

Tuberculosis and Mining

The Need to Prioritize R&D

The Economic Impact of TB on the Mining Industry and Southern African Economies

Mineral mining is a major contributor to economic growth in Southern Africa, playing a vital role in job creation in the region and comprising up to 25 percent of GDP in some countries.¹ In a May, 2013 briefing on the economy, President Jacob Zuma stated that, “Our country needs a stable and growing mining industry. Mining has been a key feature of this country’s economy for more than 130 years.” Unfortunately, the tuberculosis (TB) epidemic in the mines of Southern Africa is wreaking havoc on the health of mine workers and reducing productivity, threatening the long-term viability of the region’s mining industry and hampering its ability to remain competitive in the global market.

TB case notification among South African miners is more than 10-fold higher than the general population. A significant number of miners are migrants, traveling between their rural homes in neighboring countries and densely populated mining communities in South Africa, enabling the spread of this contagion far and wide. The extraordinary TB burden among miners in Southern Africa is fueling a broader epidemic of more than 760,000 cases per year throughout the Southern African region.² This complex interconnection between health, migration and worker rights is having an enormous impact on the region’s socio-economic condition. Annual direct TB patient care (treatment and hospitalization) costs the South African government \$141 million and costs the mining industry \$253 million.³ The South African mining industry loses \$568 million per year in productivity and training due to TB.⁴ Miners lose \$320 million per year in lost wages due to TB morbidity.⁵

The severity of the TB epidemic and the annual losses of hundreds of millions of dollars highlight the unsustainable future of the mining industry in Southern Africa as well as the dire economic prospects facing the individual mine workers. With mining serving as a regional economic pillar the business case for action is clear.

Benefits to R&D Investment

- Partnerships expand South African research expertise
- TB studies increase TB diagnosis and treatment, improve control
- Community engagement raises TB awareness



Multi-sectoral Commitment to Address TB in the Mines

Acknowledging the gravity of the TB crisis in the mines, in 2012 the heads of state of the Southern African Development Community (SADC) member countries pledged to confront the epidemic by signing on to the Declaration on TB in the Mining Sector, committing all appropriate legislative and regulatory authority and public health resources to protect miners in Southern Africa from the threat of TB and other occupational diseases. Initiating more appropriate disease surveillance, treatment, and care programs is an essential first step to reducing the harm done by TB to the health and economic wellbeing of the Southern African region. The SADC Declaration should be applauded for bringing together governments, the mining industry, civil society groups and multilateral institutions to address this regional emergency. However, this effort will not be sufficient in reducing the transmission of TB unless we support the development of better vaccines, drugs and diagnostics for TB.

Current Tools are Inadequate for Controlling the TB Epidemic: Research & Development Urgently Needed in a Comprehensive Approach to Address TB in the Mines

The medical tools to combat TB are decades old and have not been effective in curbing the TB epidemic. The SADC heads of state have been visionary in highlighting their commitment to moving towards zero TB infections, zero TB deaths and zero TB stigma. However, this vision cannot be realized without the development of better technologies to address the epidemic. The current state of the TB epidemic has become more complex with the spread of drug resistant TB and TB-HIV co-infection, making the public-health risk of unchecked disease an economic and environmental concern as well as a social and moral one. In Lesotho, about 30% of multidrug-resistant (MDR) and extremely drug-resistant (XDR) TB cases are in miners or ex-miners from South Africa. However, these figures likely understate the true burden of MDR-TB as less than one in four cases were detected in 2012 (WHO TB Surveillance Report, 2012). Most worryingly, MDR-TB has gone from being the result of poor adherence to frontline drugs to resulting from primary transmission in a significant proportion of cases in high burden settings. Current treatment options are woefully inadequate in dealing with drug resistant TB – treatment is very costly and takes two years to

complete with numerous unpleasant side effects (such as deafness in patients). Current TB R&D efforts include development of point of care diagnostics, regimens that are shorter and effective against resistant forms of the disease, and new TB vaccines that will protect against all forms of TB and be safe for use in people infected with HIV.

Increased Investments in TB R&D: A Comprehensive Approach to Combat TB & Increase Economic Viability of the Mining Sector in Southern African

Increased prioritization and investments in TB R&D today can accelerate the development and introduction of new vaccines, drugs, and diagnostics, maximizing their public health impact and the benefits that such new technologies can accrue to the socio-economic development of the southern Africa region, including ensuring the viability of the mining industry. In addition, there are numerous ancillary but substantial benefits to investing in TB R&D:

- New vaccines, drugs and diagnostics are being tested in clinical trials in endemic countries in collaboration with local partners. These partnerships build local research capacity by training staff in clinical research and establishing infrastructure needed for international regulatory standard clinical trials. Scientists and research institutions in Southern Africa are playing a lead role in advancing the knowledge and innovation in TB R&D.
- TB epidemiology studies, conducted in preparation for clinical trials, increase the diagnosis of TB in communities and gather much needed data on the current state of the epidemic, which in turn helps with the treatment and control of TB and health sector strengthening.
- Extensive community engagement in the communities where clinical trials take place through community health education outreach and counseling services lead to increased community awareness and education about TB and TB-HIV in families, schools, and health clinics.

SADC governments must prioritize TB R&D in the Declaration on TB in the Mining Sector. The vision of zero infections and zero deaths can only be realized through a comprehensive approach to combat TB that includes the deployment of current TB treatment and control efforts as well as prioritization of R&D to develop improved vaccines, drugs and diagnostics. Governments in the region must create an enabling and supportive environment through prioritization of TB R&D in national and regional policies as well as through support for R&D efforts that are currently underway in the region.

SADC governments, the mining industry, and civil society groups all have an important role to play in advancing the TB R&D agenda and contributing to a long term solution to TB that can help prevent sickness, save lives, and sustain the economic viability of the Southern African mining sector. Core competencies of the mining industry and the research sector must be leveraged through partnerships to advance the testing of new technologies to combat TB. Mining companies can

also collaborate with multilateral institutions and civil society to advocate for TB R&D as a policy priority among national governments in SADC countries.

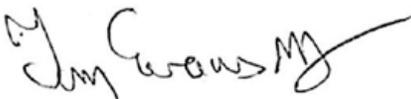
Ultimately, the true benefit of such commitments is the prospect of contributing to a healthier future for all. For Southern Africa's mining sector, a healthy, productive workforce free of TB could mean the difference between ensuring a competitive industry for years to come or a scenario where cost-prohibitive mining operations lead to the loss of billions in GDP and thousands of jobs. Cross-sector collaboration and public-private partnerships working towards the development of new vaccines, drugs and diagnostics for TB would save millions of lives, improve perceptions regarding the mining industry's role in the global community, and facilitate economic growth and prosperity for the region.



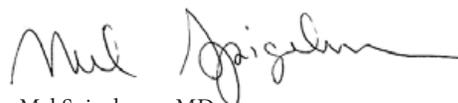
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¹ Chamber of Mines of South Africa, Annual Report 2013; International Council on Mining & Metals. InBrief: The role of mining in national economies. October, 2012.

² Dharmadhikari A, et. al. Aspiring to Zero Tuberculosis Deaths Among Southern Africa's Miners: Is There a Way Forward? International Journal of Health Services 43(4):651-664, 2013.

³ Osewe, P. Costing of Potential Policy Choices to Eliminate TB from the Mines in the SADC Region: A Case Study of South Africa.

Presented by the World Bank at the SADC Consultation Meeting on TB in the Mining Industry, Johannesburg, South Africa, March 7, 2012.
<http://siteresources.worldbank.org/INTSOUTHAFRICA/Resources/world-bank-costing-of-policy-options-presentation-for-sadc-consu.pdf>

⁴ *Ibid* Osewe, P.

⁵ *Ibid* Osewe, P.