

INNOVATION AND TECHNOLOGIES THAT ARE SHAPING THE GLOBAL MINING INDUSTRY

B.K. Gorain

Barrick Gold Corporation
Suite 3700, 161 Bay Street
Toronto, Canada M5J 2S1
Phone: + 1 416 3077367

Email: bgorain@barrick.com

ABSTRACT

As mining has evolved over a century, so are the challenges associated with mining. Mining of complex ore bodies at greater depths is a major challenge requiring high capital and operating costs due to remote locations, high energy costs, water quality and complex environmental issues. In addition, the stakeholder expectations are growing along with challenges associated with highly complex mine permitting processes and changing demographics of mining jurisdictions. The dynamic metals market adds to these challenges impacting the long term development and sustainability of mining projects.

These challenges are compelling mining companies to look at various innovations with an integrated approach focusing on meeting the needs of various stakeholders. Mining companies are slowly tapping into some successful concepts that have transformed other industries such as manufacturing, chemical, pharmaceuticals along with oil and gas.

This paper provides an overview of various innovations and technology developments in mineral processing that have shaped the current mining industry. A glimpse of the present and future challenges in mining is also presented. An integrated approach to problem solving involving various stakeholders is gaining momentum and this has been reflected in this paper. Various developments that are being pursued in mineral processing focusing on a change in the existing mining paradigm are also presented in this chapter.

KEYWORDS

Mineral Processing, Integrated operations, Innovation, Technology breakthroughs, Sustainability, Zero Waste Mining
