

Hytera DMR Solution Enhances Communications and Reduces Dump Truck Accidents at Indonesian Nickel Mine



Introduction

PT. Sultra Sarana Bumi needed a robust and reliable communications system for its nickel mining operations in southeastern Sulawesi, Indonesia. The solution had to ensure wide-area coverage across challenging terrain and support real-time GPS tracking, allowing managers to monitor dump truck movements and speeds as they transported nickel ore to the coast.

Hytera deployed its DMR IP Multi-site Connect solution, integrating HM688 (GPS) mobile radios and HP568 handheld terminals. This significantly improved communication between production teams, truck drivers, and port crews, while the system's over-speed alert feature has helped reduce accident rates among drivers.

Project Name

PT. Sultra Sarana Bumi DMR Project

Customer Name

Billy Indonesia Group

Project Start/End Dates

November 2024 – Present

Industry

Mining

Products/Solutions

HM688 (GPS) DMR Mobile Radios
HP568 (VHF) DMR Handheld Radios
HR1068 DMR Repeater

The Background

PT. Sultra Sarana Bumi, a subsidiary of the Billy Indonesia Group, operates a nickel mining concession in North Konawe, Sulawesi. The mining site spans 2,630 hectares, with approximately 400 hectares currently under development.

Nickel ore is transported by truck to a jetty 15 km away for shipment to processing facilities. However, the company faced a serious challenge: more than 100 truck accidents had occurred due to speeding on the route to the jetty.



The Challenge

The company required a communications system that would allow supervisors to track truck locations and speeds in real time. If trucks exceeded a defined speed threshold, an alert would need to be triggered both in the vehicle and at the control center.

Additionally, Sultra Sarana Bumi needed seamless communication between the mining site and the coastal jetty to coordinate nickel delivery operations efficiently. The system also had to support remote communication with the company's Jakarta headquarters.

The solution needed to integrate voice communication, GPS-based location tracking, and speed monitoring with an alarm system. Terrain posed a significant challenge due to limited line-of-sight and hilly landscapes, even when installing repeaters at elevated locations.

Furthermore, regulatory and logistical hurdles—including difficulty obtaining permits for tower construction and limited access to electrical power—had to be addressed. The site also bordered a neighboring mine run by PT. Antam, necessitating careful frequency planning to avoid interference.



The Solution

PT. Sultra Sarana Bumi implemented Hytera's DMR IP Multi-site Connect system—a cost-effective way to link DMR repeaters over an IP network, allowing them to function as a unified system despite geographic separation.

A single HR1068 DMR repeater was installed on a 50-meter hilltop, providing reliable coverage between the mine office and the jetty 15 km away. Hytera supplied HM688 VHF GPS-BT mobile radios for vehicles and office use, as well as HP568 handheld radios for field teams.

Hytera's Smart Dispatch Plus platform was also deployed. It supports private, group, and all-call dispatching, while real-time GNSS mapping enables tracking of each radio ID's location and speed.

The system allows PT. Sultra Sarana Bumi to define speed thresholds. When a dump truck exceeds the maximum limit of 50 km/h, an alarm is triggered in both the cab and the control center—resulting in a significant reduction in accidents.

Looking ahead, the company plans to integrate dashcams and CCTV into trucks, linked to the Smart Dispatch Plus platform. The system will trigger alerts if it detects behaviors such as drowsy driving, smoking, or mobile phone use while driving.

Products

- HM688 (GPS) DMR Mobile Radios
- HP568 (VHF) DMR Handheld Radios
- HR1068 DMR Repeater



The Benefits

Seamless, Reliable Communication

The DMR system enhances coordination between production staff, truck drivers, and port crews, improving operational efficiency and helping the site meet daily output targets.

Efficient DMR IP Multi-site Connectivity

Hytera's DMR IP Multi-site Connect enables wide-area radio coverage even in remote areas with minimal infrastructure. It overcomes challenging topography and long distances without requiring extensive investment.

Increased Safety

With integrated GPS tracking and speed alerts via Smart Dispatch Plus, the number of truck-related accidents has dropped. In emergencies, the radio system facilitates rapid response and clear communication, improving overall safety in the hazardous mining environment.

High-Performance Mobile Radios

The HM688 mobile radios provide reliable voice and data transmission. AI-based noise cancellation ensures clear audio even in high-noise conditions—critical for vehicle operators and on-site teams.

Durable Handheld Terminals

The HP568 handheld radios are built for harsh environments, with IP67 dust and water resistance and MIL-STD-810G compliance for shock and vibration. They ensure reliable operation even under tough mining conditions.

Conclusion

The Sultra Sarana Bumi nickel mine in Sulawesi is a strong example of how Hytera's DMR solutions can be customized to meet the communication demands of mining operations in isolated, rugged environments. The system improves safety, operational efficiency, and long-range coordination—while reducing accidents and helping the company maintain production targets.



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