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SPECIAL FEATURE

Empowering the Future of Mining: Bridging Skill Gaps for a Competitive, Sustainable Workforce



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The mining sector, a cornerstone of India's economic growth, contributes nearly 2.2% to the country's GDP and provides employment to around 32 lakh people. While the sector is crucial to India's economy, it faces significant challenges in aligning its workforce capabilities with the demands of modern mining practices. Addressing these challenges requires both technological innovation and a deep focus on skill development and workforce transformation.

Skill Gaps: A Barrier to Productivity and Growth

India's mining industry is experiencing a skill shortage that hampers its potential for growth. Despite being rich in mineral resources, operational inefficiencies persist due to a mismatch between the skills of the workforce and the evolving demands of the industry. The absence of industry-academic synchronization, inadequate training infrastructure, HR compliance issues, and funding constraints further exacerbate the problem. This leads to lower productivity, safety risks, lack of global competitiveness, environmental challenges, regulatory non-compliance, and high operational expenses (OPEX). Upskilling is increasingly recognized as essential by industry leaders. Companies like BHP, Rio Tinto, AusIMM, and ENR Global have emphasized the need for skill development to ensure that the mining industry remains globally competitive and sustainable.

Futuristic Skills for the Mining Workforce

The mining workforce of the future will need to acquire a diverse set of skills. Automation and robotics are transforming operations, reducing reliance on manual labor and improving efficiency. Digital transformation, driven by data analytics, is revolutionizing decision-making from exploration to extraction. Workers will need to be proficient in operating advanced machinery, interpreting big data, and utilizing artificial intelligence (AI) tools to optimize processes.

As global demand for green energy rises, environmental sustainability will become an increasingly important focus. Miners will need to develop skills in sustainable mining practices, minimizing environmental impact, and adhering to evolving regulations. The demand for "green skills" is expected to grow, offering a unique opportunity to align workforce development with broader sustainability goals.

Innovative Solutions: Bridging the Skill Gap

1. Public-Private Partnerships and Government Initiatives

The role of public-private partnerships in workforce development cannot be overstated. Industry-government collaboration is essential for creating a skilled workforce that meets the industry's needs. These partnerships can help secure funding for skill development programs, ensuring that financial barriers do not limit access to essential training. Establishing joint training institutes and Centers of Excellence that cater to both urban and rural mining areas will ensure that even remote mining sites have access to advanced training programs.

The Skill Council for Mining sector has already been conducting upskilling initiatives at prominent organizations such as Hindustan Zinc Limited, MOIL, TATA Steel, HINDALCO, MECL, and JSW. These efforts exemplify a successful model for bridging the skills gap in the sector.

The LSI Group and SCMS have also joined forces to take upskilling to the next level, offering services like skill gap audits, performance dashboards, leadership development programs, workforce strategy services, and domain-specific training in areas such as Environmental, Social, and Governance (ESG) and safety protocols.

2. The Role of Technology in Upskilling for the Mining Sector

Technology plays a central role in transforming mining workforce training. Leading companies like FLSmidth, AusIMM, RPM Global, and the Management Centre Europe have pioneered upskilling programs that provide miners with the tools to navigate the evolving technological landscape of the industry. In India, SCMS's skill initiatives have already yielded tangible results, equipping workers at major organizations with the competencies needed to adapt to future mining challenges.

By leveraging technologies such as artificial intelligence (AI), virtual reality (VR), and augmented reality (AR) in training programs, learning outcomes can be enhanced, better preparing the workforce for technological advancements in the mining industry.

The Future of Mining: Beyond Machines, It's About People

Ultimately, the future of mining is not solely about machines and automation. It's about the people who operate them and make critical decisions. To ensure a future-ready workforce, continuous learning, self-initiated upskilling, networking, and the development of soft skills are equally important as technical expertise. Leadership at both the government and corporate levels must prioritize building a culture of lifelong learning, embracing growth mindsets, and fostering continuous development in every worker.

In conclusion, the mining sector is at a pivotal moment. Upskilling the workforce is not merely an operational necessity—it is a strategic imperative for ensuring competitiveness, safety, sustainability, and long-term growth. By integrating government initiatives, industry collaborations, and technological advancements, the mining workforce can be equipped with the skills needed to thrive in a rapidly changing industry.

The future of mining depends on the workers who drive its progress. As we focus on workforce transformation, it is crucial to recognize that the path forward is one of continuous learning, collaboration, and the application of innovative skills to meet the demands of tomorrow's mining industry.