

'5G Use Case Test Lab' Inaugurated in Ranchi | Jharkhand | 11 Jan 2025

Why in News?

Recently, the Union Minister for Coal and Mines inaugurated the <u>'5G Use Case Test Lab'</u> at the <u>Central Mine Planning and Design Institute (CMPDI)</u> in Ranchi, Jharkhand.

 The facility aims to advance the coal sector's digital transformation and technological capabilities.

Key Points

- Sustainable Art Showcase:
 - The minister unveiled a 'Replica of CMPDI services' sculpture made from industrial scrap material, showcasing CMPDI's services in geomatics, exploration, and environmental monitoring.
 - The installation emphasizes recycling and sustainable practices in art
 - The Minister also launched CMPDI's new corporate logo.
- 5G Use Case Lab:
 - Features:
 - The lab serves as a scaled-down representation of an <u>Industry 5G Private</u>
 <u>Network</u>, tailored for the coal sector.
 - Capabilities:
 - Integrates 5G Radio, Core technologies, Edge/Cloud IT/OT applications, and 5G-enabled devices.
 - Supports voice, video, and data communication applications.
 - Includes IIoT sensors for vehicle management and other applications.
 - Objectives:
 - Develop 5G use cases such as predictive maintenance, smart mining, and real-time monitoring.
 - Create a replicable model of a 5G private network for real-world applications.
 - Future Applications:
 - Implement advanced technologies like digital twins, Automated Guided Vehicles (AGVs), and AR/VR for operational optimization.
- Benefits to the Coal Industry:
 - Reliable, high-speed, low-latency connectivity to support mission-critical operations.
 - Real-time data exchange for better decision-making and streamlined processes.
 - The private captive network ensures data generated during operations remains with <u>Coal</u>
 India Limited (CIL).
 - Adoption of 5G will improve efficiency and safety in mining operations.

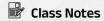
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Coal India Limited

- About:
 - CIL is a state-owned coal mining corporation in India, responsible for producing and managing coal resources in the country.
 - It was founded in 1975 and is the world's largest coal producer.
- Organisational Structure:
 - CIL is classified as a <u>'Maharatna'</u> public sector enterprise and operates through 8 subsidiaries like Eastern Coalfields Limited (ECL), Bharat Coking Coal Limited (BCCL).
 - Mahanadi Coalfields Limited (MCL) is CIL's largest coal-producing subsidiary.
- Strategic Importance:
 - Over half of India's installed power capacity is coal-based, with CIL supplying around 78% of the country's total coal production.
 - Coal also accounts for 40% of India's primary commercial energy needs.
- Mining Capacity:
 - Across eight Indian states, CIL operates in 84 mining areas, and manages a total of 313 active mines.

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