



GOVERNMENT OF TELANGANA
Department of Mines & Geology

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Bhavesh Mishra, IAS

Human Civilizations are named after minerals !

STONE AGE

BRONZE AGE

IRON AGE

Coal powered the Industrial Revolution

Steel built the Modern Cities

Uranium changed geopolitics



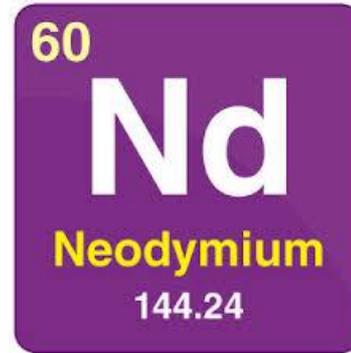


Every Smartphone is a Periodic Table in your pocket

AGE OF CRITICAL MINERALS



Touchscreen



Magnets



Stores Electric Charge



Telangana - Mineral Landscape

Major Minerals

- Coal
- Limestone
- Quartz
- Feldspar
- Iron Ore

Minor Minerals

- Sand
- Stone Metal
- Gravel
- Granite
- Laterite



Telangana is the only state in South India having **vast reserves of Coal** deposits being utilized for power generation

Quiz Time



TASK

**Ranking production of
minerals in Telangana**



<https://forms.gle/Vo9VzP1uXxNXM5ee8>

Mines: Setup



Director Mines & Geology

Telangana Mineral Development Corporation

Singareni Collieries Company Limited (SCCL)



सत्यमेव जयते

खान मंत्रालय
MINISTRY OF
MINES



Functions - Mining Department

- 1 Frame Policies & Regulations w.r.t Minor Minerals
- 2 Conduct Auctions, Grant Quarry Leases
- 3 Explorations for new mineral areas
- 4 Earn revenue for the Government
- 5 Backbone of infrastructure development

Case Study: Building a House



For constructing a house, we will require primarily sand, cement, stone metal

Where does Sand, Cement, Stone Metal come from ?

Who produces these material, how are permissions given ?

How much revenue government earns from sale of these minerals ?

CEMENT

Limestone

Major Mineral

Royalty: Rs. 80 / MT

Exploration -> Auction -> Production

1st step is to do exploration of an area to arrive at an estimate of Limestone reserves in a particular area. Government of India has set up **NMET (National Mineral Exploration Trust)** to fund such exploration activity

Once the reserves are quantified, the Mines Department will auction the mine and award the Quarry Lease to the highest bidder.

If 100 MT of Limestone is produced in the state => Rs. 8,000 royalty will be paid to the government

2024-25

**2.37 Crore
MT**

SAND

Minor Mineral

District Level Sand Committee -> TGMDC -> Rs. 430 / MT Sale Price

River sand is majorly found in Godavari Basin.
Highest sand production districts are Bhadradi Kothagudem, Mulugu, Jayashankar Bhupalpally, Karimnagar, Nalgonda etc.

However, the sale price in Hyderabad is around Rs 1800 / MT

2024-25
1.82 Crore
MT

ROAD METAL

Minor Mineral

NOC from Revenue Department => Auction => Production => **Crusher Units**

Mining Lease is given for **20 years**.

One of the most important component in infrastructure development

2024-25

**8.43 Crore
MT**

Mines: Scale of Operation

Category	Number of Working Quarry Leases
Minor Mineral	1446
Major Mineral	193
Total	1639

District	Number of Leases
Karimnagar	237
Khammam	136
Vikarabad	156

{ Top Districts }

Mines: Scale of Operation

Year	Revenue (Crore)
2014-15	1968
2024-25	5507
2025-26	6500 (Target)

Category	2024-25 (Upto 11th February)	2025-26 (Upto 11th February)	Growth
Minor	1213	1624	34%
Sand	613	781	27%



Highest growth amongst all revenue earning departments in the state

2025-26: Year Of Reform

	<p>Initiated Auction of Mines</p> <p>3 Phases of Major Minerals</p> <p>&</p> <p>5 Phases of Minor Minerals</p>	<p>Large Scale Exploration & Mineral Resource Information System</p> <p>GSI, TGMDC, MECL : Taking up large exploration work</p> <p>Using Machine Learning & AI to predict the feasible locations</p>	<p>Surveillance</p> <p>Started with TGMDC where more than 90% sand reaches have CCTV & Weighbridge Integration now</p> <p>The same being adopted for other 1500+ mines</p>



Challenges, Surveillance, Next Steps ...



Meghalaya coal mine blast: Death toll rises to 30

The East Jaintia Hills district authorities called off the rescue operation in the Mynsgat-Thangsko area on February 9, 2026 evening

Updated - February 10, 2026 06:31 pm IST - GUWAHATI

THE HINDU BUREAU

🔔 READ LATER

Add as a preferred source on Google



Environmental Issues, Remote Locations, Illegal Excavation, Illegal Transport, Lack of full scale adoption of technology, Local Issues, Forest Clearance

Mining Department is generally in news because of **Negative Reasons**



Even in 2026, lack of proper internet connectivity at mining locations remains the single most biggest challenge in ensuring **100% surveillance**

Mining Surveillance Action Plan 2026

Principle of 3 Zeros

- 0 - Illegal Excavation
- 0 - Illegal Transportation
- 0 - Overloading

Volumetric Analysis

DGPS / ETS

ANPR

GPS Tracking

Satellite Based Change Detection

Weighbridge Integration

CCTV

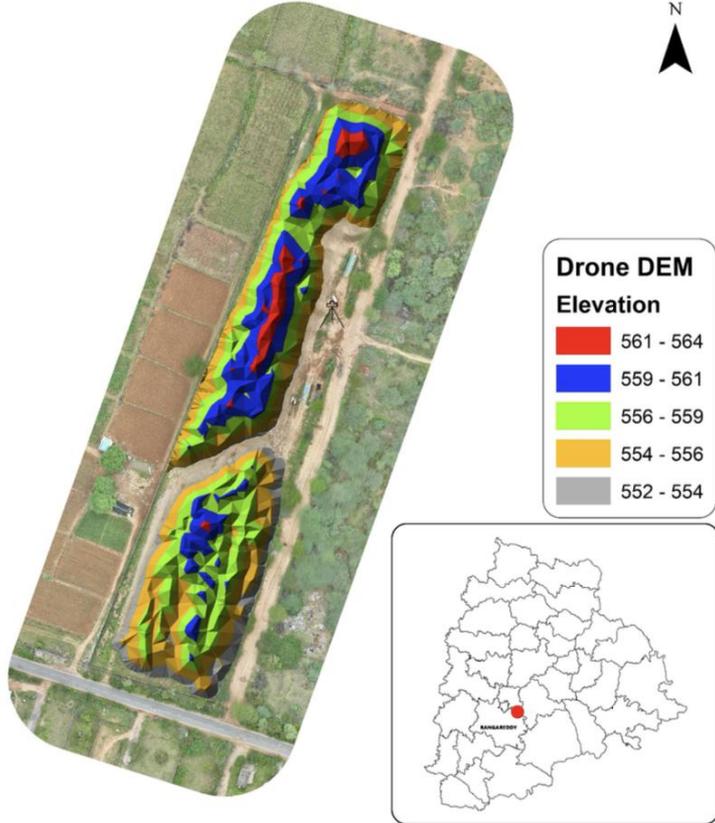
Volumetric Analysis

*How to find the quantity of
sand at a stockyard ?*



TGMDC SAND BAZAAR - ADIBATLA

DRONE DEM MAP



Drone DEM Elevation	
■	561 - 564
■	559 - 561
■	556 - 559
■	554 - 556
■	552 - 554



INDEX	BENCH MARK	SAND BAZAAR LOCATION	DATE OF SURVEY
	Latitude : 17°14'19.15307"	Sand Bazaar : Adibatla Sub Station	1 JULY 2025
	Longitude : 78°33'16.42752"	Village : Adibatla	SURVEY TIME (IST)
	Ellipsoid Heightm : 476.673	Mandal : Ibrahimpatnam	Start Time: 11:51:54
			End Time: 12:07:05

Volume Calculation Summary

Observations & Interpretation

1. Survey Method

- Used Digital Elevation Models (DEMs) created from high-resolution drone images.
- GNSS data from Emlid Reach RS3 enabled PPK correction for accurate elevation.

2. Volume Calculation Approach

- Based on Change Detection between:
 - OGL – Original Ground Level – Surface Bed Level (from Reduce Level benchmarks at yard boundary)
 - RGL – Reduced Ground Level (from drone survey)

3. How Volume is Computed

- Formula:
Volume = RGL – OGL
- Interpretation:
 - Positive Value → Fill (Material added)
 - Negative Value → Cut (Material removed)

4. Data Sources

- OGL: Assumed baseline derived from yard-level RL benchmarks.
- RGL: Derived from drone-generated DSM from the current survey.

Calculation

Sand	(A)	Coarse	Fine
Area (Sq. m)	(B)	7464.76	8,850.10
Volume (Cu. m)	(C)	26930.70	32,143.06
1 Cu.m to Tonne	(D)	1.67	1.67
Tonne	(E) = (C) × (D)	44,974.27	53,678.91
Tone to Metric Tonne	(F)	0.91	0.91
Metric Tonne	(G) = (E) × (F)	40,799.98	48,696.70

ETS Survey

How to find the quantity excavated from a pit ?

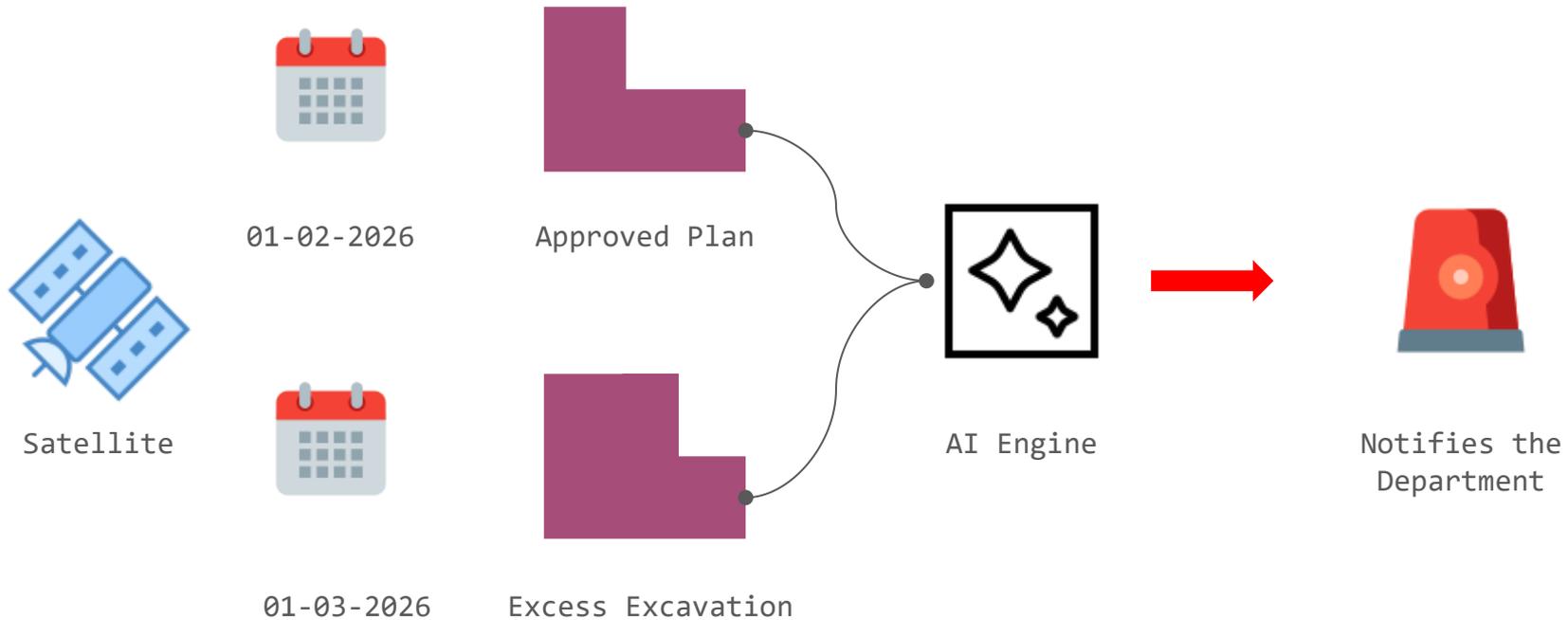


ANPR

How to detect the number plate of old vehicles?



How to monitor mining across 1500+ mines ?



Satellite Based change detection system through high resolution images is an effective way to remotely monitor large number of mines and ensure compliance

Next Steps ...



End To End Mining
Surveillance



Target **20%+**
revenue growth in
2026-27



Auction **200+** new
mines (major +
minor)



Work on Critical
Mineral Exploration
& Refining

Thank You