PROGRAMME

MINING AND INDUSTRIAL WATER REUSE OPPORTUNITIES IN SOUTH AFRICA

IWA WATER RECLAMATION & REUSE CONFERENCE WORKSHOP 9: 19 MARCH 2025
VENUE: MEETING ROOM 1.6, CAPE TOWN INTERNATIONAL CONVENTION CENTRE, SOUTH AFRICA | TIME: 10:00 – 11:00 H

WATER RESEARCH COMMISSION

RATIONALE

South Africa faces significant challenges regarding water scarcity and pollution, particularly in mining and industrial sectors. However, there are also considerable opportunities for water reuse and sustainable water management practices. In this regard, addressing water reuse opportunities in South Africa's mining and industrial sectors requires a multifaceted approach involving technology innovation, policy support, stakeholder engagement, and collaboration across sectors. By embracing sustainable water management practices within the mining and industrial sectors, South Africa can mitigate water scarcity risks, protect ecosystems, and promote long-term economic growth.

Managing mining influenced water (MIW) in South Africa effectively is a complex and multifaceted challenge that requires a holistic approach integrating regulatory compliance, technological innovation, stakeholder engagement and long-term planning to protect water resources and mitigate environmental risks associated with mining activities. Similarly, industrial water management in South Africa is crucial for ensuring sustainable water use, reducing pollution, and minimizing environmental impacts. This requires a coordinated effort involving regulatory enforcement, technological innovation, stakeholder collaboration, and sustainable practices to protect water resources, support economic growth, and safeguard the environment.

As a way of unlocking water reuse opportunities in South Africa's mining and industrial sectors a number of projects have been conducted and progressed to different technical readiness levels (TRL). The most successful project implemented at full scale in South Africa is the Emalahleni Water Reclamation Plant currently treating 30 Ml/d of MIW from coal mines to potable quality covering almost 20% of the total water demand.

However, with vast volumes of MIW predicted to be produced by both current mining activities and ownerless and derelict mines in South Africa, there is significant need to explore alternative uses of MIW in support of the just transition, with irrigation and industrial use providing more appropriate use opportunities. Furthermore, emerging innovations and tools such cloSURE™ (suitable for small point sources in remote locations that lack services and infrastructure, such as legacy mines and mines after closure) and industrial water quality guidelines (a decision support system able to provide both site-specific and generic risk based water quality guidelines for industrial water use) are also key in supporting specific reuse opportunities within the mining and industrial sectors.

The proposed workshop therefore will showcase and share the knowledge developed and demonstrated to date in support of mining and industrial water reuse opportunities in South Africa.

PROGRAMME

TIME	ACTIVITY	RESPONSIBLE PARTY
10:00 - 10:05	WELCOME AND INTRODUCTION	JOHN NGONI ZVIMBA, WRC
10:05 - 10:15	RISK-BASED WATER QUALITY GUIDELINES FOR INDUSTRIAL WATER REUSE	PRIYA MOODLEY, WSP
10:15 - 10:25	INTEGRATED CLOSURE™ TECHNOLOGY FOR TREATMENT OF MINING-INFLUENCED WATER	KERRI DU PREEZ, MINTEK
10:25 - 10:35	IRRIGATION USING MINING-INFLUENCED WATER	LESEGO MADISENG, UNIVERSITY OF PRETORIA
10:35 - 10:45	A NEW WATER ECONOMY FOR MPUMALANGA PROVINCE IN SUPPORT OF THE JUST TRANSITION	DINEO MAKATE, PRIME AFRICA
10:45 - 10:55	QUESTIONS AND ANSWERS	ALL DELEGATES
10:55 - 11:00	CLOSING REMARKS	JOHN NGONI ZVIMBA – WRC

WORKSHOP CHAIR:
JOHN NGONI ZVIMBA, WRC

John Ngoni Zvimba is currently with the Water Research Commission (South African) as Research Manager leading RDI on municipal, industrial and mining influenced water management and water circular economy. John has also been with the CSIR as Senior Researcher and Mintek as Technical Specialist, and has over 20 years research experience authoring/co-authoring over 50 peer reviewed publications. John is a former Adjunct Professor, a current member of the African Circular Economy Network, IWA, and has received the UCT Research Associateship (2003 – 2005), Sasol Post-Graduate Gold Medal (2005) and the Claude Leon Post-Doctoral Fellowship (2006).

PRIYA MOODLEY,
WSP AFRICA

Priya is a water resource scientist, with a diverse technical portfolio and 25 years' experience in integrated water resource management, water quality, catchment management and water resource protection - working on a broad spectrum of water related projects – site and catchment related technical studies, basin studies, research and knowledge-based products and advisory services both in the public and private sector. She has a sound knowledge of integrated water management and application of technical solutions and risk assessments with both a water resource and site-based focus. She is a fellow of the Water Institute of South Africa.

LESEGO MADISENG,
UNIVERSITY OF PRETORIA

Lesego Madiseng is an Environmental and Agricultural Scientist with over 5 years of experience in mine water irrigation research. She holds a BSc (Hons) in Environmental Soil Science and an MSc Agric in Agronomy. Currently completing her PhD in Agronomy at the University of Pretoria, her research focuses on mine water irrigation. Ms. Madiseng has worked as an environmental consultant in the mining industry and has facilitated various mine water irrigation and water quality projects, receiving mentorship from experts in the field.

DINEO MAKATE, PRIME AFRICA

Dineo Makate is a Water Scientist at Prime Africa with 15 years of professional experience in water services and water resource management. Dineo started her career as a Research Chemist where she worked at a plant for acid mine water treatment. Her work at Prime Africa includes assisting authorities across the water value chain with technical and strategic interventions. Over the years, Dineo has worked on multiple water resource classifications, compliance with South African environmental legislation, and water tariff determination for Catchment Management Agencies and municipalities. Her current portfolio includes working on large projects for private and public-sector clients in South Africa.

KERRI DU PREEZ, MINETEK

Kerri du Preez holds a Master's in Environmental Engineering and is currently working towards a PhD in Bioprocess Engineering. She has nearly 15 years' experience in anaerobic bioprocesses for treatment of wastewaters and contaminated water streams. She is currently the Head of Bioprocessing in Mintek's Biometallurgy Division, and is responsible for bioleaching processes for extraction of gold and base metals, as well as facilitating Mintek's Mine Water Programme and driving research and development of bioprocesses for treatment of mining-influenced waters.