



Mining and Water: Challenges, Threats and Opportunities

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Overview of Presentation

- **Mining: Historical legacies**
- **Mining and current RSA's economy**
- **Mining and Water: Business Imperatives**
- **Water Uses in Mining**
- **Mining and Water: Regulatory Challenges**
- **Threats and Opportunities**



Mining : Historical Legacy

- **Mining played a critical and contradictory role in SA's economic development**
- **Positive legacies**
 - **Discovery of minerals lead to creation of new towns (e.g Jhb from a mining camp into a major African city)**
 - **Demands for minerals lead to building of RSA's economic infrastructure, manufacturing/engineering capacity and financial services (e.g roads, rail network, water services)**
 - **Demand for skills lead to the establishment of learning and research institutions – Wits Univ, SAIMR**



Mining : Historical Legacy

- **Negative legacies:**
 - **Labour relations, social and occupational health issues: migrant labour system**
 - **Environmental footprint: Land and soil sterilisation, biodiversity degradation and water and air quality degradation**
 - **Regulatory inadequacies: lack of adequate tools for decision making – creating a “opportunities”**
 - **Corporate greed: “Taking the gap”**



Mining and Current RSA's Economy

- **Mining remains a key pillar of RSA's economy, in 2007:**
 - **Accounted for 6.8% of GDP directly, 17.5% with indirect multiplier effects**
 - **Accounted for R2 trillion or 35% of the value of JSE contributing to JSE being one of the top 20 stock exchanges worldwide**
 - **Directly employed 495 474 workers excluding associated contractors (est 165 000)**
 - **Paid R50.1 billion in wages, which account for 5.9% of the total compensation paid to all employed people in RSA in 2007**

Mining and Water: Business Imperatives



- Water is increasingly being recognised as a serious business risk (scarcity/excess/pollution)
- It is an essential element of mining
- It's a resource that cannot be replaced –and should be as big an issue as energy and climate change;
- It is a limiting factor in the sustainability of mining as a business

Water Use in Mining



- Dewatering (safety and access to ore-body)
- Storage facilities and pipelines
- Ore processing and domestic use
- Disposal : Waste Management (Tailings and WWTP)
- River diversion/Altering the river banks



Factors Determining the Impacts of Mining on Water Resources

- **Maturity of the mining operation**
- **Site characteristics and commodity being mined**
- **Method of mining**
- **Size of the operation**
- **Business philosophy and management practices**

Mining and Water: Regulatory Challenges

- **“one size fit all approach” – failure to adopt flexible and innovative approaches**
- **Inability to implement legislation and policies**
 - Authorisations
 - Enforcement
 - Compliance Monitoring
- **Overlapping requirements: Poor cooperative governance (e.g DWAF/DME/DEAT)**

Mining and Water: Threats and Opportunities

- **Threats**
 - Decant from abandoned mine sites: no one to prosecute
 - Seepage from old infrastructure – “the unseen pollution”
 - Inter-mine flow
 - Mining is price taker and site specific
 - Regulatory capacity
- **Opportunities**
 - Regional water treatment approaches
 - Potential for Public-Private Partnerships
 - Relative availability of treatment technologies
 - Potential for win-win outcomes
 - Prevention of future impacts and liabilities

Conclusions

- **Water is an essential component of mining, and underpins mining's contribution to the economy**
- **Ensure that every mining operation has a water use authorisation**
- **Ensure that DWAF has the regulatory capacity and the political will to enforce the law**
- **Develop a strategy to deal with the legacy of abandoned mine sites**
- **Fine tune cooperative governance agreements**

Final Thought

