



MANDELA MINING PRECINCT
MINDS FOR MINES



ADVANCING THE SOUTH AFRICAN MINING INDUSTRY

ABOUT US

The Mandela Mining Precinct (MMP) is a Public-Private Partnership (PPP) between the Department of Science and Innovation and the Minerals Council South Africa, and managed by the Council for Science and Industrial Research (CSIR) as the lead implementing entity with the Minerals Council.

It was established to cultivate and grow mining research, development and innovation (RD&I) to ensure the sustainability of the industry through the implementation of the South African Mining, Extraction, Research, Development and Innovation (SAMERDI) strategy. The MMP's vision, mission and strategic objectives articulate how the organisation implements the SAMERDI strategy.

VISION

Shared prosperity through innovation.

MISSION

To maximise the sustainable returns of South Africa's mineral wealth through collaborative research, development, innovation and implementation of mining technologies in a socially, environmentally and financially sustainable manner that is rooted in the local community and national economy.

STRATEGIC OBJECTIVES

- To facilitate the rebuilding and repositioning of South Africa in mineral extraction and supply chain RD&I by building human resource skills, capabilities, and capacities in a manner that takes Environmental, Social and Governance (ESG) factors into account;
- To ensure that the mineral extraction and supply chain RD&I networks between industry, technology developers, academia and science councils are sustainable and vibrant;
- To improve the competitiveness of the mining sector and create new opportunities for South African-based companies to operate along the entire value chain, exploiting the innovations stemming from the increased focus on RD&I; and
- To strive towards developing a RD&I focused organisation that is built on the premise of a PPP that will focus on advancing the mining industry by optimising mining extraction activities.

HOW WE ACHIEVE OUR MANDATE

We achieve our mandate through the five SAMERDI research programmes namely:

Successful Application of Technologies Centred Around People (SATCAP)

As we move towards a more technological approach, the human element can never be left out. This programme aims to understand how people and technology relate to one another, through a holistic approach which considers the impact, effects and challenges that come with technology in the minerals sector.

Mechanised Mining Systems (MMS)

With the future and rapid development in mind, this programme provides sustainable mechanised drills, blasting and mechanical rock-breaking solutions, in order to achieve zero harm whilst maintaining and exceeding current and desired production rates at a minimised cost.

Longevity of Current Mines (LoCM)

Just as its name suggests this programme focuses on well-established mines. It enhances mining practices and procedures such as ore reserve extraction, helping to highlight the monitoring of drilling equipment and ultimately ensuring that older mines sustain employment levels, ensuring their longevity.

Test mine

This is a facility where miners and engineers can demonstrate, test and develop mining technologies and/or equipment, conduct research and train aspiring engineers/miners and industry professionals in a safe, industrial environment which closely mimics the conditions of an actual mine.

Advanced Orebody Knowledge (AOK)

AOK creates an environment where technology can be used to identify geology before mining takes place. Having vital information upfront improves geological confidence, reduces associated risks and adequately informs day-to-day tactical and strategic decision-making.

Real Time Information Management Systems (RTIMS)

With the assistance of cyber-physical systems and 4IR this programme develops and implements 'smart' ways to improve data sourcing, transmission, storage, dissemination and information management tools, practices and procedures for the mining sector. Essentially it is the communication between the people underground and those on the surface in real-time.

MMP
Fit-for-purpose
mining
innovation

WHAT HAS BEEN ACHIEVED



2017
MMP
Governance
Structures
established

2016
Mandela Mining
Precinct (MMP)
formulated as a Public
Private Partnership
(PPP)

2015
SAMERDI
strategy
finalised

**September
2018**
MMP officially
launched

October 2018
MMP operational



February 2021
Early submission
of business plan
to funders

September 2020
MMP Governance
structure improved
and new leadership
appointed

May–August 2020
MMP Policies and
procedures updated
and improved

September 2021
SAMERDI Research
Centres (SRC)
established for
RTIMS, SATCAP,
MMS and LOCM

October 2021
MOU signed
with Unions

**January
2022**
Key
Account
Framework
established



August 2022
SRC established
for AOK

July 2022
R&D Collaborators
Forum established

March 2022
MOU signed RBPlatt for Test
Mine and Isidingo Challenge
winners announced

**September/
October 2022**
Reviewed MMP
strategy and
launched at Wits
SRCs

November 2022
Official launch of
the SRCs

February 2023
Mining 4IR study with PwC
launched and Rock Hazard
ID Challenge winners
announced



KEY PROJECT OUTCOMES

The MMP is mandated to develop technological solutions that increase safety and productivity, reduce costs, and ultimately extend the life of mines for the betterment of local communities associated with mining and the country.

These are some of the key research programme outcomes from the various research programmes. Visit our website or contact us for more information on these and other

Isidingo drill

A hand-held, lightweight, hydro powered drill which emits less noise and is operated from the back, providing for better visibility and safety for the operator.



Remote scraper cleaning

A control unit connected to a scraper winch, which shuts down automatically during an emergency, miners are detected via their cap lamps when in close proximity of the winch or the scraper pathway therefore preventing injuries.

Remote control charging unit

A flexible, remote-controlled explosive charging unit with multiple charging angles. It ensures that there are no people in close proximity making it safer,



Ventilation on demand (VOD)

A system which is digitally controlled by a switch in the control room, where air quality is continually monitored and adjusted according to specific ventilation requirements, in real-time.

Integrated thermal acoustic device (ITAD)

Is a device that can assist miners in detecting loose rock/s in their surroundings by using a non-contact thermal camera to analyse and display suspected loose rock/s in real-time.



Open data analytics platform (ODAP)

Is a digital platform which improves the collaboration and integration of systems through open and standardised communication. ODAP utilises communication infrastructure and a diverse technology stack to drive smart mining through standardised data communication and real-time analytics for enhanced decision support.



Know more portal

Is an online knowledge transfer tool, created as part of the MMP knowledge pool and is used to share research, information and artefacts. The main objective of the portal is to serve as the main MMP technical landing page for users to find information that will help them navigate to the appropriate platform to find out more.

People-centred solutions

MMP through our SATCAP Programme continues to strive for mining modernisation that is people-centred by focussing on improving health, safety and productivity within the industry, the betterment of employees and local communities, and supporting the ESG agenda.



Visit our website to see more of our research outcomes.

COLLABORATE WITH US

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