ENHANCING WI-FI CONNECTIVITY AT BULYANHULU GOLD MINE

MINE/PROJECT LOCATION:
Bubada, Tanzania

YEAR OF PROJECT:
2022

CLIENT:
Barrick Africa Middle East (AME)

END CLIENT:
Bulyanhulu Gold Mine

ORE TYPE:
Gold

SOLUTION:
Ekahau Wi-Fi Survey + Design

PROBLEM:

Bulyanhulu Gold Mine, one of Tanzania's premier gold mining operations, faced challenges with its wireless connectivity infrastructure. Given the increasing reliance on digital systems and the rising demand for connectivity in both operational and accommodation areas, Barrick AME sought a robust solution to upgrade their network performance.

The Bulyanhulu IT team reported growing concerns around their Wi-Fi infrastructure:
• Increasing Connectivity Demand: More devices and higher data usage, especially in the accommodation areas, were stretching the existing network's capabilities.
• User Experience Concerns: Users experienced inconsistent coverage and sluggish speeds, which impacted both operational efficiency and quality of life on site.
They needed a detailed understanding of their current wireless landscape to develop a targeted improvement plan.

OUR SOLUTION:

Dwyka Mining Services (DMS) deployed its team to conduct a comprehensive Wi-Fi survey and design solution. The project involved:

Tools & Methodology:
• Ekahau AI Pro & Ekahau Sidekick 2: Used for in-depth wireless analysis.
• Getac Rugged Tablet: Enabled resilient, on-site data collection under tough mining conditions.

Coverage Areas:
• Focused on accommodation areas and key buildings where connectivity issues were most acute.

Process:
• Performed extensive signal strength and interference mapping.
• Identified dead zones and evaluated access point placements.
• Developed detailed reports with Ekahau AI Pro that fed directly into optimized network design recommendations.

The result was a customized Wi-Fi design blueprint specifically tailored to address Bulyanhulu's unique environmental and usage demands.

THE FINDINGS:

The survey uncovered critical insights:

• Significant Channel Interference:
Observed on both 2.4GHz and 5GHz bands, contributing to unstable connections.

• Insufficient & Poorly Placed Access Points:
Existing APs were not enough to serve the large area, and their placement failed to maximize coverage and performance.

• Bandwidth Bottlenecks:
Despite decent coverage areas, internet speed degradation suggested issues potentially tied to limited ISP bandwidth or outdated data rates.

KEY TAKEAWAYS:

- A data-driven approach revealed issues that were not apparent through anecdotal user complaints alone.
- Using advanced Wi-Fi survey technology led to precise, actionable design improvements.
- The engagement highlighted the importance of periodic wireless audits in high-demand, remote operational environments like mining.

THE OUTCOME & RECOMMENDATIONS:

Following the survey:
DMS delivered a comprehensive design solution recommending:
• Revised AP Placement: To optimize coverage and minimize overlap and interference.
• Additional Access Points: To ensure sufficient capacity for user density.
• Consideration of ISP & Data Rate Improvements: Addressing speed constraints beyond just the Wi-Fi layer.
This holistic approach aimed to create a reliable, high-quality wireless experience throughout Bulyanhulu's accommodation and operational areas.