INTERGOVERNMENTAL FORUM on Mining, Minerals, Metals and Sustainable Development

WOMEN AND THE MINE OF THE FUTURE

A Gendered Analysis of Employment and Skills in the Large-Scale Mining Sector: South Africa

Mining Dialogues 360 | Tracey Cooper, Michelle Goliath, and Dave Perkins

March 2022

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EXECUTIVE SUMMARY

Research Aim

The Intergovernmental Forum for Mining, Minerals, Metals and Sustainability (IGF), in partnership with International Women in Mining (IWiM), the International Labour Organization (ILO), and the UNDP Environment and Governance Program, aims to establish a baseline to uncover the existing profile of women employed in large-scale mining (LSM) and in its supply chain as part of launching the Women and the Mine of the Future project.[1]

The resulting evidence base will be key to understanding how global trends, such as the rising demand for minerals for the low-carbon transition or the adoption of new and disruptive technologies, will impact women in the workplace. Furthermore, identifying gaps in mining data, policy, and practice will support recommendations aimed at government and mining companies that could be adopted to further advance the participation of women in mining.

Research Methodology

The research process was conducted from within a feminist philosophical, multi-paradigmatic research methodology, which included both quantitative and qualitative data collection and assessment. A range of research activities and tools, such as case studies, focus group dialogues, online surveys and existing literature, statistics, and policy document review, were employed in compiling this baseline report. An intersectional focus is also important, and "gender" is addressed as more than the sexually assigned male or female subtypes or "birth genders." In this report, as is the case in many gender reports, "women" as a subtype may apply equally to all other gender self-assignments that do not identify as male or men.

Gap Analysis

A critical area of the study was to identify data gaps in policy and in practice that manifest as issues or constraints and challenges that women still face in the mining workplace. This focus informs recommendations about how to address these constraints and ameliorate the challenges to improving the participation of women while growing and transforming the sector to become a gender-sensitive and inclusive environment.

[1] In accordance with https://procurement-notices.undp.org/

Significant Positive Findings

The study highlighted the following positive findings:

- More women and girls are entering and completing community college, technical vocational education and training (TVET) college, and university studies in technical and science, technology, engineering, and math (STEM-) based learning streams than men.
- Between 2015 and 2020, there was an increase in representation by women in the mining sector from 10% to more than 17%.
- Indicators such as the increase in remuneration and access to jobs can be ascribed to a decrease in gender discrimination, resulting in a concomitant increase of women in the labour force.
- Respondents associated the increased representation and access to opportunities in STEM-based education programmes at the tertiary level, as well as mentoring opportunities offered by women-focused institutions ancillary to mining, such as the Southern African Institute of Mining and Metallurgy (SAIMM) and Women in Mining South Africa (WiMSA), etc.
- Support institutions with a focus on women have been established.
- There has been a notable increase in awareness of the need for gender-friendly workplace amenities.
- Some observations on the outlook of mining are positive, as gains have been achieved through a positive focus on gender equality in the recent past, as demonstrated by the Minerals Council and support organisations such as WiMSA and SAIMM.
- The more granular goal "people's issues," defined in the white paper on mining but missing from the legislation, can be reached through the implementation of several action-based initiatives. They include:
    - Male inclusive diversity and inclusion programmes
    - The development of women-focused industry guidelines
    - Inclusive, gender-specific key performance indicators in senior management performance plans
    - Workplace adaptations to ensure inclusive gender needs are met
    - Assessment and review of physical work capacity requirements against varied capabilities

- Partnerships and collaborative activities that promote more gender inclusion in mining.

- While COVID-19 had various negative impacts on the mining economy, it also signalled the potential of remote work options using technology and doing things differently.
- Various reports have indicated that the mining sector currently faces recruitment and cost inflation challenges. Both government and the private sector are including and implementing more gender diversity legislation and workplace policies for recruitment. More work is required to measure the gaps, strengths and weaknesses, and impacts of praxis, with the intention to improve over time.
- There is evidence of a higher proportion of women taking up STEM and EESG-type training. More inclusive practices will result in continual improvement in the recruitment pool for women in the mining sector, while ESG with a gender focus lens will further broaden the type, number, and relevance of employment categories in the future.

Recommendations

The key recommendations are:

1. Elaborate on the National Gender Policy and strategy for the mining sector
2. Transform gender policy and strategy into implementable action
3. Resource action
4. Data collection, alignment, and reporting
5. Measure impact
6. Identify gender-specific needs in the workplace
7. Identify and address structural constraints to gender equality
8. Develop a STEM education focus for mining career development
9. Develop a mining retention policy and strategy
10. Implement a gender pay gap policy
11. Gender-responsive, inclusive workplace participation

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ACRONYMS

AMMSA	Association of Mine Managers of South Africa
AU	African Union
AWOME	Accelerating Women Owned Micro-Enterprises
CCMA	Commission for Conciliation, Mediation and Arbitration
CET	community education and training colleges
DBE	Department of Basic Education
DMRE	Department of Mineral Resources and Energy
DPSA	Department of Public Service and Administration
ECSA	Engineering Council of South Africa
EGP	Environment and Governance Program
ESG	Environment, Social and Governance
GEI	Gender Equality Index
GPI	Gender Parity Index
GRPBNEA	Gender-Responsive Planning, Budgeting, Monitoring, Evaluation and Auditing
HET	Higher Education and Training
IGF	Intergovernmental Forum for Mining, Minerals, Metals and Sustainability
ILO	International Labour Organization
IWiM	International Women in Mining
IWRMP	International Women in Resources Mentoring Programme
LSM	Large-Scale Mining
MINCOSA	Minerals Council of South Africa
MQA	Mining Qualifications Authority

NDP	National Development Plan
NGM	National Gender Machinery
NRLD	National Records Learner Database
PSET	Post-School Education and Training
QLFS	quarterly labour force statistics
QES	quarterly employment statistics
SADC	Southern African Development Community
SAIMM	Southern African Institute of Mining and Metallurgy
SDGs	Sustainable Development Goals
SETA	Sector Education Training Authority
STEM	Science Technology Engineering and Mathematics
STATSSA	Statistics South Africa
TVET	Technical Vocational Education and Training
UN	United Nations
UNDP	United Nations Development Program
WEGE	Women Empowerment and Gender-Equality Strategy
WiMLF	Women in Mining Leadership Forum
WiMSA	Women in Mining South Africa
WiMTT	Women in Mining Task Team

1.0 INTRODUCTION AND RESEARCH METHODOLOGY

1.1 Introduction

This study has been commissioned by the Intergovernmental Forum for Mining, Minerals, Metals and Sustainability (IGF), in partnership with International Women in Mining (IWiM), the International Labour Organization (ILO), and the UNDP Environment and Governance Program (UNDP EGP), which together are launching the Women and the Mine of the Future project. The research is conducted in accordance with the brief for Phase 1 and will provide a basis for the measurement and assessment of change arising from the impacts of innovation, sustainability, resilience, technology, and social justice aspects on the future role of women in mining. Phases 2 and 3 of the projects will map changes in occupational structures and the skill requirements for future jobs in large-scale mining (LSM) and analyse the participation of women in mining supply chains.

1.2 Scope of the Research

During Phase 1 of the project, the emphasis is on conducting a baseline analysis of the gendered profile of the large-scale South African mining workforce.

1) **Collection of sex-disaggregated data** on the profile of workers in LSM, according to their occupational functions/roles, levels of responsibility, age, educational attainment, and technical capacities. Where available, data will also include gender pay gap and salaries. Annexes B, C, and D of the Consultant Terms of Reference provide the analytical framework and the methodology for this task.

2) **A situation analysis** of women's working conditions in the workplace, including their social, health and safety protections, and any prohibitions/exclusions where relevant, including in national regulatory and legal frameworks and in international frameworks or conventions applicable in the country.

3) A **comprehensive sex-disaggregated data analysis** of the current situation of women employed in LSM.

4) The report will also **indicate the gaps and discrepancies** observed during data collection across different data sources and suggest improvement strategies for the collection and categorisation of such data.

5) Prepare a Baseline Study Report that summarises:

- The policy and regulatory context in the country (to be added by the IGF along with an overview of the mining sector).

- Findings of the data analysis.
- Problems and areas of concern that women face in the mining sector.
- Good praxis by mining companies and governments to overcome barriers faced by women.
- A set of policy recommendations and guidelines to improve the participation of women in the sector.

1.3 Research Methodology

To a considerable extent, the Scope of Work dictated the methodology for this assignment. Annexes B, C, and D of the Terms of Reference also helped define the analytical framework for Phase 1. Our detailed response is described in the project Inception Report (Deliverable D1) and has not been replicated in this report. Nevertheless, given the limited availability of official data in the public domain reflecting the participation of women in mining, MD360° collected sex-disaggregated data across numerous defined data points using the following methods:

- Desktop research and a literature review
- Collection of baseline data from mining companies
- Interviews and focus groups
- An online qualitative questionnaire using social media.

In this process, data were obtained from the following sources:

- National statistics
- Industry-specific reports
- Skills development and training plans
- Sector-specific statistics and reports
- Mining company Employee Equity data in the public domain.

This was supplemented with employee data obtained from mining companies and the Minerals Council of South Africa (MINCOSA).

1.4 Contents of This Report

This report details the findings and analysis undertaken during the research on women's participation in the South African Mining industry. As required by the Terms of Reference, it combines an overview of the country profile, including a review of employment and gender-related policies, a comprehensive analysis of sex-disaggregated data on the LSM labour market, and related education and skill levels of employees. Because of gaps and

inconsistencies identified in data in the public domain, MD360° undertook a case study using data from one of the country's largest mining companies and administered an online questionnaire designed to elicit qualitative responses from women within the mining sector and industry.

The report focuses on the identification of gaps in the institutional, policy, and regulatory framework; challenges and gaps in the availability and accessibility of data; and challenges that women face in the workplace. In each instance, recommendations are made to address the identified challenges to improving the quality of information, the effectiveness of policy, and the participation of women in the LSM sector. The report also examines good practices implemented by public and private sector actors in the South African mining industry to overcome barriers faced by women in LSM.

1.5 A Gendered Research Approach

The Women and the Mine of the Future project is underpinned by a philosophical approach that locates this assignment in a gendered research framework. A gender-focused research approach includes the use of gender-sensitive concepts and terminology and is cognisant of these sensitivities. A range of these concepts and their interpretation for context purposes is included hereunder.

12. "Intersectionality" proposes that one does not equate "gender" with "women" and proceeds from an understanding that "women" are not a single homogeneous group but are differentiated by various criteria of class, ethnicity, age, sexuality, and religion.
13. "Gender roles" are ideated as socially constructed assumed roles that people appropriate from a birth sex perspective, implying othered norms, standards, behaviour, and opportunities are applicable for each type.
14. "Gender" encompasses more than the sexually assigned male or female subtypes or "birth genders." All other gender self-assignments that do not identify as men or male may be included under the subgroup "women" in this report.
15. "Gender relations" are understood to be the power relations that exist between men and women in accordance with their social roles, which tend to favour men in access to and control over resources and decision-making. These relations are situated at the household, local, national, and international levels.
16. "Gender analysis" is the systematic gathering and examination of information on gender differences and social relations to identify, understand, and redress inequities based on gender at each stage of the research process (fundamental to this process is the availability of gender-based disaggregated data).
17. "Sex vs. gender": the data collected and represented in national statistics are based on sex only and are not sensitive to measuring trans or non-binary persons

who may not identify themselves with their sex but are impacted by the social norms and relationships of their gender identities.

18. "Inclusion and diversity": diversity does not automatically equate to inclusion. Involving all actors and composing target groups and survey samples as diversely as possible still requires that we pay special attention to including the voices of marginalised groups.
19. "Empowering research" will involve changing the research process methodology by conducting research in a way that empowers participants, including bottom-up research techniques. This involves doing research with people rather than on them. Examples include using dialogue and focus group interviews with women in various positions in management and the workplace.
20. The critique of standard science and social science research theories and methods is an inclusive approach that constantly contests the concepts of objectivity and universality, values experiential knowledge, and includes emotion, contextualisation, practicality, and self-reflexivity in post-positivist and multi-paradigmatic methods.
21. Analysis of power hierarchies addresses power inequalities between all parties.
22. "Non-traditional" qualitative research methods may include life stories, personal histories, and amplifying the voices of the research participants.
23. Action-based research is praxis-based and extends beyond research for the sake of increasing knowledge and information and using the results for improvements and concrete impacts on policy and programme formulation to better the lives of women in mining.

1.6 Country Report Context

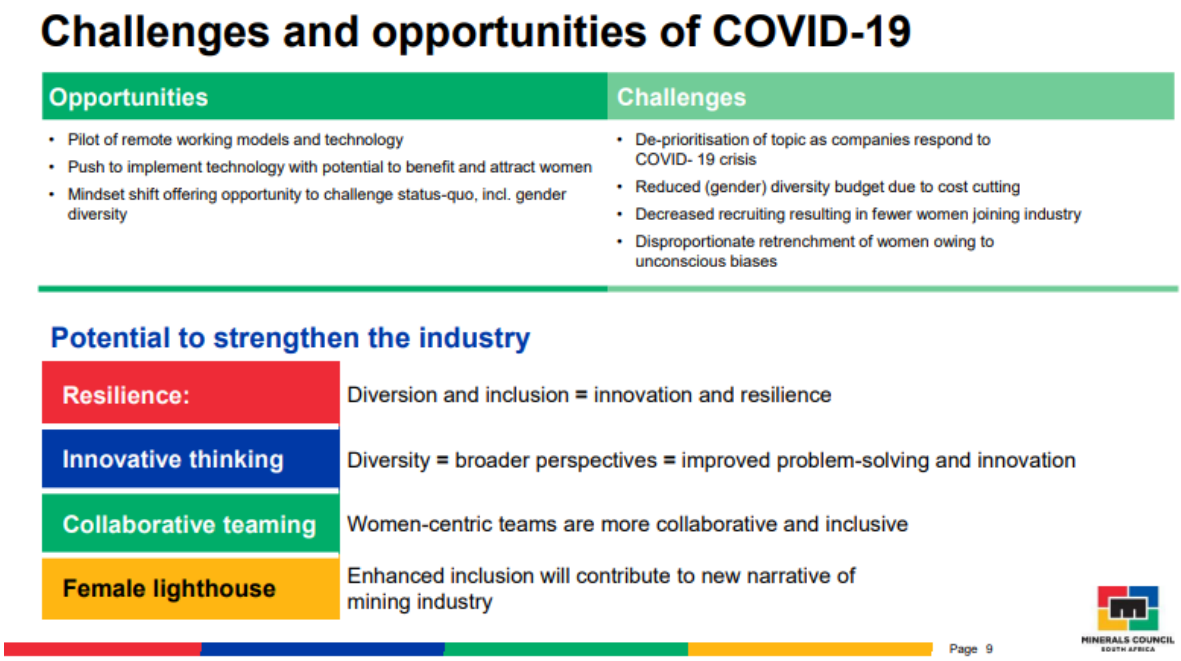
South Africa has immense mineral wealth and more than 150 years of history as a major mining authority. Statistics South Africa (STATSSA) reports show that by the 1970s, mining had come to dominate the economy and patterns of employment. In the 1980s, mining's increasing contribution to total economic production peaked at 21%. This was attributed to the upward surge in the gold price. In 1987, employment in the industry peaked at just over 760,000 individuals, and gold mining prevailed as the dominant type and the largest employer in the mining industry until eventually giving way to platinum group metals (PGMs) in 2006.

By 2016, mining declined while tertiary industries such as finance accelerated, leaving mining to contribute a meagre 8% to the national economy. Currently, an estimated 490,146 individuals are employed in the mining sector, with the PGM industry having the largest workforce, followed by gold and coal.

Challenges in supply for the rising demand for electricity, along with the stated closure of five coal-fired power stations in 2017 by Eskom (South Africa's state-owned electricity utility), have left the debate open on the just transition of mining into a renewable green environmental circular economy. The debate has sparked strong reactions from labour trade unions, which have concerns about how these changes in South Africa's energy system will affect and impact workers and communities. The decommissioning and closure of coal plants and the mines that supply them within a 100 km radius to the east of Johannesburg and in the Mpumalanga province will result in significant job losses in the sector. These losses in power stations, coal mines, and the coal transport sector may result in declining revenues for municipalities, and secondary economic knock-on effects will impact the local economies. Managing these risks is essential for gaining social acceptance and reducing resistance to these transformations, as well as for ensuring that poverty and inequality—already significant in mining areas (Ledger, 2016)—are not deepened by an unplanned transition.

While COVID-19 has had far-reaching negative impacts across all sectors, the Minerals Council has identified both the opportunities and challenges these may present that are specific to the mining sector; these aspects also apply to mainstreaming gender diversity in the sector. Figure 1 indicates both opportunities and challenges.

Figure 1: COVID-19 challenges and opportunities



Source: Minerals Council, 2021

Minerals critical to the clean energy transition are mined in South Africa. These minerals include copper, nickel, PGMs, manganese, and zinc; another important element is cobalt, a by-product of nickel and copper mining. These minerals are used in the manufacture of batteries for electric vehicles and portable electronics, electronic appliances, energy generation, and many other aspects of daily life. South Africa is undeniably at the heart of the "just" transition to a low-carbon future.

Managing the direct and indirect impacts of the structural changes that define the transition requires consideration of several factors, including the shifting patterns of mineral production to technological changes in mining, how the nature of work will change, and pressure from investors to ensure adherence to a growing list of environmental, social, and governance (ESG) standards. All of these factors require consideration and an understanding of how women in LSM will be affected, especially where the structural changes present opportunities for their advancement and, of particular importance, understanding the pace and trajectory of change.

The Commission for Gender Equality's full report: *Talking the Talk, Not Walking the Walk*[2]: *Assessing Gender Mainstreaming in South Africa's Mining Sector 2016,* demonstrated a lack of commitment to fundamental and sustained gender transformation in the mining sector. The report indicates that the intake of women in general is limited and that entrance into management positions is more constrained.

This appeared to conform to and reflect the historical and traditional image of the mining sector, which is viewed as a male-dominated endeavour that was unwelcoming to women.

This image was prompted to a degree by the trend of exclusion by sex because, preceding the 1990s, legislation prohibited women from working underground in South Africa. With the advent of democracy, South Africa has made positive steps to integrate women into the industry, although females continue to be under-represented, especially in decision-making structures. Statistics show that the mining industry is still largely men's domain.

The 2004 Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry (the Mining Charter) initially set out to transform the mining sector over 10 years. It introduced quotas urging mining companies to employ a quota of 10% female staff by 2009 (women represented just 2% in 2000). The Mining Charter II increased employment targets to a minimum of 30% Black women in senior management positions and proposed 38% in middle management and 44% in junior management. This was replaced with the Mining Charter III in 2018. According to Bazole et al. (2017), broad-based empowerment, ownership and economic participation, and women's participation remain low. Further, more needs to be done to improve meaningful participation.

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[2] Talking the Talk, Not Walking the Walk: Assessing Gender Main-streaming in South Africa's Mining Sector 2016 was compiled by the commission for Gender Equality (CGE) ISBN: 978-1-920308-65-0

In addition, high-level jobs require extremely long hours, and women are held back because they are encouraged to take career-derailing roles, such as part-time work and internally facing roles, instead of dealing with the general culture of overwork, which locks gender inequalities in place. Further, Kansake et al.'s 2021 policy document 70, *Creating Gender Inclusive Mining Industry: Uncovering the Challenges of Female Mining Stakeholders,* revealed that fewer than 20% of women are appointed in the core mining operations of the leading mining countries in the world, which breaks down to Australia at 16.1%, Canada at 16%, Mexico at 14.9%, **South Africa at 13.2%,** the United States at 13%, Chile at 8%, Indonesia at 6.7%, Ghana at 6%, Peru at 5.7%, and China at 3%.

In February 2022, Rio Tinto released a report on *Workplace Culture at Rio Tinto*, which found inappropriate and harmful behaviour across Rio Tinto, including bullying, sexism and racism in the company both in Australia and South Africa. In all these practices, women are the most affected.

These barriers to achieving gender parity and diversity are also evident.

- Access to finance
- Gender bias
- Lack of market access
- Lack of information on existing opportunities
- Poor or limited networking opportunities
- Inadequate role models
- Lack of business skills and education.

South Africa is a party to various regional and international human rights instruments and frameworks that promote gender equality and non-discrimination, which are detailed in the next chapter of this report. Despite the provisions of the global, regional, and domestic legal frameworks promoting gender equality, the data show that there is still a long way to go to reach gender equality in the industry.

2.0 A REVIEW OF GENDER-RELATED POLICY AND LEGISLATION

2.1 Introduction

This chapter includes a review of the current realities of gender within both its broader legislative and policy context, as well as a more specific focus on the mining sector and labour market aspects. The intent of the analysis is to identify weaknesses and potential areas of improvement.

2.2 International and Continental Protocols

The South African Government has committed to achieving full gender equality by adopting the African Union's (AU) Agenda 2063. The country is also a signatory to the United Nations (UN) framework for Sustainable Development Goals (SDGs) and various other international accords. These frameworks focus on and commit to the achievement of full gender equality, and, as a signatory, South Africa is therefore bound to implement appropriate gender-focused programmes and interventions in line with the protocols. Furthermore, the government supports the implementation of the South Africa Development Community (SADC) Gender and Development protocol, which focuses on the empowerment of women through the elimination of discrimination and through action encouraging, aligning, and harmonising the development and implementation of gender-responsive legislation, policies, programmes, and practices.

2.3 South African Policy and Legislation

2.3.1 The Constitution of the Republic of South Africa Act 108 of 1996[3]

South Africa achieved democracy in 1994. Central to this was a commitment to equality, including gender equality and the empowerment of women. The founding principles of the Constitution of the Republic of South Africa include human rights, equality, and freedom for everyone in South Africa. Section 9 of the Constitution protects the rights of all persons to equal protection and benefit before the law and to freedom from unfair discrimination based on gender, pregnancy, and marital status, amongst others. Some critics argue that the Constitution is gender neutral and not gender-sensitive and that this serves to constrain more deliberate, targeted efforts to promote the participation of women in mining.

[3] https://www.gov.za/documents/constitution-republic-south-africa-1996

2.3.2 The National Policy Framework for Women's Empowerment and Gender Equality (2000)[4]

This policy outlines South Africa's vision for gender equality and how it intends to realise this ideal. It details the overarching principles, which were supposed to be integrated by all sectors into their specific sectoral policies, practices, and programmes. It also proposed a framework for intersectoral coordination, a process for gender mainstreaming, and mechanisms and guidelines for monitoring and evaluation. In effect, the policy established a National Gender Machinery (NGM) within the South African State that was met with acclaim at the time.

2.3.3 National Development Plan[5]

The National Development Plan (NDP), published in 2012, serves as South Africa's implementation vehicle for achieving the SDGs[6] and identifies the active participation and empowerment of women as important in the transformation of the economy. The main strategies proposed in the plan are intended to be cascaded downwards into local plans across all sectors.

The NDP further states the following gender focus areas:

- Public employment must focus on unemployed women.
- Women should be active participants and empowered through transformation.
- Women leaders should be promoted and supported across sectors.
- Accessibility to services should be improved for women.
- Women should have no fear of crime and should be protected by the law.
- There should be nutritional intervention for pregnant women.
- Women should benefit from facilitated access to HIV treatment and other medication.

The Department of Women, located within the Presidency, was established in 2014. In 2019. it was replaced by a more inclusive Department of Women, Youth and Persons with Disabilities, with the aim of accelerating socio-economic transformation and the implementation of the empowerment and participation of women, youth, and persons with disabilities through oversight, monitoring, evaluation, and influencing policy.

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[4] https://www.gov.za/documents/womens-empowerment-and-gender-equality-south-africas-national-policy-framework

[5] https://www.gov.za/issues/national-development-plan-2030

[6] Sustainable Development Goal 5 specifically deals with Gender Equality, to achieve gender equality and empower all women and girls.

2.3.4 National Framework on Gender-Responsive Planning, Budgeting, Monitoring, Evaluation and Auditing (2018)[7]

Viewed from a "whole-sector" perspective, the advancement of women in public sector entities that are part of the institutional framework regulating and promoting mining sector development also requires attention. The National Framework of Gender-Responsive Planning, Budgeting, Monitoring, Evaluation and Auditing (GRPBMEA) for the public sector was prepared in 2018 by the Department of Public Services and Administration (DPSA). In the framework, the DPSA has proposed that compulsory gender-focused training courses be administered to all senior management and ultimately to all public servants. This is a basic course that can also be extended to the Members of Parliament. Together with international partners UN Women, the DPSA is creating an additional e-learning platform to increase its reach. The DPSA has broadly consulted the GRPBMEA Framework and has been working with other key departments, including the National Treasury, to ensure its implementation.

2.3.5 Mineral and Petroleum Resources Development Act 28 of 2002[8]

The South African mining industry is regulated by the Mineral and Petroleum Resources Development Act, No.28 of 2002 (MPRDA), which is the predominant piece of legislation dealing with acquisitions or rights to conduct reconnaissance, prospecting, and mining. The MPRDA became effective on May 1, 2004, and substitutes the erstwhile hybrid system of common law with statutory interference. There are several other pieces of legislation that deal with ancillary issues, such as royalties (the Mineral and Petroleum Resources Royalty Act, 2008), title registration (the Mining Titles Registration Act, 1967), and health and safety (the Mine Health and Safety Act, 1996).

2.3.6 Mining Charter[9]

To give effect to the broad policy objective for transformation in the mining industry set out in the MPRDA, the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry was negotiated through a tripartite process involving government, labour, and the mining industry in 2002 and was first published in August 2004 (Government Gazette No. 26661). This represented the fulfilment of the Minister of Minerals and Energy's obligation under Section 100(2)(a) to develop a Broad-Based Socio-Economic Empowerment Charter.

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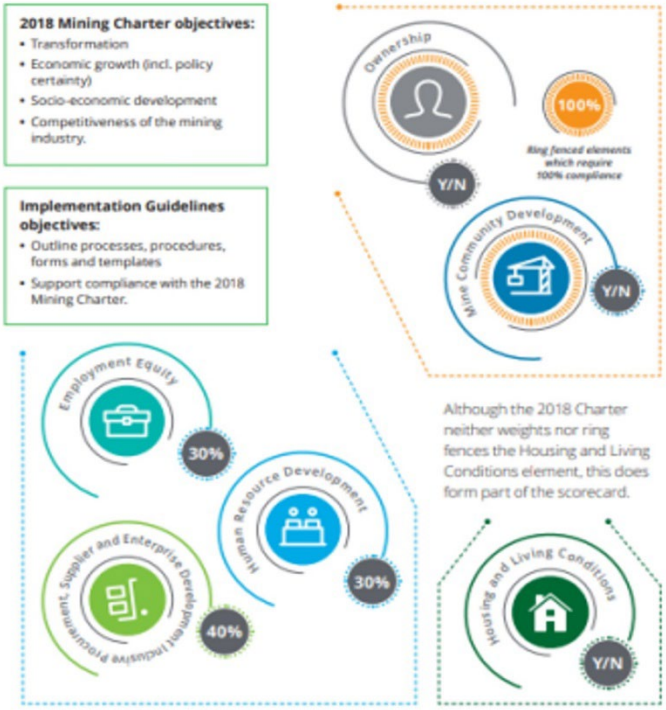
[7] https://www.gov.za/speeches/declaration-gender-responsive-planning-and-budgeting-summit-1-dec-2018-0000

[8] https://www.gov.za/documents/mineral-and-petroleum-resources-development-act

[9] The Mining Charter has been legally set aside because of the Mineral Council's legal action; those pertinent to women in mining include provisions on ownership and procurement (targets for women).

The Mining Charter was amended in 2010 with a delayed 2016 version gazetted in 2017, then withdrawn in favour of Mining Charter III, which was released for comment in June 2018 and gazetted for implementation. Mining industry partners are required to demonstrate change to the industry demographic through the increased participation of women.

Figure 2: Mining Charter targets



Source Mining Charter

The intent of the act is to ensure equitable employment access is granted to the mining sector and the sustainable development of the nation's mineral and petroleum resources. It addresses Previously Disadvantaged Individual South Africans as a collective and does not specifically refer to access in terms of gender, nor does it meaningfully expand opportunities for Historically Disadvantaged Persons, which includes "any person, category of person or community, disadvantaged by unfair discrimination…" such as women to enter the mining industry and to benefit from the exploitation of the nation's mineral resources.

In early iterations of the Mining Charter, compliance with transformation targets was meant to be required for companies to avoid losing their mining licences—but monitoring and enforcement were weak. This was borne out at the time by the Commission of Employment Equity, which indicated that after 10 years of affirmative action being adopted as policy, progress on diversification of management and core-skilled workers was minimal. In June 2019, the Department and the 4th Commission for Employment Equity engaged each economic sector separately to agree on employment equity target

groups. By 2019, according to the 21st Commission on Labour report (p. 37), 869 mining reports were received, reflecting the employment equity status of 379,382 employees.

The 2018 version of the Mining Charter advanced measurement of progress made on several transformation targets through an instrument known as the Mining Charter Scorecard. Employment equity is now included as one measure of progress, whereby mining companies are now required to report annually on progress against Mining Charter targets, set as percentages of women working at the board, executive management, senior management, middle management, and junior management levels. The 2018 Mining Charter also stipulates targets to be achieved in terms of women shareholders in the entity holding the mining right and the percentage of goods and services supplied to the mining company by businesses owned and controlled by women.

The targets include:

- 50% of board and executive management with 20% women[10]
- 60% of senior and middle management with 25% women
- 70% of junior management with 30% women.

A series of studies conducted by the Commission for Gender Equality on the assessment of some of the South African mining companies on progress made towards gender transformation and mainstreaming revealed that the mining industry has clearly struggled to promote gender transformation. This is manifested by the continued domination of men at the decision-making levels of employment.

A core mandate of the MINCOSA includes the monitoring and reporting of the progress of Mining Charter targets. This entails the identification of challenges in achieving the outcomes while continually improving the system together with the DMRE.

According to MINCOSA, gender parity in South Africa lags other mining countries such as Australia and Canada, which, although they are still relatively low, have slightly higher representation of women in mining at 17% and 16%, respectively.

The implementation and provision of goods and services by women-owned enterprises is a provision made in the Mining Charter 111.

[10] Set aside

2.3.7 Mine Health and Safety Act, No.29 of 1996[11]

Broadly speaking, the Mine Health and Safety Act, No.29 of 1996 provides for the protection of the health and safety of employees and other persons at mines. It also provided the legislative basis for the establishment of the Mine Health and Safety Council (MHSC), a national public entity responsible for advising the Minister of Mineral Resources on occupational health and safety legislation and on research outcomes focused on improving occupational health and safety in South African mines.

However, while the Act created a regulatory framework for mine health and safety and enabled the establishment of the MHSC, this has not translated into a safe and secure working environment for women. Moreover, despite the fact that the MHSC has conducted research into the safety and security challenges impacting women in the mining industry, the recommendations arising from it (reported in Chapter 5) have mostly not been actioned to the extent that the challenges have successfully been addressed.

2.3.8 Labour Legislation

A suite of South African labour legislation germane to this research follows; the most important of these are described below.

The Labour Relations Act, No.66 of 1995[12] governs the employment relationship, assigning rights to both parties. It also sets out rules regulating trade unions and the resolution of disputes, as well as procedures for managing dismissals. The discriminatory, unfair treatment of women who are pregnant is forbidden. That said, pregnancy remains a major challenge for management. On the one hand, women are often afraid to disclose their pregnancy status for fear of not being able to continue working, and if they have only recently joined the company, they also fear that it would disqualify them from receiving maternity benefits. On the other hand, management is required to find alternative placements for pregnant women employed underground.

The Basic Conditions of Employment Act, No.75 of 1997[13] defines standard, basic conditions of employment, and employers are not permitted to contract with employees on less favourable terms. The Act also explicitly forbids employers to make or allow a pregnant or nursing employee to do work that is hazardous to her health or the health of her child.

The Employment Equity Act, No.55 of 1998 and the Employment Equity Amendment Act, No. 47 of 2013[14] regulates the treatment of all employees to combat discrimination and promote equal treatment and opportunities at the workplace. This finds expression in Chapter 2 of the Act, which states that "no person may unfairly

[11] https://www.gov.za/documents/mine-health-and-safety-act
[12] https://www.gov.za/documents/labour-relations-act
[13] https://www.gov.za/documents/basic-conditions-employment-act#
[14] https://www.gov.za/documents/employment-equity-amendment-act

discriminate, directly or indirectly, against an employee, in any employment policy or practice, on one or more grounds, including race, gender, sex, pregnancy, marital status, family responsibility, ethnic or social origin, colour, sexual orientation, age, disability, religion, HIV status, conscience, belief, political opinion, culture, language, birth or on any other arbitrary ground." The Act, as amended, empowers the Commission for Conciliation, Mediation and Arbitration (CCMA) to arbitrate in discrimination cases, replacing the more expensive Labour Court route. It also calls for employees who undertake the same work to be remunerated at the same or similar level.

The Occupational Health and Safety Act, No.85 of 1993[15] was enacted to afford employees the right to work in a safe and healthy workplace. While extensive Occupational Health and Safety regulations for the traditionally high-risk industries such as the mining sector have been developed, there continues to be extraordinarily little focus on addressing the specific needs of workers.

Skills Development Act, No.97 of 1998 (and Amendments)[16] provides an institutional framework for sector and workplace strategies for the improvement of the skills of the workforce and provides for training and the financing of skills development through a "skills development levy." The Act is gender neutral in that women are afforded equivalent access as a member of any other "designated Social Protection Policies."

South Africa's social protection policies aim to reduce vulnerability and assist women in stabilising incomes in the event of unemployment, employment injury, disability, sickness, and maternity, and by ensuring that they have at least a basic level of income security. The Amendments to the Unemployment Insurance Agency (UIA), effective from 18 January 2017, state that a beneficiary for maternity payment is an employed person who has been employed for a minimum of 13 weeks. Another significant amendment is the shift from a sliding scale to a fixed rate of 66% payment of the earnings of the beneficiary at the date of the application. Olivier and Govindjee (2015) state that while these amendments make the UIA compliant with the ILO Maternity Protection Convention 183 (2000), article 16(1) of the 2014 SADC Protocol on Employment and Labour and the 2007 Code on Social Security in the Southern African Development Community (SADC), there remains the challenge of providing women with unrestricted entitlement to maternity benefits.

2.3.9 Guidelines

A range of guidelines is available within the mining company environment. An example of guidelines is the gender barometer measurement tool that was used to measure gender responsiveness at Implats and Petra Mining in 2017, which has resulted in improvements to policy guidelines on:

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[15] https://www.gov.za/documents/occupational-health-and-safety-act#
[16] https://www.gov.za/documents/skills-development-act#:

- Gender mainstreaming and gender equality
- Sexual harassment
- Sanitation for women
- Personal protective equipment for women.

In their Group Peoples Policy on gender equality and mainstreaming, they aim to promote changes in attitudes, structures, policies, and practices to remove obstacles to the achievement of human dignity and equity. Further, they intend to implement reasonable accommodation measures for employees from the designated groups, in particular women, to achieve the progressive advancement and empowerment of women.

They further state that the women-focused business strategy aligned transformation interventions, which include the enhancement of a high-performance culture while facilitating an equitable representation of the workforce by attracting, developing, and retaining employees from the designated groups.

Action plans will see them implementing effective diversity management initiatives to establish and maintain an all-inclusive gender=appreciative culture conducive to transformation, as well as implementing development programmes aimed at the entry and advancement of women while providing a safe and enabling work environment.

Further action plans focus on recruitment, remuneration, development, and promotion and address equal pay for work of equal value. There is a strong commitment to addressing sexual harassment and violence against women.

2.4 Conclusion

The challenges identified above are not easy to overcome and will require continuing review and analysis to address the gaps in existing policy, legislation, and enforcement that continue to constrain the advancement of women in mining. Overcoming the constraints women face in entering and participating in the extractives labour market requires a concerted effort from all role players to challenge exclusionary gender norms and power relations that continue to devalue women's contributions to society.

3.0 ANALYSIS OF BASELINE DATA AND RESEARCH

3.1 Introduction

This chapter is a comprehensive analysis of sex-disaggregated data from the LSM labour market and related education and skills levels of employees.

The quantitative data presented includes a sample study of data collected from large-scale mines, the latest STATSSA[17] quarterly employment statistics (QES) and quarterly labour force statistics (QLFS) for 2021, the Mining Qualifications Authority (MQA) annual reports 2019–2020, Department of Higher Education (DHE) data on skills development 2017, and information from the Department of Mineral Resources and Energy (DMRE) 2018–2020.

The qualitative inputs obtained through focus group discussions with women in the mining industry are supplemented with academic research focusing on gender in mining and a questionnaire[18] administered to evaluate the perceptions of women working in the industry on pertinent issues and current trending themes. The results of this qualitative analysis are presented in Chapter 4.

3.2 Limitations of Data Collection

In South Africa, quantitative data describing the mining sector is highly fragmented, captured as it is by several agencies, some with specific statutory responsibilities (such as STATSSA, the DMRE, or the MQA) and others with a particular functional responsibility. In

[17] The key differences between the Quarterly Labour Force Survey (QLFS) and the Quarterly Employment Statistics Survey (QES) result from the two official sources of employment statistics: the QES survey is establishment-based and the Quarterly Labour Force Survey is household-based. Each survey is bound by strengths and limitations. QES survey data is not descriptive of those employed in their demographic profile, education level, hours of work, and unemployment. The Quarterly Labour Force Survey is a macro-level survey of households: information from approximately 30,000 dwelling units is collected for data on the labour market activities of individuals. The QES survey is an enterprise-based survey that concentrates on non-agricultural businesses and organisations from approximately 20,000 units. The numerous conceptual and methodological differences between the household- and enterprise-based surveys result in important distinctions in the employment estimates derived from the surveys. The household survey includes agricultural workers, self-employed workers whose businesses are unincorporated, unpaid family workers, and private household workers among the employed. These groups are excluded from the enterprise-based survey. The household survey is limited to workers 15 years of age and older. The enterprise-based survey is not limited by age. The household survey has no duplication of individuals because individuals are counted only once, even if they hold more than one job. In the enterprise-based survey, employees working at more than one job and thus appearing on more than one payroll are counted separately for each appearance. The Quarterly Labour Force Survey includes income tax, value-added tax (VAT), and number of employees in determining the formal sector while the QES survey uses only VAT with annual turnover greater than 300,000. The Quarterly Labour Force Survey allows proxy respondents, which can introduce misclassification of items (e.g., formal/informal classification).

[18] See Appendix 1 for the questionnaire

many instances, the policy imperatives around gender and the promotion of women's participation in the industry do not manifest in the form of sex-disaggregated data in mining, at least not at the level of disaggregation required for this project, e.g., the STATSSA Quarterly Labour Force Survey reports no gender disaggregation other than total male/female employed per sector, per province. This is true in the case of public sector and parastatal organisations but also in that some LSM companies do not publish sex-disaggregated data, even at the level required by the regulator (the DMRE).

Gaps in the range of data available, its level of disaggregation, and accessibility point to an obvious disjuncture with the objectives of transformation that prioritise the promotion of higher levels of women participation in the economy generally and in the mining industry specifically. The lack of a baseline on women in mining, a comprehensive range of objectives and targets derived from public policy, and key performance indicators and data standards, bedevils impact measurement and the achievement of transformation goals.

Despite these limitations, it has been possible to use existing data to build a picture of women in mining in South Africa, and this is presented below.

3.3 Quantitative Data

3.3.1 Locality of Operating Mines

According to the DMR,[19]South Africa's mineral wealth is based on the enormous resources within distinctive geological structures and setting outlines as follows:

- The Witwatersrand Basin (situated in Mpumalanga, Northwest, and Gauteng provinces), a prime area for gold output, further contains large resources of uranium, silver, pyrite, and osmiridium.
- The Transvaal Supergroup (Northern Cape and Limpopo provinces) contains reserves of manganese and iron ore.
- The Igneous Bushveld Complex (BIC), spatially located in Northwest and Limpopo provinces, features PGM (with associated cobalt mineralisation, copper, and nickel), chromium and vanadium-bearing titanium iron ore, and extensive deposits of the industrial minerals, fluorspar, and andalusite.
- The Karoo Basin expanding through Mpumalanga, KwaZulu-Natal, Free State provinces, as well as Limpopo Province, includes considerable anthracite, bituminous coal, and shale gas discoveries.

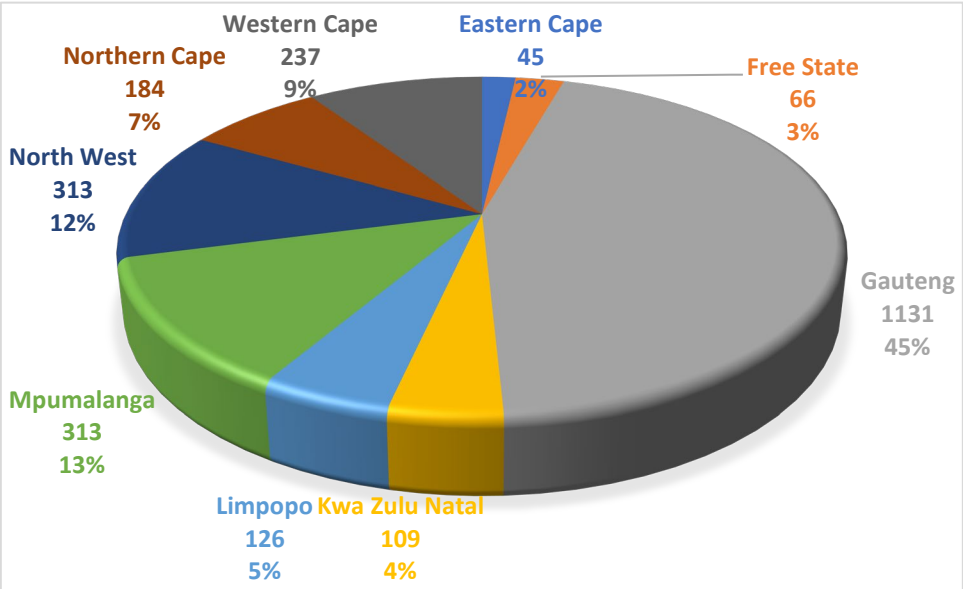
[19] www.dmr.gov.za

- The Phalaborwa Igneous Complex situated in Limpopo Province contains deposits of copper, phosphate, titanium, vermiculite, feldspar, and zirconium ores.
- Kimberlite pipes found in the Kaapvaal Craton, extending through Gauteng, Limpopo, Northwest, and Northern Cape provinces, contain diamonds, kimberlite dykes, floors, alluvial, fluvial, and marine areas.
- Heavy mineral sands along the coasts of the country include KwaZulu-Natal, where ilmenite, rutile, and zircon can be found.
- Lead-zinc ores are associated with copper deposits along with silver and are in the Northern Cape.

The DMRE breakdown on the 2,525 operating mines listed on their website[20] is indicated for all mining types and scales per province. The highest concentration of mines/mining companies are based in Gauteng with 44.8%, followed by Mpumalanga and Northwest at 12.4%, respectively, and Western Cape with 9.4%. The Eastern Cape has the least at 1.8%.

The profile includes the distribution of active operating mines per province and the companies that employ the workforces that are the subject of this study.

Figure 3: Companies' provincial location: Active mines per province



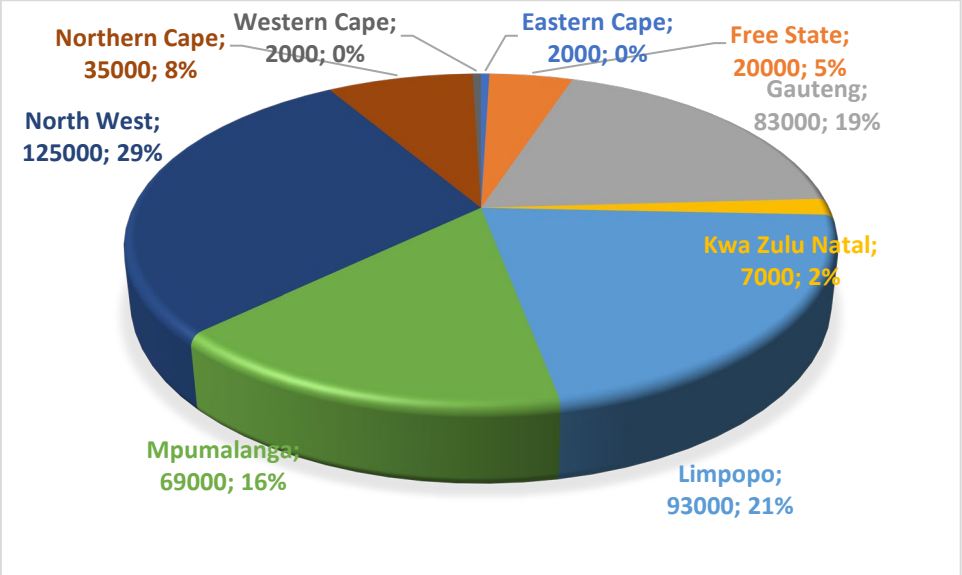
Source: DMRE Online Portal, 2022[21]

[20] https://www.dmr.gov.za/mineral-policy-promotion/operating-mines
[21] The DMRE data is not regularly updated.

According to STATSSA's *Mining Industry Report No. 20-01-02* (2019), the mining industry recorded employment decreases in Northwest, Mpumalanga, and KwaZulu-Natal in 2019 compared with 2015. Northwest, Limpopo, and Mpumalanga have the largest mining workforces. This is not surprising, as mining is the largest industry in all three provinces, according to provincial gross domestic product (GDP) estimates.

Figure 4 indicates the total mining labour workforce as a percentage per province. The Northwest Province has the highest number employed in mining at 29%, followed by Limpopo, Gauteng, and Mpumalanga, with the lowest numbers employed in Western Cape and Eastern Cape at 0.5% each.

Figure 4: Total mining labour workforce per province



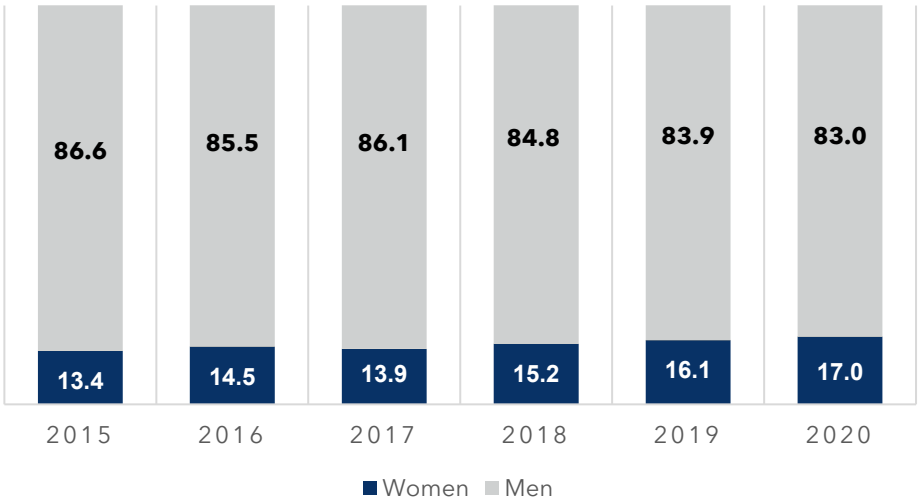
Source: Quarterly Labour Force Survey, Quarter 2, 2021 (Mining)

3.3.2 Mining Workforce Breakdown

The breakdown of sex-based statistics in the mining workforce measured between 2015 to 2022 shows truly little movement. The statistics indicate slight improvement for women employed from 13% in 2015 to 17% in 2020. STATSSA indicates that the sector employment declined from 538,144 in 2012 to 514,859 in 2019 (a cumulative loss of 23,285 jobs) as per the 2019 *Mining Industry Report*.

The biggest losses in jobs were recorded in "mining of gold and uranium ore" (a loss of 42,091 jobs), "mining of platinum group metal ore" (a loss of 8,190 jobs) and "other stone quarrying, including stone crushing and clay and sandpits" (a loss of 4,249 jobs). Offsetting the total, the biggest gains in jobs were recorded in "mining of coal and lignite" (a gain of 17,112 jobs) and "other mining activities and service activities incidental to mining" (a gain of 5,081 jobs).

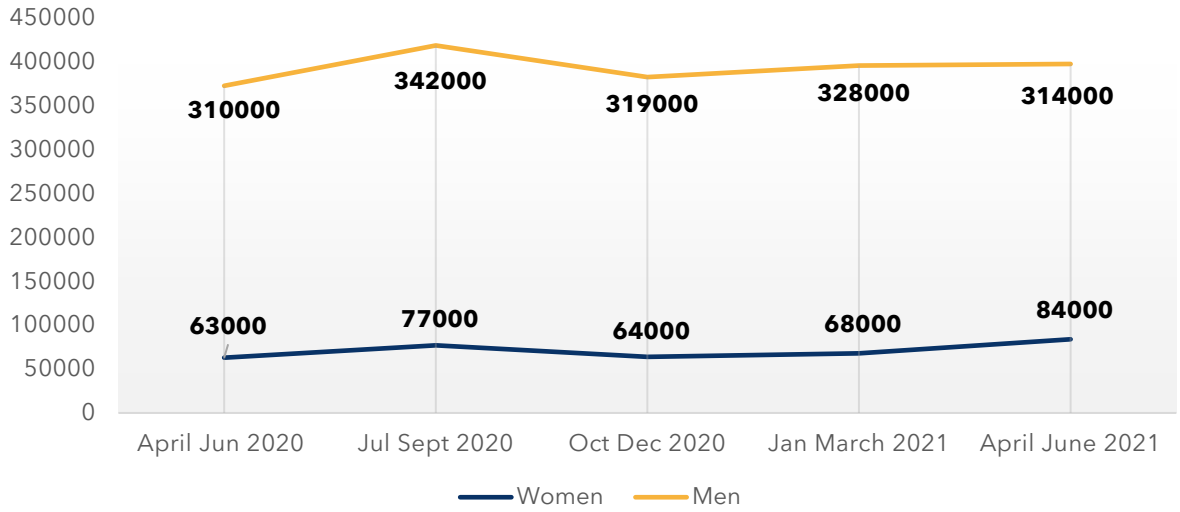
Figure 5: Historical distribution of mining workforce by sex (2015 to 2020)



Source: Compilation from STATSA QLF Statistics, Minerals Council 2019 data, ILO STATSSA 2020

From the labour force statistics, the percentage of women in the mining sector workforce increased in the April to June 2021 quarter (Q2) to 21.1% from 16.89% in April to June 2020. This change is greater than for any other recent period reported and could be ascribed to the difference in reliability of national statistics collection for the QLFS and QES.

Figure 6: Mining labour force distribution by sex 2021

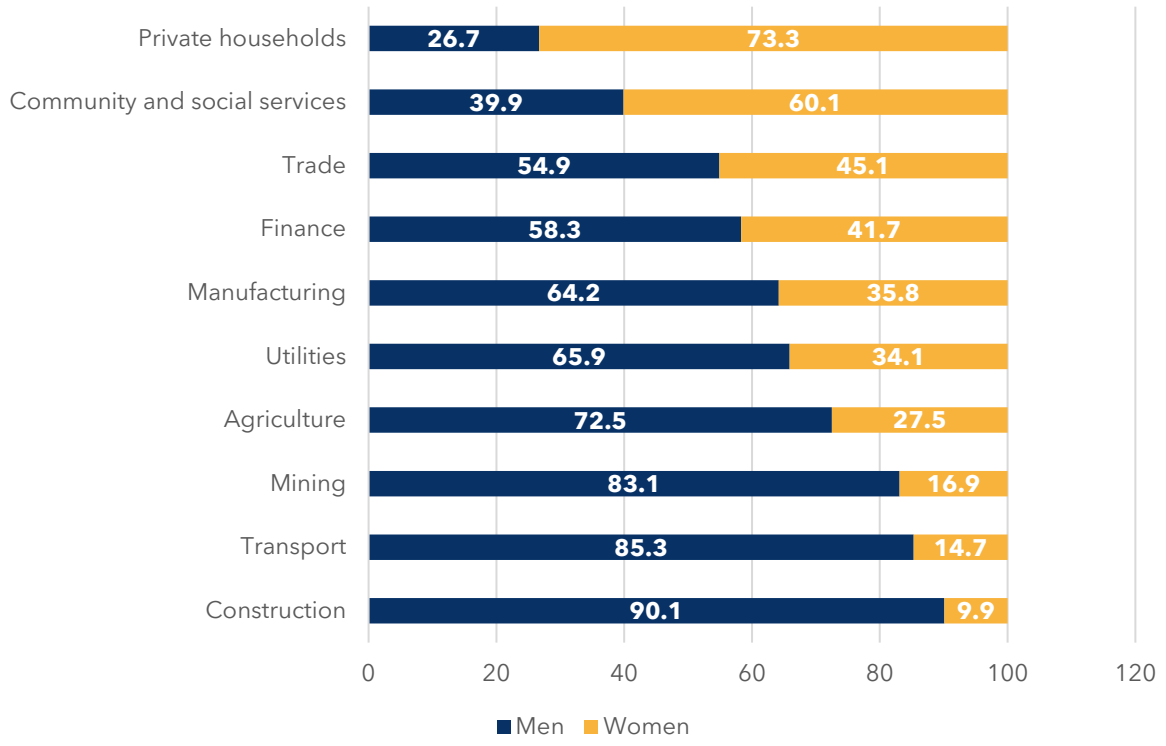


Source: Quarterly Labour Force Survey, Quarter 2: 2021 (from Table 3.1 Annexure 58 QFLS QRT2) (Mining)

An analysis of the labour statistics must include the effect of the global COVID-19 pandemic on the labour workforce. In South Africa, of the total labour workforce, 12.2 million persons were expected to work by their companies and did some work during the

national lockdown in Q1 of 2021. In the mining sector, 83.1% of those working during lockdown were men, and 16.9% were women. The ratio of women to men remained constant during this period, indicating that regardless of extra demands placed on childcare and home-schooling, women continued to work through the pandemic lockdown period.

Figure 7: COVID-19 impact on workers required to work during lockdown by sex and industry

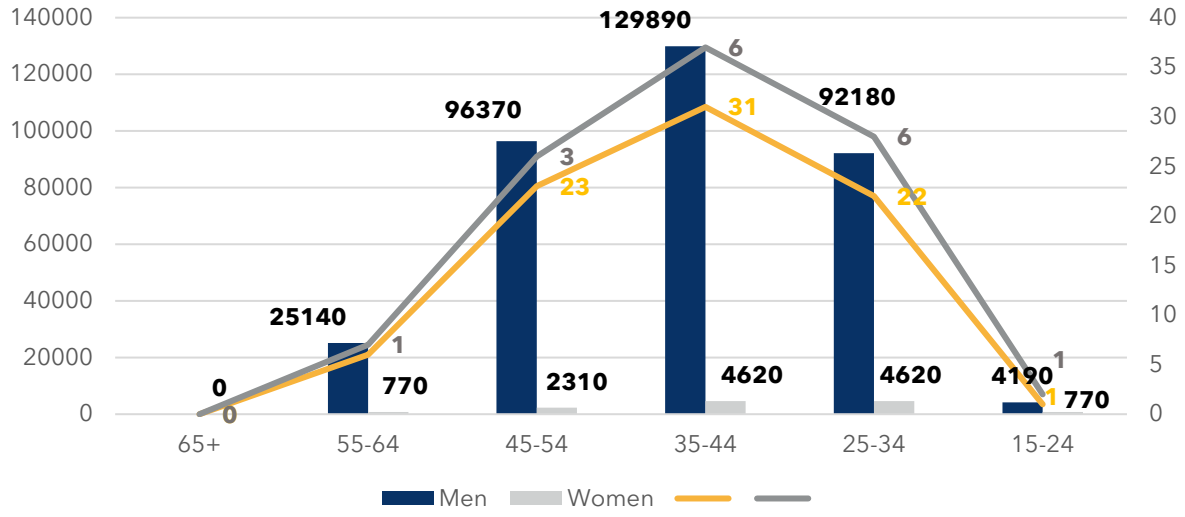


Source STATS SA QLF Statistics 2021 Q1

From the period January to June 2020, the mining sector lost 2,260 jobs, according to reported Section 189 applications[22] from Department of Labour. Retrenchment statistics analysis shows that the lower job categories were most affected. "These are the jobs most vulnerable to adverse economic developments" ("Minerals Council South Africa on response of Mining Industry to COVID ..."). Lower-skilled employees represent 60% of total retrenchments, while higher-skilled retrenched workers represent 23%.

[22] The Section 189 retrenchment process, under the Labour Relations Act (LRA), permits employers to dismiss employees for operational requirements.

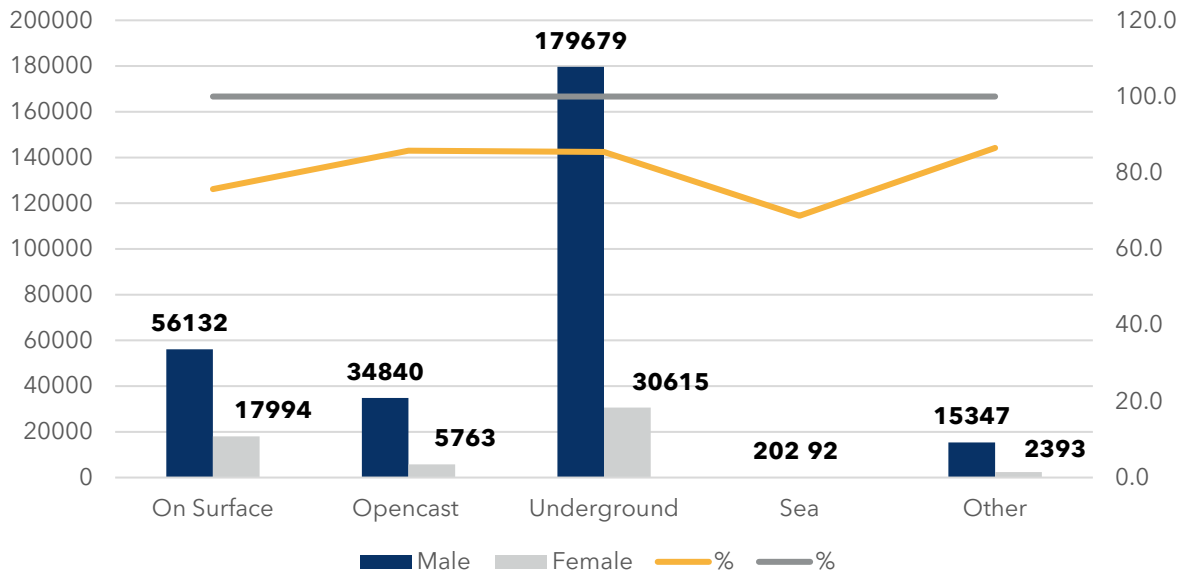
Figure 8: Employed by sex and age



Source ILO Stats SA Quarterly labour force statistics 2020

The mining workforce is predominantly middle aged, with 31% of males falling in the age group 35 to 44 years (% indicated by the orange line) and 6% of women in the same age group. (Indicated by the yellow line). Male youth in the age group 25 to 34 years make up 22%, and 6% are women in the same age group. A similar trend appears in the age group 45 to 54 years, with the variance being 3% for women in that group. The women in the 35 to 44 age categories leave the workforce at a higher rate than their male counterparts. Various workplace and other challenges are indicated in the qualitative study findings in Chapter 4, which highlight some of the reasons for the leaky workforce pipeline.

Figure 9: Breakdown by mining workplace



Source: Quarterly Labour Force Survey, Quarter 2: 2021

Figure 9 indicates that the workforce by mining workplace is uniform for men working in open cast mining, underground mining, and other activities—at approximately 86%—but varies for women, with most women working in sea mining environments[23] (31.3%), followed by on the surface (24.3%). Lower numbers of women work in open cast and underground mining.

3.3.3 Subsector, Size and Number of Companies Represented in the Mining and Metals Sector

3.3.3.1 Mining Companies per Subsector Reported for LSM

In the following table for 2020, the mining and metals sector is depicted in terms of scale, from small- to large-scale and mining subsectors.[24] The mining and metals sector includes jewellery manufacturing, services incidental to mining, and commodity-related sectors, as indicated. While the data is collected during the levy registration process, it is not gender disaggregated and reported in terms of scale.

Table 1: Mining employers (companies) per subsector 2020

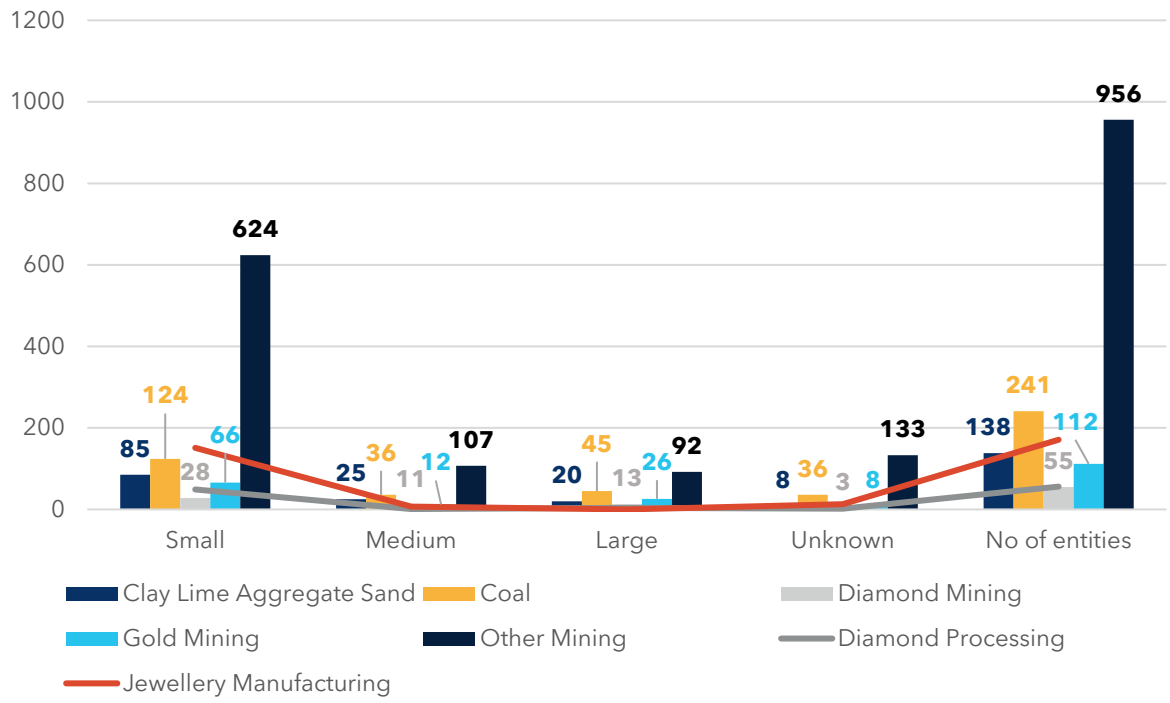
Subsector	Size				Total per subsector	
	Small	Medium	Large	Unknown	No. of mines	%
Clay Lime Aggregate Sand	85	25	20	8	138	5.4
Coal	124	36	45	36	241	9.5
Diamond Mining	28	11	13	3	55	2.1
Diamond Processing	49	1	4	2	56	2.2
Gold Mining	66	12	26	8	112	4.4
Jewellery Manufacturing	151	7	0	13	171	6.7
Other Mining	624	107	92	133	956	37.8
PGM Mining	3	5	19	0	27	1.0
Services incidental to Mining	340	55	41	65	501	19.8
Unknown	0	0	0	269	268	10.6
TOTAL%	65.1	11.5	11.5	11.9	100	100

[23] Seabed exploration (drilling, dredging) for diamond, gold, copper, iron, lead, zinc, nickel, manganese, cobalt, and oil and gas (this component of mining is a small segment of mining in South Africa.)

[24] In the previous sections, the STATSSA data includes all scales of mining. The intention of this study is to collect data representative of the LSM sector. Unfortunately, the data is not disaggregated into the different scales of mining other than in terms of a percentage of the mining and metals sector. This is also true for the labour market profile, which is obtained primarily from the MQA Workplace Skills Plans and Annual Training Report datasets, as well as the DHE and training levy registration file and DMRE's public labour data.

Source: DHET levy registration March 2020

Figure 10: Mining employers (companies) per subsector 2020 (based on Table 1)



Analysis of the above table and visual representation indicates that the LSM sector comprises 11.5% of the sector, with a total of 260 LSM entities. The data indicated as "unknown" represents uncategorised scales of mining. There are 92 mines extracting other minerals and materials, with 29 mines for clay, lime, aggregate, and sand; 45 coal mines; 13 diamond mines; 26 gold mines; 19 PGM mines; and 49 mining service companies and four diamond processing companies that have reported their mining statistics during levy registration.

3.3.4 State of Play in Private Sector Employment in the LSM Sector: Nation-wide data analysis

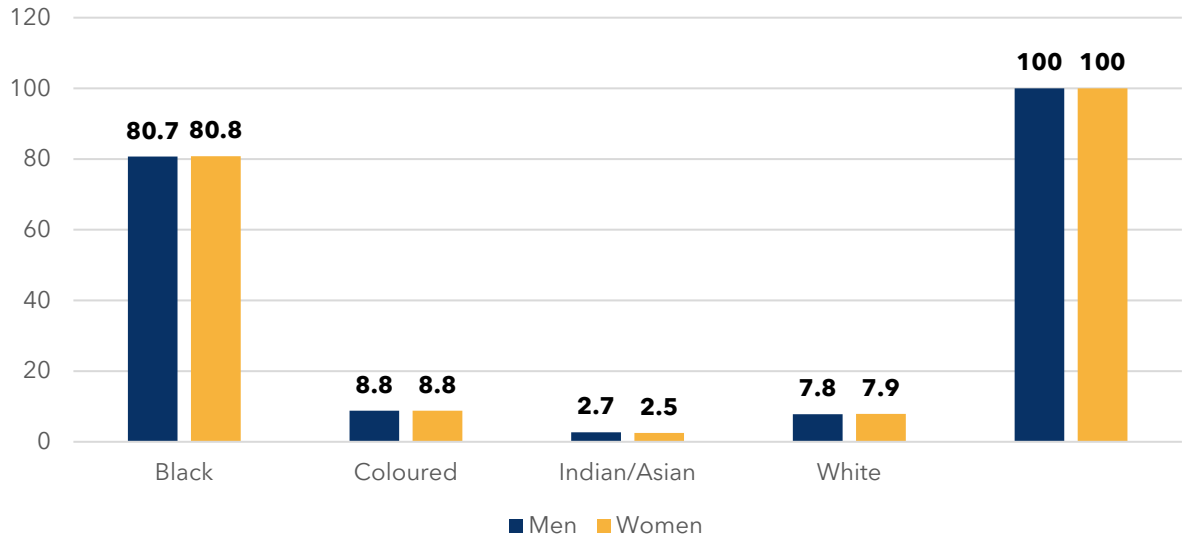
The following table details the sex, race,[25] and employment category (level).

[25] South African Race terminology/categorisation of ***"Black"***: The term is used in the South African context and refers to people with an African, Indian, and/or mixed origin. However, it should be noted that during the Apartheid era, the racial segregation category **"Coloured"** was socially constructed to differentiate between those who were considered black people and people who had a black and a white parent, also segregating "**Asians"** (especially Indians), and some lighter-skinned African nations like the Nama. "Indians" are Asian people whose ancestry lineage can be traced back to India (Seekings, 2008, p. 3). All groups stress the common experience of oppression and racism. The retention of these labels in statistics distinguishes previously disadvantaged individuals in terms of economic empowerment initiatives to reverse past discrimination.

Table 2: Sex, race, and employment category

Employment	**Sex, Race, and Employment level**						
Categories	Sex		Race				Total
	Female	Male	African	Coloured	Indian	White	
Managers	2,366	9,586	4,523	521	540	6,368	11,952
%	20	80	38	4	5	53	2
Professionals	8,072	14,927	13,630	1,130	651	7,588	22,999
%	35	65	59	5	3	33	5
Technicians associate professionals	9,318	46,181	37,911	2,255	519	14,815	55,499
%	17	83	68	4	1	27	11
Clerical support workers	11,586	10,654	15,393	1,701	322	4,823	22,240
%	52	48	69	8	1	22	4
Service and sales workers	1,937	4,613	5,603	225	31	691	6,550
%	30	70	86	3	0	11	1
Skilled trades artisans	4,388	40,917	30,356	2,420	200	12,329	45,305
%	10	90	67	5	0.4	27	9
Plant and machine operators and assemblers	17,186	187,354	196,345	4,816	161	3,219	204,540
%	8	92	96	2	0.1	2	41
Elementary occupations	20,512	96,567	112,698	2,207	48	2,130	117,078
%	18	82	96	2	0	2	23
Learners	4,969	7,419	10,957	778	72	582	12,388
%	40	60	88	6	1	5	2
TOTAL	**80,333**	**418,218**	**427,415**	**16,052**	**2,538**	**52,546**	**498,551**
Total %	**16**	**84**	**86**	**3**	**1**	**11**	**100**

Figure 11: Visual representation of Table 3 relative to mid-year population group and sex

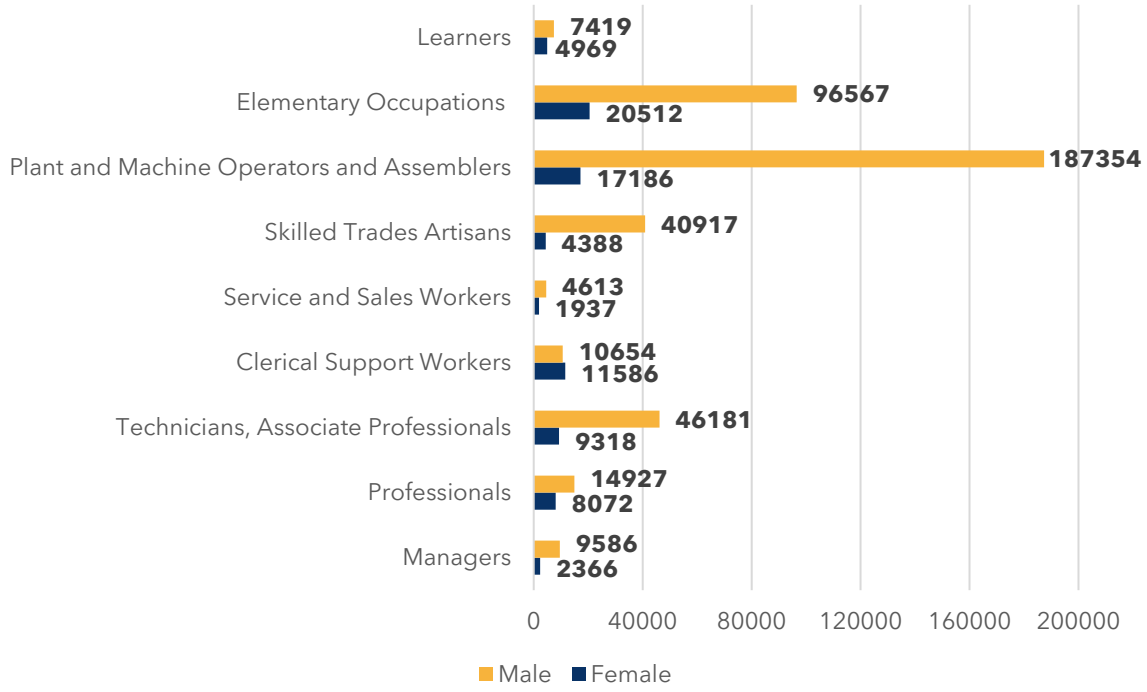


Source STATS SA PO302 2020

Source Workplace Skills Plans 2020 MQA Seta

Table 2 and Figure 11 indicate that racial composition in the sector is dominated by Africans, constituting 86% of the sector's employees, followed by Whites (11%), Coloureds (3%), and Indians (1%). Managerial occupations are comprised of Whites (53%), followed by Africans (38%), Indians (5%), and Coloureds (4%). The sector remains male dominated, employing 80% males throughout the major occupational categories, except for clerical support workers. The occupational categories with the lowest representation of women are trade workers (10%), plant and machine operators and assemblers (8%), and elementary occupations (18%). The overrepresentation of White men in management is still a general trend across sectors.

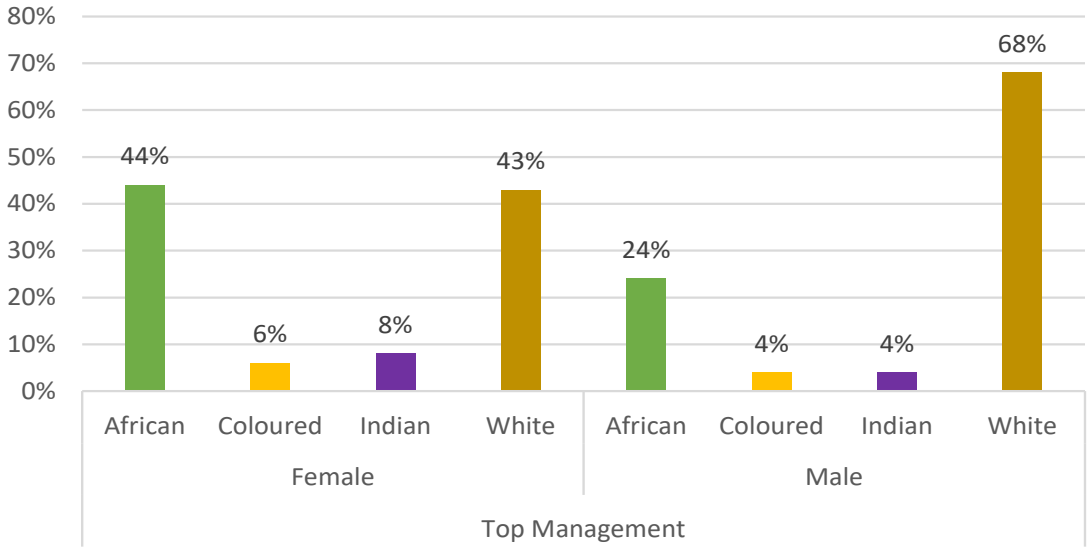
Figure 12: Breakdown by occupation and sex



Source: MQA 2019-2020

South Africa still grapples with racial equality aspects and management levels by race (2019–2020), as depicted in the figure below, which reveals that Whites (63%) dominate the top management category, followed by Africans (28%), Indians (5%), and lastly Coloureds (4%).

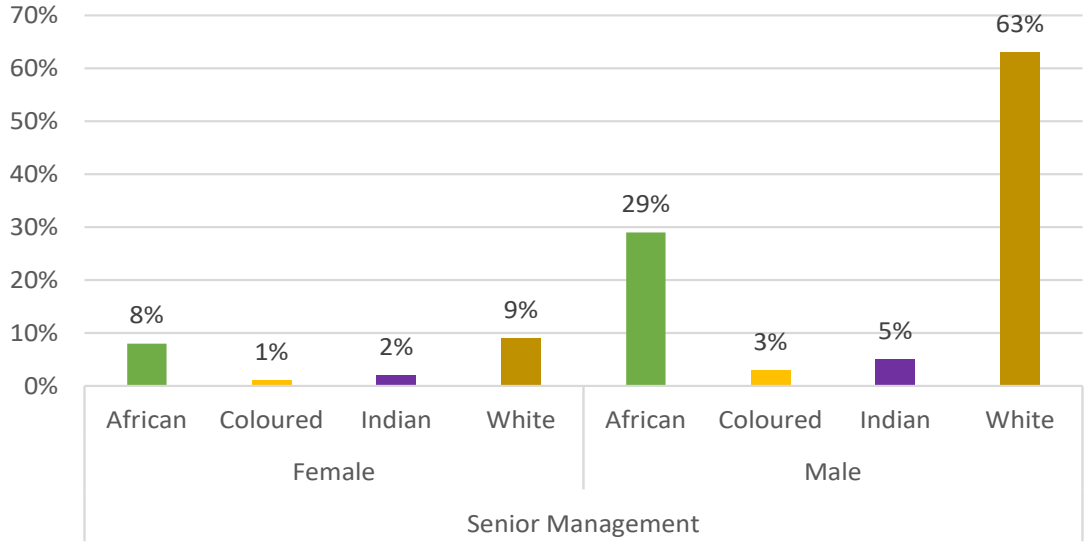
Figure 13: Management level by race and sex: Top management



Source: MQA 2019-2020

In senior management, a similar trend is noticed, with the majority being White (60%), followed by African (30%), Indian (6%), and Coloureds (4%).

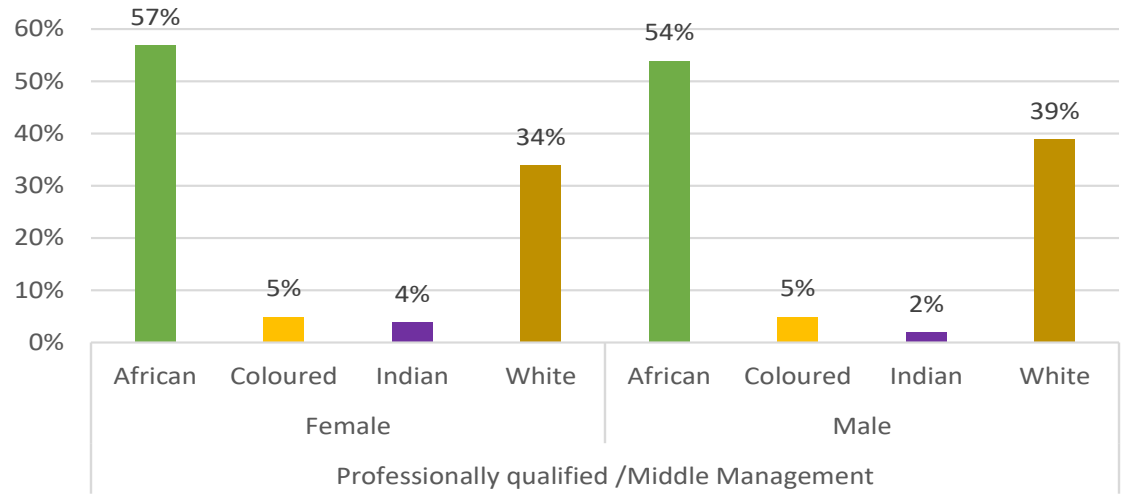
Figure 14: Management level by race and sex: Senior management



Source: MQA 2019-2020

Professionally qualified and experienced specialists, and mid-management are comprised mostly of African (56%) followed by White (37%), Coloured (5%), and Indian (3%).

Figure 15: Management level by race and sex: Middle management



Source MQA 2019

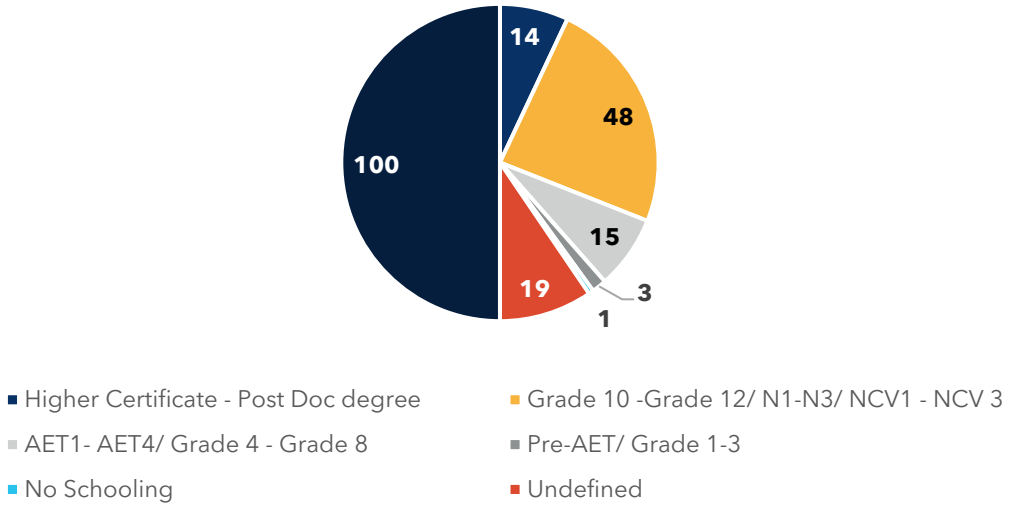
Further, White and African women account for 43% and 44%, respectively, within top management positions, whereas African males account for 24%. Concerning to note is that only 19% of total employees in top management and senior management are women. Professionally qualified and experienced specialists and mid-management consist of 24% women.

3.3.5 Educational Status of Mining Workforce

Analysis of qualifications (see Appendix C) in Figure 16 reveals that the highest proportion of employees (48%) in the sector has achieved between Grade 10 (including N1 and NCV1) and Grade 12 (including up to N3 and NCV3). This is followed by employees who have achieved between Grade 4 (including AET1) and Grade 9 (including up to AET 4), who constitute 14%. On the other hand, 14% of employees have any level of tertiary education, ranging from a higher certificate[26] to a post-doctoral degree. Approximately 1% of the sector's employees are reported as having had no schooling. The "undefined" category represents employees whose education levels were not specified, equating to 19%. The educational grading system, as well as terminology, are further described in the following section on gender parity. Mining labour, skills development, and educational levels should be viewed in the broader context of the post-school education realm. A detailed description of the qualification's framework is included in the end notes of this report.

[26] The higher certificate is an industry specific skills-based qualification attained after one year of training.

Figure 16: Highest education obtained (%)



Source: MQA WSP and ATR 31 May 2019

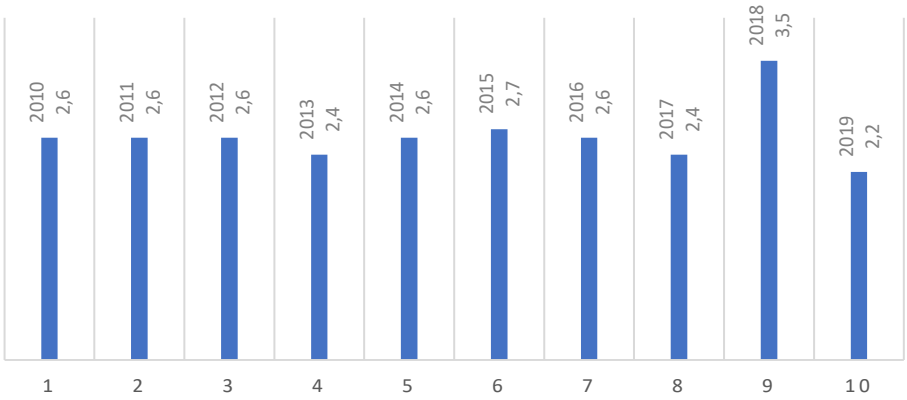
3.3.6 Gender Parity in Post-School Education

In South Africa, education has long been recognised as a means of promoting equal opportunities. To ensure more equitable access, the Post-School Education and Training (PSET) system also must be affordable to all levels. The fact sheet on Gender Parity in PSET 2021, indicates that the Gender Parity Index (GPI)[27] female enrolments are higher than male enrolment in universities (GPI 1.5), technical vocational education and training (TVET) colleges[28] (GPI 1.4), and community education and training (CET) colleges[29] (GPI 2.2).

There is an extremely high Gender Parity Index in CET colleges, which indicates that the level of male participation in CET colleges is significantly lower than that of females. The following figure shows that the CET's Gender Parity Index stood at 2.2 in 2019. According to the fact sheet, disparity in favour of female students will continue in the future. This should result in improved opportunities for trained employees for uptake in the mining sector.

[27] The Gender Parity Index (GPI) is the ratio of the female Gender Enrolment Ratio to the male Gender Enrolment Ratio. A GPI value equal to 1 indicates parity between males and females, a value of less than 1 indicates a disparity in favour of males, and a value of greater than 1 means that there are proportionally more women than men enrolled. It is possible to define the GPI relative to any indicator by dividing its value for females by its value for males. GPI is also calculated using the following indicators: completion rate, graduation rate, unemployment rate, and employment rate.
[28] TVET colleges focus on vocational and occupational education and training with an aim of preparing students to become functional workers
[29] CET colleges focus on community education and training programmes

Figure 17: GPI for CET colleges 2010-2019

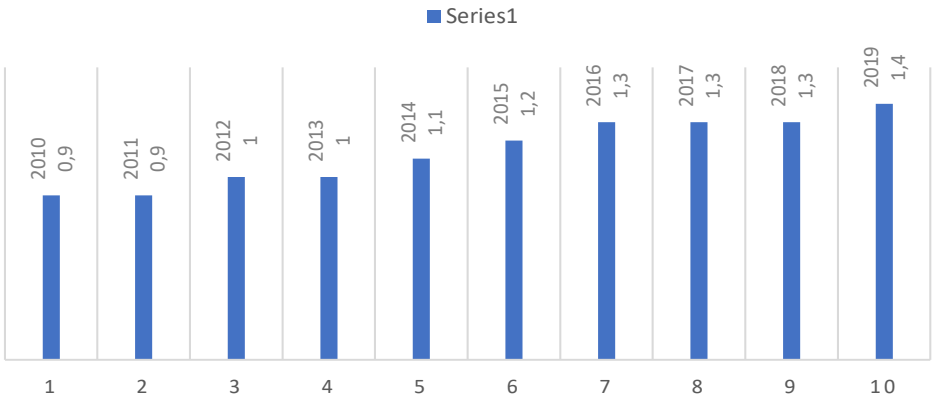


Note: A GPI of 1 indicates equitable gender participation; above 1 is indicative of higher female participation; below 1 is indicative of higher male participation.

Sources: DHET Statistics on PSET in SA 201- 2019 and STATS SA Mid-year population estimates 2020

Figure 18 indicates that in 2019, the participation rate of females far exceeded that of males in TVET colleges, with the GPI at 1.4. This pattern contrasts with that obtained a decade ago, when male participation rates were higher than females. Gender parity reached in 2012 and 2013 but tilted in favour of females over the past 5 years. In 2019, female enrolments in TVET[30] colleges were 40% higher than that of male students.

Figure 18: GPI for TVET colleges 2010-2019



Sources: DHET Statistics on PSET in SA 2010- 2019 and STATS SA Mid-year population estimates 2020

[30] TVET colleges offer two main qualification types, namely the National Certificate (Vocational), referred to as the NCV, and the National Technical Education Diploma (referred to as NATED). NATED comprises six components/part qualifications, namely N1 to N6, with each component being assessed separately via a national examination. Figure 4 presents the GPI for certification rates for the N3 and N6 part-qualifications, and the NC(V) level 4; and shows that gender parity was attained in the completion of N3 and N4 qualifications. However, 10% more female than male students completed NC(V) level 4 qualifications in 2019.

More females than males attended both public and private universities in the period 2011 to 2019, resulting in a GPI of 1.5 in 2019. "This indicates that female student enrolment was 50% higher than that of the male students" ("FACT SHEET - Department of Higher Education and Training"). Despite significant increases in GPI at private universities since 2011, GPI in public universities was higher than that of private universities in 2019 (i.e., more female students are graduating than male students in all fields of study). In 2019, the GPI values for science, engineering, and technology (SET) and other Humanities stood at 1.2, indicating that the numbers of female students graduating were 20% higher than the number of male students graduating with SET and Humanities qualifications.

South Africa's GPI for tertiary education is among the highest in the world. In 2018, the GPI for South Africa stood at 1.3 compared to the averages for high-income countries (1.2), upper-middle-income countries (1.2), OECD members (1.2), and the sub-Saharan African region (0.8).

This suggests the prevalence of deeper issues in the fabric of South African society and entrenched local gender inequality in the country. Although women's unemployment rates have remained higher than males' over the past decade, the positive effects of high female participation and success rates in PSET should eventually narrow the unemployment gap. However, there still appears to be slow uptake in STEM careers such as mining.

3.3.7 Women in STEM Careers

According to IOL,[31] South Africa is not meeting the global average of 30% of women in STEM careers, but the country is still leading in sub-Saharan Africa.

According to UNESCO, 2021 "Sub-Saharan Africa accounts for about 28% of women in STEM careers. South Africa has the highest share of female graduates in sub-Saharan Africa at 32%, and even more female ICT [information and communication technologies] graduates, at 38%."

Reasons for the chronic underrepresentation of women in STEM education, despite efforts being made to encourage more female participation, are somewhat personal, complex, unclear, and multifaceted, making it difficult to pinpoint its root cause. Critical factors perpetuating the gender gap in STEM education include gender stereotypes, male-dominated beliefs, fewer role models, and mathematics anxiety. Some research argues that STEM programmes are viewed as masculine; thus, teachers and parents often undermine girls' potential in math classes as early as preschool. Thus, in their formative years, women are discouraged from participating in the foundational classes of STEM

[31] https://www.iol.co.za/education/sa-narrows-the-gap-of-women-in-stem-careers-ranking-highest-in-sub-saharan-africa-edc9d70b-c5ad-42d7-b86b-b6511a213f1b#:~:text=South%20Africa%20having%20the%20highest,for%202021%20increased%20to%2060%25

programmes. The mining industry in South Africa does not report on linkages of the sector in terms of skills development to STEM programmes, except for scarce skills and vacancies. The following table indicates the number of available positions for men and women based on management and technical occupations.

Table 3: Scarce skills in mining professions

Year	Mine Engineer (Elec & Mech)			Mine Manager (Coal & Metal)			Mine Overseer (Coal & Metal)			Mine Surveyor			Winding Engine Driver		
	Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F
2012-2013	72	71	1	62	49	13	165	157	8	12	12	0	18	14	4
2013-2014	115	100	15	73	57	16	177	168	9	10	10	0	58	34	24
2014-2015	121	102	19	15	12	3	103	93	10	10	8	2	33	15	18
2015-2016	98	80	18	29	22	7	105	99	6	9	8	1	35	19	16
2016-2017	70	57	13	29	24	5	77	67	10	15	9	2	28	12	16
2017-2018	47	39	8	27	22	5	76	65	11	11	9	2	20	11	9
2018-2019	68	56	12	49	36	13	104	83	21	7	4	3	36	21	15
Total	**591**	**505**	**86**	**284**	**222**	**62**	**807**	**732**	**75**	**74**	**60**	**14**	**228**	**126**	**102**
%	**100**	**85.4**	**17.0**	**100**	**78.2**	**27.9**	**100**	**90.7**	**9.3**	**100**	**81.1**	**18.9**	**100**	**55.3**	**44.7**

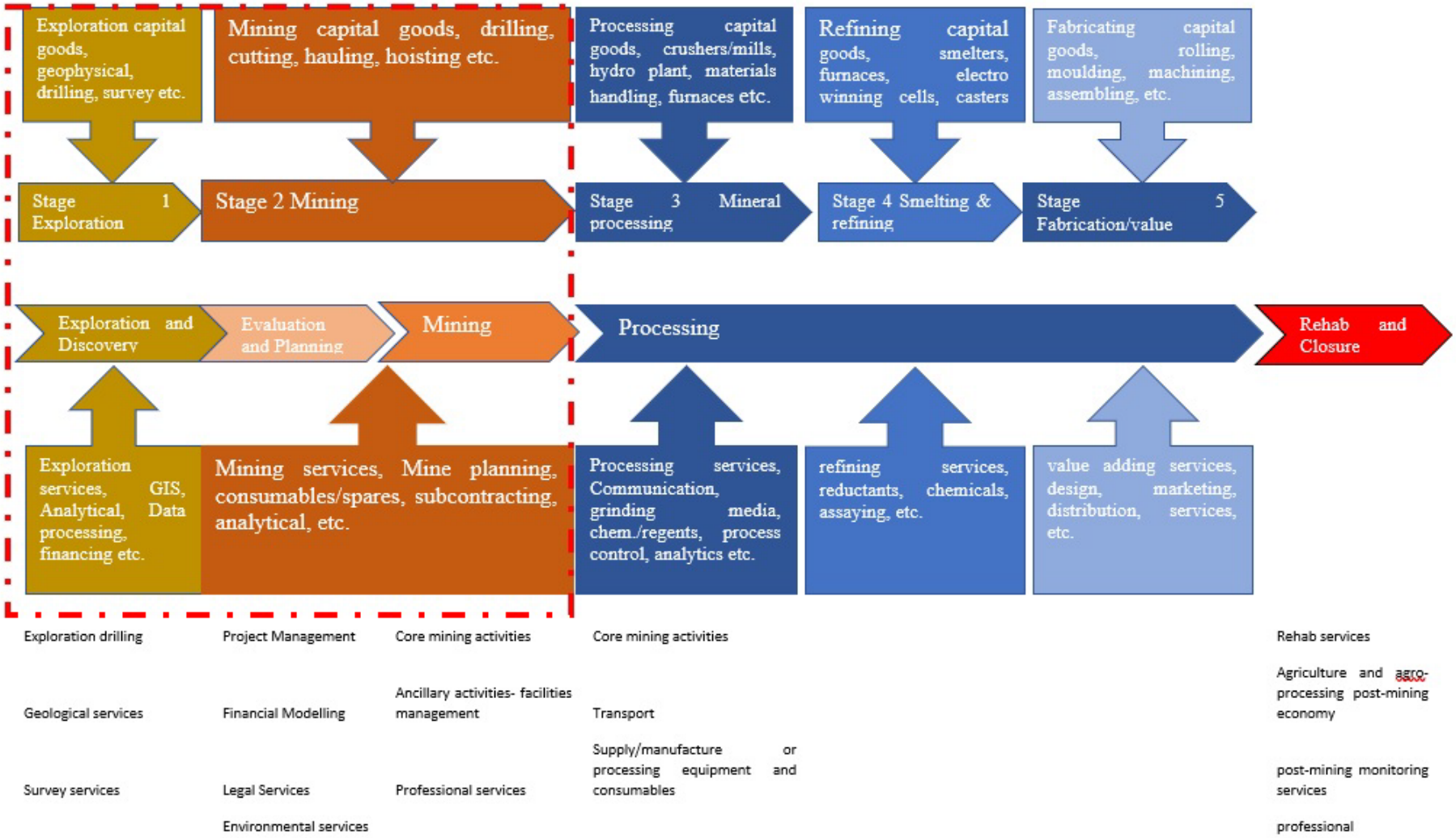
Source MQA, 2020

3.3.7.1 Mining Data: Case study

The research required a breakdown of employment in mining phases. No national data is categorised in this manner. To gain a basic understanding of the workforce and gender breakdown in the mining sector according to the phases, a separate study was conducted. A sample of 5,000 employees was coded and analysed from primary mining Human Resource data collected directly from mining companies. The following is a deductive snapshot of the women segment of mining and identifiable employment data categorised for the three phases of mining. While limited, it gives an indication of possible data that could be further collected in the future to determine more detail on the labour force participation per phase.

Figure 19 breaks down roles per phase of mining. While the study focuses primarily on the area indicated by the dotted line, South African mining is more processing intensive, and an analysis of the remaining mining phases could highlight more women participation, according to key interviewees in management ranks. The exploration phase includes higher levels of planning, exploration services, GIS, analysis, data processing, and financing functions with drilling, surveying, etc. The picture of full-time employment may skew the interpretation of data as a higher level of technical, professional, geology-based consultants are brought in for this phase of mining. The measurement of data on the impact of women and technology is hard to evaluate without specifically setting indicators to measure and collect data on both permanent employees and consultants.

Figure 19. Mining life-cycle phases



3.3.7.2 Sex-Disaggregated Employment by Types of Minerals Produced in-Country

The following figure demonstrates the total number employed per commodity in 2020 and the percentage that is women. The highest percentages of women per commodity are found in chrome, iron ore, and diamond mining, followed by coal, manganese, platinum, and gold.

The gold and platinum sub-sectors are the most labour intensive due to underground mining methods. These commodities exhibit the lowest levels of female workforce participation, which may be due in part to the high proportion of unskilled, manual labour employed.

Figure 20: Commodity employment gender snapshot 2020

Platinum	Gold	Coal	Iron-ore	Manganese	Chrome	Diamonds
• 163538 • 13%	• 93682 • 13%	• 91459 • 15%	• 20607 • 16%	• 12036 • 15%	• 19587 • 17%	• 13983 • 15%

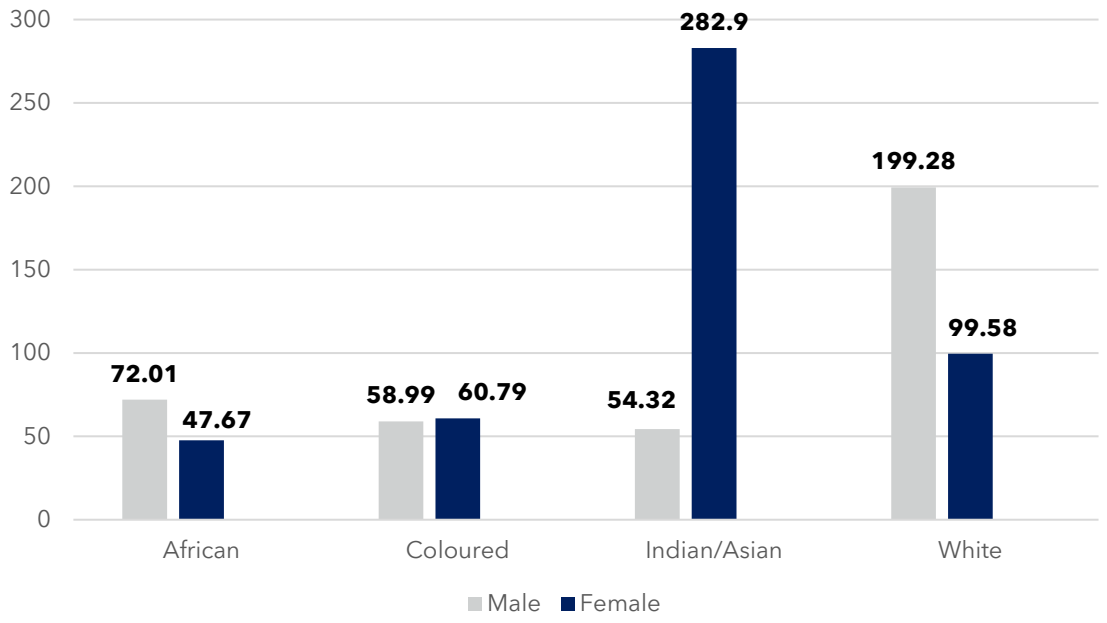
Source DMRE and Minerals Council 2020

3.3.7.3 Gender Pay Gap by Level of Responsibility

South Africa has various pieces of legislation aimed at preventing gender discrimination in the workplace, but according to the QLFS, the gender pay gap measured specifically for the mining sector is at a ratio of 2.06 to 1. This appears extreme and may be a function of the relatively small size of what is an annual sample survey. Reference to published academic research on South Africa's general employment situation (Hill and Kohler, 2020) and research conducted as part of this study indicate that the country has a consistent median gender pay gap of **between 23% and 35%**. This appears more realistic than the abovementioned 50%. According to the ILO, the average global gap is approximately 20%. Guidance on fair remuneration is provided in the Constitution, the Promotion of Equality and Prevention of Unfair Discrimination Act (PEPUDA – promoting "equal pay for equal work," which states that the state has a duty to intervene in the case of unfair practices) and the Employment Equity Act. There is also *the King IV Report on Good Governance,* which states that a company's board must approve reports on and the implementation of its remuneration policy, which should reflect that "the organisation remunerates fairly, responsibly and transparently." The *King IV Report* is mandatory for JSE-listed companies. Hill and Kohler's (2020) June gap hourly labour rate[32] and ratio excerpt data is included in this report in the following figures.

[32] The study by Hill and Kohler (2020) represents national findings and is not mining-specific. Results of the survey presented in Chapter 4 provide some sector specific highlights.

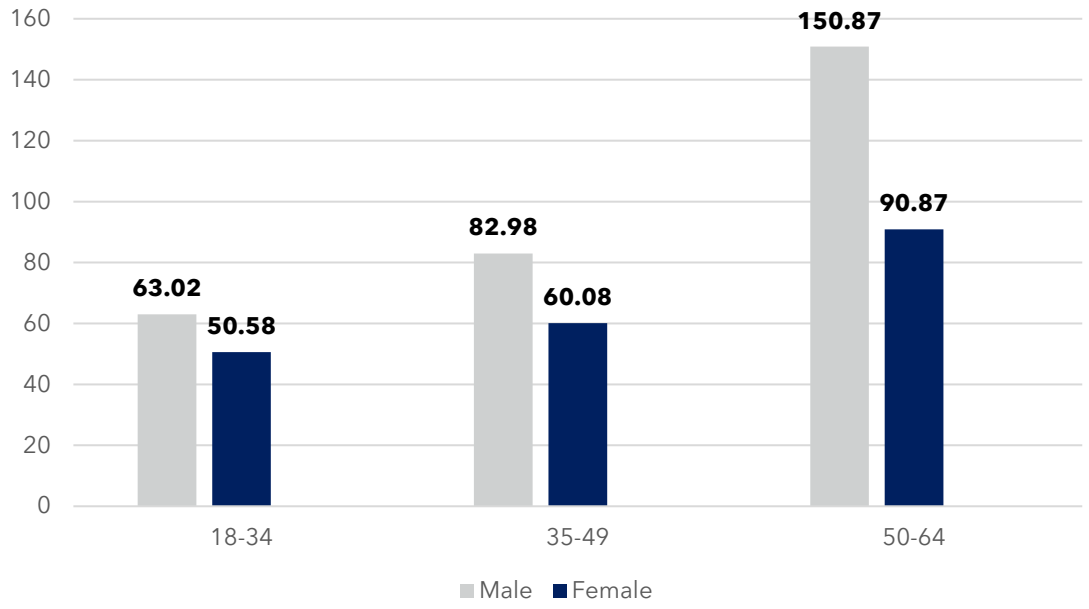
Figure 21: Pay gap (R/hr) by race



Source: Hill & Kohler, 2020

The highest gender (rand/hour) pay gap is between Indian women and Indian men, where women earn six times more than their counterparts per hour. The statistics relate to the male and female members of different races. Coloured women earn slightly more than coloured men, while African men earn more per hour than African women. White men earn nearly double the rate per hour than White women and three and four times more than Coloured and African women. While Indian women earn the highest rates, it should be noted that they make up a minuscule percentage of the total employed.

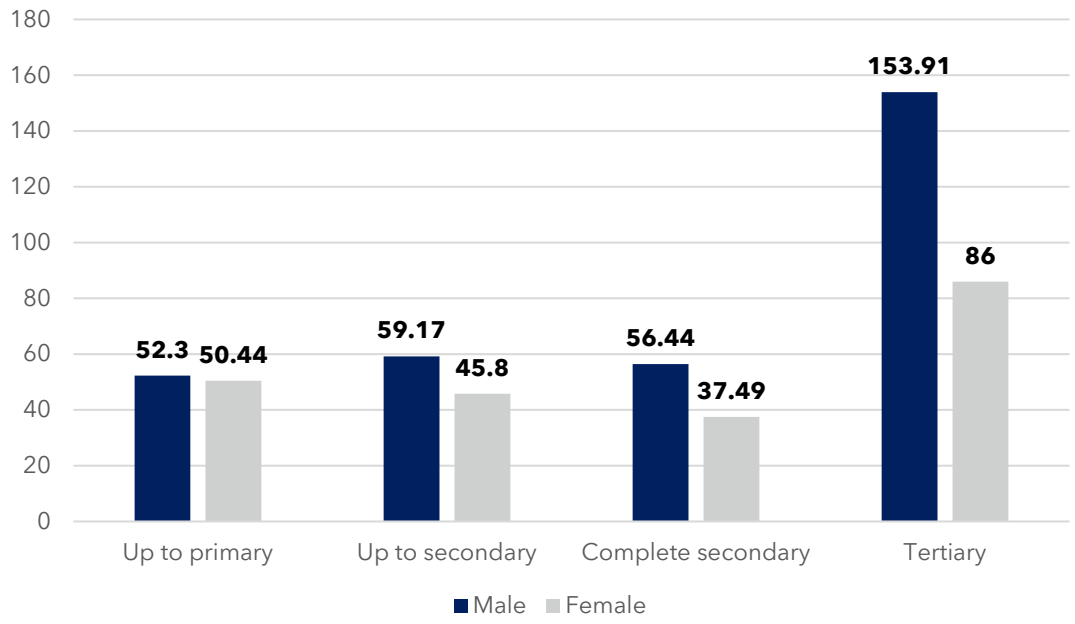
Figure 22: Pay gap (R/hr) by age group



Source: Hill & Kohler, 2020

Figure 22 indicates that the highest pay gap in the age group 50 to 64, which indicates the highest level of employment and experience due to the length of time worked. The proportion of men to women pay gap is consistent in the 18 to 34 and 35-to-49-year age categories. This is a dramatic increase for men ages 35-49 and 50-64, compared to the slight increase for women.

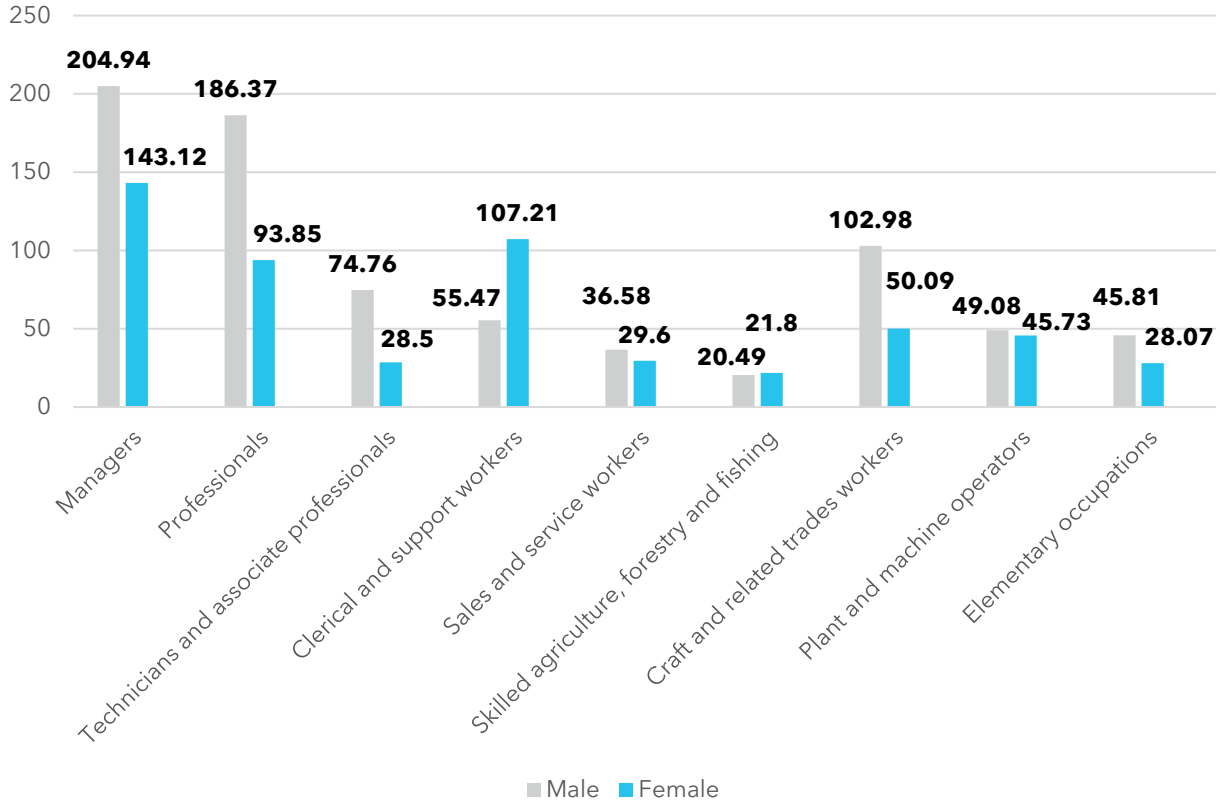
Figure 23: Pay gap (R/ hr) by educational level



Source: Hill & Kohler, 2020

Figure 23 indicates that qualified men earn more than all other categories and double that of women who have the same, equivalent, or higher educational qualifications. Lower-skilled levels see a closer match in pay, which widens with more qualifications.

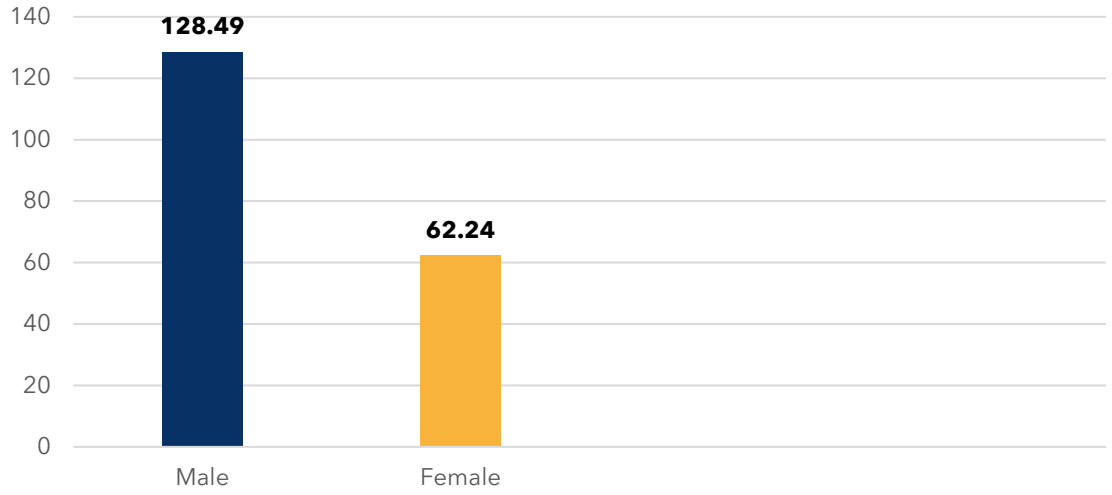
Figure 24: Pay gap (R/hr) by occupation category



Source: Hill & Kohler, 2020

Male managers earn the highest hourly rate, followed by professionally qualified men. The pay gap is high in these two categories, as well as for technicians and craft-related industries. Women earn higher wages in clerical support roles than men.

Figure 25: Gender pay gap (R/hour)



On average, men earn more than women per hour, except for Indian/Asian women, who earn more than their counterparts per hour. In the clerical and support workers category,

more women earn higher salaries than men. In the mining and quarrying sector, men earn more than double their counterparts. White men with tertiary qualifications in management and professional occupations aged 50 to 64 earn the highest rate per hour in the country, followed by White women relative to other races. Women in technical and associated professions earn less per hour than their male counterparts.

3.3.8 Public Sector Employment in Mining

3.3.8.1 Sex-Disaggregated Employment in Public Institutions, Agencies, and Ministries Responsible for Mining

In the public sector work environment, the highest representation of African women is in clerical positions, followed by their representation in professional occupations (where they outnumber their male counterparts); as technicians and associated professions, they are slightly less represented. More African men still hold higher positions in senior management relative to African women.

Table 4: DMRE gender per occupational band

Occupational band	Male				Occupational band	Female				Total
	African	Coloured	Indian	White		African	Coloured	Indian	White	
Professionals	118	0	2	6		144	3	3	5	281
%	42	0	1	2		51	1	1	2	100
Technicians and associate prof.	155	2	0	19		133	4	1	4	317
%	49	1	0	6		42	1	0	1	100
Labourers and related workers	3	0	0	0		1	0	0	0	4
%	75	0	0	0		25	0	0	0	100
Service shop market sales workers	33	2	0	4		16	1	0	0	56
%	59	4	0	7		29	2	0	0	100
Clerks	70	2	0	1		194	13	0	15	295
%	24	1	0	0		66	4	0	5	100
Senior officials, managers	38	0	0	4		21	0	0	0	63
TOTAL	**417**	**6**	**2**	**33**		**509**	**21**	**4**	**24**	**1016**
%	**60**	**0**	**0**	**6**		**33**	**0**	**0**	**0**	**100**

Source DMRE 2019 Annual report

Top permanent management positions are held by both African women and men, with a higher number of men than women in permanent senior management positions. The highest number of African women are employed in professionally qualified and technically skilled positions, followed by semi-skilled discretionary positions.

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Table 5: DMRE gender per occupational band permanent and contract employed

Occupational band	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Top management (P)	3	0	0	0	3	0	0	0	6
Senior management (P)	32	0	0	4	22	0	0	0	58
Prof qualified mid-management (P)	204	3	2	23	182	2	4	8	428
Skilled technical and academic qualified(P)	83	1	0	5	182	14	0	15	300
Semi-skilled discretionary	63	2	0	1	106	4	0	1	177
Contract top management	3	0	0	0	0	0	0	0	3
Contract senior manager	2	0	0	0	1	0	0	0	3
Contract prof. qual.	14	0	0	0	4	1	0	0	19
Contract skilled tech	11	0	0	0	9	0	0	0	20
Contract semi-skilled	2	0	0	0	0	0	0	0	2
TOTAL	**417**	**6**	**2**	**33**	**509**	**21**	**4**	**24**	**1016**

Source DMRE 2019 Annual report

The skills development data does not indicate the type of skills development programme but indicates that the highest category of employees, being African women in professional positions, are involved in continued professional development, followed by their African male counterparts. Women employed in clerical positions are the next-highest category represented, followed by women in technical and associated professions.

Table 6: DMRE skills development April 2018 to March 2019

Occupational band	Male				Female				Total
	African	Coloured	Indian	White	African	Coloured	Indian	White	
Legislators' senior officials and managers	40	0	0	4	26	0	0	0	70
Professionals	190	4	2	11	211	3	4	7	432
Technicians and ass. Prof.	109	0	0	16	132	8	0	5	270
Clerks	64	2	0	1	140	10	0	12	229
Services and sales	29	2	0	4	12	1	0	0	48
Senior officials, skilled agriculture, and fisheries	0	0	0	0	0	0	0	0	0
Craft and related trades	0	0	0	0	0	0	0	0	0
Plant operators and assemblers	0	0	0	0	0	0	0	0	0
Elementary occupations	0	0	0	0	0	0	0	0	0
TOTAL	**432**	**8**	**2**	**36**	**521**	**21**	**4**	**24**	**1049**
Disabled	0	0	0	0	0	0	0	0	0

Source MQA Weighted WSP/ATR (31 May 2012-2018) and MQA Weighted WSP (31 May 2019)

3.3.8.2 Sex-Disaggregated Employment by Ownership Structures of Mining Companies (state-owned enterprises [SOEs]; locally owned mining companies; multinationals)

Table 7: Equity distribution mining companies

Year	Race				Total
	African	Coloured	Indian	White	
2012	529,635	14,997	3,167	80,951	628,750
2013	485,210	13,763	2,855	70,690	572,518
2014	486,524	11,515	2,879	69,092	575,768
2015	441,699	15,352	2,832	65,365	525,248
2016	435,100	19,582	3,907	61,414	520,003
2017	474,189	17,349	2,701	56,666	550,905
2018	424,537	13,070	2,629	532,235	493,471
2019	427,415	16,052	2,538	52,546	498,551

Sources: MQA Weighted WSP/ATR (May 31, 2012 -2018) and MQA Weighted WSP (May 31, 2019)

Table 8: Management by equity

Year	Race				Total	% Of management to total employment
	African	Coloured	Indian	White		
2012	5,377	692	599	10,979	17,643	2.8
2013	4,005	299	288	6,235	10,827	1.9
2014	3,913	490	591	8,315	13,306	2.3
2015	4,315	586	649	8,614	14,164	2.7
2016	4,340	649	704	7,704	13,397	2.6
2017	9,018	1,311	1,071	13,656	25,057	4.5
2018	5,453	518	550	6,933	13,455	2.7
2019	4,523	521	540	6,368	11,952	

Sources: MQA Weighted WSP/ATR (May 31, 2012 -2018) and MQA Weighted WSP (May 31, 2019)

4.0 CHALLENGES THAT WOMEN FACE IN THE WORKPLACE

4.1 Introduction

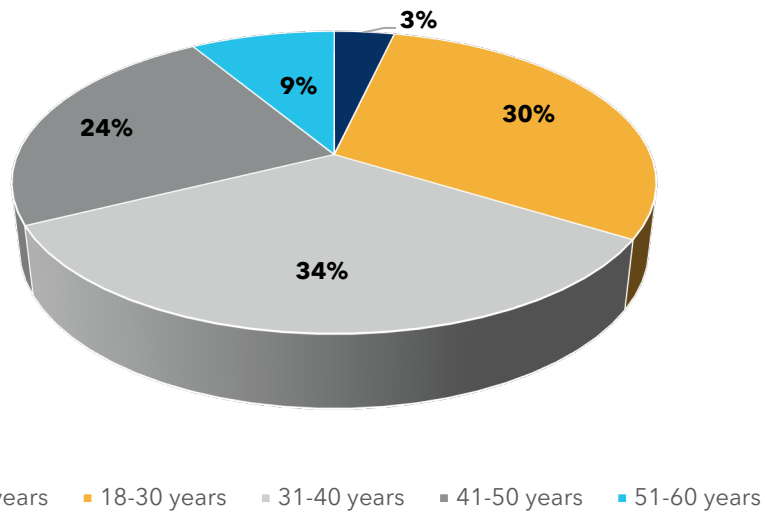
The research team conducted a qualitative study using focus groups as well as a participant questionnaire attached as Appendix A. The following section details the findings of the online survey. To date, 452 women in mining have completed the questionnaire. Section 3.3 highlights the participant demographic as well as the identified trends in terms of the issues raised.

4.2 Participant Demography

Via the online survey, 452 women participated in the study.

The study indicated that the bulk of respondents (41%) were permanent employees working at a mine, 8.3% worked for a consulting company, 16.7% worked as subcontractors, and 8.3% worked in mining-related services.

Figure 26: Respondent type

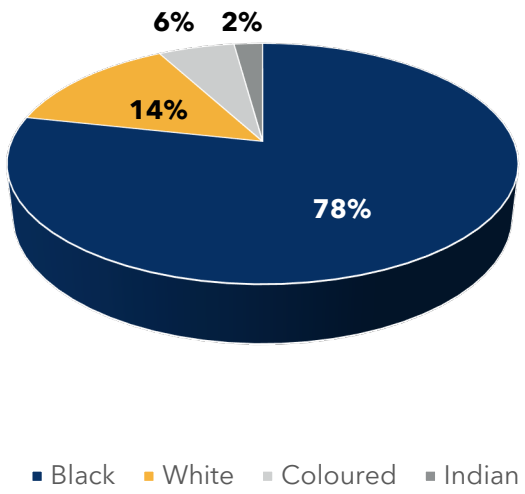


Source: Author (Qualitative gender study 2021)

A large percentage of the respondents were African women in the age group 31-40. Four percent of the group of professionally qualified women were originally residents of other African countries, including Zimbabwe, and had subsequently moved to South Africa. The highest number of respondents (32%) were working in the platinum mining segment; coal, copper, diamonds, gold, etc., were by and large equally represented in the survey.

Figures 27 and 28 indicate the race and age of respondents.

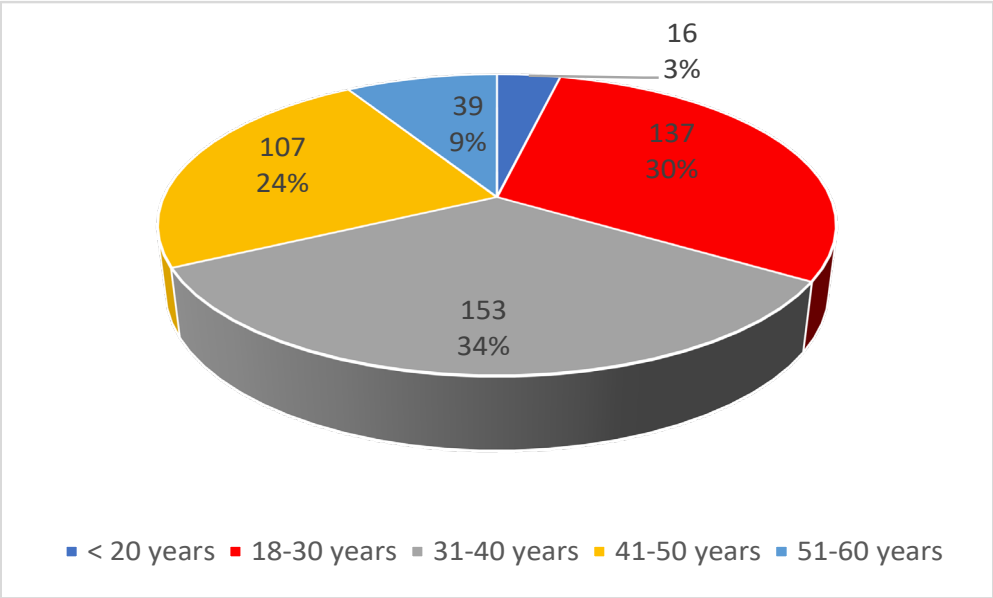
Figure 27: Race



Source: Author (Qualitative gender study 2021)

In total, 78% of respondents were African women 31-40 years old. The significance of this group is that it is statistically the mid-career group who have been employed between 6 and 10 years.

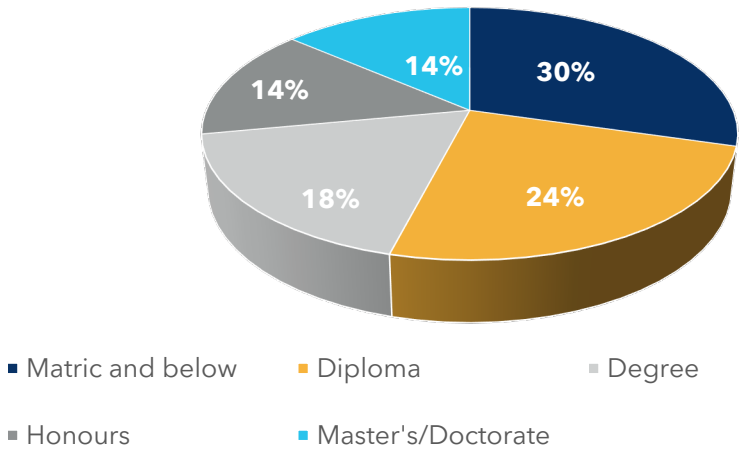
Figure 28. Age profile of participants



Source: Author (Qualitative gender study 2021)

The respondents have a range of skill levels, with the majority highly educated from college to university and 14% having a school-leaving qualification and no further education. The elevated level of skills across the board is in line with findings in the previous chapter.

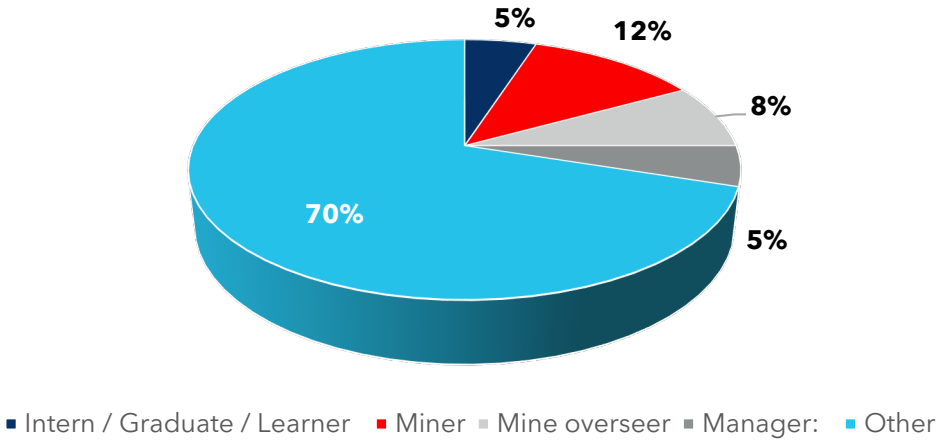
Figure 29: Education level



Source: Author (Qualitative gender study 2021)

Asked what their roles were in mining, many respondents fall in the category "other," which is mostly composed of administration, HR, and operational career areas. Of the total, 12% of the group are specifically in mining roles, 8 % are overseers, and 5% are in management.

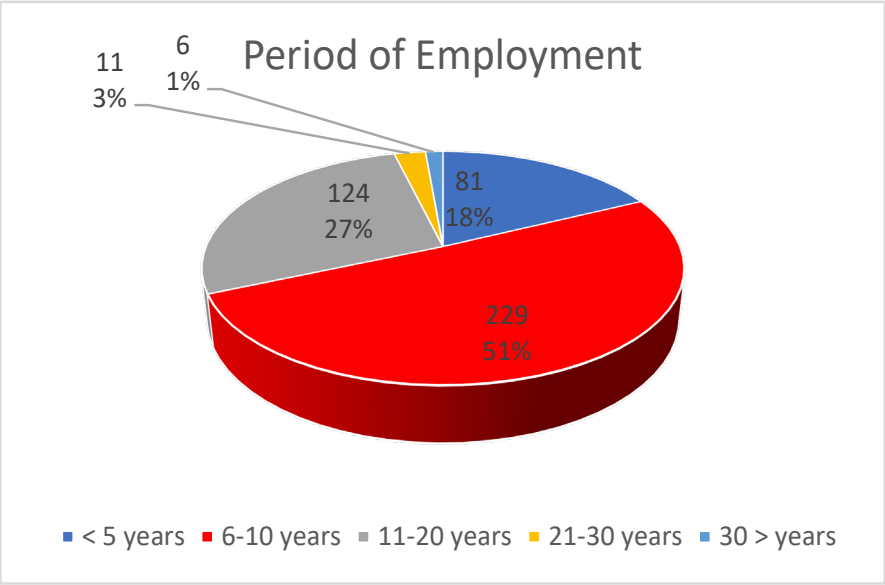
Figure 30: Current role in mining



Source: Author (Qualitative gender study 2021)

The largest group of respondents had been employed for 6 to 10 years; 27% had been employed for 11 to 20 years; and 18 % had been employed for less than 5 years.

Figure 31: Period of employment

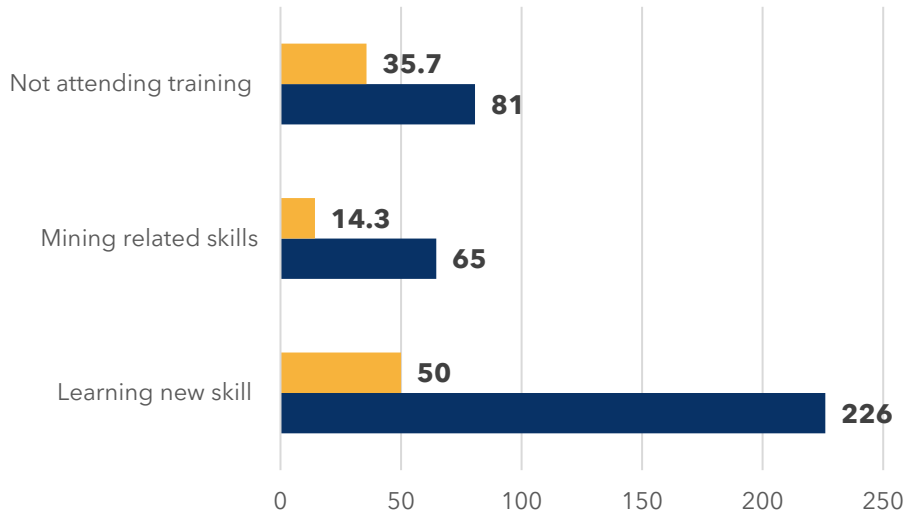


4.2.1 Women in Mining Phase/Stage Employment

The respondents indicated that 21.4% were employed in Stage 1 exploration activities, 50% in Stage 2 mining, 28.6% in mineral processing, 28% in smelting, 14.3 % in fabrication, and 12% in mine closure. An equal percentage of women work in capital projects, process development, consulting, evaluation, and planning occupations. From this research, it is evident that the scope of mining phases should be broadened in follow-up studies.

Appendix B reflects a broad range of sub-sectors for standardising the categorisation of data.

Figure 32: Women in mining by phase of employment

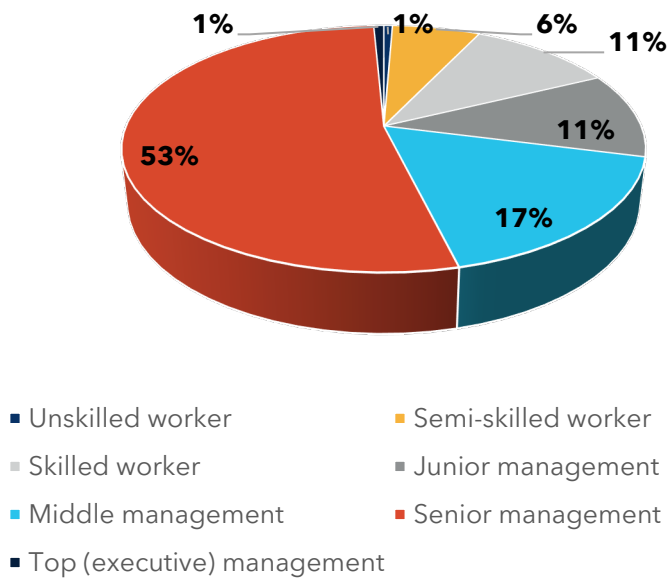


4.2.2 Employment Position

The demographic included many in the "working class." Respondents indicated their level of management ranging from junior to top executive management, and the highest numbers of respondents were in middle and senior management. These areas include professionals working in the mining environment, both as employees and on contract. A small sample of unskilled workers was sampled,[33] largely due to their lack of access to the Internet and/or digital technology skills to complete surveys online. In future studies, additional methods can be applied to gather data in this segment. The largest segment of respondents has been employed for 6-10 years.

Figure 32 indicates the breakdown of respondents' employment positions.

Figure 33: Employment position



Source: Author (Qualitative gender study 2021)

4.2.3 Sector Employment

The respondents indicated that 66% have always been employed in the mining sector, while 33% indicated that they had worked in other sectors, such as the waste industry, education, business, and other sectors, prior to being employed in the mining sector. Of these, 83.3% indicated they would stay in the mining sector, while 16.7% were actively seeking other employment options.

The most common reasons cited for entering the mining sector included better salary prospects, receipt of bursaries in mining, mining qualifications, various job types within

[33] The research method of collection could skew the data for unskilled and semi-skilled workers, which make up larger numbers of the total workforce.

the mining industry, industry experience and solving industrial-scale problems, making a difference, and a willingness to learn and progress in a "man's" world.

Respondents indicated that factors such as bursaries and focused career development are significant indicators for retaining employees in the sector.

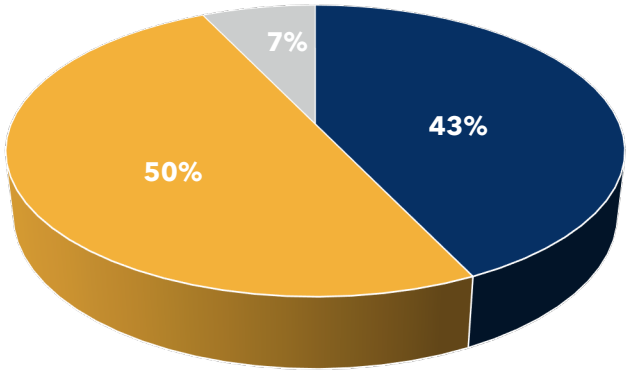
Figure 34: Sector employment

Source: Author (Qualitative gender study 2021)

4.2.4 Up-skilling

In the survey, 50% of the workforce were in the process of learning new skills; 14.3% were specifically mining-related skills, while 35.7% were not attending any training programmes. Training types included academic research, project management training, on-the-job training, coding, ethics, design thinking, management, change management, and sales.

Figure 35: Up-skilling in process



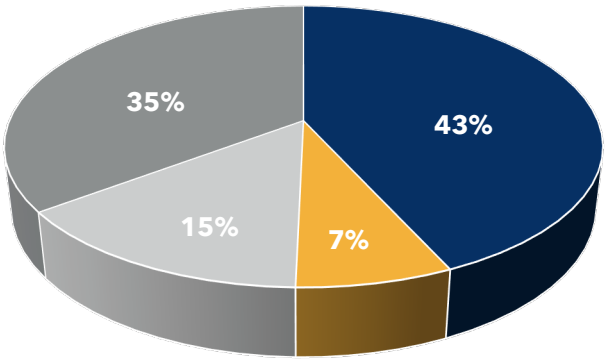
- Career options are available
- Career options not available
- Not interested in career development

Source: Author (Qualitative gender study 2021)

4.2.5 Career Path Options Available

Fifty percent of the respondents indicated that there were no career options available, while 43% indicated options in several areas, such as employee relations and transformation, engineering and management, training and research, and small business suppliers. Seven percent did not find it relevant.

Figure 36: Career path options



- Aware of gender pay gap
- Do not experience a gender pay gap
- uncertain
- Not aware of gender pay gap

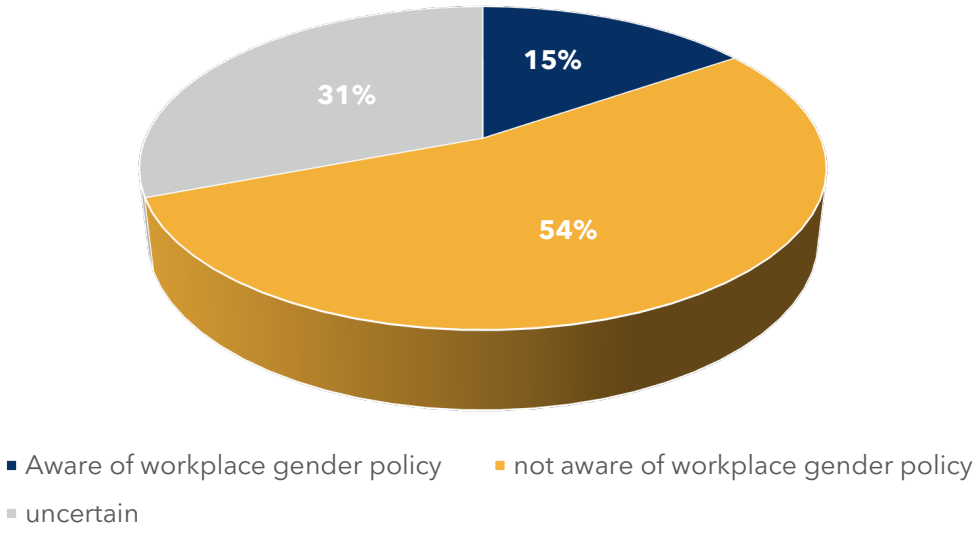
Source: Author (Qualitative gender study 2021)

4.2.6 Gender Pay Gap Awareness

The bulk of the respondents (42.9%) indicated that they were aware of a gender pay gap and cited instances of unequal pay for the same roles and responsibilities. In addition,

14.3% were uncertain, 7.1% had not experienced this at the company they were employed, and 35% were not aware of pay gaps. The largest group indicated an hourly rate variance of approximately 25%. This confirms the pay gap as being in the range of 25% for the respondent group of middle to senior management included in the previous chapter of this report.

Figure 37: Gender pay gap awareness

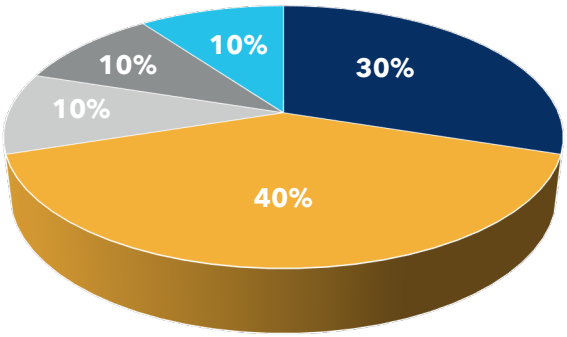


Source: Author (Qualitative gender study 2021)

4.2.7 Gender Policy Awareness

53.8% of respondents indicated a lack of gender-specific policy in the workplace, with 30.8% being uncertain and 15.4% indicating knowledge of some form of gender policy existing.

Figure 38: Gender policy awareness



- Gender policy is applied and measured
- gender policy is not applied and measured
- Don't feel that it is applicable
- no idea
- uncertain

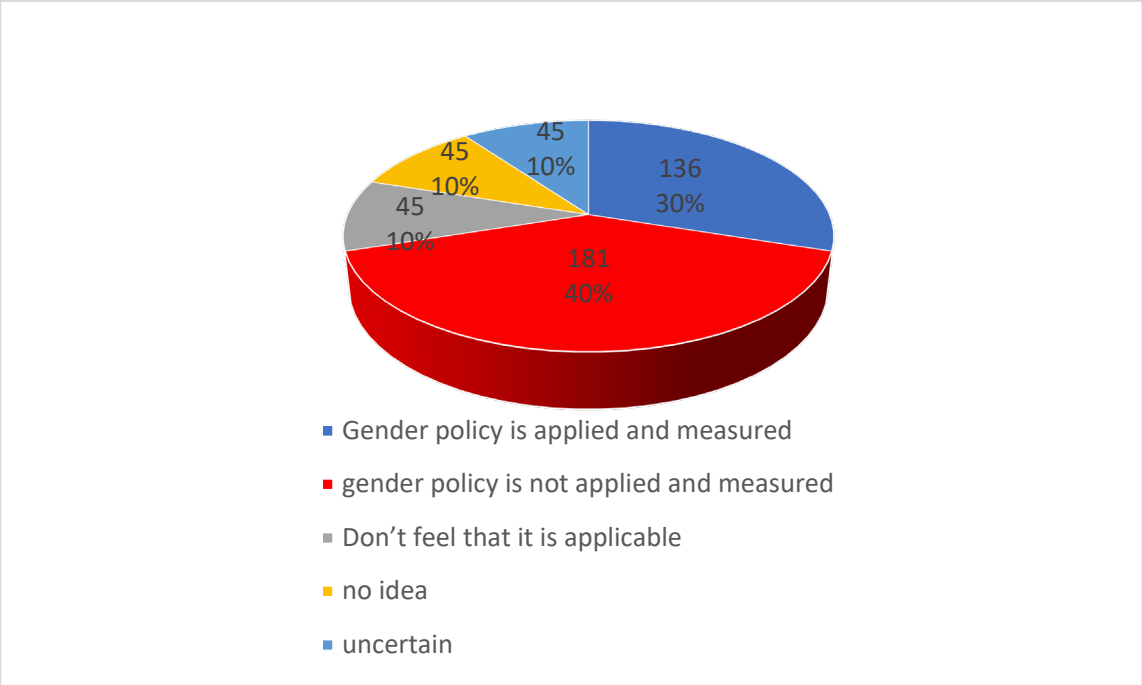
Source: Author (Qualitative gender study 2021)

4.2.8 Gender Policy Application and Measurement

Of those who identified that gender policy in their company exists, 40% indicated that it was not applied or measured by top management, while 30% indicated that policy was applied and measured, with the remainder being uncertain.

The responses show a significant level of confusion about substantive gender equality and gender mainstreaming on the one hand and government policies intended merely to create numerical balance and equity policy in the workplace on the other hand.

Figure 39: Policy application and measurement



Source: Author (Qualitative gender study 2021)

4.2.9 The Role of Technology

In response to the question: "How has technology changed, enabled, or increased women's participation in mining?" responses included the ability to work from home and remotely, having access to mine design software, geological modelling software, 4IR job training options, more participation by women as manual labour is replaced by machine labour. A significant percentage indicated that an elevated level of skill and competency in technology is required for performing their current job. Women's role in technology offers an opportunity for more success in the workplace.

4.2.10 Barriers

In response to the open-ended question: "What barriers do women face more commonly to access mining jobs; to be retained in mining jobs; to get promoted?" The following responses were received:

- Low-level, career-limiting administration or HR-based employment.
- Preferential treatment of male counterparts for promotion.
- Most engineering, procurement, and construction management companies are made up of older White men who have various gender biases.
- A perception that women are promoted to make up numbers based on gender and/or race and not valued for their contribution.
- Women are not physically strong enough or technically trained enough.

- Maternity, pregnancy, and child-rearing responsibilities reduce progression prospects.
- Higher-skilled technical posts are automatically also the pool from which management is chosen.
- Length of employment (women work for more years before they are promoted).
- Cultural perceptions of women's abilities and role in the home and workplace.
- Work hours.
- What is missing is evidence that companies are adopting a proactive approach to tackling gender equality and applying gender-aware practices across all jurisdictions in which they operate—beyond compliance.
- Companies need to focus on gender balance at the top and on issues like the health and safety of women workers and the fundamental rights of women workers to a safe and healthy workplace.
- Women should be supported to play a more prominent role in technology and innovation so that the industry continues to grow.

4.2.11 Most Mentioned Concerns

Overall, the survey results indicate disparate strategies and corporate measures to ensure:

- The assessment of mining-related impacts on women and monitoring of how effectively these impacts are being managed.
- Women workers are protected from sexual harassment and gender-based violence (GBV).
- Women workers have fit-for-purpose personal protective equipment (PPE).
- Women workers have access to safe and separate sanitation facilities and gender-appropriate health services.
- Women are included in support programmes across the board.
- Women are included in the supply chain, the mentoring of new entrants into local business development, and local procurement for mine services and supplies.

4.3 Gender-Related Themes Identified in the Research Sample

Table 9: Gender themes

Values	Support	Workplace	Behavioural
Personal development	Maternity leave	Flexible work hours	GBV
Transformation	School and crèche support (childcare)	Remote work	Sexual harassment
Diversity	Pregnancy	Work-life balance	Racism
Career advancement	Breastfeeding stations	Pay and pay gap	Health and safety
Recognition	Mentoring	PPE	Cultural belief systems on women's work
Inclusion		Career path development No policy monitoring by top management Restricted employment Lower levels have a high number of admin-only jobs Acting role in management positions	

Source: Author (Survey results 2021)

Table 9 highlights four broad areas identified from participant responses based on the challenges they experienced in the workplace. These can be categorised in terms of values, support requirements, workplace aspects and cultural norms, standards, behaviours, and practices.

The responses covered structural aspects, policy aspects, and praxis aspects of mining in the workplace and domestic factors influencing work.

4.3.1 Transformation

In response to the open question: "How can the sector be transformed?" the following comments were received:

- Lack of discerning which transformation aspects are more important and measuring any positive results instead of prioritising the most important aspects.
- Companies show very mixed results on internal strategies, implementation, and gender activities within their businesses. On the one hand, many companies are

addressing the issue of women's representation on their boards of directors and in their management teams while, on the other hand, not addressing other aspects affecting the workforce.

- Women participants acknowledged that more diverse and inclusive workplaces are required.
- Women can add value in many areas, including technologically driven areas. To overcome the stereotypical ideologies of mining being based on physical strength, more roles are possible with better technology. Some respondents were interested in pursuing training and education in technology but were uncertain as to what to concentrate on in terms of career path selection.
- A range of leadership styles that result in the creation of support and nurturing workplaces should be encouraged. In turn, employee engagement will improve and positively affect staff motivation and morale. While companies acknowledge various shortcomings, they do little to improve the praxis.
- While companies spend time planning how they will hire more women in leadership roles, they do not have a clear plan for developing and retaining women in the sector.
- Companies must establish a culture with models and policies that include women in the workplace, incorporating the flexibility of remote work and flexible hours that make provisions for childcare commitments, scholar transport, etc.
- Ultimately, the aim should not simply be to push numbers and comply with legislation but to develop career paths for women within the mining sector, with initiatives such as mentorship of women by women. This will impact positively on the work-based culture, entrenched stereotypical behaviours, and mindsets. By acknowledging gender differences and using those differences in a positive way, change can be more meaningful.
- One reason that gender issues are commonly neglected is due to the legislative and regulatory frameworks, which do not include provisions for a specified range of gender actions.

4.3.2 GBV, Harassment, Workplace Violence, and Racism

Respondents indicated that sexual harassment, GBV, and workplace violence still occur, even though policies to abate these often exist.

The responses received included:

- Surveillance cameras should be implemented and monitored in hidden areas underground to reduce incidents of violence and sexual harassment in the mines.

- Mine management should stop shifting the resolution of sexual harassment cases to unions and become involved in finding solutions.
- Visibility and accessibility of sexual harassment policies to all employees are essential since computerised documents are not accessible to all employees, especially to the underground workforce.
- Information on violence and sexual harassment materials should be translated for better access to the low-literacy mine employees, which could be included in the code of conduct.
- Mining community dialogues should be developed with men and women to address violence and sexual harassment in the mines.

4.3.3 Health and Safety

Provision of gender-specific PPE, in terms of sizing, design, and function, is still a challenge.

5.0 GOOD PRACTICES TO OVERCOME BARRIERS FACED BY WOMEN

Increasingly, albeit at a pace that needs accelerating, mining companies, governments, and other agencies are adopting measures to assist women in overcoming barriers to their participation in mining. In South Africa, some of these are predominantly home-grown, while others entail alignment with or participation in international initiatives. Some of these measures are described below.

5.1 Minerals Council Institutional Support

MINCOSA's Women in Mining Leadership Forum (WiMLF)

In 2020, MINCOSA developed a "white paper" on Women in Mining, the purpose of which was "to streamline strategies of the mining industry to advance women in mining" and make the workplace conducive to women's success. To this end, a Women in Mining Task Team (WiMTT) drew from member companies to oversee the implementation of the white paper and its monitoring and evaluation.

The WiMTT identified six priority initiatives that support the goals of the white paper, including:

1	The development of a Women in Mining organisational structure
2	Having a dynamic Women in Mining communication strategy
3	The celebration of Women in Mining COVID-19 heroes
4	Gaining a commitment from member companies to deliver on the seven foundational measures
5	Emphasising the defining role of women in mining's COVID-19 response
6	The integration of inclusion best practices in mining modernisation

Seven key foundational measures were also identified that were to be put in place to accelerate the advancement of women in mining.

Figure 40: Foundational measures and gender strategies

1	Reaffirm zero tolerance for GBV through the 'Stop Abuse' campaign
2	Develop gender diversity and inclusion policies
3	Provide reporting system for gender diversity issues
4	Initiate unconscious bias training to transform culture
5	Deploy ongoing company-wide pulse check survey
6	Build an inclusive physical environment
7	Supply PPE for women specifically

In each instance, a specific aim and action plan have been developed. In 2021 a survey was conducted on GBV in South Africa's mines as part of the process of developing a strategy on GBV for the industry to implement. Conducted with 2,054 respondents from 15 mining companies in seven of the nine provinces, 30% of those surveyed expressed that GBV was a real concern. Further qualitative research is to be conducted to understand the drivers of GBV to address these concerns.

5.2 Mentoring Programmes

The global International Women in Resources Mentoring Programme (IWRMP) was launched in 2018. South Africa benefits from the range of global cross-company mentoring programmes. The programme crosses all functions and capabilities to meet the many aspirations of women who dream of a career in the mining industry by providing knowledge and resources. Participants take the opportunity to connect with successful senior mentors to improve aspects of professional and personal development. The programme benefits both the mentor and mentee, with improvements to career pathing, goals, and implementation plans within a structured environment.

Because mentees and mentors often hail from different places, communities, and disciplines, the relationships also serve to reduce cross-cultural barriers. Both developed and developing countries participate in the programme, and participants can learn from each other.

The programme is funded by socially responsible industry sponsors who hold values of diversity and inclusion close to their hearts. In South Africa, Women in Mining South Africa (WiMSA) facilitated both regional and international inter-company mentorships between 2021 and March 2022. These events and programmes serve to support, advise, and offer networking opportunities to women in mining.

5.3 MHSC Advisory Committee on Women in Mining

In 2014, the Mine Health and Safety Council (MHSC) undertook research into the Safety and Security Challenges Impacting on Women in the South African Mining Industry. In line with the organisation's mandate to promote health and safety in the mining workplace, the report recommended, amongst others, that:

- The mining sector develop, enforce, and evaluate a code of good practice for the effective prevention and management of violence and sexual harassment.
- Current policies and procedures on workplace violence and sexual harassment in the mines should be reviewed, updated, and aligned with evidence-based data from the study.
- Mines must adopt the guidelines on the prevention of violence and sexual harassment for use as a framework to develop their own good practice guides.
- The relationship between gender and safety in mining must be examined with a view to developing strategies to improve recruitment, attraction, and retention as well as career advancement of women in the mining industry.

The MHSC still deals with issues relating to ablution facilities, sexual harassment, PPE, the impact of mining on reproductive health, and the requirements of physical work. The organisation had planned to establish an advisory committee on women in mining, working with the MINCOSA, but it appears that this has not happened.

5.4 Southern African Institute of Mining and Metallurgy Young Professionals Council

The youth-based Southern African Institute of Mining and Metallurgy Young Professionals Council (SAIMM-YPC) focuses on the development of youth (35 and below) and drives initiatives and industry awareness. The activities of the SAIMM-YPC include but are not limited to the following focus areas:

- School career guidance through mathematics, science, tutoring life skills, etc.
- University-level support through selection processes to the alignment in getting the degree and its uses in the industry.
- Business– business best practices, training programmes, mentoring programmes, and business development.
- Influencing various parties, such as the Engineering Council of South Africa (ECSA), the DMRE, and the Association of Mine Managers of South Africa (AMMSA), etc., for the benefit of all young professionals, including women.
- Advising secondary service providers and entrepreneurs as well as professionals

5.5 Bloomberg Gender-Equality Index

The Bloomberg Gender-Equality Index (GEI) tracks the performance of public companies committed to efforts supporting gender equality. As the demand for improved environment, social and governance performance increases and it becomes ever more critical for firms to demonstrate their commitment to gender equality, the GEI brings transparency to gender-related practices and policies. Bloomberg recently announced that 418 companies headquartered across 45 countries and regions are included in the 2022 GEI. Inclusion depends on achieving a GEI score above a global threshold for disclosure and performance over five pillars of data excellence: female leadership and talent, equal pay and gender pay parity, inclusive culture, anti-sexual harassment policies, and a pro-woman brand. It is encouraging that several mining companies with operations in South Africa featured in the GEI. They include:

- Anglo American Platinum
- Anglo-Gold Ashanti
- Exxaro Resources
- Gold Fields
- Harmony Gold Mining
- Impala Platinum Holdings
- Kumba Iron Ore
- Sibanye-Stillwater

This reflects well on the companies concerned insofar as their disclosure provides insight into how they are investing in women in mining. By reportedly affording female employees equal treatment, these companies exhibit a progressive stance on the advancement of women in mining. However, while the average disclosure score for the GEI was high at 96%, the average data excellence performance score was only 60%, up from 55% in 2021 but still relatively low. With performance scores by data excellence pillar ranging from 50% to 68%, it is evident that work still needs to be done.

5.6 Anglo American Social Way Toolkit

Although gender-proactive measures are typically the exception and not the norm, some companies have integrated gender- and workplace-related gender issues into their corporate systems. Anglo American's Social Way policy and its related toolkit explicitly highlight the gender sensitivity of its approaches to stakeholder engagement and social performance. The company has also included gender rights in its expanded definition of what constitutes human rights, and it has recognised the gender dimension of social challenges in the communities associated with its operations. The company has

committed to addressing these through its community programmes, which actively aim to support women's empowerment in areas such as enterprise development.

5.7 Rooms for Nursing Mothers

A best practice in terms of gender-friendly workplaces can be seen at Venetia mine, De Beers' last remaining mine in South Africa, which offers a space for breastfeeding mothers returning to work from maternity leave. New mothers are given access to a "lactation room" where they can express breast milk for their babies in a private, clean, and secure environment. The facility includes a refrigerator for the temporary storage of breast milk and is available to both employees and contractors.

5.8 De Beers-UN Women

A partner of UN Women since 2017, the De Beers Group recently announced it had extended its global partnership with this agency for another 5 years. This will see the company join the HeForShe Alliance, which brings together leaders from across government, the corporate world, and civil society to develop the largest set of scalable and sharable solutions for gender equality's most pressing challenges. The company indicated that they are committed to overcoming the historical barriers to women entering and advancing in science and technology fields. They intend to foster a more diverse talent pipeline and increase the number of women represented in leadership and technical roles. As part of the extended partnership, the De Beers Group will also invest an additional US$ 3 million to extend the Accelerating Women Owned Micro-Enterprises (AWOME) programme in Southern Africa.

6.0 POLICY RECOMMENDATIONS AND GUIDELINES

6.1 Introductory Overview

This country analysis has identified many of the gaps and challenges faced by women in the mining workplace, as well as some of the good practices being implemented to address barriers faced by them. This chapter highlights issues that continue to constrain the participation of women in the mining sector and offers policy recommendations and guidelines that could be adopted to reinforce efforts for their advancement.

6.2 Issues and Constraints

6.2.1 Compliance With International and Domestic Policy

The government is bound by various international frameworks, policies, and legal requirements on gender equality that they are compelled to account for. However, while these institutional arrangements, legislation, and policies for driving the push for gender equality exist, they do not always find adequate expression in practice. Domestically, the promotion of gender equality is a declared national policy priority. However, the failure to support this imperative with a coherent legal, regulatory, and institutional framework that compels and enables necessary action has diluted policy impact.

6.2.2 Weak Capacities and Competencies

South Africa's National Gender Policy Framework is acknowledged to be an example of "best practice." However, when it comes to the implementation of that policy, three main factors undermine policy impact. First, there is a lack of integration of effort between public sector departments and parastatal institutions, with low levels of coordination between them on gender matters and ill-defined lines of communication and accountability. Second, a lack of skills and inadequate financial and human resourcing constrain the effective implementation of gender mainstreaming efforts. Third, measurement of policy impact is also bedevilled by a lack of explicit indicators of progress, with gender mainstreaming within National Development Planning and monitoring and evaluation frameworks due largely to gender blindness.

6.2.3 Continued Political, Economic, and Social Exclusion

The prevalence of patriarchal norms in society, together with entrenched negative attitudes toward gender equality, means that women remain subordinate and under-represented in many spheres of social life, including those related to decision-making at political and governance levels. Despite the policy priority afforded to gender equality,

the country's legislative framework and justice system continue to disadvantage women, particularly those in the most vulnerable parts of society and in economic sectors such as mining, where the level of participation of women has historically been very low. Weak institutionalisation of gender mainstreaming across the state machinery can also be observed, which is backed up by data that indicates that South Africa has experienced regression in this regard.

6.2.4 Mining Industry Transformation

Real transformation in the participation of women in the mining industry can only successfully occur when persons in key leadership positions change their mindsets and behaviour. Despite pronouncements to the contrary, it can be argued that this kind of change is not occurring universally across the LSM sector at the pace that is warranted. Until it does, the companies that lag will not achieve the necessary changes in corporate culture that will permit a revamp of structures and systems, management styles, core competencies, and worker profiles to achieve the level of advancement of women in mining that policy intends.

6.2.5 Availability of Sex-Disaggregated Data

Despite clear national and sector policy commitments to gender equality and the advancement of women in the workplace, available baseline sex-disaggregated data is partial and fragmented. There is also little consistency in the way that it is reported across the various agencies that collect it. This lack of a coherent and integrated system for collecting and analysing data and reporting on it confounds efforts to use the data to inform policy reforms or the development of a coherent strategy for the advancement of women in mining. This is evident in the skills data, which is not broken down according to sex.

At a time when structural changes in the mining sector are likely to impact the future of work and the likely range of opportunities that may arise for women in the workplace, these data challenges render any forecasts for the mining workforce weak and speculative. This is problematic. Similarly, it will undermine the determination of the extent to which LSM contributes to the achievement of SDG 5 on gender equality. The need to address the poor availability and inconsistent quality of sex-disaggregated data is clear. How this might be achieved is less clear.

6.2.6 Health and Safety

In South Africa, there is insufficient published data on those aspects of health and safety that are of particular concern to women in mining. Data gaps need to be addressed in topics ranging from the availability of welfare facilities underground to the incidence of sexual harassment and GBV to physiological and psychological issues impacting the health and safety at work, and even the impact of shift work on women's family lives.

6.2.7 Pregnancy and Maternity Policy

From the gender-focused research undertaken on this project, it appears that employers in the mining industry still view childbearing as a negative interruption and are therefore dissuaded from employing young women. Even though South Africa has labour laws protecting pregnant women, and the Labour Relations Act specifically mentions that an employer is not entitled to dismiss an employee due to her pregnancy, pregnant women still report cases of contracts being terminated. While investigating individual cases is not possible as part of this project, there is more to be done to ensure that mining companies have a pregnancy and maternity policy in place that is consistent with the prevailing labour law and that company practice does not subvert compliance—and therefore the interests of women in mining.

6.3 Policy Recommendations and Guidelines

6.3.1 Elaborate National Gender Policy and Strategies for the Mining Sector

South Africa's National Gender Policy Framework promoted a cooperative approach to gender equality generically and was not prescriptive. Instead, it encouraged the various sectors to integrate its principles into their prevailing policy and strategic documents. To some extent, the DMRE did this in 2021 when it launched the Women Empowerment and Gender Equality (WEGE) strategy, reportedly for the energy sector, not necessarily the mining sector as well. The Minister of the DMRE has reportedly established a Gender Ministerial Council to advise, oversee and drive the implementation of the WEGE strategy.

Built on four strategic pillars, the strategy aims to:

- Create an enabling policy environment for translating government commitment to gender equality into reality.
- Work toward the achievement of equality of opportunities and treatment within the DMRE, SOEs, the energy sector, and broader society.
- Ensure that gender considerations are integrated effectively into the DMRE, SOEs, and energy sector policies, programmes, and projects.
- Promote new practices, attitudes, values, behaviours, and a culture of respect for all human beings in the mining sector.

It has not been possible to ascertain if the strategy only applies to the energy sector (bearing in mind that the mining and energy portfolios fall under the same minister) or if it applies to both (although, on August 26, 2021, a DMRE official publicly stated that another version was being drafted for the mining sector). Irrespective of the answer, the strategy has yet to translate into programmes and interventions with defined targets,

measurable indicators, and gender-transformative outcomes for the energy and/or mining sectors.

It is recommended that the government and the mining companies consider national and sectoral policies to co-define a strategy for the advancement of women in the mining sector. That strategy should set sex-disaggregated targets that are specific, measurable, achievable, relevant, and time-bound. Further, it should outline that government supports the development of knowledge products and tools to strengthen gender risk mitigation strategies and address gender concerns in mineral production.

6.3.2 Transform Gender Policy and Strategy Into Implementable Action

Under the guise of the resulting strategy, it is recommended that mining companies develop a standardised framework for promoting gender equality that covers gender issues relating to governance and leadership, workforce composition, working conditions, and community-level impacts and initiatives.

It is also recommended that the government (and its sector-focused parastatal agencies) take straightforward, practical steps to give effect to the strategy within their governance and leadership teams, their operational workforces, and within mine-affected communities.

Further, to increase gender responsiveness in mining policy and practice, the government should regularly contribute to stakeholder consultations and reviews of international mining policies, regulations, standards, and guidelines.

6.3.3 Resourcing Action

Any strategy for the advancement of women in the mining sector will only succeed to the extent that budgetary allocations are made to support its implementation. In aggregate, these will clearly need to be commensurate with the priorities and targets that are set in the strategy. It is recommended that any such strategy be fully costed by industry stakeholders and that, where possible, available discretionary funds be used to leverage additional funding from appropriate sources.

6.3.4 Data Collection, Alignment, and Reporting

It has been stated elsewhere in this report that the availability of—and accessibility to—sex-disaggregated data is inadequate to support the measurement of progress in the advancement of women in mining in line with the National Gender Policy. In any case, there are no integrated systems for impact measurement or the reporting of progress.

It is recommended that as part of a collaboratively determined Women Empowerment and Gender Equality (WEGE) strategy for the mining sector:

- The limitations of the combined public, parastatal, and private sector information system for measuring the efficacy of gender-related policy and strategy sector-wide be recognised as the constraint that it is.
- Consideration be given to centralising all sex-disaggregated data on one platform at a centralised data repository with standardised gender reporting requirements developed for all sector stakeholder groups.
- Agreement be reached on the parameters on which sex-disaggregated data should be collected and reported, such as:
    - Recruitment and retention
    - Occupation
    - Local employment
    - Remuneration
    - Skill levels
    - Skills development, training, and mentoring
    - Health and safety
    - Local procurement
    - Women's participation in decision-making.

6.3.5 Measuring Impact

With greater policy coherence, a better-defined strategy, more clearly defined gender priorities, and improved information systems and reporting, it will be possible to more accurately determine the impacts of gender policy in the mining sector. Being able to do so will, however, depend on the installation of systems that track and report sex-disaggregated data that permit the periodic evaluation of efforts intended to accelerate the advancement of women in mining.

It is recommended that systems be developed by both government and the private sector to:

- Conduct regular impact assessments and periodically review the effectiveness of measures undertaken by government, parastatals, and the private sector to implement the agreed strategy for the advancement of women in the mining sector.
- Include an assessment of the financial costs of interventions in support of gender policy and strategic equality to determine their efficacy as part of any impact measurement.

- Support mining companies to develop standardised mine-site assessment tools to inform impact measurement.
- Measure the degree to which government, parastatals, and mining companies support the achievement of gender-related policy objectives through the programmes and projects that they implement.
- Suggest corrective action where necessary.

At the industry level, the MINCOSA should play a more prominent role in supporting the monitoring and assessment of gender policy implementation in the mining sector. WiMSA could perform an oversight role in this regard.

6.3.6 Identify Gender-Specific Needs in the Workplace

By making the mining environment more women-friendly across the board, gender biases can be dismantled. Women have different needs than men, and there is a need for policy and strategy to cater to issues such as sanitation facilities, pregnancy and maternity leave, childcare, sexual harassment and GBV, empowerment, and professional growth and, for women's safety and dignity, access to gender-appropriate PPE.

6.3.7 Identify and Address Structural Constraints to Gender Equality

Promoting gender diversity and the advancement of women in mining is a societal imperative. However, it is also one where progress continues to be bedevilled by structural constraints. Variously, depending on the context, political, economic, social, and cultural factors constrain the rate of positive change. There are many examples of structural constraints to gender equality: from entrenched negative attitudes toward gender equality to preconceived ideas and stereotypes about the relative role of men and women in mining and from gender-influenced pay disparities to the limited resources devoted to funding gender programmes and projects. Some constraints are more subtle than others and therefore potentially difficult to isolate and address, but all need to be addressed.

It is recommended that when co-defining a strategy for the advancement of women in the mining sector, particular attention should be devoted by the government and the mining companies to overcoming resistance to addressing these structural constraints. Some of the measures that could be considered include:

- Awareness-raising initiatives designed to overcome institutionalised socio-cultural conceptions of gender difference.
- Making it clearer what is and is not acceptable workplace behaviour and what the consequences of inappropriate behaviour are.

- Ensuring no gender bias in recruitment and selection processes.
- Addressing gender pay disparities across occupations and occupation types.
- Ensuring unbiased treatment of women with respect to skills development and career development planning.
- Conducting exit interviews to measure the impacts of policies, which despite being gender neutral, have disproportionately negative effects on women in the workplace.

6.3.8 STEM Education Focus for Mining Career Development

More girls and women will be encouraged to enter STEM education for mining career development at the high school and college levels if they are provided with internships and bursary opportunities in the mining sector. This would ameliorate the skills mismatch experienced in the sourcing of labour and attract more technically skilled women to the sector.

6.3.9 Mining Retention Policy and Strategy Development

The public and private sectors should offer more mining-related training/skills for women in the existing mining labour force and address biases in career paths. Retention policies should be developed to minimise turnover rates among women.

6.3.10 Gender Pay Gap Policy Implementation

Policies/actions to address inherent gender pay gaps should be developed and subsequently measured for effectiveness.

6.3.11 Gender-Responsive, Inclusive Participation

Government and the private sector are both called upon to develop or improve existing gender policies in consultation with women, including women economic actors in supply chains. Making funds available and paired with necessary resources will assist in making policies implementable. Using various measures for accountability and feedback to stakeholders may improve transparency. Private sector actors could further implement gender-responsive due diligence in mineral supply chains by identifying, assessing, preventing, mitigating, and accounting for the ways in which actions may differently affect women and men, both in the workplace and in surrounding communities.

7.0 CONCLUDING REMARKS

The "fair" mine of the future will require structural adaptation. As technology advances, mines will require a differently skilled labour force, including more inclusive gendering. From the research conducted, a major gap already exists in matching skills with occupations in the mining sector; this gap will be exacerbated as technology advances, job requirements change, and mining specialises. Standard recruitment practice overall still focuses on gender-biased roles in administration, Human Resource development, and soft skills, as these occupations reflect higher numbers of lower-skilled women.

While the number of women who enter and successfully complete community college, TVET college, and university courses in the required technical and STEM career directions is higher than men, many women remain unemployed or do not access the mining sector. Those that do are faced with various workplace barriers, as indicated in both this research and the recent Rio Tinto report findings. The Rio Tinto report indicates elevated levels of toxic work environment factors such as racism, sexual harassment, GBV, low-paid maternity benefits, no work/life balance aspects, pay gaps, and un-adapted, men-only ablution facilities.

The mines' internal ESG labour force-related elements need to be addressed first in terms of current recruitment and retention strategies before focusing on external communities. This progress is hampered by a lack of empirical data to support focused policy and praxis interventions. Where gendered policies exist, they are poorly implemented, monitored, and reviewed.

Women should be central to the process, should be allowed to participate in solving the challenges, and should drive the process of change, as is evident from the gains already made in various best practices identified.

To achieve more gender parity as well as more gender inclusivity, the mining sector should focus on women who leave school through mining career day expos. In addition, more bursaries for mining-focused careers for women and gender self-assigned groups in science and technology, ESG, and STEM-focused qualifications, coupled with mentoring and work experience options, will help move the sector closer to gender parity.

Greater emphasis should be placed on advocacy of gender equality that encourages women's empowerment and the expansion of female influence. Equal opportunity only becomes effective when everyone (regardless of gender) is equally encouraged to seize available opportunities.

Gender pay gap policy implementation is critical in levelling the playing field. This aspect could be improved by regulating the reporting of salary and pay grades for all employment and occupations.

The national government should collect, track, and monitor sex-disaggregated data per sector to elaborate the National Gender Policy and a strategy for the mining sector as well as measure the impact of localised SDG goals such as gender equality. While much has been done to transform gender policy and strategy to the present, the work has not translated into implementable action, and less so into the resourcing of that action.

While a variety of disaggregated data is collected by mines, it is not standardised, captured, aligned, or reported effectively to measure the impacts of policies on transformation and gender equality.

Workplace adaptation is required to meet gender-specific needs in the workplace as well as balance work/life responsibilities of care.

More should be done to identify and address structural constraints to gender equality to ensure the retention and advancement of women through the levels of career-pathed occupations.

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APPENDIX

Appendix A: Survey Questionnaire

<see PDF>

Appendix B: Mining Stages Example

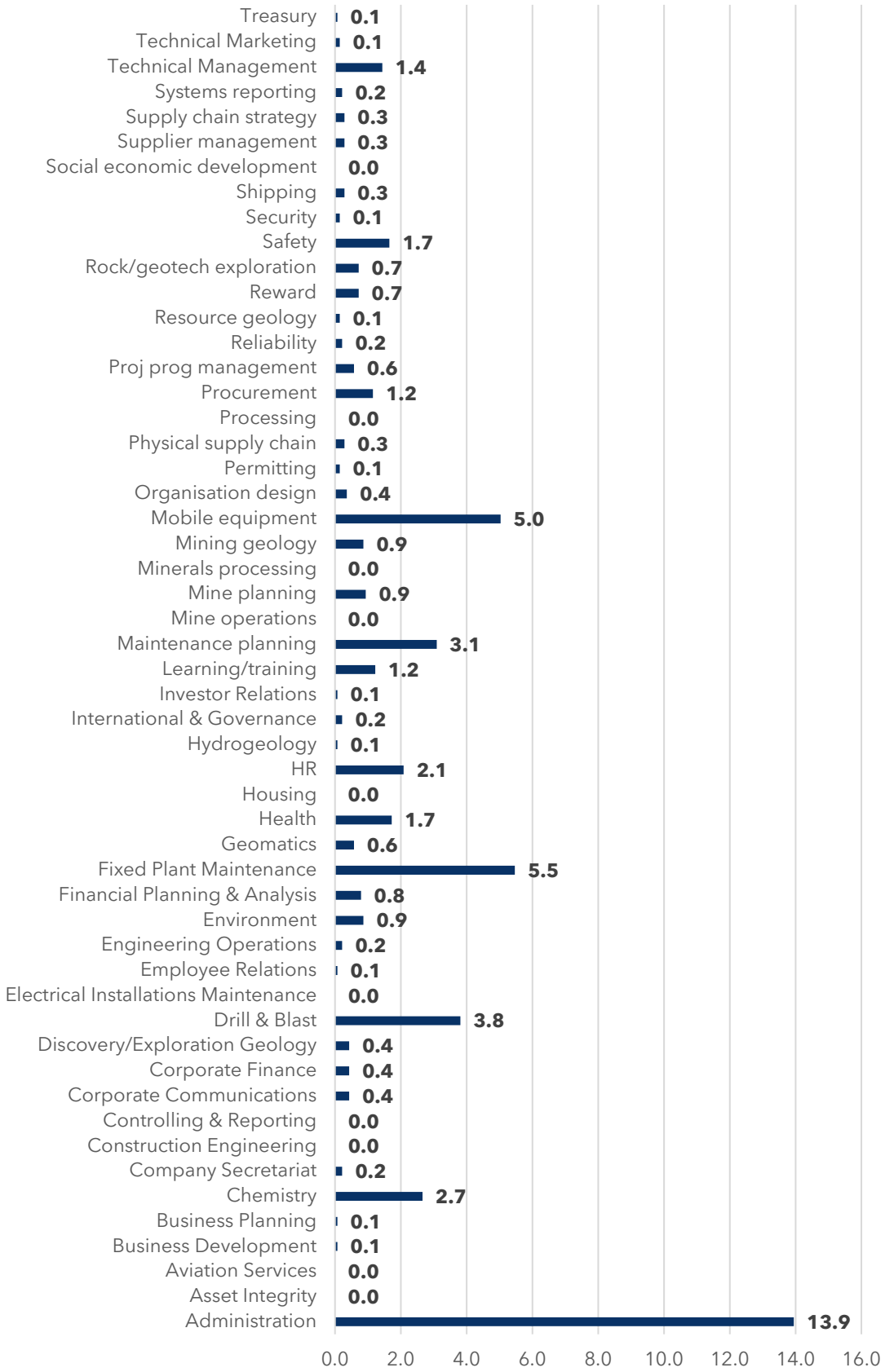
Extract from an additional study of mining data on women per occupation subsector per mining phase

The following section details the percentage of women in each subsection of mining in the exploration phase.

The limitations of this extract are that there is no standard classification for occupations in mining exploration or the other phases specified. The categorisation that each mine uses to detail occupational categories or job descriptions is different, making direct a comparison between mining companies difficult.

Figure B1–B3 depict a sample of 5,000 women employed in large-scale mining, using Human Resource data collected by mining companies as part of their employee data records.

Figure B1: Women in exploration (data 2021)

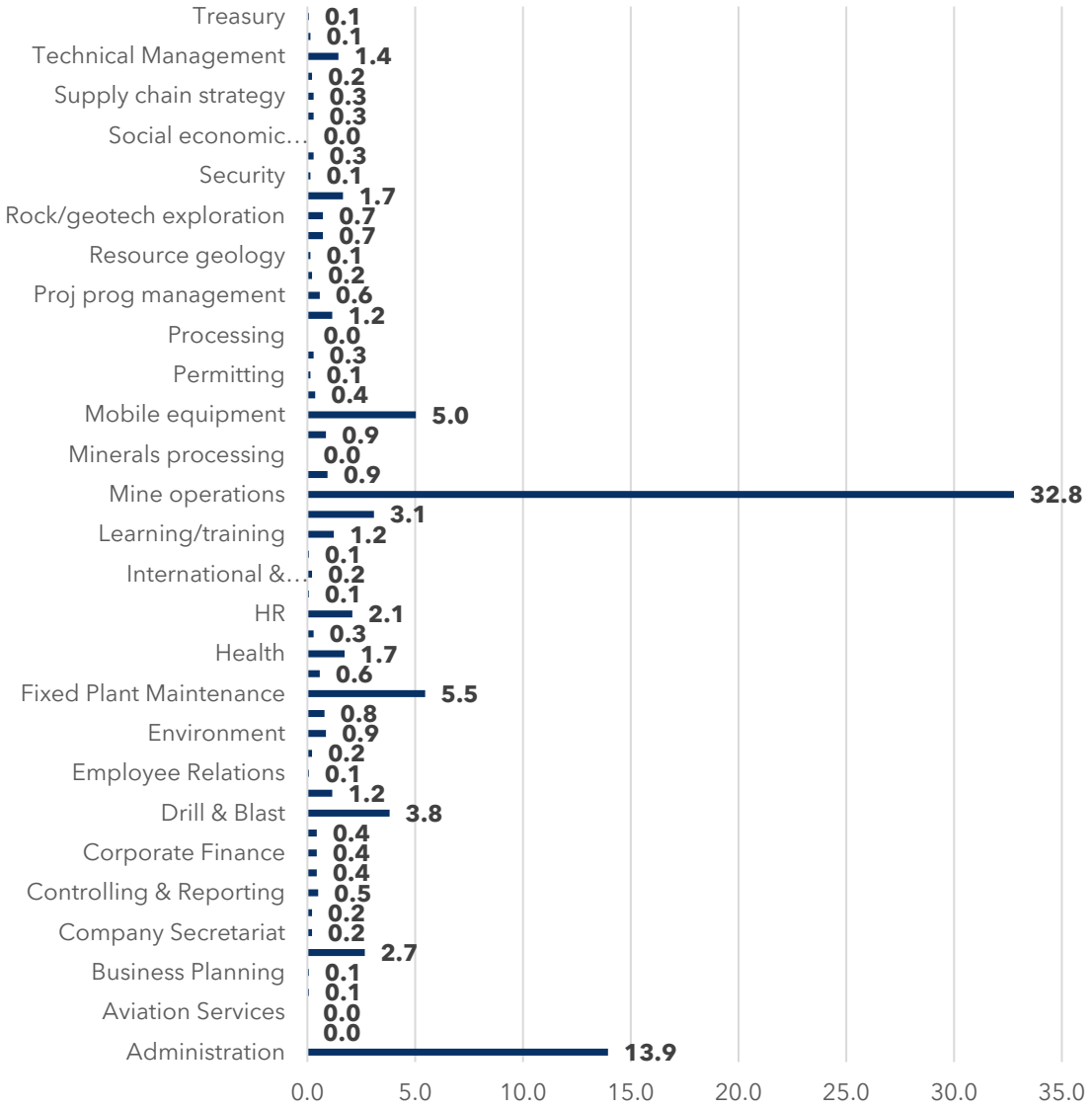


Source: Author (Mining primary data collection 2021)

An assessment of the sample of permanently employed women indicates that the highest number (13.9%) perform administrative functions, followed by technical functions such as fixed plant maintenance (5.5%), mobile equipment handling (5%), and drill and blasting (3.8%), while rock geotechnical exploration that requires higher skills levels only comprises 0.7% of the total women mining labour force measured.

The construction phase of mining is not reported separately by mines or the government, and data is not collected in order to measure mine construction. Where possible, the data has been manipulated in terms of the relevant occupations that match construction operational aspects. Clearer categorisation of occupations will be required in the future to properly measure the gendered disaggregation of this phase in any further research.

Figure B41: Women employed in the construction phase - Case study

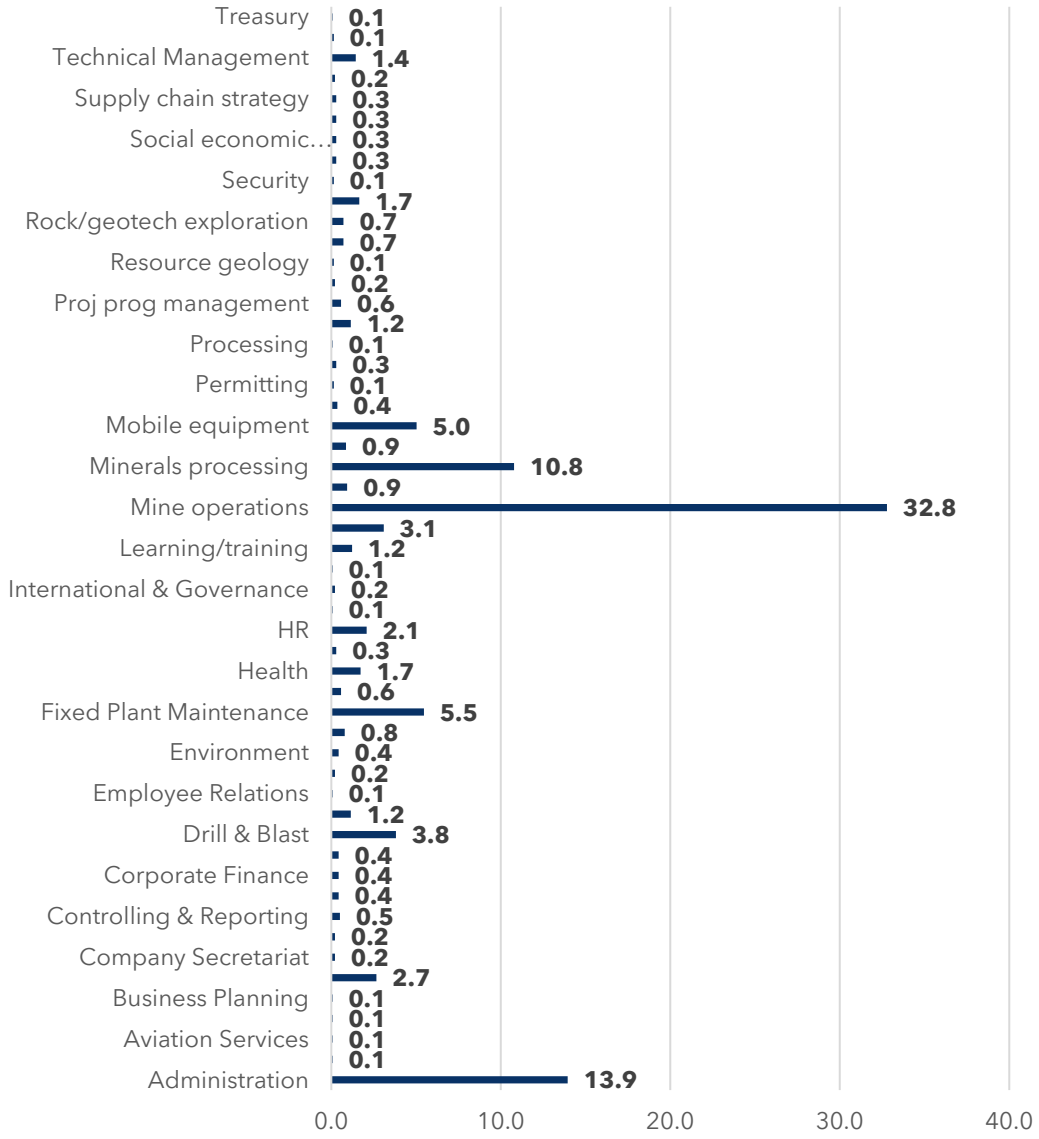


Source: Author (Mining primary data collection 2021)

It stands to reason that the construction phase is more reliant on non-mining core labour situated in the construction industry and there will therefore be a higher number of contracted labour for this phase. The South African statistics do not disaggregate data to the same level as countries such as Canada, which have better mining-related data management practices.

From the above dataset, 32.8% of women are involved in mine operations, with 13.9% involved in administration occupations. Project Management comprises 0.6%, financial modelling 0.4%, environmental services 0.9%, and legal services—all functions included in the construction phase.

Figure B42: Women in the extraction phase – Case study



Source: Author (Mining primary data collection 2021)

The extraction or mining phase is restricted to core mining activities, professional services, and ancillary services to mining, including facilities management. Figure B3 indicates that 1.4% of women work in technical management, 0.3% in supply chain management, 32.8% in mine operations, 5.5% in plant maintenance, 13.9% in administration, and 2.1% in Human Resources.

Appendix C. Analysis of Qualifications

The National Qualifications Framework (NQF)

The unified South African meta-framework subsumes various skills and knowledge activities in an ordering system based on recognition of learning. The framework shares commonalities with similar frameworks across the globe. Some examples include frameworks in Australia, Hong Kong, India, Ireland, Maldives, Malaysia, Mauritius, Mexico, New Zealand, Norway, the Philippines, Rwanda, SAR, Seychelles, and the United Republic of Tanzania.

To allow for the comparative recognition of local skills in other countries, more than 147 countries use a similar system of comparison.

The following excerpt is extracted from the internet source https://eee.co.za/aet-level-4-vs-nqf-4-what-is-the-difference/?cv=1&sessionid=17fba4349fd9475ca5950e50ad31af23 for further contextualisation.

The system further integrates information in Education, Higher Education, and Skills, as evidenced by approval by the Minister of Basic Education, the Minister of Higher Education and Training, and the Minister of Labour.

The NQF has 10 levels of bands:

Band	Level	Description
1	NQF Level 1 – 4 (GET)	High school grades 9–12 or vocational training (AET and FLC).
2	NQF levels 5 – 7 (FET)	College diplomas and technical qualifications
3	NQF levels 7 – 10 (HET)	University degrees.

The source indicates that the NQF draws together education, training, and development while promoting lifelong learning through recognition. Society benefits from the value of learning, which is central to society. It centres all learning in one system and covers formal and informal learning areas. (Informal education is a loosely defined term that refers to schooling that takes place outside the formal education system.)

It contains a centralised data repository called the National Learner Record Database (NLRD) where all personal details of learners are captured as well as their skills and knowledge.

To be stored, the qualifications are registered on the NQF, then verified and published electronically.

Summary Objectives

- A single integrated national framework for learning achievements
- Facilitated access to—as well as mobility and progression within—education, training, and career paths
- Unified standards and enhanced quality of education and training.

Provider Accreditation and the NQF

Training providers in General Education and Training (GET) grades must be accredited.

All occupational certificates, trades, learnerships, apprenticeships, and work-based learning has to be accredited through the Quality Council for Trades and Occupations (QCTO).

The NQF has three sub-frameworks. They are:

- The General and Further Education and Training Sub-Framework (GENFETQSF)
- The Higher Education Qualifications Sub-Framework (HEQSF)
- The Occupational Qualifications Sub-Framework (OQSF).

The GFETQSF has qualifications registered from NQF levels 1–4; the HEQSF has qualifications registered from NQF levels 5–10; and the OQSF generally has registered qualifications from NQF levels 1–6. NQF levels 7 and 8 may be available if the QCTO is motivated for a qualification in partnership with a recognised professional body and the Council for Higher Education.

AET was previously Adult Basic Education and Training (ABET). It is found in the GET band of the NQF and can be compared with the schooling system up to Grade 9.

Adult Education and Training (AET) is registered with the NQF at NQF level 1, but AET consists of four levels. Completing four levels is the equivalent of NQF level 1 or Grade 9. The four levels of AET are equivalent to Grades R–9.

AET is a foundation system for all work-based competence training in South Africa. It is available to adults who want to complete their basic education and move up to higher-level education.

AET was created to address adult literacy and includes Language, Literacy, and Communication (in English)

Mathematical Literacy, Mathematics and Mathematical Sciences, Human and Social Sciences

Arts and Culture, Life Orientation, Technology, Economic and Management Science, and Natural Science.

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