



Discovery of Ni-Cu-PGE Deposit in Chhattisgarh's Mahasamund District

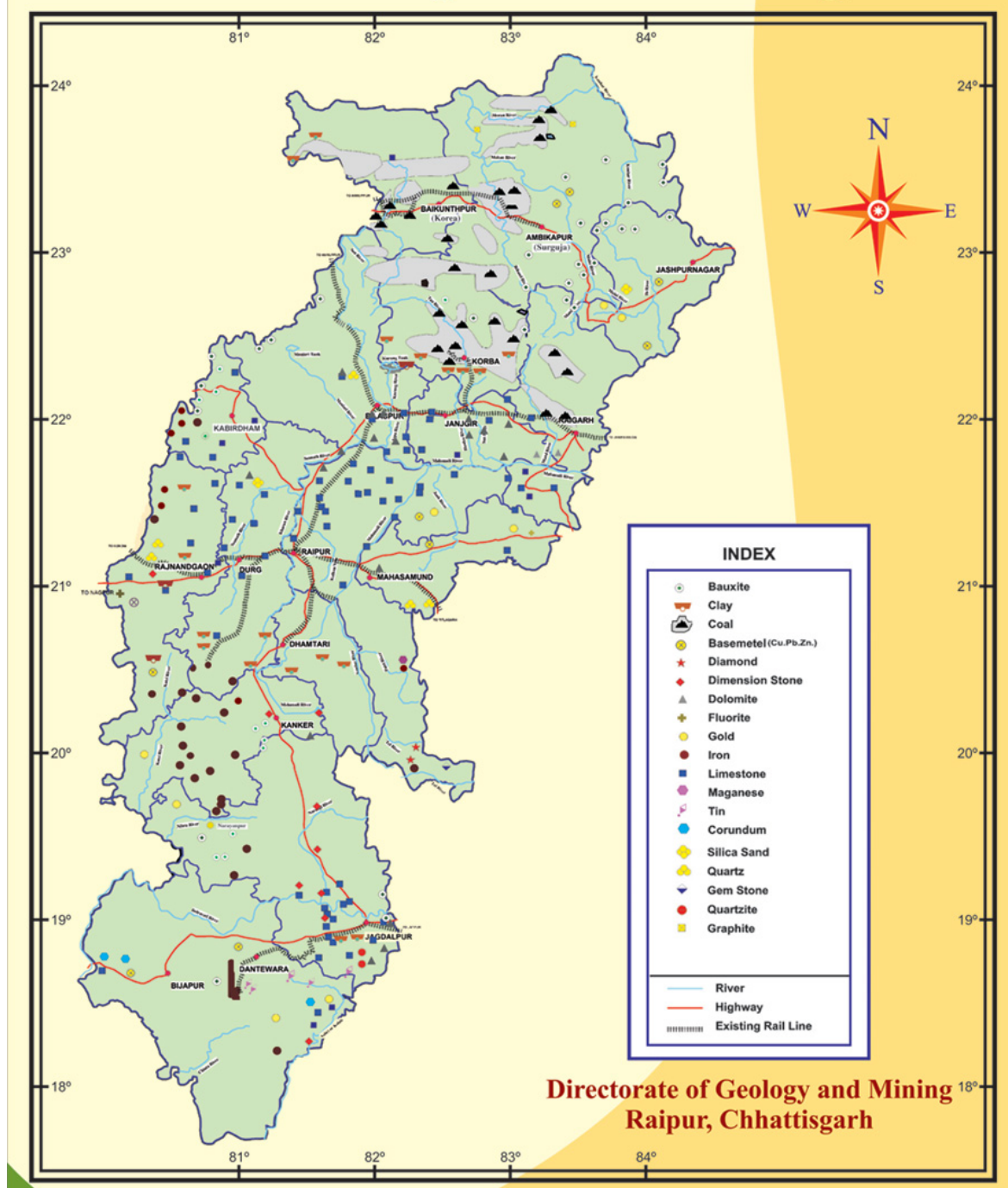
Why in News?

A significant deposit of [Nickel, Copper, and Platinum Group Elements \(Ni-Cu-PGE\)](#) has been discovered in the [Mahasamund district](#) of Chhattisgarh, India.

Key Points

- **About:** Deccan Gold Mines Limited (DGML) was granted a 30 sq km Composite Licence for the Bhalukona-Jamnidihi block in Chhattisgarh, allowing exploration and mining, with ongoing exploration showing promising results.
 - A 700-meter-long mineralized zone has been identified within mafic-ultramafic [rock formations](#).
 - Geophysical surveys show the presence of [sulphide mineralization](#) extending up to 300 meters in depth, indicating substantial resource potential.
- **Exploration Process:** The [Geological Survey of India \(GSI\)](#) had conducted G4-level exploration in the region and identified promising traces of Nickel, Chromium, and PGEs.
 - The findings were later validated by the Chhattisgarh Directorate of Geology and Mining (DGM), which facilitated an e-auction for the block.
- **Significance:** The discovery of critical minerals is expected to significantly advance the [Atmanirbhar Bharat initiative](#), fostering self-reliance in key resources and supporting India's strategic goals for [sustainable development](#) and independence in vital sectors.
 - The finding of minerals like Nickel and PGEs aligns with global trends toward [green and high-tech technologies](#), providing essential materials for future innovation and industrial growth.

Mineral Map of Chhattisgarh



Chhattisgarh's Mineral Auction

- The state has successfully auctioned **51 mineral blocks**, including key blocks with resources like **Graphite, Nickel, Chromium, PGEs, Lithium, Glauconite, Phosphorite, Graphite-Vanadium**.
- Additionally, **six tin blocks** are awaiting auction under the Union Ministry of Mines.
- The **Chhattisgarh Directorate of Geology and Mining (DGM)** has established a **Critical Mineral Cell** to promote collaboration with academic, research, and industry institutions.
- This initiative aims to foster innovation and streamline the exploration of critical minerals.

Platinum Group Elements (PGEs)

- **About:** PGEs are a **set of six metallic elements**—platinum (Pt), palladium (Pd), rhodium (Rh),

ruthenium (Ru), osmium (Os), and iridium (Ir).

- These elements **typically occur together** in mineral deposits, frequently associated with, or as **by-products of, nickel and copper deposits** found in mafic and ultramafic rocks.
- Major Ni-Cu-PGE deposits are mined in places like **South Africa, Russia, and Canada.**
- **Importance:** Ni-Cu-PGE deposits are globally significant due to their essential roles in various high-technology sectors.
- Nickel is vital for **producing stainless steel** and high-strength alloys, copper is crucial for electrical infrastructure, and PGEs are **indispensable in the manufacture of catalytic converters** (for pollution control in vehicles), electronics, medical equipment, and jewelry.
- Their strategic importance is only increasing as they are also **fundamental components** in [electric vehicle batteries](#) and renewable energy technologies.

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