

Zero water usage mines - more than (just) an aspiration

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The mining sector remains a key economic contributor to the South African economy, where gross domestic product (GDP) from mining increased to [R231 638,37 million in Q2 2018](#). That said, it is also one of the toughest industrialised working environments.

Driven by a constant need to maximise on yield for profitability, the sector faces several challenges, and often simultaneously. Not least of all is the constant need of having to balance costs versus return-on-investment (ROI) in the wake of fluxes in the global economy that directly impact investment, cash flows and planning, and trade or export potential of mineral resources. With this, and as the effects of climate change and extreme weather changes that affect rainfall patterns become more apparent, water management is emerging as the pre-eminent sustainability issue within the global energy and mining resource industries.

Water has always been a fundamentally important resource across all mining and quarrying developments and operations. However, as water scarcity becomes a reality, mining companies are faced with numerous civil and environmental pressures and need to proactively review the impact that their upstream and downstream operations are having on the availability and quality of this non-renewable resource. This includes having a deeper understanding of where the mine gets its water from, how it disposes or recycles it, what the water is being used for, potential losses or gains and, the related risks and opportunities – from both a corporate and at an individual operation site level. And, start to implement innovative solutions that will reduce the mine's reliance on and usage of water.

One operational area that stands to benefit significantly from innovations that can assist with dewatering is mineral processing. For instance, there are many cases – and across Africa – where a mineral processing plant has been developed onsite, or nearby, but there aren't smelters for the beneficiation of the product afterwards. This means that mine companies are paying to transport a product to the beneficiation plant, but because it still contains so much water the company loses out on the cost of the water weight versus tonnage of product transported.

Currently, few traditional centrifugal pumps on the market are able to transfer slurry at the high specific gravities required to save water, those that can will certainly experience increased wear rates. However, adopting peristaltic pump technology will improve the dewatering of the product and water conservation, and in the process contribute to higher production capacity and a reduction in maintenance and operating costs. Such thickener transfer pump solutions are designed to pump slurry at a higher specific gravity at a steady flow rate, which will significantly reduce the amount of water to product ratio thereby increasing the per tonnage of product being transported.

Local mining companies are undoubtedly under increasing pressure; to balance costs increase productivity and reduce water usage, whilst still ensuring safety and meeting all stakeholder expectations. However, navigating the technical obstacles of pumping solutions for specific mining applications can be complex – and these companies simply cannot afford the potential high cost of losses – in operations, operational efficiencies and the costs of equipment churn - that can be caused by having an inferior solution. Installing original equipment manufacturer (OEM) solutions therefore gives the added quality and performance assurance of a well-functioning and long-lasting pumping solution that could lead to substantial savings in costs and improved application in performance, not only in the short-term, but the longer-term too.