Mining Future Skills

MINING QUALIFICATIONS AUTHORITY

2025-2026 REVISED MQA Research Agenda

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1. INTRODUCTION

The Mining Qualifications Authority (MQA) was first established under the Mine Health and Safety Act No.29 of 1996 and later registered as a Sector Education and Training Authority under the Skills Development Act No.97 of 1998. To this end, the MQA is Sector Education and Training Authority (SETA) responsible for the administration of skills development programmes for the Mining and Minerals Sector in South Africa.

2. STRATEGIC OBJECTIVES

2.1. Promote efficient and effective governance and administration.
2.2. Improve skills development planning and decision –making through research.
2.3. Promote work-based skills development to support transformation in the Mining and Minerals Sector (MMS).
2.4. Facilitate access to occupationally directed learning programmes for the unemployed.
2.5. Support training initiatives in mining communities.
2.6. Ensure the delivery of quality learning programmes in the mining and minerals sector.

3. LEGISLATION GOVERNING THE MQA

The MQA is a statutory entity that has the primary mandate of coordinating skills development processes and programmes in the MMS. The primary objective of the MQA is to support the MMS to continuously develop sufficient and competent workforce in occupations that are related to the MMS.

The MQA operates under a legislative framework that includes three primary legislative instruments, as shown in Table 1:

3.1. Mine Health and Safety Act of 1996
3.2. Skills Development Act of 1998; and
3.3. Mineral and Petroleum Resources Development Act of 2002.

Table 1: The legislative framework within which the MQA operates

The Mine Health and Safety Act, 1996(Act 29 of 1996) Section 41(3)	The Skills Development Amendment Act, 2003(Act 31 of 2003)	Mineral and Petroleum Resources Development Act of 28 of 2002.
Established the MQA in June 1996 to advise the minister of Mineral and Energy (now the Minister of Mineral Resources) on: **a) The creation of a framework for qualifications and learning achievements in the mining industry to improve health and safety standards through proper training and education;** **b) Standards and competency setting, assessment, examinations, quality assurance and accreditation in the mining industry and** **c) Linking and qualifying framework for the manning industry to the National Qualification Framework referred to in the National Qualifications Framework Act, 67 of 2008**	**Section 4A of schedule 2 "re-established" the MQA as follows:** **Despite anything to the contrary in either this Act or the Mine Healthy and Safety Act, 1996 (Act 29 of 1996 and with effect from 20 March 2002, the Mining Qualifications Authority, established in terms of section 9(1) of this Act as SETA 16**	**Establishes that the Minerals and Mining Development Board must in terms of Section 58(1) of this Act "in consultation with the MQA, ensure the promotion of human resources development in the minerals and mining industry"**

The Department of Higher Education and Training (DHET) promulgated the National Skills Development Plan (NSDP) which took effect on 1 April 2020. The plan identified priorities across sectors of the economy with various outcomes to address the skills shortages and gaps. The MQA is guided by the policies of the DHET. Therefore, any policy changes will be incorporated into the operations, programmes, and activities of the MQA as and when the need arises.

4. IMPORTANCE OF RESEARCH

Scientific research is essential for enhancing our understanding of the nature, extent, and state of skill demand and supply in the MMS. Research is necessary to gather labour market intelligence regarding skills requirements and the factors that influence skills development. This information is crucial for improving skills planning and implementing effective skills development interventions. Overall, research primarily focuses on enhancing the quality of life by fostering skill development among the workforce, particularly in the MMS.

Research is a systematic inquiry that encompasses the processes of development, experimentation, and evaluation with the purpose of generating or adding to universally applicable knowledge. The objective is to provide novel perspectives and reach definitive judgements on various subjects pertaining to the enhancement of skills, which are essential from both a legislative and functional standpoint. This involves a comprehensive analysis of a specific topic, with the objective of discovering new perspectives or achieving a more profound understanding.

Comprehensive research is essential in the Post-School Education and Training (PSET) system, as it contributes significantly to realising the goals outlined in the White Paper for PSET. It allows professionals to evaluate and contrast various theories and methods for delivering PSET, as well as advancing cutting-edge information, services, and applications for the system. Therefore, research can offer valuable perspectives on the PSET system and its target groups, as well as the effectiveness of policies and their execution. In essence, research serves a pivotal function in furnishing the MQA with substantiating insights that guide decision-making, policy review, and the enhancement of systems, practices, and services.

5. THE MQA's RESEARCH PRIORITIES

The MQA research agenda sets to outline research projects to be prioritised for the period April 2025 to March 2026. It is informed by the strategic objective 2 outlined in the MQA strategic plan and annual performance plan. The research agenda aims to lead and collaborate on research projects in skills development priorities within the MMS for the purpose of making informed decisions and creating a credible institutional mechanism for skills development planning and research in the sector.

The purpose of the NSDP is to ensure that South Africa has adequate, appropriate, and high-quality skills that contribute towards economic growth, employment creation and social development through attainment of eight outcomes. The priorities that stand out in the NSDP for the MMS are as follows:

5.1. Identify and increase production of occupations in high demand
5.2. Linking education and workplace
5.3. Improving the quality of education, skills development, and innovation
5.4. Support the growth of the public college system
5.5. Skills development for entrepreneurship
5.6. Support worker-initiated training
5.7. Support career development service

Each focal area possesses the capacity to generate diverse research topics that address sector-specific challenges. The MQA has identified specific areas of concentration and topics that hold great importance for the MMS, aligning with these areas. In order to achieve this, the MQA forms partnerships with public institutions, such as universities and research institutions, to create a structured system for skill development and planning. To ensure the continual objective decision making and skills development planning; the research projects below are proposed for the 2025/26 financial year.

5.1. SECTOR SKILLS PLAN 2025-2026 (ANNUAL UPDATE) - LEGISLATIVE IMPERATIVE

Duration: 01 February 2025 to 31 August 2025

The focus of the SSP is to identify skills demand and supply issues to inform interventions for the next years

Key focus areas include the:

5.1.1 The MQA's sector profile including:

- 5.1.1.1 Identifying the key role players
- 5.1.1.2 Economic Analysis of the MMS
- 5.1.1.3 Employer and Labour Market analysis

5.1.2 Key change drivers of the sector and alignment with national strategies and plans

5.1.3 Occupational shortages and skills gaps within the MMS

5.1.4 Current and future sector partnerships

5.1.5 The MQA's approach to monitoring and evaluation

5.1.6 Sector priorities in skills development

5.2. A FIVE YEAR WSP-ATR TRENDS ANALYSIS (2020-2025) - FUNCTIONAL IMPERATIVE

Duration: 01 August 2025 to 31 March 2026

The broad theme for this study is the trends and patterns of WSP-ATR submission over the past five years.

Key focus areas include providing a trends analysis of:

5.2.1 MMS' organisations in terms of geographic location, company size and sub-sector.

5.2.2 Workforce of the MMS in terms of population groups, gender, employees living with a disability, South African vs. Non- South African citizens and educational levels.

5.2.3 Hard-to-fill vacancies in terms of province, sub-sector as well as reasons why employers identify them as hard-to-fill.

5.2.4 Nature skills development in the MMS as reflected in the ATRs.

5.2.5 Determination of the skills development priorities of organisations in the MMS as

reflected in the WSPs.

5.2.6 Comparative analysis with data submitted in previous years.

5.2.7 Comparing of the data with other information contained in the MQA's database (where available).

5.3. DEVELOPING FUTURE-READY SKILLS FOR THE CRITICAL MINERALS VALUE CHAIN IN SOUTH AFRICA- A FUNCTIONAL IMPERATIVE

Duration: 31 August 2025 to 31 August 2026

The purpose of this research is to investigate the current and future skills requirements across the critical minerals value chain in South Africa and to identify gaps, opportunities, and strategic interventions needed to develop a future-ready workforce. The study aims to support the country's transition to a green and digital economy by aligning skills development with the evolving demands of critical mineral exploration, processing, manufacturing, and related industries such as renewable energy, battery technology, and green hydrogen.

This research will assess the adequacy of existing education and training eco systems including TVET & CET colleges, universities, and workplace learning in meeting sector needs. It will also explore policy alignment, institutional readiness, and stakeholder partnerships necessary to build a resilient, inclusive, and competitive skills ecosystem that supports economic transformation and sustainable industrialisation.

Key focus areas include:

5.3.1 Geological Distribution and Resource Base: Start by laying the foundation—what critical minerals South Africa possesses, and where they are found.

5.3.1.1 Geological distribution of key minerals:

5.3.1.1.1 Coal, PGMs (Platinum Group Metals), Rare Earth Elements, Lithium, Cobalt, Manganese.

5.3.1.1.2 Regional mapping and potential reserves.

5.3.2 Exploration and Mining Activities: Keeping your ear on the ground to understand what is going (ongoing or emerging projects to exploit these resources).

5.3.2.1 Emerging exploration and mining projects in South Africa:

5.3.2.1.1 Overview of active and planned projects.

5.3.2.1.2 Investment trends and technology adoption.

5.3.3 Mapping the Value Chain (Cradle to Grave): Move from raw materials to final product use and recycling (understanding the economic and industrial process to understand and map skills requirements i.e. shortages and gaps).

5.3.3.1 Value chain mapping:

5.3.3.1.1 Upstream (exploration, extraction).

5.3.3.1.2 Midstream (processing, refining).

5.3.3.1.3 Downstream (manufacturing, end-use in technology, recycling).

5.3.3.1.4 Linkages with logistics, infrastructure, and markets.

5.3.4 Strategic Importance of Critical Minerals: Once the resources and value chains are established, analyse why they matter economically and geopolitically.

5.3.4.1 Role in the Green and Digital Economy:

5.3.4.1.1 Renewable energy, batteries, EVs, green hydrogen, and advanced manufacturing.

5.3.4.1.2 National and global demand trends.

5.3.5 Skills Shortages and Gap Analysis: Address the human capital side i.e. focussing on the adequacy of a skilled workforce to drive this industry forward

5.3.5.1 Current workforce skills in mining.

5.3.5.2 Anticipated skills needs across the value chain.

5.3.5.3 Critical success factors:

5.3.5.1.1 Role of TVET colleges, universities, industry partnerships.

5.3.5.1.2 Training pipelines and innovation ecosystems.

5.3.6 Policy, Legislation, and Strategic Alignment: Focus on the regulatory and planning environment that governs critical minerals.

5.3.6.1 Critical Minerals Strategy:

5.3.6.1.1 Strengths, limitations, and opportunities.

5.3.6.2 Role of the MQA (Mining Qualifications Authority).

5.3.6.3 Alignment with national frameworks:

5.3.6.3.1 National Development Plan (NDP).

5.3.6.3.2 DMRE policies.

5.3.6.3.3 National Skills Development Plan (NSDP).

5.3.6.3.4 Midterm development priorities.

5.3.6.3.5 Green Hydrogen and Just Energy Transition strategies.

5.4. INVESTIGATING PROVINCIAL MMS RELATED SKILLS DEVELOPMENT NEEDS: A CASE STUDY OF THE LIMPOPO PROVINCE - FUNCTIONAL IMPERATIVE

Duration: 31 March 2025 to 31 March 2026

The study aims to identify and analyse the specific MMS-related skills development needs in the Limpopo province, considering its unique economic landscape, mineral resource endowments, and sectoral challenges.

Key focus areas:

5.4.1 Analysing the effectiveness of current legislation, policies, and strategies driving skills development in the province.

5.4.1.1 Assessing the alignment of provincial frameworks with national strategies (e.g. DDMs).

5.4.2 Analysing the population demographics of the province (e.g., age distribution, gender, and racial representation, educational attainment levels and skillsets of working-age population).

5.4.3 Establishing a detailed profile of the MMS in the province, including:

5.4.3.1 Main mining commodities extracted and processed.

5.4.3.2 Size and composition of the existing workforce

5.4.3.3 Types of companies operating in the sector (national, multinationals, small-scale miners).

5.4.4 Analysing the economic performance of the MMS compared to other sectors in the provincial economy.

5.4.4.1 Assessing its contribution to Gross Domestic Product (GDP), job creation, and revenue generation.

5.4.5 Identifying the existing mining-related occupational shortages and skills gaps within the province and reasons thereof.

5.4.5.1 Identify the skill mismatches between the skills required by mining companies and the skills available in the community.

5.4.6 Assessing the adequacy and effectiveness of existing skills development programs in addressing provincial needs.

5.4.6.1 Analysing the capacity offerings of technical colleges, universities, and industry-specific training providers in addressing the skills development in the province.

5.4.7 Identifying the common skills development needs of community members living near mining operations, beyond mining-specific jobs.

5.4.7.1 Analysing the demand for skills in related sectors such as agriculture, manufacturing, tourism, and service industries.

5.4.7.2 Assessing the need for entrepreneurial and business development skills for local economic empowerment.

5.4.8 Gathering insights on the community and companies' experiences in accessing skills development offerings from the MQA.

5.4.9 Exploring the potential synergies between skills development needs of the MMS for upskilling and reskilling existing workforce for diversification into other sectors.

5.4.10 Identifying potential partners and stakeholders relevant to addressing skills development needs in the province.

5.5. INVESTIGATING PROVINCIAL MMS RELATED SKILLS DEVELOPMENT NEEDS: A CASE STUDY OF THE NORTHERN CAPE PROVINCE - FUNCTIONAL IMPERATIVE

Duration: 31 March 2025 to 31 March 2026

The study aims to identify and analyse the specific MMS-related skills development needs in the Northern Cape province, considering its unique economic landscape, mineral resource endowments, and sectoral challenges.

Key focus areas:

5.5.1 Analysing the effectiveness of current legislation, policies, and strategies driving skills development in the province.

5.5.1.1 Assessing the alignment of provincial frameworks with national strategies (e.g. DDMs).

5.5.2 Analysing the population demographics of the province (e.g., age distribution, gender, and racial representation, educational attainment levels and skillsets of working-age population).

5.5.3 Establishing a detailed profile of the MMS in the province, including:

5.5.3.1 Main mining commodities extracted and processed.

5.5.3.2 Size and composition of the existing workforce

5.5.3.3 Types of companies operating in the sector (national, multinationals, small-scale miners).

5.5.4 Analysing the economic performance of the MMS compared to other sectors in the provincial economy.

5.5.4.1 Assessing its contribution to Gross Domestic Product (GDP), job creation, and revenue generation.

5.5.5 Identifying the existing mining-related occupational shortages and skills gaps within the province and reasons thereof.

5.5.5.1 Identify the skill mismatches between the skills required by mining companies and the skills available in the community.

5.5.6 Assessing the adequacy and effectiveness of existing skills development programs in addressing provincial needs.

5.5.6.1 Analysing the capacity offerings of technical colleges, universities, and industry-specific training providers in addressing the skills development in the province.

5.5.7 Identifying the common skills development needs of community members living near mining operations, beyond mining-specific jobs.

5.5.7.1 Analysing the demand for skills in related sectors such as agriculture, manufacturing, tourism, and service industries.

5.5.7.2 Assessing the need for entrepreneurial and business development skills for local economic empowerment.

5.5.8 Gathering insights on the community and companies' experiences in accessing skills development offerings from the MQA.

5.5.9 Exploring the potential synergies between skills development needs of the MMS for upskilling and reskilling existing workforce for diversification into other sectors.

5.5.10 Identifying potential partners and stakeholders relevant to addressing skills development needs in the province.

5.6. INVESTIGATING PROVINCIAL MMS RELATED SKILLS DEVELOPMENT NEEDS: A CASE STUDY OF THE FREE STATE PROVINCE - FUNCTIONAL IMPERATIVE

Duration: 31 March 2025 to 31 March 2026

The study aims to identify and analyse the specific MMS-related skills development needs in the Free State province, considering its unique economic landscape, mineral resource endowments, and sectoral challenges.

Key focus areas:

5.6.1 Analysing the effectiveness of current legislation, policies, and strategies driving skills development in the province.

5.6.1.1 Assessing the alignment of provincial frameworks with national strategies (e.g. DDMs).

5.6.2 Analysing the population demographics of the province (e.g., age distribution, gender, and racial representation, educational attainment levels and skillsets of working-age population).

5.6.3 Establishing a detailed profile of the MMS in the province, including:

5.6.3.1 Main mining commodities extracted and processed.

5.6.3.2 Size and composition of the existing workforce

5.6.3.3 Types of companies operating in the sector (national, multinationals, small-scale miners).

5.6.4 Analysing the economic performance of the MMS compared to other sectors in the provincial economy.

5.6.4.1 Assessing its contribution to Gross Domestic Product (GDP), job creation, and revenue generation.

5.6.5 Identifying the existing mining-related occupational shortages and skills gaps within the province and reasons thereof.

5.6.5.1 Identify the skill mismatches between the skills required by mining companies and the skills available in the community.

5.6.6 Assessing the adequacy and effectiveness of existing skills development programs in addressing provincial needs.

5.6.6.1 Analysing the capacity offerings of technical colleges, universities, and industry-specific training providers in addressing the skills development in the province.

5.6.7 Identifying the common skills development needs of community members living near mining operations, beyond mining-specific jobs.

5.6.7.1 Analysing the demand for skills in related sectors such as agriculture, manufacturing, tourism, and service industries.

5.6.7.2 Assessing the need for entrepreneurial and business development skills for local economic empowerment.

5.6.8 Gathering insights on the community and companies' experiences in accessing skills development offerings from the MQA.

5.6.9 Exploring the potential synergies between skills development needs of the MMS for upskilling and reskilling existing workforce for diversification into other sectors.

5.6.10 Identifying potential partners and stakeholders relevant to addressing skills development needs in the province.

5.7. UNDERSTANDING THE STATE OF CERTIFICATES OF COMPETENCY IN THE MINING AND MINERALS SECTOR

Duration: 31 March 2025 to 31 March 2026

The study aims to comprehend the state of Competency Certificates in the Mining and Minerals Sector. The study also aims to determine why CoC examination pass rates are low despite the existence of the MQA candidate programme.

Key focus areas:

5.7.1 Examining the components of CoC programs, specifically admission requirements; curriculum design and delivery; learner support, assessment, achievement, and certification

5.7.2 Establishing the extent to which these program factors impact candidate performance in CoC examinations.

5.7.3 Determining the specific factors contributing to the consistently low pass rates observed in CoC examinations. This is a critical area, as the study notes that the low pass rates raise concerns about the effectiveness of the current training and examination system

5.7.4 Assessing the current demand for CoC holders within the MMS to ascertain their relevance in the sector.

5.7.5 Evaluating existing funding channels for CoCs and identifying their strengths and weaknesses concerning program delivery.

5.7.6 Exploring the perceptions of stakeholders (including employers) regarding the challenges and opportunities associated with improving CoC examination outcomes.

5.7.7 Developing SMART recommendations designed to address the identified issues, enhance CoC pass rates, and ensure that the required standards of competency are maintained.

6. RESEARCH COLLABORATIONS: PARTNERSHIPS WITH PRIVATE AND PUBLIC INSTITUTIONS REGARDING SKILLS DEVELOPMENT IN THE MMS

One of the principles of the NSDP is to encourage greater inclusivity and collaboration amongst key stakeholders. As such, the NSDP seeks to promote collaboration through partnerships within the public sector as well as between the public and private sectors to support effective skills development. A focus on quality education and training provision and articulation between programme and qualification offerings to ensure effective learning to work pathways. A strong focus on workplace-based learning in both public and private sectors. Partnerships across the skills development system with both private and public providers; and effective and meaning stakeholder engagement to support ownership and participation among stakeholders including social partners, individuals, employers, labour, providers, prospective learners, and the public.

7. RESEARCH FUNDING AND PROCUREMENT

The MQA's procurement practice is governed by section 217 of the Constitution of RSA, Public Finance Management Act, 1999 (Act 1 of 1999) and Treasury Regulations. Therefore, procurement decisions on research provision always considers cost, equity, fairness, accountability, transparency, functionality, and quality considerations. In addition, the MQA as a SETA has put in place systems and procedures to put in effect its approved Supply Chain Management Policy as well as the Discretionary processes.

The MQA shall enter into private and public partnerships with institutions that express interest form a partnership/s to undertake research in line with the MQA mandate especially its research agenda. The MQA intends to fund research within the parameters of its own financial resources.

8. CONCLUSION

The MQA research agenda is informed by the mandate which finds expression in its five-year strategic plan and annual performance plan. Through research, labour market intelligence is gathered to continually inform and support objective decision making for skills development planning in the sector.

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