

Wireless Automation Driving

Safety and Efficiency at **Coal India's** Remote Mining Sites



CONNECTING YOUR WORLD

Introduction

Coal India Limited (CIL), the world's largest coal producer, operates across vast and remote mining regions in India. To overcome connectivity challenges and support automation, Wavesight deployed high-performance wireless radio networks to multiple CIL subsidiaries. These networks now enable seamless communication, improve safety and boost productivity across multiple sites.

About the Client

- Largest coal producer globally, with over 300,000 employees.
- Operates 352 mines (158 underground, 174 opencast, 20 mixed) across eight Indian states.
- Supplies a significant portion of India's energy requirements through its subsidiaries- ECL, WCL, SECL, BCCL, and MCL.
- Committed to advancing digital transformation in mining operations.

The Challenge

- Communication infrastructure had to span highly remote, rural, and rugged terrain where wired networks were impractical.
- Existing legacy systems limited automation and real-time monitoring across diverse mine types.
- Ensuring worker safety in hazardous mining environments required reliable, instant wireless connectivity.
- Needed scalable, resilient wireless infrastructure to accommodate growing operational demands.

Solution Overview

- Wavesight deployed over 1,500 industrial-grade radios across 20+ sites managed by CIL subsidiaries.
- Wireless networks use point-to-point and point-to-multipoint radio technologies optimized for harsh mining conditions including dust, vibration, and temperature extremes.
- Seamless integration with automation systems such as CCTV, PLC, Automatic RFID based Boom Barrier System, Weighbridge System and IoT sensors improving operational control and safety monitoring.
- Local Indian partners supported installation, maintenance, and ongoing network expansion.

Results & Benefits

- Enabled automation of critical mine operations, reducing manual workforce load and increasing precision.
- Enhanced worker safety with real-time communication and rapid incident response across sites.
- Improved operational efficiency contributing to CIL's sustainable production targets.
- Achieved lower maintenance costs and increased network uptime versus legacy communication methods.
- Positioned Coal India for future digital growth including private 5G and advanced IoT applications.

Why Wavesight?

- Industrial wireless solutions engineered for tough mining environments.
- Scalable, modular platforms prepared for future private LTE and 5G upgrades.
- Proven integration capabilities with industrial automation and safety systems.
- Full turnkey project delivery from design through ongoing support.
- Trusted by leading coal and heavy industry clients worldwide.