

## **Revitalising the mining industry in South Africa**

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South Africa has a mineral wealth endowment that is second to none. The South African mining and minerals Industry has been the cornerstone of South Africa's economy for more than a century. Mining has a direct contribution to the national economy and contributes approximately 17% to the Gross Domestic Product (GDP) of the country both directly and indirectly.

The South African mining sector, like the global mining sector, faces significant challenges under the current downturn on the commodity prices. Platinum, coal, steel and gold markets are significantly affected. In 2013, platinum group metals (PGMs), gold, coal and iron ore accounted for 88% of all mineral sales, 85% of total mining labour, and 35% of the market capitalisation of the sector. The increase in inputs cost such as labour costs, direct and indirect energy related costs coupled with lower productivity levels has impacted negatively on the sector. The increasing depth of the mining operations (for all commodities), the decreasing grade and complex geotechnical environments further adds to the stresses imposed on mining operations.

South Africa has a large amount of mineral reserves in various commodities however these cannot be readily or easily turned into mineable resources as yet due to any one of the following reasons (or even a combination thereof) viz. low commodity prices, high costs of recovery or highly complex geotechnical constraints. Mining, whilst there have been improvements along the way, is still very much reliant on traditional methods of extraction that are labour intensive, costly and has elements of risk to employees' safety and health. Under current constraints of economic, socio-economic and environmental factors, there has to be a paradigm shift of utilising technology along the entire industrial value chain of mining.

Industry leaders have spoken to the need to modernise mining in the country. However modernisation often gets confused with mechanisation. Mechanisation could be a part of modernization but it is not just mechanisation. Modernising the mining environment is not limited to the processes involved in mining, it extends to the upskilling of employees within the workplace.

Mechanisation is no new concept to the South African Mining sector and has been used in varying degrees of success in different commodities. The most successful implementation of mechanisation has been in the coal sector whilst in hard rock or metalliferous mines; the use of mechanised mining has been limited with the platinum mines having larger fleets in use. Very few gold mines have deployed mechanised (trackless) mining with the exceptions being South Deep and Target 1 gold mines.

Mechanisation on its own is not the "silver bullet" that will lead to the changes in the fortunes of the mining sector in South Africa since some of the orebodies (particularly the gold sector) do not automatically or immediately lend themselves to the implementation of mechanised mining systems. The depth of mining, the steep angle of the orebody as

well as the narrow width of the reef package will require significant investment into Research, Development and Innovation to understand the various challenges such as rock engineering requirements, the mechanical design of the equipment and related ventilation flow into the mines.

With the challenges currently facing the mining sector under the depressed commodity prices, increased costs and the need to ensure that operations are safe, modernisation via mechanisation, automation and ultimately autonomous operations is an inevitable path that needs to be followed. And the first step has to be taken now.

Considering the importance of mining to the growth of the country, as part of Operation Phakisa as announced by the presidency, mining has been identified as one of the key areas that will also be reviewed. The aim of Operation Phakisa is to deliver fast and implementable results to the country's development priorities. In his *State of the Nation Address* this year, President Zuma announced that a "Mining Phakisa" would be convened to deliver fast and implementable results to the country's development priorities. The intention of the Phakisa is to achieve win-win situations through the development of a programme of action to mitigate constraints such as infrastructure as well as research and development, and to channel the output of this stakeholder process as the basis to review the Mining Strategy.

The Mining Phakisa allows for a focussed approach collectively of central government, the various government departments, the mining industry, organised labour, research organisations and universities to develop an action plan that will deliver short-term, quick-win interventions that will facilitate the revitalisation of the South African Mining Industry.

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