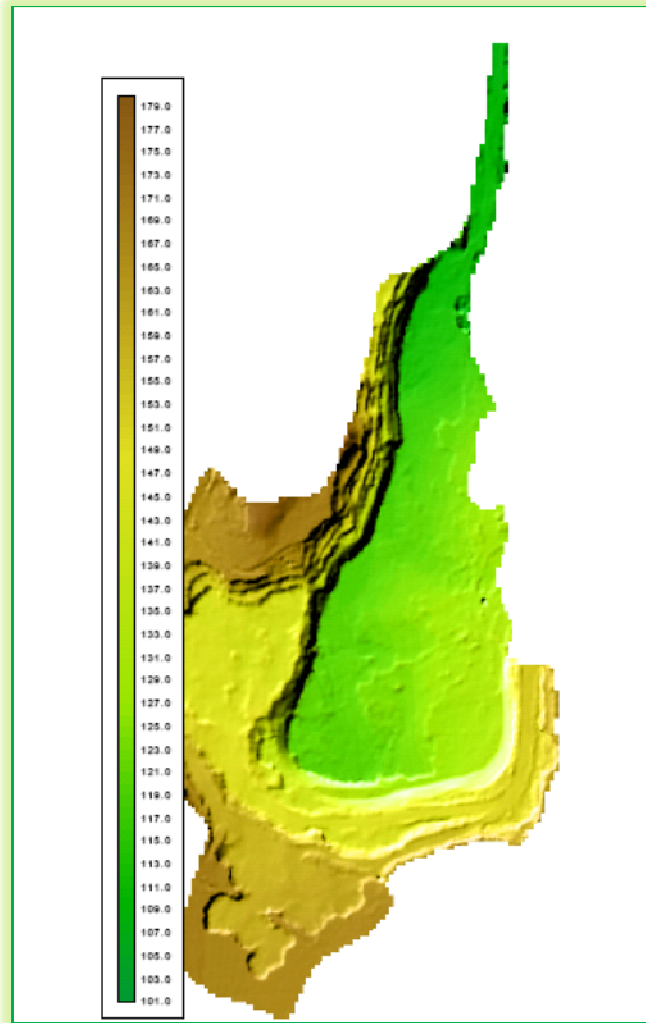




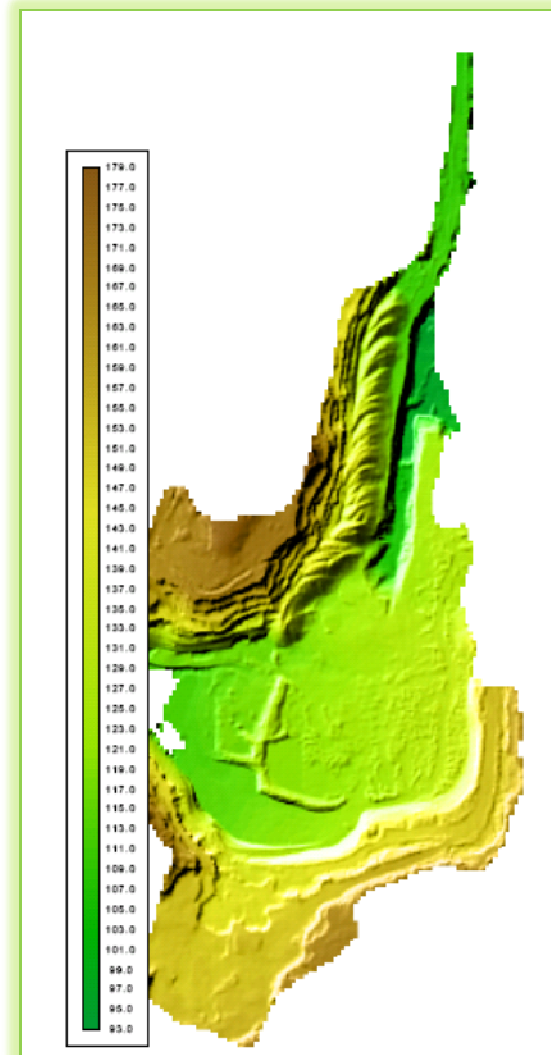
# Satellite data analysis for locating potential ground water zone



## OB Excavation Measurement in Belpahar OC



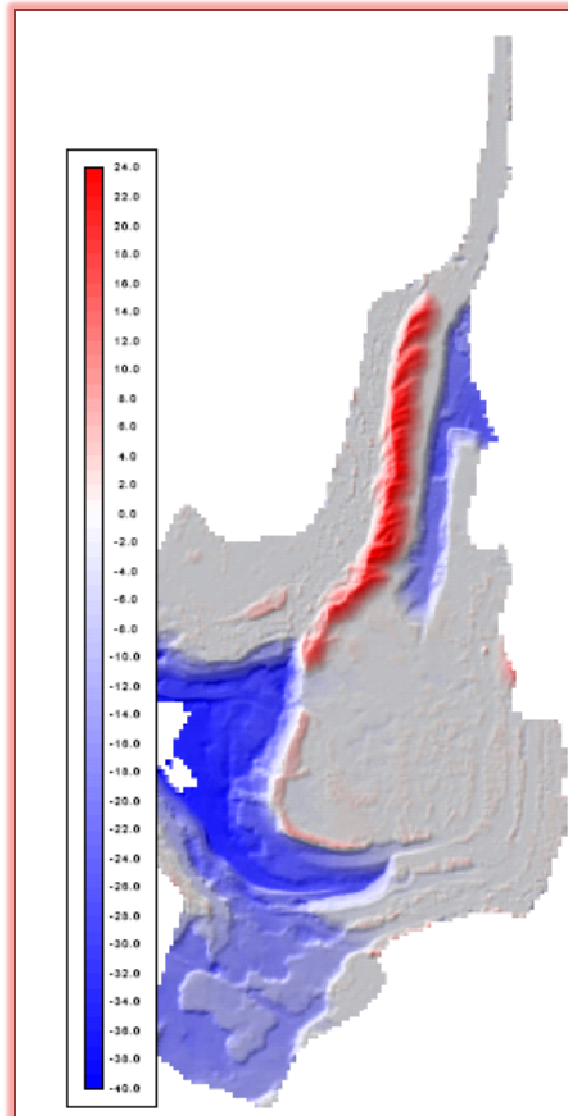
ALTM DTM-I



ALTM DTM-II

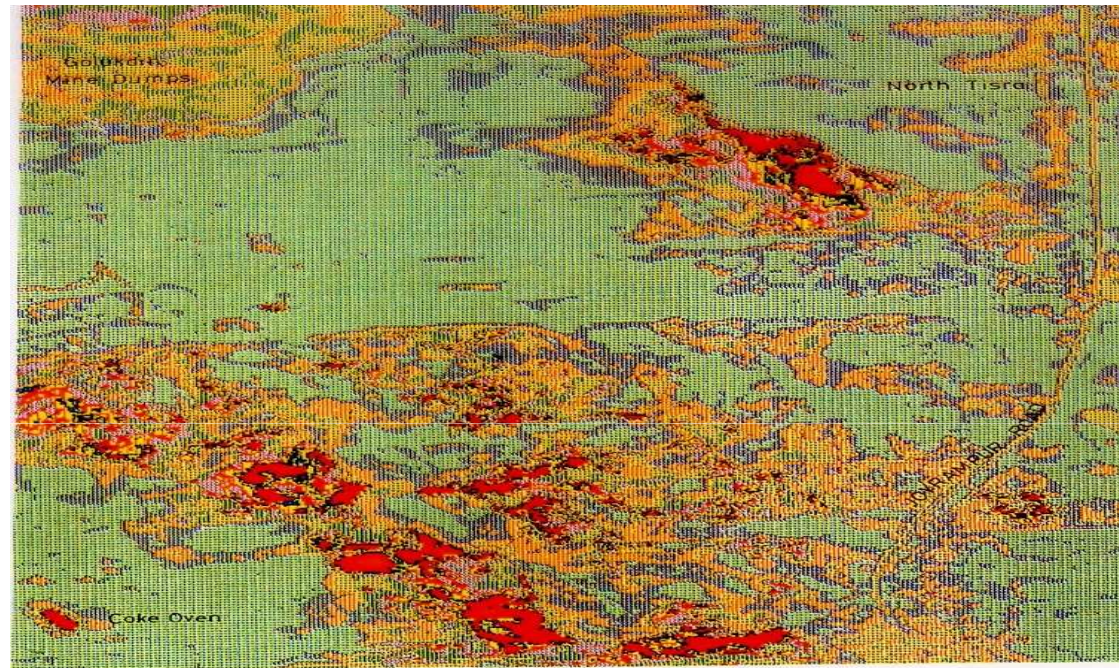
# OB Excavation Measurement in Belpahar OC

Differential DTM

















## Airborne Thermal Infrared Survey for Coal Mine Fire Mapping – Jharia CF



### INDEX TO COLOUR PLATES

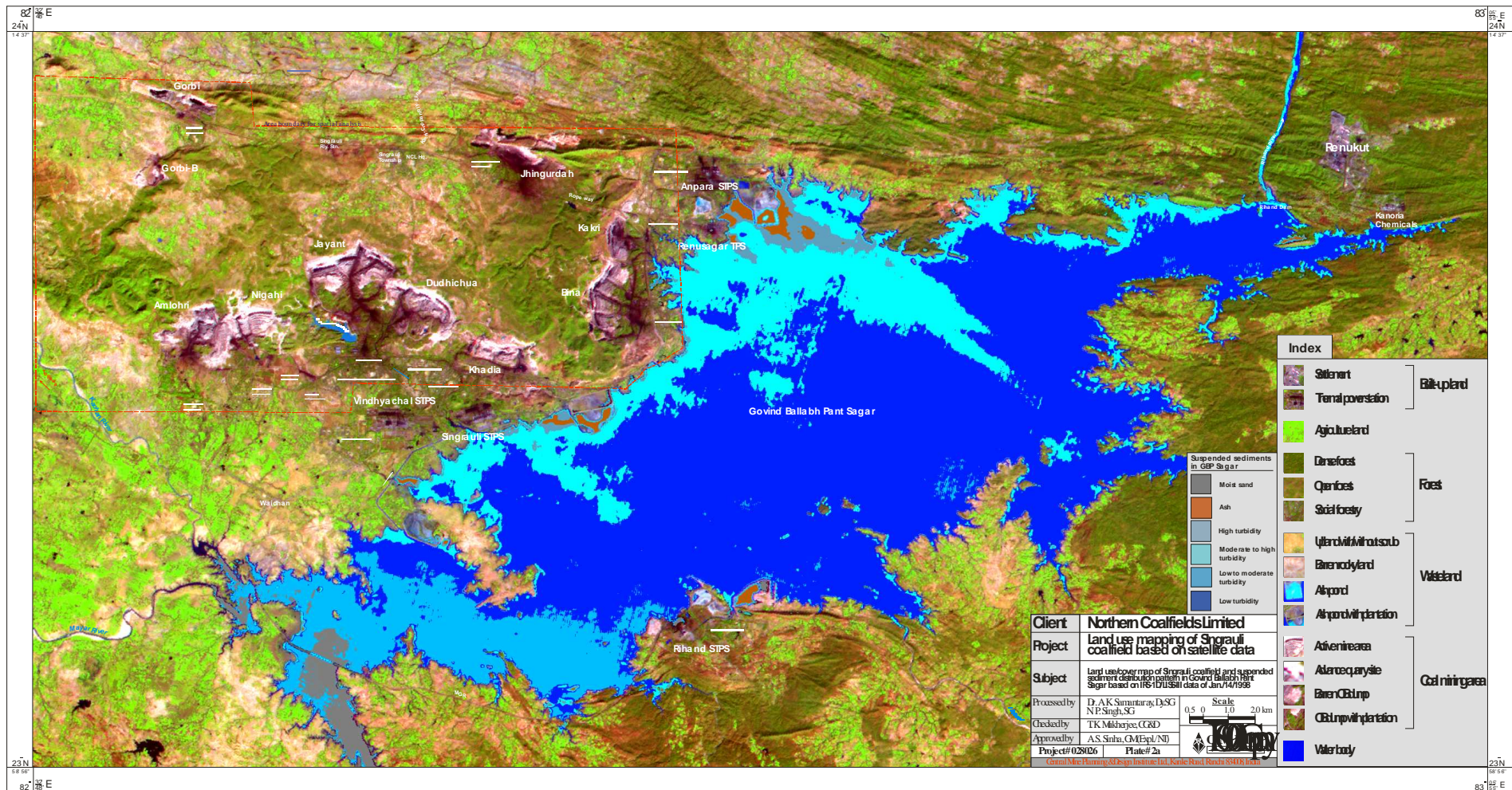
COLOUR NAME	COLOUR	TEMP. VALUES
LIME GREEN		01-05
PASTED BLUE		06-10
ORANGE PURPLE		11-15
MOCHA		16-20
PASTED GREEN		21-25
LIGHT PURPLE		26-30
HOT PINK		31-35
ORANGE		36-40
CYAN		41-45
YELLOW		46-50
BLUE		51-55
RED		>55

## Mine Fire Dynamics in Tisra Area Jharia CF,



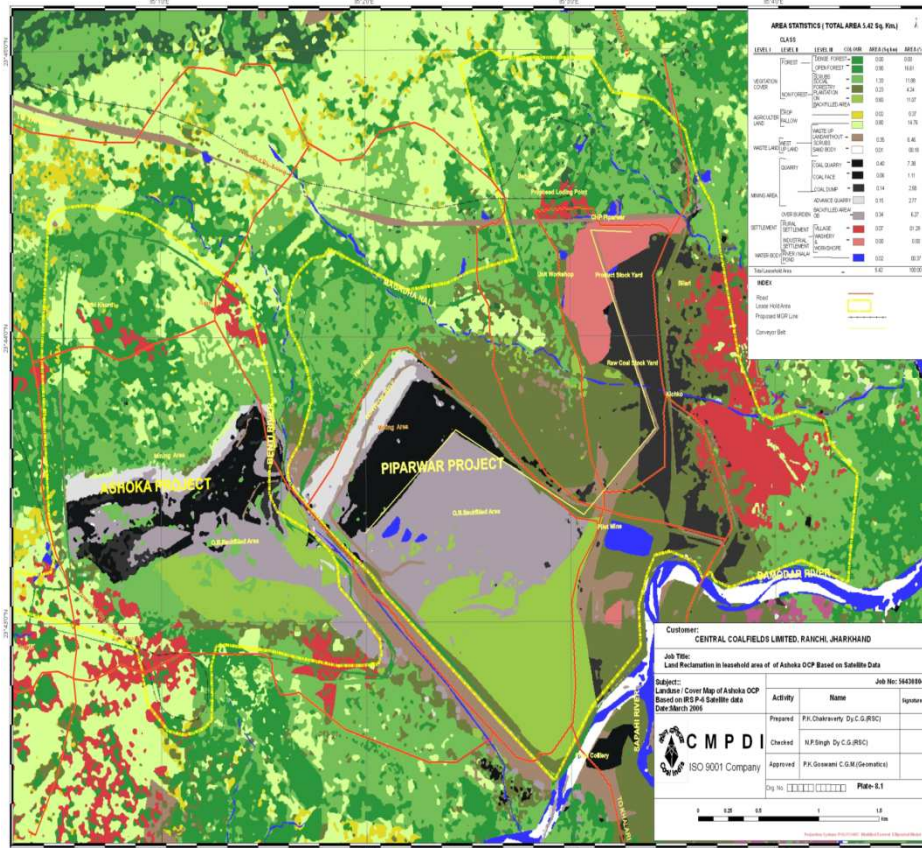


## Satellite data analysis for Erosion and Siltation in GBP Reservoir

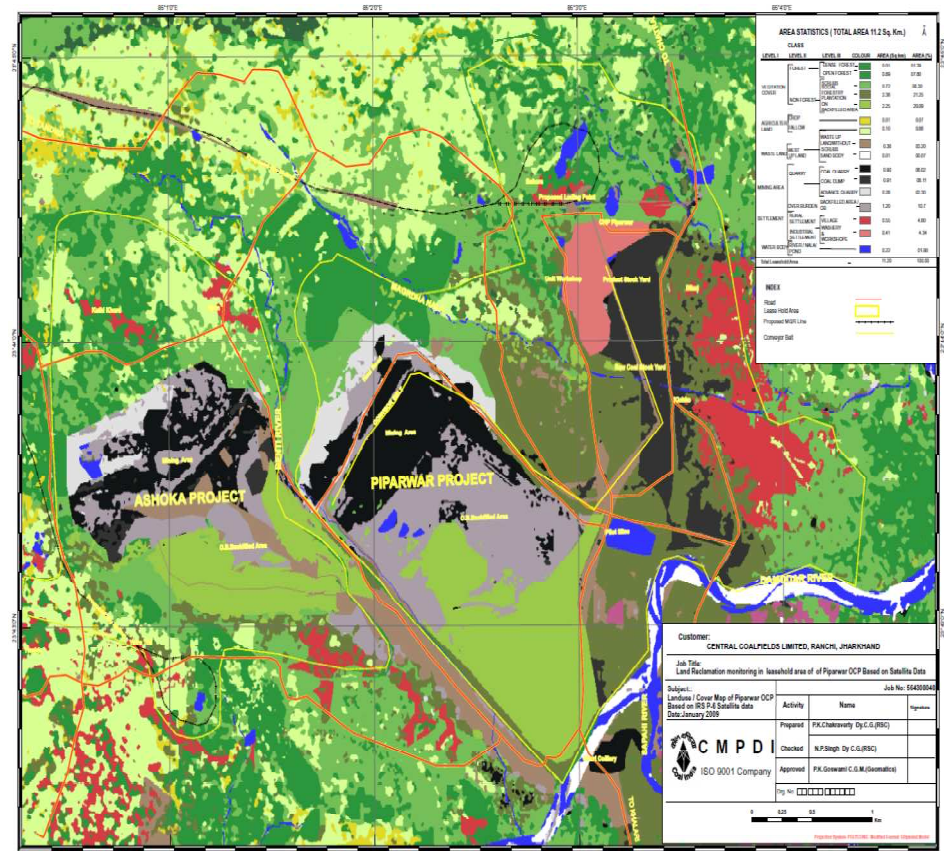




## Land Reclamation Monitoring in Piparwar & Ashoka Mining Area



Year 2009



Year 2011





**Thanks**