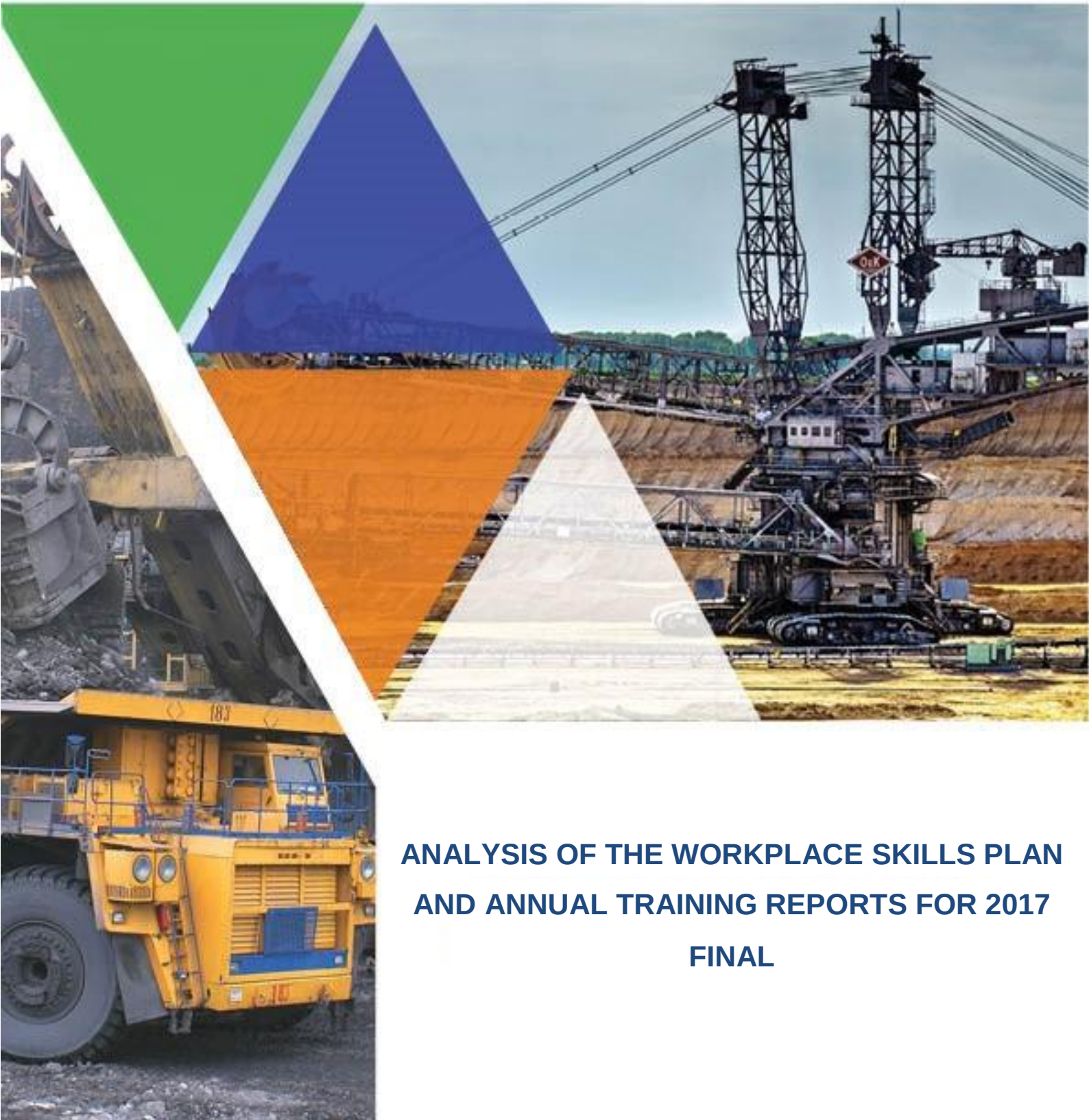
MINING QUALIFICATIONS AUTHORITY

MINING QUALIFICATIONS AUTHORITY (MQA)



ANALYSIS OF THE WORKPLACE SKILLS PLAN AND ANNUAL TRAINING REPORTS FOR 2017

FINAL

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Icon	Description
	Indicates negative depiction of findings highlighted
	Indicates positive depiction of findings highlighted
	Indicates a decrease of findings highlighted
	Indicates an increase of findings highlighted

ACRONYMS

AET	Adult Education and Training
ATR	Annual Training Report
CLAS	Cement, Lime, Aggregates and Sand
DHET	Department of Higher Education and Training
DMR	Department of Mineral Resources
DoL	Department of Labour
Ibid.	in the same source
IDC	Industrial Development Corporation
KPI	Key Performance Indicators
MHSC	Mine Health and Safety Council
MMS	Mining and Minerals Sector
MQA	The Mining Qualifications Authority
NQF	National Qualifications Framework
NSDS	National Skills Development Strategy
OFO	Organising Framework for Occupations
PGM	Platinum Group Metals
SA	South Africa
SDA	Skills Development Act
SETA	Sector Education and Training Authority
SIC	Standard Industrial Classification
Stats SA	Statistics South Africa
WIMSA	Women in Mining South Africa
WSP	Workplace Skills Plan

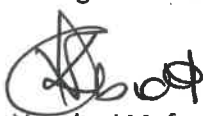
FOREWORD

The Mining Qualifications Authority (MQA) prides itself in ensuring that the Mining and Mineral Sector (MMS) remains at the cutting edge of skills development. In keeping up with this progression, the MQA commissioned a research study on the analysis of the 2017 Workplace Skills Plans (WSPs) and Annual Training Reports (ATRs) submissions. WSPs-ATRs are at the core to the SETAs mandate. Through the WSP-ATR, the SETA is able to outline current and future learning and qualifications needs of the sector and develop interventions that address the skills needs of the sector.

One of the MQA strategic objectives is to support objective decision-making for skills development through research in the sector. The MQA intends contributing to the body of skills development knowledge within the MMS by identifying the skills needs of the sector, plan, manage and report on appropriate responses to identified needs. The improvement of the skills of the mining and minerals sector workforce is imperative for the economic development of the sector, for the improvement of the health and safety record and for the growth and wellbeing of all employees.

The main purpose of this research report is to outline a profile of the MMS in terms of the geographic location, size, and composition of organisations that submitted WSP-ATR to the MQA during the 2017/18 financial year. This report further profiles MMS workforce as well as the training priorities identified in the WSP-ATR submissions received in 2017/18 financial year. It is the result of not only a thorough research process, but also of extensive data analysis of 2017 WSP-ATR submissions as a primary data source.

Through research, the MQA continues to make informed strategic decisions that embrace its commitment to address the skills development priorities and to achieve the goals and objectives of the mining and minerals sector.



Ms. Vuyokazi Mofu

Manager: Skills Development and Research

Date: 11/03/2019

EXECUTIVE SUMMARY

Introduction

On a yearly basis, the MQA consolidates a Work Skills Plan report comprising an analysis of information that was provided by companies in the Mining and Minerals Sector (MMS), submitted as part of their mandatory grant applications. The analysis for this report was based on data contained in the Workplace Skills Plans and Annual Training Report (WSP- ATR) submissions received by the MQA in 2017 and it provides the composition of organisations that submitted the WSPs and ATRs in terms of firmographics and employee demographic profile. The employment figures, patterns within the participating organisations are examined, as well as scarce and critical skills in the sector. In line with the MQA's skills development mandate, the report also provides details of training that was planned and undertaken during the period under review. The analysis of WSP-ATR is conducted annually in order to provide the MQA with the picture of mandatory grants participation by the sector and also to help inform decision-making as it relates to disbursement for skills development in the sector.

Key Findings

The 2017/18 financial year had the highest number of submissions to be ever recorded (719). The majority of the submissions (97.8%) were approved, with only a few companies being rejected.

The top three employers by rank order are PGM, Gold and Other mining-with the North West province being the top employer. The sector is heavily male dominated, thus pointing out that there has not been any significant developments in attracting and retaining females in the sector. The majority of the workforce is constituted by the youth who occupy semi-skilled and unskilled while there is a shortage in management, professional and technical occupations. Therefore, this is a challenge as many young employees cannot move up to occupy managerial positions due to them being unskilled or semi-skilled

In analysing the scarce skills in the sector, findings revealed a decrease in the demand of low skilled occupations, with a rise seen in the demand for high-skilled employees, i.e. technicians, professionals and managers. The main reasons for the existence of skills scarcity is attributed to absolute scarcity in that there is a lack of skilled and qualified people.

In terms of training information provided, leading mining subsectors, i.e. Gold, Other mining, Coal and CLAS reported a decrease in the training provided within their organisations in 2017. The downward trend in the provision of training by organisations could be due to weak commodity prices, declining demand and sliding Rand value. It emerged that although the

sector is still dominated by African males, this is not reflected in professional or skilled occupations as the majority of blacks occupy low level occupations.

Due to the fact there is a demand for highly skilled employees in the MMS, there has been an increase in the investment of planned training related to scarce and critical occupations, i.e. Managers, Professionals and Technicians. However, the development of females and disabled people still needs to be strengthened. There is a decrease in training planned for people with disabilities as well as discrepancies in that their training targets were not achieved. The factors that could be attributed to this is the reason that the employment equity efforts are approached from a compliance perspective not built in organisational recruitment, retention, human capital development systems and procedures.

Recommendations

As a result of the findings in this research, the following recommendations are provided:

- Continuous capacity building programme should be provided to companies whose submissions still get rejected.
- MQA to investigate other engagement methods involving senior mine executives that can be adopted to elevate matters related to skills development in mines.
- MQA to continue providing funding that prioritise scarce and critical skills as well as skills that drive the transformational agenda in the MMS through human capital development.
- MQA to encourage companies to conduct skills audits to inform WSP/ATRs. Thus, increasing accuracy of identifying and actualising training.
    - In their training plans, employers should focus on the skills development interventions through courses that improves the proficiency levels of employees and programmes that equip them with competencies necessary for movement to professional, skilled and managerial positions.
- MQA should conduct research on the factors that influence female career progression in the technical occupations and provide recommendations that could inform the direction which funding should take to address gender inequalities within the MMS.
- MQA should ring-fence funding for projects that involve training of people with disabilities and should also use this training as one of the conditions of accessing grants.
- MQA to continue observing foreign nationals' employment trend to establish whether future research will be needed to investigate their employment in occupations that are neither scarce, nor critical in the sector.

CHAPTER 1 - INTRODUCTION

1.1. Background

The Mining Qualifications Authority (MQA) is a public entity established in terms of Section 45 of the Mine Health and Safety Act 29 of 1996 (MHSA) and is regarded as a Sector Education and Training Authority (SETA) in terms of the Skills Development Act 97 of 1998 (SDA).

A mandate given to the SETAs is to facilitate the delivery of sector specific skills interventions that help achieve the goals of the National Skills Development Strategy (NSDS) III. In this regard, Workplace Skills Plans (WSPs) and Annual Training Reports (ATRs) are at the core of the SETA as the authority can identify current and future learning and qualifications needs of the sector and, consequently, guide skills planning for the sector.

1.2. Purpose and Structure of the Report

This report is in furtherance of the MQA strategic objective to support evidence-based decision making in skills development for the sector. The report contributes to the body of knowledge within the mining and minerals sector through an analysis of information that employers in the sector submitted as part of their mandatory grant applications in the year 2017. In line with the skills development mandate, the report provides details of training that was undertaken in the MMS during the period under review and also looks at training that was planned for both employees and non-employees.

In instances where the information submitted in 2017 was in the same format as in the previous year, some comparative analysis to the previous year is provided, where such would add to the insights. Reference is also made to external but relevant sources wherever applicable.

1.3. Subsectors of the MMS

The Standard Industrial Classification (SIC) codes are used for the purpose of identification of subsectors that fall under the MMS and there are 44 SIC codes directly linked to this sector. In addition, although the Department of Labour (DoL) defines the sectors to be served by the respective SETAs, some overlaps do occur and some organisations which are not strictly involved in core mining activities, but closely associated with the sector (i.e. Services Incidental to Mining) are also registered with the MQA.

In order to facilitate analysis of data covering such a wide spectrum of SIC codes, organisations in the sector have been categorised into the following nine subsectors:

- Coal Mining
- Gold Mining
- Platinum Group Metals (PGM) Mining
- Diamond Mining
- Other Mining
- Cement, Lime, Aggregates and Sand (CLAS)
- Services Incidental to Mining
- Diamond Processing
- Jewellery Manufacturing

Throughout the report, where applicable, the findings are presented in accordance with the above subsectors.

1.4. Methodology

The research was conducted through primary data collection that was driven through Workplace Skills Plans and Annual training Reports (WSP/ATR) analysis which is quantitative. In addition, literature review was also conducted to substantiate some of the findings.

1.4.1 Data limitations

According to the Skills Development Act 97 of 1998 as well as Skills Development Levies Act 9 of 1999 mining companies are required to submit WSP-ATRs as part of their commitment to skills development training in the sector. In addition, the Mine Health and Safety Act of 1996 requires that all mine licenced companies, regardless of size, submit their WSP-ATRs to the MQA. However, the current WSP-ATR submission numbers indicate that not all companies registered against SETA 16 are submitting. As will be discussed in Chapter 2, out of the 2157 registered companies in the MMS, only 719 companies submitted WSP-ATRs in 2017. This presents a challenge in ensuring reliability of data as it limits the scope of analysis.

1.4.2 Data Management

The data was obtained through MQA's data management system and contained 8 datasets, i.e. submissions, employees (SA and non-SA), training done, training planned (employees, unemployed and employed community members) as well as scarce and critical skills.

The data was first cleaned to maintain consistency and accuracy or reported data. This entailed cleansing and detecting inaccurate and incomplete records. Once this was completed, the data was extracted from excel and imported to SPSS. SPSS is a Statistical Package for the Social Sciences software that can perform high complex data analysis.

The datasets were the main tools of analysis.

1.4.3 Data Analysis

The analysis used for the research consisted mostly of descriptive statistics (frequency tables and cross-tabulations) which described the features of the data in the study. Mean comparisons were also conducted to identify the number of training planned and some sections related to scarce and critical skills.

CHAPTER 2 - PARTICIPATION IN WSP-ATR SUBMISSIONS

2.1 Introduction

This chapter presents an analysis of participation by companies in the 2017 WSP-ATR submissions, providing the number of submissions, profile of organisations that made submissions per subsector, geographic location and size. It is noteworthy that not all companies in the sector made submissions. Therefore, the picture illuminated is not a generalizable across the sector. However, submissions provide an insight into the nature, the extent of skills supply and demand in the sector that could inform better decision making around skills planning and intervention going forward.

2.2 WSP-ATR Submissions (Approvals and Rejections)

The financial year 2017/2018 had the highest number of WSP-ATR submissions of all the years for WSP analysis with 719 submissions. As a result, the year also had the highest approved submissions (97.8%) to be ever recorded.

In 2017, stakeholders expressed extensive interest in the attendance of WSP/ATR workshops that were held in all the provinces in the country. The aim of these workshops was to engage and provide capacity to stakeholders on the application processes, changes on the WSP-ATR template, and the Department of Higher Education and Training (DHET) requirements for submitting WSP-ATRs. This then facilitated learning and provided a better understanding of the submission process which consequently, contributed to increased submissions.

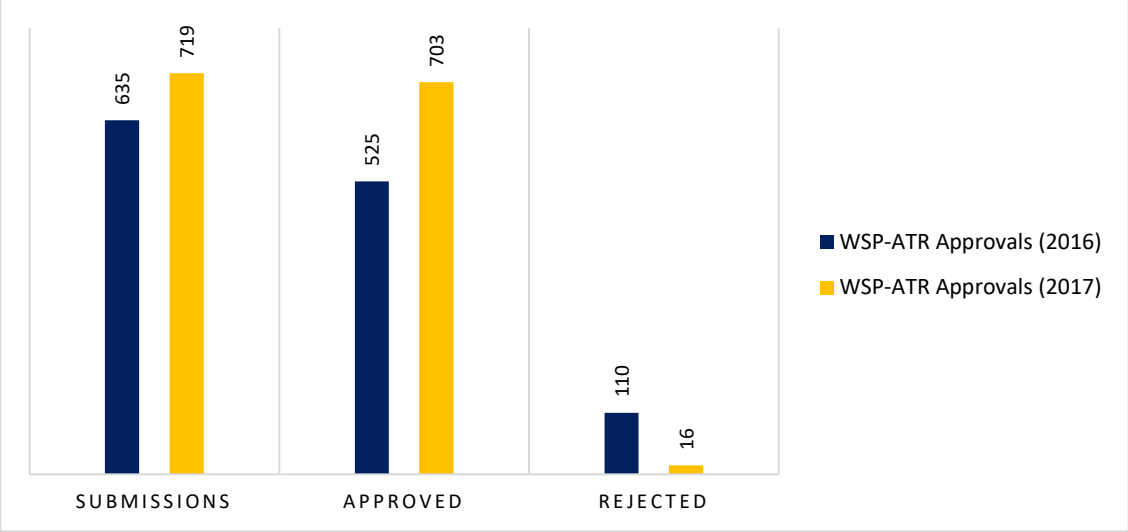


Figure 1: WSP-ATR submissions, approvals and rejections

Similarly as reasons provided over the past years, the reasons cited for the few companies whose submissions were rejected remained mostly due to missing or incomplete information.

Table 1: Reasons for rejections

Reasons for Rejection	N
Missing All WSP signatures	4
Source Data Query	4
Missing Union Signature	3
2017 Verification Document Incomplete	1
Missing CEO Signature	1
Missing CFO Signature	1
Missing Employee Representative Signature	1
Source Data not uploaded	1
Total	**16**

2.3 Submissions by Subsector

Other Mining which includes minerals such as uranium, copper, chrome, iron-ore, manganese and salt; Service Incidental to Mining as well as Coal Mining remain to be the top 3 Mining subsectors in the MMS.

In 2016, the two Diamond related subsectors had the least number of organisations that made submissions. However, the contrary was observed in 2017, with an increase of submissions observed for the Diamond Mining subsector (from 21 to 31)-pushing the Gold subsector to the second least submissions made. In 2015, the Chamber of Mines predicted that the employment in the gold sector alone, could drop by 43% over the next ten years. This prediction has proved to be somewhat true as the sector has been experiencing challenges over the years in sustaining its growth. As a result of these challenges, the amount of submissions for the year 2017 have also been affected.

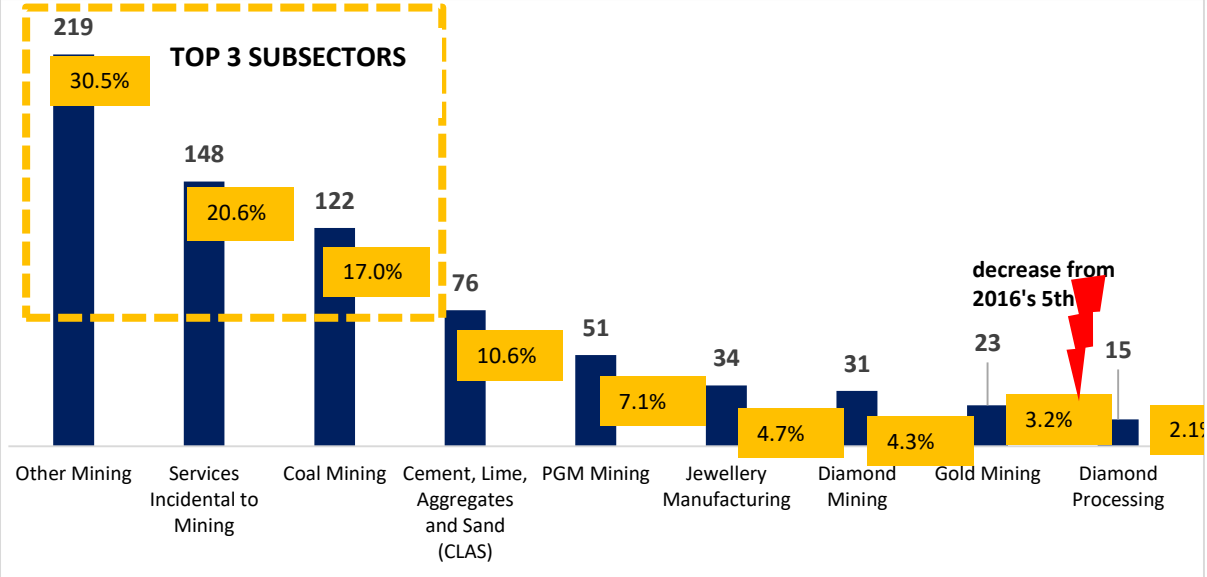


Figure 2: WSP-ATR submissions by subsector (n=719)

Of the 16 companies that were rejected, the Other Mining subsector had the highest number of rejected submissions. This is however, expected as the subsector had the highest submissions of all the other subsectors.

Table 2: WSP-ATR approvals and rejections by subsector

			Submitted		
			Approved	Rejected	Total
SUBSECTOR	Cement, Lime, Aggregates and Sand (CLAS)	Count	75	1	76
		%	10.7%	6.3%	10.6%
	Coal Mining	Count	120	2	122
		%	17.1%	12.5%	17.0%
	Diamond Mining	Count	30	1	31
		%	4.3%	6.3%	4.3%
	Diamond Processing	Count	14	1	15
		%	2.0%	6.3%	2.1%
	Gold Mining	Count	23	0	23
		%	3.3%	0.0%	3.2%
	Jewellery Manufacturing	Count	32	2	34
		%	4.6%	12.5%	4.7%
	Other Mining	Count	213	6	219
		%	30.3%	37.5%	30.5%
	PGM Mining	Count	51	0	51
		%	7.3%	0.0%	7.1%
	Services Incidental to Mining	Count	145	3	148
		%	20.6%	18.8%	20.6%
Total		**Count**	**703**	**16**	**719**
		%	**100.0%**	**100.0%**	**100.0%**

2.4 Submissions by Province

Gauteng, Mpumalanga and the North West were provinces that had the highest submissions. Considering that these provinces had the highest number of submissions, they also had the majority of approvals.

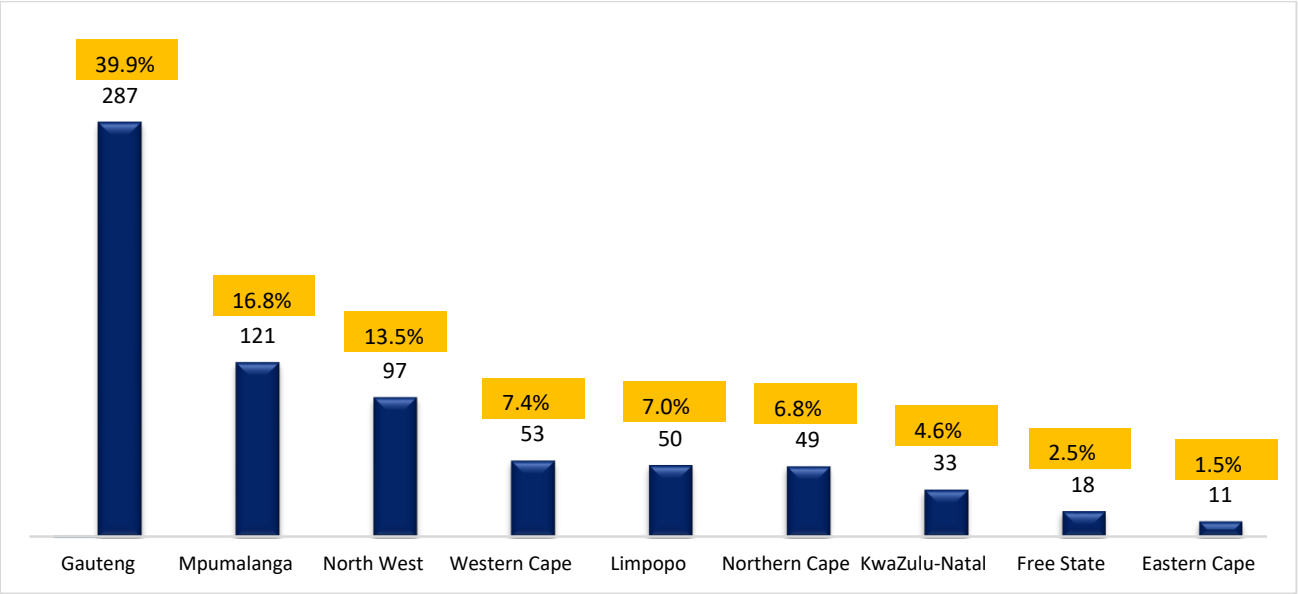


Figure 3: WSP-ATR submissions by province (n=791)

2.5 Distribution of participating organisations by province and subsector

Figure 4 below presents the geographic spread of each subsector per province. Out of all the provinces that submitted WSP-ATRs in 2017, the Northern Cape posted an increase for its submissions across all subsectors that exist in the province. Compared to 2016's 11 submissions for Diamond Mining in the province, 20 were made in 2017, 20 were made for Other Mining compared to 15 in 2016 and 8 compared to 4 for Services Incidental to Mining.

Furthermore, analysis also revealed a major increase in the submissions for PGM Mining in Limpopo and North West. In 2016, North West had 6 companies that submitted WSP-ATRs for PGM Mining. However, the submissions increased 3 times the amount (24) in 2017. On the other hand an increase is seen in Limpopo's PGM with submissions sitting at 18 compared to 2016's 10.

In addition, there has been a 46% increase in the number of submissions made in Mpumalanga for Coal mining (79 compared to 43).

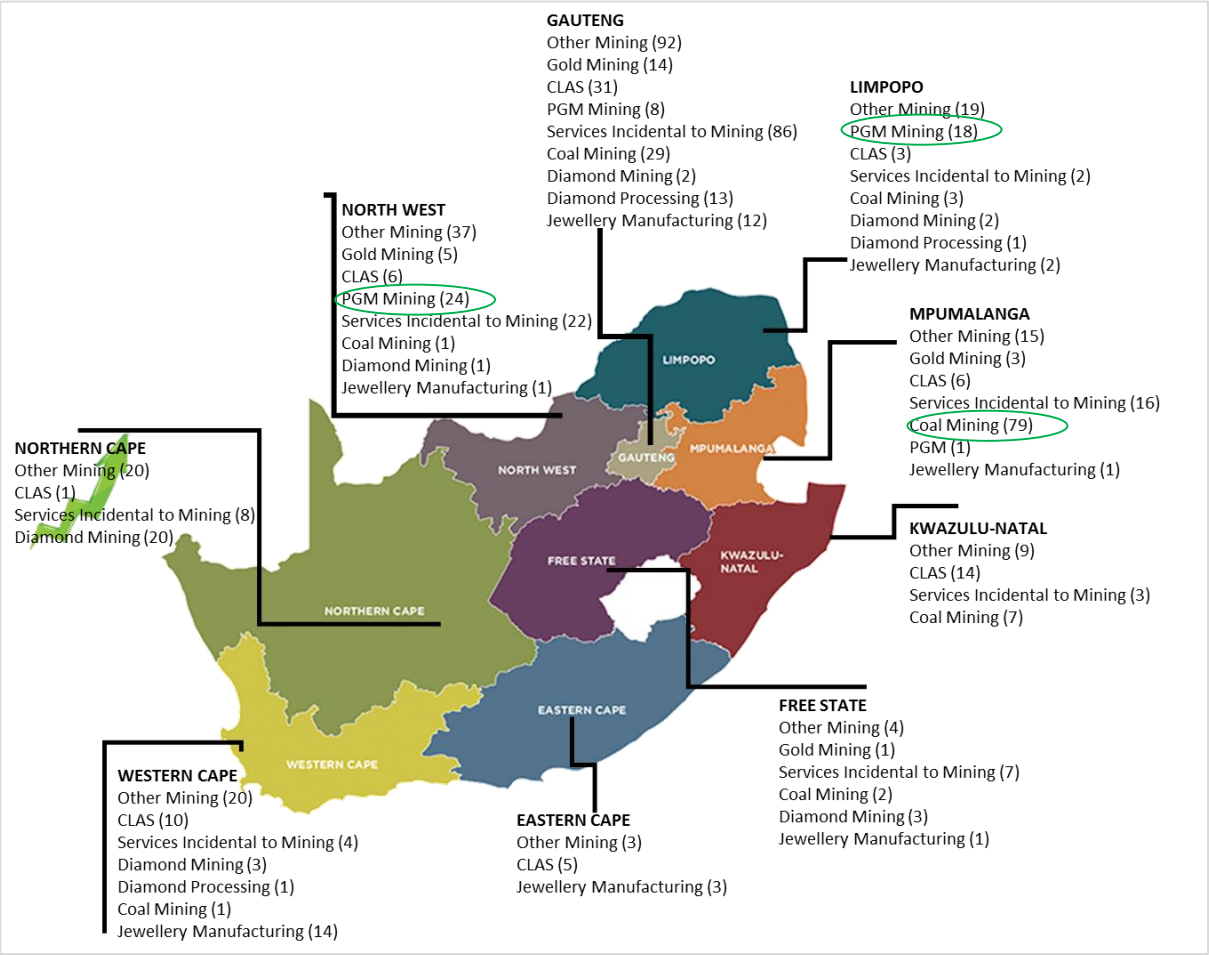


Figure 4: Distribution of participating organisations by province and subsector

2.6 Submissions by Company Size

Table 3 below illustrates an increase in submissions across all company sizes. However, small companies still dominate the number of WSP/ATR submissions made in the sector. Subsectoral, PGM and Coal Mining had the highest submission increase in 2017 compared to 2016-with Coal mining posting an increase across all company sizes. The increase seen in Coal and PGM mining can be attributed to the increased submissions made in 2017 for these subsectors.

Table 3: WSP-ATR submissions by subsector and company size

Subsector	Year	Company Size			Total
		Large	Medium	Small	
Cement, Lime, Aggregates and Sand (CLAS)	2017	23	21	32	76
	2016	17	19	34	70
Coal Mining	2017	57	25	40	122
	2016	40	21	26	87
Diamond Mining	2017	13	7	11	31
	2016	12	7	2	21
Diamond Processing	2017	1	5	9	15
	2016	1	5	6	12
Gold Mining	2017	16	4	3	23
	2016	21	2	4	27
Jewellery Manufacturing	2017	0	5	29	34
	2016	0	5	22	27
Other Mining	2017	74	68	77	219
	2016	80	62	78	220
PGM Mining	2017	41	7	3	51
	2016	18	4	2	24
Services Incidental to Mining	2017	31	38	79	148
	2016	37	38	72	147
Total	**2017**	**256**	**180**	**283**	**719**
	2016	**226**	**163**	**246**	**635**

2.7 Conclusions

The findings revealed a commendable increase of WSP-ATR submissions (719 vs. 635 in 2016. This was the highest to be ever recorded in MQA's submission history. The submission of WSP/ATRs is in compliance with the Skills Development Act, and the Mine Health and Safety Act No. 74 of 2008 where section 10 (5) states that 'All mines must submit a workplace skills plan and the annual training report to the Mining Qualifications Authority' (http://www.mqa.org.za/content/invitation-attend-2018-workplace-skills-plan-and-annual-training-report-workshops). The aim of these workshops was to engage and provide capacity to stakeholders on the application processes, changes on the WSP-ATR template, and the Department of Higher Education and Training (DHET) requirements for submitting the 2018 WSP-ATRs.

The increase in the submission of WSP-ATRs signifies positive efforts by companies to upskill employees. On the other hand, the existence of the few non-approvals could signify that there are still some organisations that lack consistency in submitting WSPs or lack of understanding of the WSP-ATR submission process.

CHAPTER 3 - PROFILE OF THE MINING AND MINERALS SECTOR

3.1 Introduction

This chapter presents an analysis of the employment patterns as represented in the organisations that made WSP-ATR submissions in 2017. Other than providing a raw count of employees reported in the submissions, the employment profile is given in terms of population group, gender, people with disabilities, South African versus non-South African citizens and educational levels.

3.2 Number of workers by employment status

There was an increase in the number of reported employees in 2017. The 2016 WSP-ATR submissions contained a total 424 487 employees, whilst 2017 comprised a total of 534 411 employees. The increase in the reported number of employees can be attributed to the increase in the number of submissions made for the year.

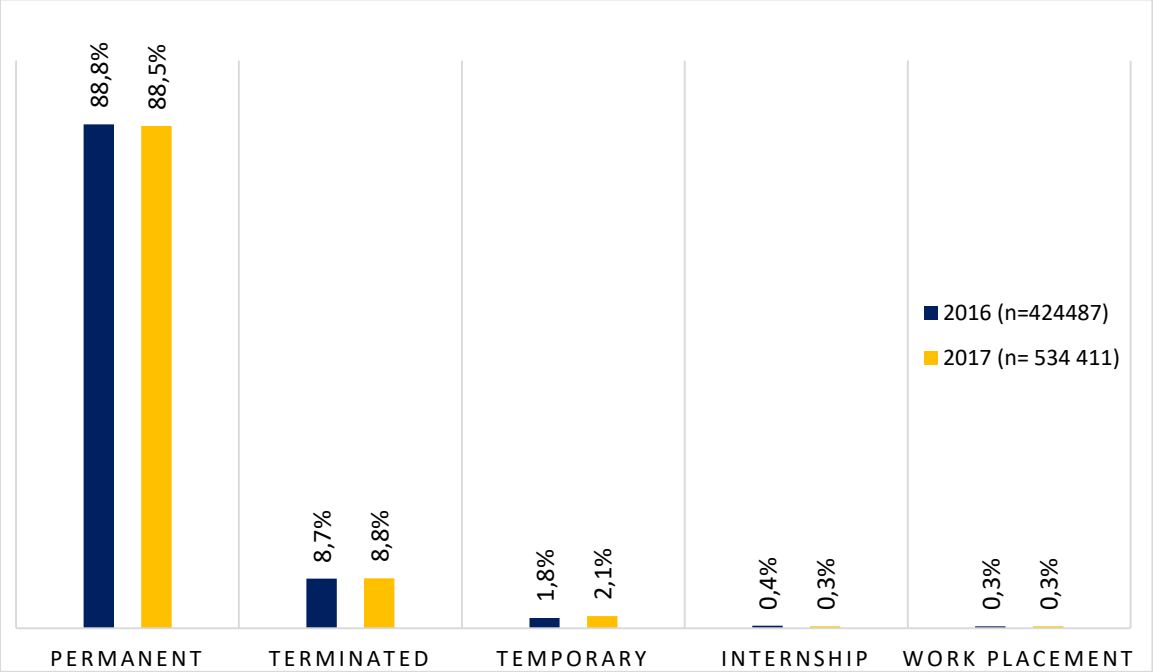


Figure 5: Number of workers by employment status (n=534411)

3.3 Employment by Subsector

PGM Mining has the highest percentage of workers in the sector, followed by the Gold subsector despite its low WSP/ATR submission rate. In comparison to the other subsectors, PGM, Diamond and Diamond Processing were the only subsectors reported to have had an increase in reported employees.

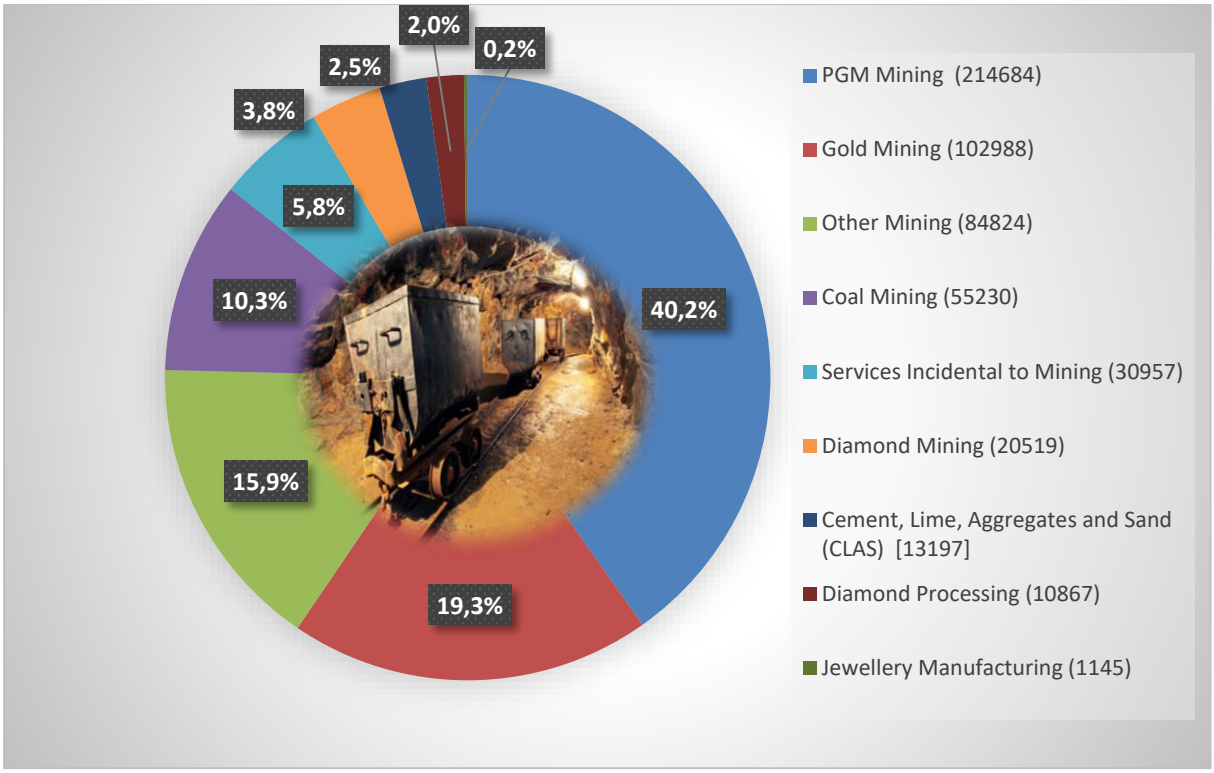


Figure 6: Employment by subsector (n=534411)

3.4 Employment by Province

Due to the reason that there were more employees reported for the financial year 2017/2018, an increase in the number of employees is seen across all provinces. Interestingly, although Gauteng had the highest number of WSP/ATR submissions (39.8%), North West employs more employees (214 884) compared to Gauteng's 85 244. This comes as no surprise as the majority of PGM mines are found in the North West and are mostly large companies employing above 150 employees. In addition, according to the Industrial Development Corporation's (IDC) North West regional manager, David McGluwa, mining still remains the key driver of economic growth and job creation in the province. The sector is still viewed as one of the biggest contributors to the provincial economy and accounts for more than a third of the provincial GDP, with a quarter of the provincial workforce in it (Mining Prospectus, 2017).

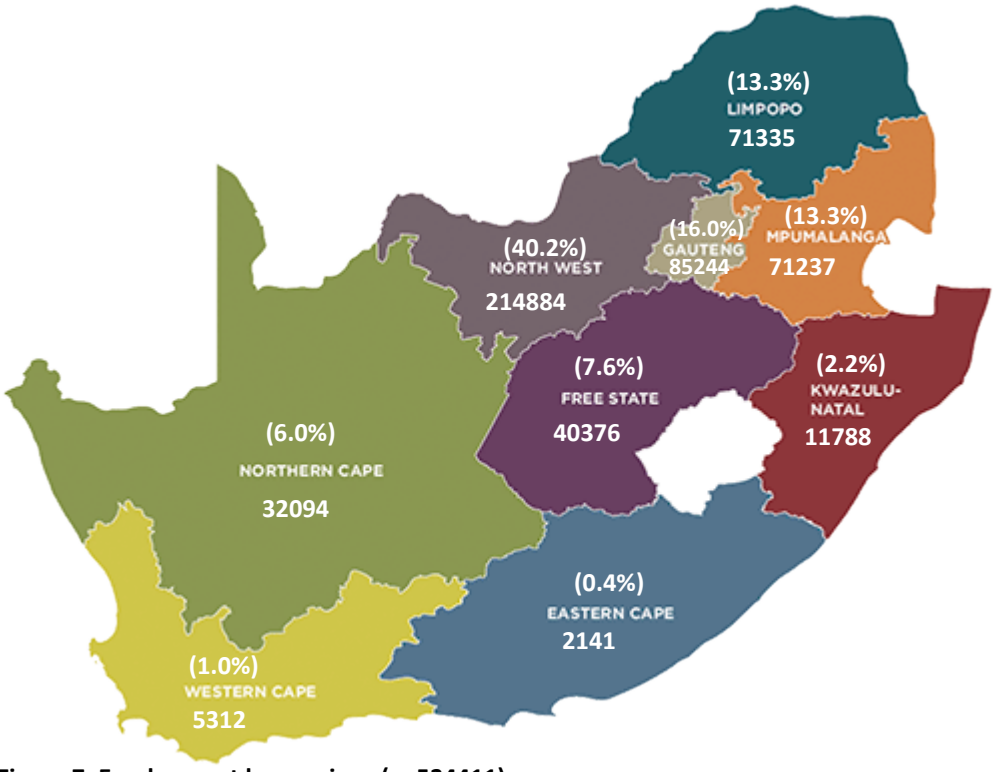


Figure 7: Employment by province (n=534411)

3.5 Employment by Occupational Levels

Over the years, the gold mining sector has always faced shortages largely in the middle management and technical levels (Mining Mirror, 2015). This is evident in the 2017/2018 data which revealed that the sector still faces challenges in upskilling employees to higher levels of employment as the majority still fall within the unskilled and semi-skilled occupation levels (mostly employed as workshop cleaners, welders and mining operators). The reason for this according to literature, is due to literacy where semi-skilled employees are reported to struggle to read English. Consequently, advancing to more professional occupational levels becomes a challenge (ibid) given the cognitive demands of such upward mobility that requires managerial skills etc.

PGM faces similar challenges as that of the Gold Mining subsector as they too, have the highest number of employees occupying the unskilled and semi-skilled occupation levels.

In contrast, Diamond Mining and Diamond Processing Mining were the two subsectors with more skilled employees with the majority of their employees being skilled technically and professionally qualified.

Table 4: Employment by province (n=534411)

			Elementary occupations	Unskilled and defined decision makers	Semi-skilled and discretionary decision makers	Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	Professionally qualified and experienced specialists and mid-management	Senior management	Top management	Total
SUBSECTOR	Cement, Lime, Aggregates and Sand (CLAS)	Count	0	2202	4968	4401	1151	374	101	13197
		%	0.0%	16.7%	37.6%	33.3%	8.7%	2.8%	.8%	100.0%
	Coal Mining	Count	11	4684	**28449**	17374	3801	738	173	55230
		%	.0%	8.5%	**51.5%**	31.5%	6.9%	1.3%	.3%	100.0%
	Diamond Mining	Count	0	1769	7244	9156	1981	340	29	20519
		%	0.0%	8.6%	35.3%	44.6%	9.7%	1.7%	.1%	100.0%
	Diamond Processing	Count	0	395	2764	**6214**	**1247**	209	38	10867
		%	0.0%	3.6%	25.4%	**57.2%**	**11.5%**	1.9%	.3%	100.0%
	Gold Mining	Count	0	**42279**	**44053**	14361	1885	354	56	102988
		%	0.0%	**41.1%**	**42.8%**	13.9%	1.8%	.3%	.1%	100.0%
	Jewellery Manufacturing	Count	0	71	563	347	81	49	34	1145
		%	0.0%	6.2%	49.2%	30.3%	7.1%	4.3%	3.0%	100.0%
	Other Mining	Count	0	11279	41828	25304	4743	1352	318	84824
		%	0.0%	13.3%	49.3%	29.8%	5.6%	1.6%	.4%	100.0%
	PGM Mining	Count	0	**69690**	**107399**	30717	5726	1034	118	214684
		%	0.0%	**32.5%**	**50.0%**	14.3%	2.7%	.5%	.1%	100.0%
	Services Incidental to Mining	Count	0	5992	13891	7683	2453	669	269	30957
		%	0.0%	19.4%	44.9%	24.8%	7.9%	2.2%	.9%	100.0%
Total		**Count**	**11**	**138361**	**251159**	**115557**	**23068**	**5119**	**1136**	**534411**
		%	**.0%**	**25.9%**	**47.0%**	**21.6%**	**4.3%**	**1.0%**	**.2%**	**100.0%**

3.6 Employment by Gender

There has not been any significant changes in the gender distribution of employees in the MMS. Females still remain under-represented, with Gold and PGM Mining being the subsectors with the lowest female employees. Considering the increase in technological developments in mines, the mining sector has shown transformation in changing the masculinity image that was previously associated with the industry and females are continuously encouraged to pursue careers in the sector. However, the slow acquisition of female employees in the sector calls for the need to rigorously increase awareness and knowledge of the sector to inform females of exiting opportunities that are available for them.

Jewellery Manufacturing on the other hand, has an above average (50.2%) number of females employed in the subsector- which is slightly higher than their male counterparts. This is expected as the subsector is mostly associated with soft mining which is not physically intensive compared to the other subsectors.

Statistics South Africa notes that only 44% of professional posts are held by women in South Africa. According to Women in Mining South Africa (WIMSA), although the current women representation in mining is below the national average of women professionals, the current percentage of women in mining is said to be progressing as South Africa is reported as one of the leaders in the world when it comes to employment of women. Since the beginning of 2000, the percentage of women employed in mining increased from roughly 4% to 14% in 2017. This is an improvement, however, more effort still needs to be placed to acquire an equal distribution of gender within the sector.

Furthermore research needs to be conducted to determine factors contributing to the low levels of female representation in the sector. The research should identify companies' efforts to attract women to enter the sector, what is being done to retain and support those already working in the sector.

Table 5: Employment by gender

			GENDER		
			Female	Male	Total
SUBSECTOR	Cement, Lime, Aggregates and Sand (CLAS)	Count	2476	10721	13197
		%	18.8%	81.2%	100.0%
	Coal Mining	Count	9563	45667	55230
		%	17.3%	82.7%	100.0%
	Diamond Mining	Count	4001	16518	20519
		%	19.5%	80.5%	100.0%
	Diamond Processing	Count	2207	8660	10867
		%	20.3%	79.7%	100.0%
	Gold Mining	Count	12973	90015	102988
		%	**12.6%**	87.4%	100.0%
	Jewellery Manufacturing	Count	575	570	1145
		%	**50.2%**	49.8%	100.0%
	Other Mining	Count	13482	71342	84824
		%	15.9%	84.1%	100.0%
	PGM Mining	Count	25622	189062	214684
		%	**11.9%**	88.1%	100.0%
	Services Incidental to Mining	Count	5069	25888	30957
		%	16.4%	83.6%	100.0%
Total		**Count**	**75968**	**458443**	**534411**
		%	**14.2%**	**85.8%**	**100.0%**

3.6.1 Women by Occupational Level

Since the introduction of the Mining Charter in 2002, there has been a shift that allows women to occupy executive positions and it paved a path for women to move up through the ranks. However, the concern is on the rate at which the development of women in the sector is occurring as indicated by the findings. Albeit the percentage of women in professional and senior management occupations is slightly higher than those of their male counterparts, they still remain underrepresented when analysing the actual number in those roles.

Table 7 below illustrates similarities in occupations filled by both males and females in the sector as 50% of occupations occupied by females are the same as their male counterparts. The difference in the other occupations is that females are employed in more supportive roles, whilst males in core mining positions. Although it is encouraging to see women occupying similar positions as males, emphasis remains in supporting efforts that promote females' employment participation in technical, professional and managerial positions (Campbell, 2007).

According to WIMSA, there is a need for companies to actively encourage and empower the development of women to higher positions in order to gain a representative equity and to break the glass ceiling within companies (Hancock, 2014). Literature states that a challenge exists for some women to take up senior positions as these positions are said to be very demanding and do not promote work-life-balance (ibid). Therefore, developments should be made in ensuring that advancements allow time for flexible working conditions that do not conflict with work-life-balance.

Table 6: Gender by occupational level

			OCCUPATIONAL LEVEL							
			Elementary occupations	Unskilled and defined decision makers	Semi-skilled and discretionary decision makers	Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	Professionally qualified and experienced specialists and mid-management	Senior management	Top management	TOTAL
GENDER	Female	Count	0	21419	27673	20466	5371	861	178	75968
		%	0.0%	28.2%	36.4%	26.9%	7.1%	1.1%	.2%	100.0%
	Male	Count	11	116942	223486	95091	17697	4258	958	458443
		%	.0%	25.5%	48.7%	20.7%	3.9%	.9%	.2%	100.0%
	Total	Count	11	138361	251159	115557	23068	5119	1136	534411
		%	.0%	25.9%	47.0%	21.6%	4.3%	1.0%	.2%	100.0%

Table 7: Top 10 Main Occupations by Gender

Female	Number of employees	Male	Number of employees
Mining Support Worker	8635	Mining Support Worker	47668
Learner	2879	Rock Drill Operator	32936
General Clerk	1921	Winch Operator	25570
Locomotive Driver	1898	Mining Team Leader	17668
Mining Operator	1705	Mining Operator	16724
Belt Attendant	1392	Locomotive Driver	13115
Administration Clerk / Officer	1235	Mine Sampler / Worker	8148
Mine Sampler / Worker	1086	Driller	7765
Administration Officer	812	Development Driller	5651
Administrator	784	Learner	5266
Total Employment	**75968**	**Total Employment**	**458443**

**The above list is by no means an exhaustive list of occupations filled by males and females in the sector, but only highlights the top 10 occupations occupied by gender.*

There are similarities in occupations filled by both males and females in the sector as 50% of occupations occupied by females are the same as their male counterparts. The difference in the other occupations is that females are employed in more supportive roles, whilst males in core mining positions. Although it is encouraging to see women occupying similar positions as males, as stated earlier, emphasis remains in supporting efforts that promote females' employment participation in technical, professional and managerial positions (Campbell, 2007).

3.7 Employment by Age

Data points out that the age distribution of employees within the MMS consists of mostly middle-aged adults. The average age of the employees was 41 years, with the oldest employee aged 99 and the youngest 18. Of the young workforce, the majority of them are occupying unskilled and semi-skilled occupations, whilst those above 65 were in more skilled and in senior positions. South Africa is a youthful country, with two-thirds of the population under the age of 35 years (DHET, 2014).

On the other hand, it could be argued that those above 65 years are more skilled and occupy senior positions due to their years of experience in the sector. Working in the industry for many years could have therefore, created a path to progress through hierarchical levels that enabled them to attain adequate skills to occupy senior positions.

The current position of unskilled and semi-skilled young employees indicates the need for further development initiatives to be focused on young people as the future of mining is dependent on them. The inability to develop the young workforce will result in skills shortage for replacing retiring employees, thus threatening the long-term sectorial survival of mining. Failure to prioritise the development of the young workforce could result in the loss of skills, knowledge and expertise every time knowledgeable retiring employees retire. This also calls for knowledge transfer within organisations.

Table 8: Employment by age

			Age						Total
			<25	25-34	35-44	45-54	55-64	65+	
SUBSECTOR	Cement, Lime, Aggregates and Sand (CLAS)	Count	759	3558	4009	2828	1842	201	13197
		%	5.8%	27.0%	30.4%	21.4%	14.0%	1.5%	100.0%
	Coal Mining	Count	2155	15069	16111	12791	8686	418	55230
		%	3.9%	27.3%	29.2%	23.2%	15.7%	.8%	100.0%
	Diamond Mining	Count	708	6035	6394	4443	2796	143	20519
		%	3.5%	29.4%	31.2%	21.7%	13.6%	.7%	100.0%
	Diamond Processing	Count	365	3398	3246	2138	1627	93	10867
		%	3.4%	31.3%	29.9%	19.7%	15.0%	.9%	100.0%
	Gold Mining	Count	3364	24540	31407	30778	12764	135	102988
		%	3.3%	23.8%	30.5%	29.9%	12.4%	.1%	100.0%
	Jewellery Manufacturing	Count	187	356	267	205	103	27	1145
		%	16.3%	31.1%	23.3%	17.9%	9.0%	2.4%	100.0%
	Other Mining	Count	3955	26956	29073	16062	8306	472	84824
		%	4.7%	31.8%	34.3%	18.9%	9.8%	.6%	100.0%
	PGM Mining	Count	2922	44270	82110	59167	26158	57	214684
		%	1.4%	20.6%	38.2%	27.6%	12.2%	.0%	100.0%
	Services Incidental to Mining	Count	2125	10186	9734	5642	2948	322	30957
		%	6.9%	32.9%	31.4%	18.2%	9.5%	1.0%	100.0%
Total		**Count**	**16540**	**134368**	**182351**	**134054**	**65230**	**1868**	**534411**
		%	**3.1%**	**25.1%**	**34.1%**	**25.1%**	**12.2%**	**.3%**	**100.0%**

Table 9: Employment by occupational level and age

			Occupational Level							Total
			Elementary occupations	Unskilled and defined decision makers	Semi-skilled and discretionary decision makers	Professionally qualified and experienced specialists and mid-management	Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	Senior management	Top management	
Age	<25	Count	2	6741	7320	379	2086	11	1	16540
		%	.0%	**40.8%**	**44.3%**	2.3%	12.6%	.1%	.0%	100.0%
	25-34	Count	2	41653	58822	5095	28296	437	63	134368
		%	.0%	**31.0%**	**43.8%**	3.8%	**21.1%**	.3%	.0%	100.0%
	35-44	Count	5	44931	87434	7919	40092	1703	267	182351
		%	.0%	**24.6%**	**47.9%**	4.3%	**22.0%**	.9%	.1%	100.0%
	45-54	Count	2	31429	64482	6131	29687	1870	453	134054
		%	.0%	23.4%	48.1%	4.6%	**22.1%**	1.4%	.3%	100.0%
	55-64	Count	0	13474	32477	3262	14786	971	260	65230
		%	0.0%	20.7%	49.8%	5.0%	22.7%	1.5%	.4%	100.0%
	65+	Count	0	133	624	282	610	127	92	1868
		%	0.0%	7.1%	33.4%	15.1%	**32.7%**	**6.8%**	4.9%	100.0%
Total		**Count**	**11**	**138361**	**251159**	**23068**	**115557**	**5119**	**1136**	**534411**
		%	**.0%**	**25.9%**	**47.0%**	**4.3%**	**21.6%**	**1.0%**	**.2%**	**100.0%**

3.8 Employment by Population Group

According to StatsSA, Africans represent the majority (81%) of the race groups in South Africa (StatsSA, 2017). It is encouraging to note that the majority of the workforce in the MMS is above the national average as African employees comprise 85.3%, whilst Indians were the least represented race group (0.6%). Africans dominate in all subsectors, but in low skilled occupation levels. In contrast, although there are few White employees compared to Africans, they tend to occupy few low skilled positions, with the majority of them either being skilled, professionally qualified or in a senior management position. There is equity in employment by population but not in skilled occupations and managerial positions. Consequently, this poses a challenge of inequities, development and labour stability as employees that are more prone to retrenchments when mines are not performing are unskilled and semi-skilled employees.

Table 10: Employment by population group

			Equity				
			African	Coloured	Indian	White	Total
SUBSECTOR	Cement, Lime, Aggregates and Sand (CLAS)	Count	8758	1550	373	2516	13197
		%	66.4%	11.7%	2.8%	19.1%	100.0%
	Coal Mining	Count	43951	570	449	10260	55230
		%	79.6%	1.0%	.8%	18.6%	100.0%
	Diamond Mining	Count	12122	2536	640	5221	20519
		%	59.1%	12.4%	3.1%	25.4%	100.0%
	Diamond Processing	Count	6412	337	643	3475	10867
		%	59.0%	3.1%	5.9%	32.0%	100.0%
	Gold Mining	Count	94433	463	175	7917	102988
		%	91.7%	.4%	.2%	7.7%	100.0%
	Jewellery Manufacturing	Count	567	321	8	249	1145
		%	49.5%	28.0%	.7%	21.7%	100.0%
	Other Mining	Count	63549	7799	607	12869	84824
		%	74.9%	9.2%	.7%	15.2%	100.0%
	PGM Mining	Count	201473	673	284	12254	214684
		%	93.8%	.3%	.1%	5.7%	100.0%
	Services Incidental to Mining	Count	24333	715	290	5619	30957
		%	78.6%	2.3%	.9%	18.2%	100.0%
Total		**Count**	**455598**	**14964**	**3469**	**60380**	**534411**
		%	**85.3%**	**2.8%**	**.6%**	**11.3%**	**100.0%**

Table 11: Employment by population group and occupational level

			Occupational Level							
			Elementary occupations	Unskilled and defined decision makers	Semi-skilled and discretionary decision makers	Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	Professionally qualified and experienced specialists and mid-management	Senior management	Top management	Total
EQUITY	African	Count	11	135594	236664	72437	9199	1409	284	455598
		%	.0%	29.8%	51.9%	15.9%	2.0%	.3%	.1%	100.0%
	Coloured	Count	0	1381	6437	5878	1002	218	48	14964
		%	0.0%	9.2%	43.0%	39.3%	6.7%	1.5%	.3%	100.0%
	Indian	Count	0	68	535	1487	1055	279	45	3469
		%	0.0%	2.0%	15.4%	42.9%	30.4%	8.0%	1.3%	100.0%
	White	Count	0	1318	7523	35755	11812	3213	759	60380
		%	0.0%	2.2%	12.5%	59.2%	19.6%	5.3%	1.3%	100.0%
Total		**Count**	**11**	**138361**	**251159**	**115557**	**23068**	**5119**	**1136**	**534411**
		%	**.0%**	**25.9%**	**47.0%**	**21.6%**	**4.3%**	**1.0%**	**.2%**	**100.0%**

3.9 Employees by Qualification

The development of high-end skills is viewed as a critical factor for the advancement and sustainability of the MMS (Chamber of Mine SA, 2017). With that, education plays an imperative role in ensuring the supply of a workforce with necessary knowledge, skills and qualifications. The majority of mining companies will expect employees to have some qualification relevant to their job specification. For this reason opportunities to advance in the mining industry become better if an employee has a relevant qualification related to mining. However, the contrary is evident for the majority of employees (who are mostly youth) and possess some form of formal education, but are employed in either unskilled or semi-skilled occupations. A reason that could be attributed to this can be related to some employees possessing some form of qualifications, but not relevant to the sector. However, those that are older and close to retirement (55+) are mostly employed in senior positions, whilst possessing no form of formal education. This can be attributed to experience in the industry.

Table 12: Employees by Highest Qualification and Age

Highest Qualification		Age <25	25-34	35-44	45-54	55-64	65.00	Total
No Schooling	Count	118	1144	2644	2849	1641	54	8450
	%	1.4%	13.5%	31.3%	33.7%	19.4%	.6%	100.0%
Pre-AET / Grade 1-3	Count	168	2109	4802	6430	4025	33	17567
	%	1.0%	12.0%	27.3%	36.6%	22.9%	.2%	100.0%
AET 1 / Std 2, Grade 4	Count	114	2525	5976	6652	4342	56	19665
	%	.6%	12.8%	30.4%	33.8%	22.1%	.3%	100.0%
AET 2 / Std 3/4, Grade 5/6	Count	102	2178	5225	8309	5335	70	21219
	%	.5%	10.3%	24.6%	39.2%	25.1%	.3%	100.0%
AET 3 / Std 5/6, Grade 7/8	Count	248	3047	7225	11725	7401	91	29737
	%	.8%	10.2%	24.3%	39.4%	24.9%	.3%	100.0%
AET 4 / Std 7, Grade 9	Count	473	3561	6128	6591	3707	111	20571
	%	2.3%	17.3%	29.8%	32.0%	18.0%	.5%	100.0%
Std 8 / Grade 10, NATED 1 / NCV Level 1	Count	961	7988	10544	8649	4348	110	32600
	%	2.9%	24.5%	32.3%	26.5%	13.3%	.3%	100.0%
Std 9 / Grade 11, NATED 2 / NCV Level 2	Count	1014	16433	29224	20326	8194	63	75254
	%	1.3%	21.8%	38.8%	27.0%	10.9%	.1%	100.0%
Std 10 / Grade 12, NATED 3 / NCV Level 3	Count	8360	52386	55426	25628	8587	350	150737
	%	5.5%	34.8%	36.8%	17.0%	5.7%	.2%	100.0%
National/ Higher Certificate	Count	471	5167	7248	5756	2844	156	21642
	%	2.2%	23.9%	33.5%	26.6%	13.1%	.7%	100.0%
Higher Certificate/ Diploma/ Advanced Certificate/ NATED 4 – 6	Count	800	7072	9595	5779	2721	148	26115
	%	3.1%	27.1%	36.7%	22.1%	10.4%	.6%	100.0%
Advanced Diploma/ B-Tech Degree/ Bachelor's Degree (360 credits)	Count	314	3041	2961	1619	701	66	8701
	%	3.6%	34.9%	34.0%	18.6%	8.1%	.8%	100.0%
Bachelor Honour's Degree/ Postgraduate Diploma/ Bachelor's Degree(480 credits)	Count	151	2423	2584	1565	616	63	7402
	%	2.0%	32.7%	34.9%	21.1%	8.3%	.9%	100.0%
Master's Degree	Count	4	319	716	647	277	22	1985
	%	.2%	16.1%	36.1%	32.6%	14.0%	1.1%	100.0%
Doctoral Degree & Post-doctoral Degree	Count	0	23	74	63	39	9	208
	%	0.0%	11.1%	35.6%	30.3%	18.8%	4.3%	100.0%
Undefined	Count	3242	24952	31979	21466	10452	466	92557
	%	3.5%	27.0%	34.6%	23.2%	11.3%	.5%	100.0%

3.10 Employees with Disability

According to the Employment Equity Act, at least 3% of an organisation's workforce should be employees with disabilities (Vallie, 2017). The national disability prevalence rate in South Africa is estimated at 7,5%, but could be higher because of under-reporting. However, South African employers across the board are said to fall short of national targets for the employment of persons with disabilities (ibid). The MMS is no different to other South African organisations as there has not been any improvement from 2016 in the employment of disabled individuals as they still remain low (1.1% - 5855 out of 534411 employees). This is below the 3% set EEA.

Table 13: Proportion of employees with disability by subsector

			DISABLED		
			No	Yes	Total
SUBSECTOR	Cement, Lime, Aggregates and Sand (CLAS)	Count	13053	144	13197
		%	98.9%	1.1%	100.0%
	Coal Mining	Count	54813	417	55230
		%	99.2%	.8%	100.0%
	Diamond Mining	Count	20412	107	20519
		%	99.5%	.5%	100.0%
	Diamond Processing	Count	10818	49	10867
		%	99.5%	.5%	100.0%
	Gold Mining	Count	102579	409	102988
		%	99.6%	.4%	100.0%
	Jewellery Manufacturing	Count	1130	15	1145
		%	98.7%	1.3%	100.0%
	Other Mining	Count	84171	653	84824
		%	99.2%	.8%	100.0%
	PGM Mining	Count	210777	3907	214684
		%	98.2%	1.8%	100.0%
	Services Incidental to Mining	Count	30803	154	30957
		%	99.5%	.5%	100.0%
Total		**Count**	**528556**	**5855**	**534411**
		%	**98.9%**	**1.1%**	**100.0%**

As indicated in Table 14 and 15 below, it was interesting to note that employees living with a disability are mostly employed in occupations that are the same as abled-bodied employees. These occupations include both support and core mining functions, falling within the unskilled and semi-skilled occupational levels.

This occupation of disabled employees in unskilled and semi-skilled jobs signifies the need for more concerted efforts by companies to create enabling working environments that will provide access for disabled people to work without barriers inhibiting their performance. It can also be argued that the sector has not sufficiently thought of identifying key work areas where disabled

individuals could be placed to work and would not necessarily require an enabled bodied person to carry out the task. Thus, improvements need to be made in that space.

Table 14: Proportion of employees with disability by occupational level

		Disabled		Total
		No	Yes	
OCCUPATIONAL LEVEL	Elementary occupations	11	0	11
	Unskilled and defined decision makers	135921	2440	138361
	Semi-skilled and discretionary decision makers	249051	2108	251159
	Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	114488	1069	115557
	Professionally qualified and experienced specialists and mid-management	22874	194	23068
	Senior management	5085	34	5119
	Top management	1126	10	1136
Total		**528556**	**5855**	**534411**

Table 15: Main Occupations filled by employees living with a disability

Top 20 Disability Employment	Number of employees
Mine Sampler / Worker	521
Winch Operator	483
Development Driller	415
Mining Support Worker	405
Hard Rock Miner	183
Locomotive Driver	179
Rock Drill Operator	115
Learner	110
Mining Team Leader	108
Battery Bay Attendant/ Battery and Lamp Repairer	101

3.11 Employment by Nationality

The MMS employs more South African citizens than foreign nationals. In terms of actual numbers, there were slightly more foreign nationals reported in 2017 (63145 vs. 53715 in 2016). However, in relation to population proportions, Table 16 shows that there was a minor decrease of foreign nationals in proportion to South African employees in 2017 (11.8% vs. 12.7% in 2016). The Gold subsector employs the largest number of non-South African citizens. This has been the trend over the past years. However, these employees mostly occupy unskilled and semi-skilled positions.

The fact that there are more South African citizens employed in the sector is encouraging as it could indicate the development of citizens and the country as a whole. However, the occupancy of foreign nationals in employments that are not hard to fill or critical to the development of the country should not be overlooked.

Table 16: Employment by nationality

			SA Citizen		Total
			Non-South African	South African	
					
SUBSECTOR	Cement, Lime, Aggregates and Sand (CLAS)	Count	204	12993	13197
		%	1.5%	98.5%	100.0%
	Coal Mining	Count	1164	54066	55230
		%	2.1%	97.9%	100.0%
	Diamond Mining	Count	106	20413	20519
		%	0.5%	99.5%	100.0%
	Diamond Processing	Count	115	10752	10867
		%	1.1%	98.9%	100.0%
	Gold Mining	Count	**24823**	78165	102988
		%	**24.1%**	75.9%	100.0%
	Jewellery Manufacturing	Count	36	1109	1145
		%	3.1%	96.9%	100.0%
	Other Mining	Count	3157	81667	84824
		%	3.7%	96.3%	100.0%
	PGM Mining	Count	**30695**	183989	214684
		%	**14.3%**	85.7%	100.0%
	Services Incidental to Mining	Count	2845	28112	30957
		%	9.2%	90.8%	100.0%
Total		**Count**	**63145**	**471266**	**534411**
		%	**11.8%**	**88.2%**	**100.0%**

Table 17: Non South Africans by occupational level

Occupational Level	Count	%
Top management	58	0.1%
Senior management	147	0.2%
Professionally qualified and experienced specialists and mid-management	465	0.7%
Skilled technical and academically qualified workers, junior management, supervisors, foremen and superintendents	4375	6.9%
Semi-skilled and discretionary decision makers	38622	61.2%
Unskilled and defined decision makers	19478	30.8%
Total	**63145**	**100%**

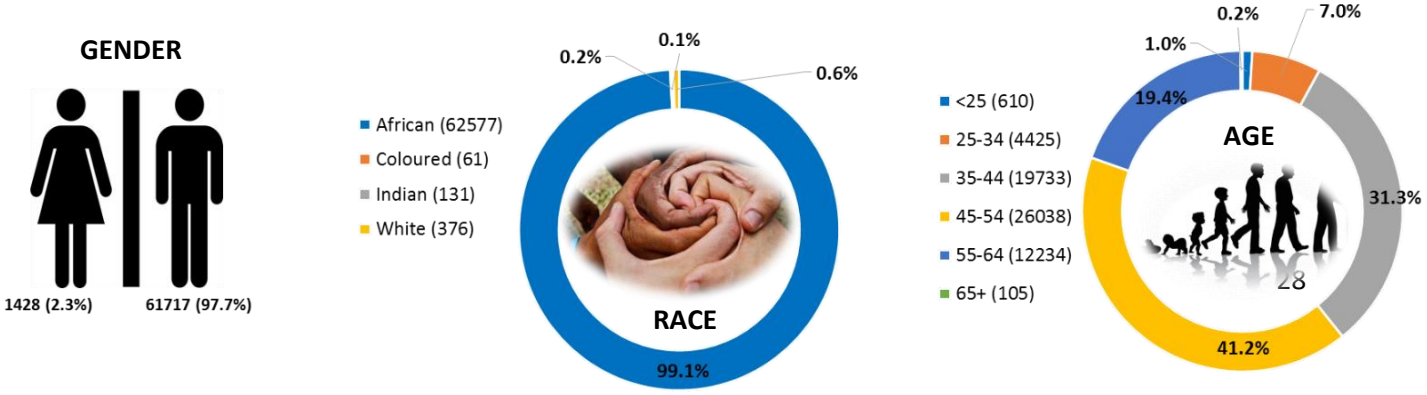
The majority of foreign nationals employed in semi and unskilled positions are employed in the following occupations:

- Winch Operator
- Locomotive Driver
- Crane or Hoist Operator
- Hard Rock Miner
- Acclimatisation Chamber Operator/ Heat Tolerance Screening (HTS) Attendant
- Mine Sampler / Worker
- Train Driver
- Centrifuge Pump Operator/ Pump Attendant
- Loader Operator

As will be seen later in Chapter 4, none of the above skills form part of occupations identified as scarce or critical skills in the sector.

3.11.1 Demographic Profile of Non-SA citizens

The demographic composition of non-South African citizens is made up of an older workforce with the majority aged 45-54 and mostly black males (99.1%). This indicates that they could have been employed during the historical apartheid system that favoured migrant labourers as they could be paid very low wages (BrandSA, 2014).



3.11.2 Breakdown of non-South Africans employed in the sector

The majority of the non-SA employees are employed in low skilled occupations which are neither scarce, not critical skills. Further research needs to be conducted to establish reasons for this stance.

Table 18: Top 30 Occupations

Top 30 Occupation Name	Frequency
Rock Drill Operator	7924
Mining Team Leader	6707
Mining Support Worker	5975
Winch Operator	4685
Locomotive Driver	3232
Mining Operator	2551
Driller	1658
Team Leader (Mining)	1647
Scraper Operator (Earthmoving)	1321
Scraper Operator	1194
Development Driller	1129
Crane or Hoist Operator	1123
Hard Rock Miner	908
Miner	907
Timber Worker	904
Mine Sampler / Worker	881
Acclimatisation Chamber Operator/ Heat Tolerance Screening (HTS) Attendant	817
Train Driver	732
Coal Cutter	687
Drill Rig Operator	661
Centrifuge Pump Operator/ Pump Attendant	635
Banksman	550
Mineral Ore Processing Labourer	543
Loader Operator	487
Load-haul-dump (LHD) Operator	484
Engineering Production Systems Worker	456
Loader Driver	455
Artisan Aide Electrical	430
Front-end-loader Operator	408
Electric Train Driver	388
Total	63145

Table 19: Non South Africans by employment status

	2016		2017	
Employment Status	**N**	**%**	**N**	**%**
Permanent	47722	88.8%	57397	90.9%
Terminated	5522	10.3%	5226	8.3%
Temporary	457	0.9%	506	0.8%
Work Placement	9	0.0%	11	.0%
Internship	5	0.0%	5	.0%
Total	**53715**	**100%**	**63145**	**100%**

3.12 Conclusions

There was an increase in the number of submissions in the year 2017/2018, the year had more reported employees than the previous years. The workforce reported are mainly young and middle-aged adults. However, the majority of them are unskilled employees-which shows companies' lack of exertion to capacitate the young workforce-which are the future of the MMS.

Furthermore, despite the legislations in place to redress discrimination against employees with disabilities, employees with declared disabilities mainly occupy entry-level and semi-skilled positions (Hernandez, et al: 2008). Research shows that individuals with disabilities are therefore, faced with limited career advancement opportunities due to a lack of professional training, architectonic barriers and discrimination based on functional potential that hinders the potential for inclusion into the workplace (Gowan, 2010; Ofuani, 2011; Watermeyer et al., 2006 & Guimaraes, Martins and Barkokebas Junior: 2012).

It is thus evident that equal opportunities between people with disabilities and people without disabilities have not been attained (Ofuani, 2011) considering that no improvements has been made in employing more disabled employees in the sector.

Furthermore, research needs to be undertaken to determine foreign nationals' occupation in low skilled positions, considering the country's high unemployment rate.

CHAPTER 4 - SCARCE AND CRITICAL SKILLS OCCUPATIONS

4.1 Introduction

The purpose of this chapter is to focus on the nature, extent and trends with regard scarce and critical skills in the mining and minerals sector as reported by organisations in the sector in 2017. In this regard, the top scarce skills are listed according to subsector, province, as well as the main occupations. Critically, the chapter also presents an analysis of the reasons provided for the reported skills scarcity, with a focus on a comparison of absolute versus relative scarcity in line with the definitions provided.

4.2 Scarce and Critical Skills by Main Occupation

The development of high-end skills is viewed as a critical factor for the advancement and sustainability of the mining and mineral sector. This has proved evident with the findings confirming an increasing need for more skilled employees as indicated in table 20. The rise in the demand for high-skilled employees could signify the reliance of modern skills involving technological innovations within the MMS. Consequently, we see an increase in the demand to import more technicians, professionals and managers. The challenge is that very few or if not no people come through the workplace system with skills of this high caliber. Therefore, there is potential to experience skills replacement and even expansion shortage.

Table 20: Scarce and critical skills by main occupation

Main Occupation	Scarce Vacancies		%		Skills Planned to be Imported	
	2016	2017	2016	2017	2016	2017
Technicians and Associate Professionals	192	416	9.7%	19.5%	2	15
Professionals	240	301	12.1%	14.1%	10	20
Managers	83	111	4.2%	5.2%	2	9
Skilled Agricultural, Forestry, Fishery, Craft and Related Trades Workers	519	847	26.3%	39.8%	20	4
Plant and Machine Operators, and Assemblers	882	425	44.6%	20.0%	5	6
Elementary Occupations	35	19	1.8%	0.9%	0	0
Clerical Support Workers	17	11	0.9%	.5%	0	0
Service and Sales Workers	9	0	0.4%	0.0%	0	0
Total	**1977**	**2130**	**100%**	**100%**	**39**	**54**

4.3 Scarce and Critical Skills by Main Occupation and Planned Imports

The top 4 scarce and critical occupations according to the employers are Jewellers, Diesel Mechanics and equally Goldsmith and Miners. Of the mentioned scarce and critical occupations, imports are only expected to be done for Rock Drill Operators and Miners. The rest of the anticipated skills to be imported do not feature on the top 20 list of scarce and critical skills. This could indicate mismatched communication of scarce and critical skills by employers versus skills supply.

Table 21: Scarce Skills by main occupations

Top 20 Occupation Name	Vacancies
Jeweller	95
Diesel Mechanic (T)	76
Goldsmith (T)	70
Miner	70
Rock Drill Operator	61
Shaft Bottom Attendant	60
Diamond and Gemstone Setter (T)	53
Jewellery Chainmaker (Hand Made)	50
Jewellery Metal Plater	50
Jewellery Assembler	41
Jewellery Caster	40
Jewellery Mouldcutter	40
Jewellery Treebuilder	40
Production / Operations Supervisor (Mining)	36
Shift Foreman / Boss (Mining)	36
Drill Rig Operator	33
Mine Operations Foreman	32
Rigger (T)	27
Diamond Polisher (T)	25
Jewellery Setter	25
Total	**960**

Table 22: Scarce skills by main occupation and planned imports

Top 20 Occupation Name	Planned Imported Skills
Training and Development Professional	7
Drill Rig Operator	6
Miner	6
Set Designer	5
Technical Training Manager	5
Engineering Survey Drafting Technician	4
Hydro Energy Engineer	4
Hydrogeologist	4
Geophysicist (G)	3
Research Manager	3
Goldsmith (T)	2
Platinumsmith	2
Marketing Officer	1
Mine Design and Planning Manager	1
Surveyor (G)	1
TOTAL	**54**

4.4 Scarce and Critical Skills by Subsector

The trend over the past years were that companies in Other Mining, PGM and Gold Mining possessed the highest number of scarce and critical vacancies. However, the opposite was witnessed in 2017 as a decrease in scarce vacancies was seen for PGM (242 vs. 484 in 2016) and Gold (220 vs. 108). The subsector that remains having an upsurge of scarce vacancies is that of Jewellery Manufacturing (486 compared to 206 in 2016) and Other Mining (630 vs. 533) respectively. This finding is in line with stakeholders' assertion that there is an increase in the demand for Jewellery Processing and Finishing Machine Operators due to an absolute lack of skilled individuals.

Table 23: Scarce and critical skills by subsector

Subsector	Scarce Vacancies		Vacancy average per company		Planned Imported Skills	
	2016	2017	2016	2017	2016	2017
Cement, Lime, Aggregates and Sand (CLAS)	169	114	1.9	1.68	0	0
Coal Mining	157	169	1.9	1.84	1	0
Diamond Mining	37	97	0.8	1.29	0	0
Diamond Processing	1	118	1.0	8.43	0	0
Gold Mining	220	108	3.7	1.93	0	0
Jewellery Manufacturing	206	486	14.7	9.17	24	15
Other Mining	533	630	2.4	2.43	5	33
PGM Mining	484	242	8.5	2.37	3	0
Services Incidental to Mining	170	166	2.0	2.77	6	6
Total	**1977**	**2130**	**4.1**	**2.73**	**39**	**54**

4.5 Scarce and Critical Skills by Province

The Western Cape had the highest number of scarce vacancies-five times higher than 2016 (268 vs. 50), with an average of 4 vacancies per company. This was followed by the Northern Cape and Gauteng. However, although the Western Cape and Northern Cape posted the highest number of scarce vacancies, none of the companies intended on importing those skills. Gauteng on the other hand, was the only province of all nine provinces planning on importing skills to close the gap in their scarce vacancies.

Table 24: Skills scarcity vacancies by province

Province	Scarce Vacancies		Average Per Company		Planned Imported Skills	
	2016	2017	2016	2017	2016	2017
Eastern Cape	15	21	1.4	2.10	0	0
Free State	31	22	2.1	1.57	0	0
Gauteng	813	896	3.0	3.46	29	53
KwaZulu-Natal	54	52	1.9	1.33	0	0
Limpopo	299	250	5.2	2.98	3	0
Mpumalanga	194	201	1.8	2.05	0	0
North West	461	269	6.0	2.34	7	1
Northern Cape	60	151	1.3	1.54	0	0
Western Cape	50	268	1.1	4.32	0	0
Total	**1977**	**2130**	**2.6**	**2.73**	**39**	**54**

4.6 Reasons for Skills Scarcity

The main reasons attached to the increase of skills scarcity is attributed to absolute scarcity in that there is a lack of skilled and qualified people. Absolute scarcity relates to the unavailability of suitably skilled people but are not available in the labour market, whilst relative scarcity relates to suitably skilled people but do not meet other employment criteria.

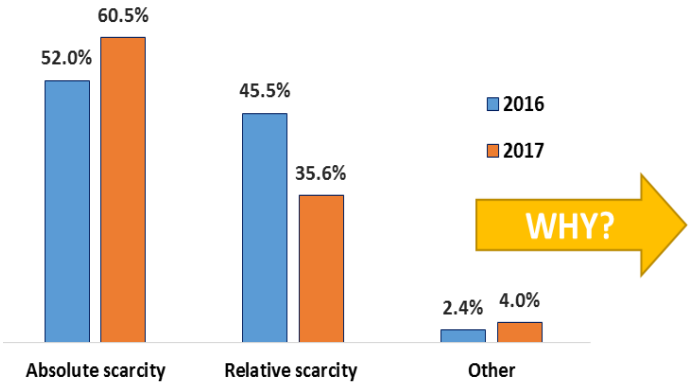


Figure 9: Reasons for scarcity

Reasons for scarce skills	Number of organisations	%
Absolute - lack of skilled people	251	32.2%
Absolute - lack of qualified people	155	19.9%
Absolute - replacement demand	58	7.4%
Absolute - new or emerging occupation	7	.9%
Relative scarce skill - geographic location	87	11.2%
Relative scarce skill - employment equity	67	8.6%
Relative scarce skill - industry attractiveness	54	6.9%
Relative scarce skill - replacement demand	43	5.5%
Relative scarce skill - remuneration	26	3.3%
Other	31	4.0%
Total	**779**	**100%**

4.7 Subsector by Scarce Skills Reasons

Table 25: Subsector by Scarce Skills Reasons

			OCCUPATION_SCARCITY_REASON										Total
			Absolute - lack of qualified people	Absolute - lack of skilled people	Absolute - new or emerging occupation	Absolute - replacement demand	Other	Relative scarce skill - employment equity	Relative scarce skill - geographic location	Relative scarce skill - industry attractiveness	Relative scarce skill - remuneration	Relative scarce skill - replacement demand	
SUBSECTOR	Cement, Lime, Aggregates and Sand (CLAS)	Count	6	40	1	2	2	4	5	6	2	0	68
		%	8.8%	58.8%	1.5%	2.9%	2.9%	5.9%	7.4%	8.8%	2.9%	0.0%	100.0%
	Coal Mining	Count	16	34	1	10	3	13	7	4	2	2	92
		%	17.4%	37.0%	1.1%	10.9%	3.3%	14.1%	7.6%	4.3%	2.2%	2.2%	100.0%
	Diamond Mining	Count	10	17	1	4	4	10	17	1	8	3	75
		%	13.3%	22.7%	1.3%	5.3%	5.3%	13.3%	22.7%	1.3%	10.7%	4.0%	100.0%
	Diamond Processing	Count	8	3	0	0	0	0	3	0	0	0	14
		%	57.1%	21.4%	0.0%	0.0%	0.0%	0.0%	21.4%	0.0%	0.0%	0.0%	100.0%
	Gold Mining	Count	11	11	1	14	3	2	0	8	0	6	56
		%	19.6%	19.6%	1.8%	25.0%	5.4%	3.6%	0.0%	14.3%	0.0%	10.7%	100.0%
	Jewellery Manufacturing	Count	6	43	2	0	0	1	0	0	0	1	53
		%	11.3%	81.1%	3.8%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	1.9%	100.0%
	Other Mining	**Count**	**55**	**56**	1	15	13	22	**50**	22	7	18	**259**
		%	**21.2%**	**21.6%**	.4%	5.8%	5.0%	8.5%	**19.3%**	8.5%	2.7%	6.9%	100.0%
	PGM Mining	Count	34	32	0	9	2	4	5	9	4	3	102
		%	33.3%	31.4%	0.0%	8.8%	2.0%	3.9%	4.9%	8.8%	3.9%	2.9%	100.0%
	Services Incidental to Mining	Count	9	15	0	4	4	11	0	4	3	10	60
		%	15.0%	25.0%	0.0%	6.7%	6.7%	18.3%	0.0%	6.7%	5.0%	16.7%	100.0%
Total		**Count**	**155**	**251**	**7**	**58**	**31**	**67**	**87**	**54**	**26**	**43**	**779**
		%	**19.9%**	**32.2%**	**.9%**	**7.4%**	**4.0%**	**8.6%**	**11.2%**	**6.9%**	**3.3%**	**5.5%**	**100.0%**

4.8 Interventions to be implemented to address skills scarcity

MQA and job specific development programmes as shown in Table 26 below are the leading interventions addressing skills scarcity in the MMS. Every year the MQA offers individuals from different communities various MQA learnership opportunities. These learnerships form part of the government's National Skills Development Strategy to create skills and ease poverty and unemployment. Investment in these interventions indicate a mismatch in the supply of skills to address occupations that are critical and scarce in the sector. These interventions mainly address short-term skills supply and thus, do not take the long-term view of skills supply. Therefore, there is a need for employers to assess the list of critical and scarce skills prior to implementing interventions.

Table 26: Interventions to be implemented to address skills scarcity

			Scarcity Reason			
			Absolute Scarce Skill	Other	Relative Scarce Skill	Total
INTERVENTION TYPE	AET 4	Count	0	0	2	2
		%	0.0%	0.0%	100.0%	100.0%
	Bachelor's Degree	Count	26	2	24	52
		%	50.0%	3.8%	46.2%	100.0%
	Bursary	Count	14	0	10	24
		%	58.3%	0.0%	41.7%	100.0%
	Certificate	Count	24	1	12	37
		%	64.9%	2.7%	32.4%	100.0%
	Further Diploma	Count	16	0	10	26
		%	61.5%	0.0%	38.5%	100.0%
	Honours Degree	Count	8	1	9	18
		%	44.4%	5.6%	50.0%	100.0%
	Induction Training	Count	0	0	1	1
		%	0.0%	0.0%	100.0%	100.0%
	Internship	Count	17	1	27	45
		%	37.8%	2.2%	60.0%	100.0%
	Job Specific Development Programme	**Count**	**75**	**8**	**43**	**126**
		%	**59.5%**	**6.3%**	**34.1%**	**100.0%**
	Learnership	Count	15	0	7	22
		%	68.2%	0.0%	31.8%	100.0%
	Master's Degree	Count	1	0	2	3

		%	33.3%	0.0%	66.7%	100.0%
	MQA Learnership	**Count**	**76**	**1**	**51**	**128**
		%	**59.4%**	**.8%**	**39.8%**	**100.0%**
	MQA Qualification	Count	22	1	7	30
		%	73.3%	3.3%	23.3%	100.0%
	National Certificate	Count	15	0	4	19
		%	78.9%	0.0%	21.1%	100.0%
	National Diploma	Count	13	0	6	19
		%	68.4%	0.0%	31.6%	100.0%
	National Higher Certificate	Count	8	0	1	9
		%	88.9%	0.0%	11.1%	100.0%
	National Higher Diploma	Count	5	0	7	12
		%	41.7%	0.0%	58.3%	100.0%
	National Masters Diploma	Count	1	1	0	2
		%	50.0%	50.0%	0.0%	100.0%
	Operator Licence/Renewal	Count	11	1	3	15
		%	73.3%	6.7%	20.0%	100.0%
	Post Graduate Diploma	Count	6	0	6	12
		%	50.0%	0.0%	50.0%	100.0%
	Pre-AET	Count	4	0	2	6
		%	66.7%	0.0%	33.3%	100.0%
	Recognition of Prior Learning	Count	2	0	0	2
		%	100.0%	0.0%	0.0%	100.0%
	Refresher Training	Count	0	0	1	1
		%	0.0%	0.0%	100.0%	100.0%
	Short Course	Count	12	5	4	21
		%	57.1%	23.8%	19.0%	100.0%
	Skills Programme	Count	32	5	11	48
		%	66.7%	10.4%	22.9%	100.0%
	Trade	Count	41	0	15	56
		%	73.2%	0.0%	26.8%	100.0%
	Work Placement	Count	27	4	12	43
		%	62.8%	9.3%	27.9%	100.0%
	TOTAL	**Count**	**471**	**31**	**277**	**779**
		%	**60.5%**	**4.0%**	**35.6%**	**100.0%**

4.9 Conclusions

The chapter reflected on the state of scarce and critical occupations against the backdrop of modernization that has increasingly influenced the state of skills required in the sector. Findings revealed an increase in upper level occupations, i.e. skilled employees, professionals and managers with Gauteng facing the most challenges. The top 4 occupations affected are Jeweler (95), Diesel Mechanics (76) and equally Goldsmith and Miner (70).
The reasons attributed to scarce skills are related to a lack of skilled and qualified personnel.

Companies intend on using Job Specific Development Programme and MQA learnerships to address the issue of scarce skills within their organisations. It should be noted that these interventions are not adequate enough to develop skilled, professional and managerial workforce that are currently characterised as scarce and critical for the sector.

CHAPTER 5 - SKILLS DEVELOPMENT IN THE SECTOR

5.1 Introduction

In this chapter, an analysis of training that was implemented by the MMS organisations, as reflected in the WSPs and ATRs, is presented and discussed. This is meant to identify the focus areas in terms of skills development that characterised the sector during the period under review. A comparison of training reported for the previous year is also given to identify any notable changes in training figures or skills development priority areas.

5.2 Training Interventions Implemented by Scarce skills in the sector

Table 27 below highlights the training interventions implemented by scarce skills identified in the sector. It can be deduced that there are mismatches in the supply of skills versus the demand as training implemented is in contrast of what the sector identified as scarce. From the top 10 training provided to employees, none of them were identified as scarce skills.

Table 27: Top10 training provided in 2017 by scarce skills

Top 10 training provided in 2017	No. of training interventions		Top 10 Scarce Occupation	No. of vacancies
SHERQ	14613		Jeweller	95
Technical Training	9920		Diesel Mechanic	76
HITS/ABSP CBT	8874		Goldsmith	70
First Aid	7816		Miner	70
Standard Operating Procedure	5499		Rock Drill Operator	61
First Aid Training	5337		Shaft Bottom Attendant	60
Safety Risk Management Course A1	4448		Diamond and Gemstone Setter	53
Generic Short Course	4010		Jewellery Chainmaker (Hand Made)	50
Sasol SHE Induction Retrain Operator & Technician	3725		Jewellery Metal Plater	50
Work Management	3521		Jewellery Assembler	41

5.3 Training provided by subsector

Training is commonly recognised as a critical component for growth in the industry with new tools and delivery systems. As shown in Figure 10 below, there was an increase in the number of training interventions provided by companies in 2016 (757 974 compared to 552 973 in 2015). This however, took a downturn in 2017 where the majority of core commodity subsectors reported a decrease in the training provided in their organisations. Gold Mining posted the lowest training provided in 2017 of all other subsectors. Considering the decrease of the Gold Mining subsector, the decline in this subsector could suggest that some companies would under-invest in training for the purpose of sustaining their companies considering the amount of restructurings that have taken place. As a result, organisations would resort to cutting operations to adapt to the challenging period where the commodity value is diminishing due to low commodity demand. Therefore, the question becomes whether training is the first to be compromised amidst other business challenges? Further research needs to be conducted to answer these questions.

SUBSECTOR	2015	2016	2017
Gold Mining	18.4%	17.7%	4.2%
Other Mining	26.0%	32.3%	28.5%
Coal Mining	22.3%	21.8%	18.5%
CLAS	2.9%	2.5%	1.5%
Diamond Mining	2.4%	1.8%	8.3%
Diamond Processing	0.1%	0.1%	6.9%
PGM Mining	22.7%	20.2%	26.5%
Services Incidental to Mining	5.1%	3.6%	5.5%
Jewellery Manufacturing	0.1%	0.1%	0.1%
TOTAL	552 973	757 974	653 032

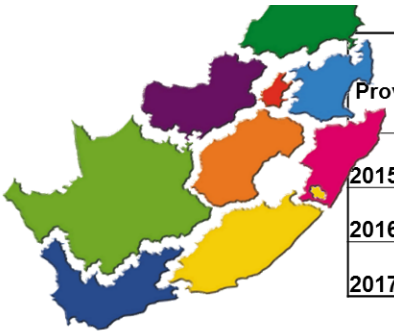
Figure 10: Training by subsector

5.4 Training provided by province

Pronounced improvements were seen in the investment of training offerings to employees in the Limpopo province with an increase of 14.6% since 2015. This is the highest increase compared to other provinces. Following Limpopo's increase was Mpumalanga whose training provision has been increasing since 2015. The province ranks 1st in terms of the comparative percentage across all provinces.

It was interesting to note Gauteng's low training contribution to employees, considering that it was the only province that planned on importing skills. The decreasing amount of training provided in the province compared to the planned imported skills could indicate an oversight by companies to adequately identify gaps between their existent and future needs as far as training is concerned. Through the annual WSP-ATR submissions that companies make on a yearly basis, companies are able to consider both current and future needs by identifying gaps through a skills audit, integrating needs in their performance managements systems, implement succession planning initiatives and new processes/technological changes. Considering that the province is one of the provinces in the country that employs the highest number of employees, an opportunity exists in developing current employees instead of importing skills. Therefore, it is necessary to measure and evaluate plans to ensure that they are on the appropriate course of action.

Table 28: Training by province (2015-2017)



Province	Limpopo	Mpumalanga	North West	Western Cape	Free State	KwaZulu-Natal	Gauteng	Eastern Cape	Northern Cape	Total
2015	1.1%	25.8%	22.0%	0.5%	3.7%	18.2%	9.9%	3.6%	15.2%	100% (552973)
2016	0.9%	23.9%	21.7%	0.2%	3.1%	16.7%	15.2%	5.8%	12.5%	100% (757974)
2017	15.7%	32.7%	26.9%	1.0%	3.8%	3.6%	4.8%	0.2%	11.0%	100% (653032)

5.5 Training provided by gender

The training trends by gender demonstrates that males are the highest recipients of training provided within companies compared to their female counterparts. The number of females trained is still low and slightly below the percentage representation in the sector (13.8% vs. 14.2%). According to Women in Mining SA, while mining companies have done a lot to attract women to the industry through tertiary education bursaries and training programmes, the process of attaining more technically skilled women remains a key challenge facing the sector. This proves to be true as indicated by the amount of women trained across all subsectors as shown in Table 29. From this finding, it can be deduced that the interventions being implemented to increase women in mining might be falling behind in absorbing them in the sector. Therefore, there is a need to strengthen efforts in attracting and retaining women in the sector. This could be done by firstly evaluating current interventions and also assessing the social impact they have in ensuring an equal distribution of gender in mining.

Table 29: Training interventions provided by gender

		Gender			
		Female ♀		Male ♂	
Subsector		**Number of Training Interventions Provided**	**Number of Employees**	**Number of Training Interventions Provided**	**Number of Employees**
Cement, Lime, Aggregates and Sand (CLAS)	Count	1539	2476	8480	10721
	%	15.40%	18.80%	84.60%	81.20%
Coal Mining	Count	18458	9563	102117	45667
	%	15.30%	17.30%	84.70%	82.70%
Diamond Mining	Count	8673	4001	45818	16518
	%	15.90%	19.50%	84.10%	80.50%
Diamond Processing	Count	6744	2207	38014	8660
	%	15.10%	20.30%	84.90%	79.70%
Gold Mining	Count	2619	12973	24982	90015
	%	9.50%	12.60%	90.50%	87.40%
Jewellery Manufacturing	Count	181	575	172	570
	%	51.30%	50.20%	48.70%	49.80%
Other Mining	Count	26047	13482	160149	71342
	%	14.00%	15.90%	86.00%	84.10%
PGM Mining	Count	21336	25622	151545	189062
	%	12.30%	11.90%	87.70%	88.10%
Services Incidental to Mining	Count	4518	5069	31640	25888
	%	12.50%	16.40%	87.50%	83.60%
Total	**Count**	**90115**	**75968**	**562917**	**458443**
	%	**13.80%**	**14.20%**	**86.20%**	**85.80%**

5.6 Training provided by population group

As has been the trend over the years, the majority of trained employees are African, followed by White employees. However, although Africans are the majority trained, not all of them are being trained as they comprise 85.3% of the workforce, yet 76.8% of the population were reported to have been trained. This indicates the lack of development for those that form the majority population in sector.

Table 30: Training by population group

			Race				
			African	Coloured	Indian	White	Total
SUBSECTOR	Cement, Lime, Aggregates and Sand (CLAS)	Count	6546	1024	330	2119	10019
		%	65.3%	10.2%	3.3%	21.1%	100.0%
	Coal Mining	Count	93406	1377	781	25011	120575
		%	77.5%	1.1%	.6%	20.7%	100.0%
	Diamond Mining	Count	28299	3516	2301	20375	54491
		%	51.9%	6.5%	4.2%	37.4%	100.0%
	Diamond Processing	Count	22611	1268	2197	18682	44758
		%	50.5%	2.8%	4.9%	41.7%	100.0%
	Gold Mining	Count	26081	78	51	1391	27601
		%	94.5%	.3%	.2%	5.0%	100.0%
	Jewellery Manufacturing	Count	226	64	3	60	353
		%	64.0%	18.1%	.8%	17.0%	100.0%
	Other Mining	Count	138946	20550	1997	24703	186196
		%	74.6%	11.0%	1.1%	13.3%	100.0%
	PGM Mining	Count	161199	688	153	10841	172881
		%	93.2%	.4%	.1%	6.3%	100.0%
	Services Incidental to Mining	Count	23948	2363	267	9580	36158
		%	66.2%	6.5%	.7%	26.5%	100.0%
Total		**Count**	**501262**	**30928**	**8080**	**112762**	**653032**
		%	**76.8%**	**4.7%**	**1.2%**	**17.3%**	**100.0%**

5.7 Training provided to persons with disability

Training provided to disabled individuals is in line the MMS' population representation of 1.1%.

Table 31: Training by disability status

Subsector		Disability		Total
		No	Yes	
Cement, Lime, Aggregates and Sand (CLAS)	Count	9944	75	10019
	%	99.3%	.7%	100.0%
Coal Mining	Count	120181	394	120575
	%	99.7%	.3%	100.0%
Diamond Mining	Count	54333	158	54491
	%	99.7%	.3%	100.0%
Diamond Processing	Count	44690	68	44758
	%	99.8%	.2%	100.0%
Gold Mining	Count	26441	1160	27601
	%	95.8%	4.2%	100.0%
Jewellery Manufacturing	Count	343	10	353
	%	97.2%	2.8%	100.0%
Other Mining	Count	185323	873	186196
	%	99.5%	.5%	100.0%
PGM Mining	Count	169484	3397	172881
	%	98.0%	2.0%	100.0%
Services Incidental to Mining	Count	36078	80	36158
	%	99.8%	.2%	100.0%
Total	**Count**	**646817**	**6215**	**653032**
	%	**99.0%**	**1.0%**	**100.0%**

5.8 Training provided by qualification/learning programme type

Most of the training conducted still pertains to short courses (50.4%). This was followed by job specific development programmes (14.8%) and learnerships (13.7%). The provision of training in short courses and job specific development is of concern as it indicates barriers to occupational mobility in the workplace. As a result, this affects career pathing as little investment is made on qualifications that will enable employees to more technical and skilled professions, which then inhibits the development to professional and management positions. As seen in Table 32, training provided for post basic and senior education training scored less than 1%.

Table 32: Type of qualification/learning programme (2017)

Qualification/Learning Programme Type	N	%
Short Course	329157	50.4
Job Specific Development Programme	96912	14.8
Learnership	89349	13.7
Operator Licence/Renewal	81213	12.4
Skills Programme	27995	4.3
Certificate	14179	2.2
MQA Learnership	3392	.5
Work Placement	1876	.3
Foundational Learning Competency	1462	.2
MQA Qualification	1161	.2
National Certificate	1006	.2
AET 2	928	.1
AET 1	900	.1
AET 3	664	.1
AET 4	442	.1
Trade	370	.1
National Diploma	369	.1
Internship	337	.1
Pre-AET	324	.0
Bachelor's Degree	286	.0
Master's Degree	152	.0
Recognition of Prior Learning	135	.0
NCV level 4 placements	110	.0
Bursary	104	.0
National Higher Certificate	96	.0
Post Graduate Diploma	45	.0
Honours Degree	35	.0
National Higher Diploma	34	.0
Doctoral Degree	28	.0
Further Diploma	25	.0
National Masters Diploma	9	.0
Other	1	.0
Total	**653096**	**100.0**

5.9 Conclusions

This chapter reflected on the extent and scale of training that employees were exposed to within their organisations as means to equip them with competencies that would enhance their skills development. To this effect, attention was given to training provided by subsector, province, gender, population group as well as in terms of people living with a disability. Leading mining subsectors, i.e. Gold, Other mining, Coal and CLAS reported a decrease in the training provided within their organisations. The downward trend in the provision of training by organisations could be due to weak commodity prices, declining demand and sliding Rand value. In the scheme of other factors, the cumulative factor was that most of the companies downsized operations with resultant retrenchments.

Provincially, there was an increase in Mpumalanga and Limpopo as compared to Gauteng- despite the fact that Gauteng is one of the provinces with a high employment rate in the MMS. The two provinces that posted an increase on investment in training are endowed with PGM and Coal mining which have global demand.

Training by gender revealed that male employees continue to receive more training in large number as compared to their female counterparts. The main contributing factor is that the MMS sector is generally male dominated. In addition, interventions have been put in place by both the government and companies to increase the distribution of females in the sector, however, it can be deduced from the findings that such interventions might be falling behind in absorbing and retaining females in the sector.

Furthermore, reflecting on training by population groups, it is evident that due to their dominance within the MMS, many African employees but not all, receive training. It should be noted however, most of the training provided does not address the scarce and critical skills. Consequently, this affects career pathing as little investment is made on qualifications that will enable employees to more technical and skilled professions, which then inhibits the development to professional and management positions

CHAPTER 6 - SKILLS DEVELOPMENT PLANNED FOR THE SECTOR

6.1. Introduction

This chapter provides an analysis of training that was planned for employees by the MMS organisations during the period under review. In addition, a review of training that was planned for non-employees during the same period was also analysed-detailing both employed and unemployed community members. The respective training targets are reported by subsector, province and occupational categories, where applicable, comparisons to the previous year are also presented.

6.2. Training planned for employees by subsector

A comparison was made on training planned for the financial year 2016/2017 with training implemented in 2017/2018. In 2016, the Diamond subsector had the second least planned training (778), but implemented fifty seven times more training interventions (43 980) than they had planned. A similar trend was observed for Diamond, Coal and PGM mining where companies conducted training above what they had reported in their WSP-ATR submissions.

On the other hand, as shown by the decreasing red arrow in the table below, there were a few subsectors that indicated high amounts of planned training, but were unsuccessful in implementing what they had planned. The subsectors with the least implemented planned training were the Gold and CLAS mining subsector.

Table 33: Training interventions planned for 2017 by training achieved in 2017

		2017 (Training Planned)	2017 (Training Achieved)	Difference
SUBSECTOR	Diamond Processing	778	44758	43980
	Diamond Mining	14278	54491	40213
	Coal Mining	90660	120575	29915
	PGM Mining	150415	172881	22466
	Other Mining	1177654	186196	-991458
	Gold Mining	127173	27601	-99572
	Cement, Lime, Aggregates and Sand (CLAS)	19344	10019	-9325
	Services Incidental to Mining	38576	36158	-2418
	Jewellery Manufacturing	394	353	-41
	Total	**619272**	**653032**	**33760**

When analysing planned training by subsectors Services Incidental to Mining had the highest planned training for 2018 (192655). Its planned training for 2018 is 5 times higher than what it

achieved in 2017. Similarly, Jewellery Manufacturing could not meet its planned training with a shortage of 41 implemented training interventions, however, the subsector intends on training one hundred and seventy five times more training (69061) than what they could not achieve the previous year. Similarly, although by not the same magnitude, Gold Mining could not meet its set target of 127173 for the year 2017 and could only achieve 27601. However, the subsector indicated that they would train double what they had achieved instead. With these findings accounted for, qualitative research needs to be conducted to investigate reasons behind these subsectors' views on the need to increase their planned training considering that they had not met their established targets for the previous year.

On the contrary, PGM and Other Mining were the second and third highest subsectors with the most planned training, but below what they had planned and achieved the previous year. A comparable trend can be seen for Diamond Processing, Diamond and Coal Mining who implemented more training than had planned for 2017, but plans on training less people in 2018. Research needs to be conducted to understand the underlying reasons for this.

CLAS was the subsector with the least planned training.

6.2.1 Training Planned for 2018

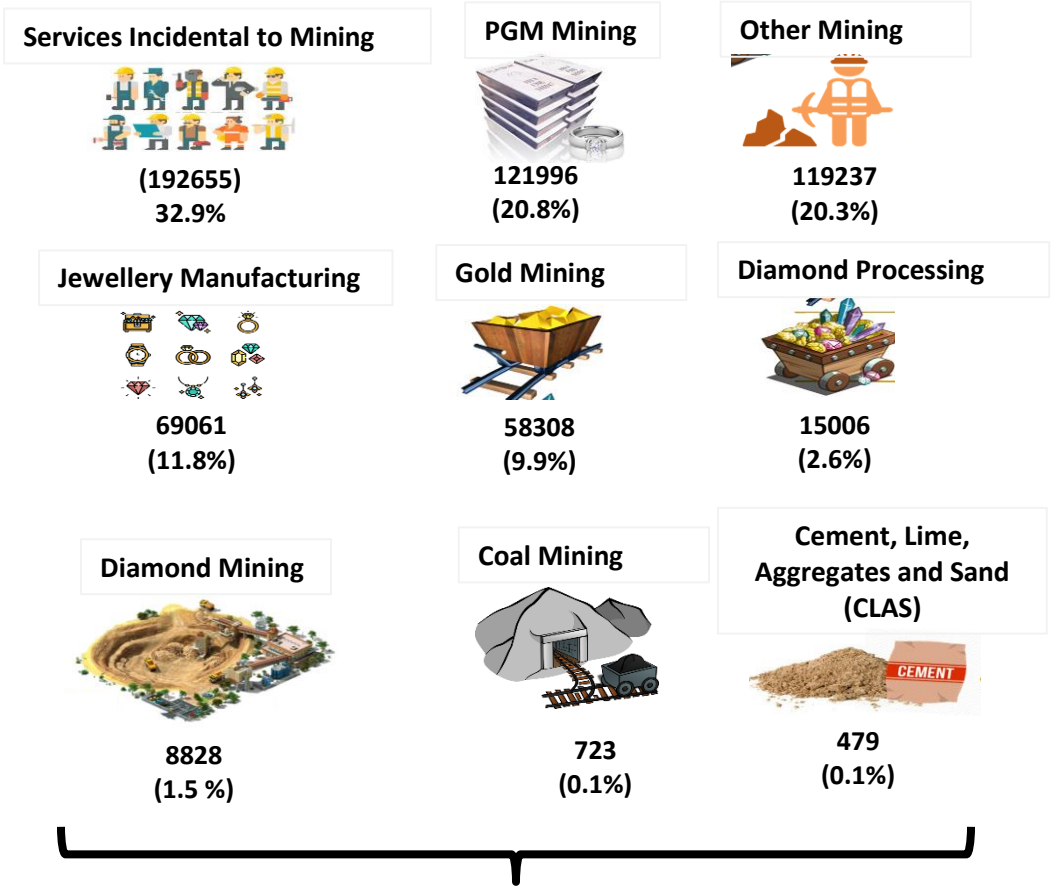


Figure 11: Total Planned Training for 2018 (in order of highest training planned): 586293

6.3. Training planned for employees by main occupation

In relation to training planned for employees as indicated by the table and graph below, a total of 586 102 training interventions were reported for 2017. This is a 5% decrease from 2016's 619 272. However, what is encouraging is the investment in planned training that is centered on scarce and critical occupations, i.e. Managers, Professionals and Technicians. This is crucial for the sector as these occupations have been established according to research, essential for driving and sustaining the sector.

Table 34: Training planned by main occupation (2015-2017)

Occupational level	2015		2016		2017	
	N	%	N	%	N	%
Managers	10642	1.8%	8825	1.4%	20884	3.56%
Professionals	21959	3.8%	22346	3.6%	27690	4.72%
Technicians and Associate Professionals	60151	10.3%	66025	10.7%	66791	11.40%
Clerical Support Workers	22234	3.8%	18849	3.0%	32267	5.51%
Service and Sales Workers	9211	1.6%	9314	1.5%	6887	1.18%
Skilled Agricultural, Forestry, Fishery, Craft and Related Trades Workers	62410	10.7%	69556	11.2%	60055	10.25%
Plant and Machine Operators and Assemblers	251244	43.1%	256844	41.5%	225659	38.50%
Elementary Occupations	144493	24.8%	147704	23.9%	127284	21.72%
Learners[1]	0	0.0%	19809	3.2%	18585	3.17%
Total	**582344**	**100%**	**619272**	**100%**	**586102**	**100%**

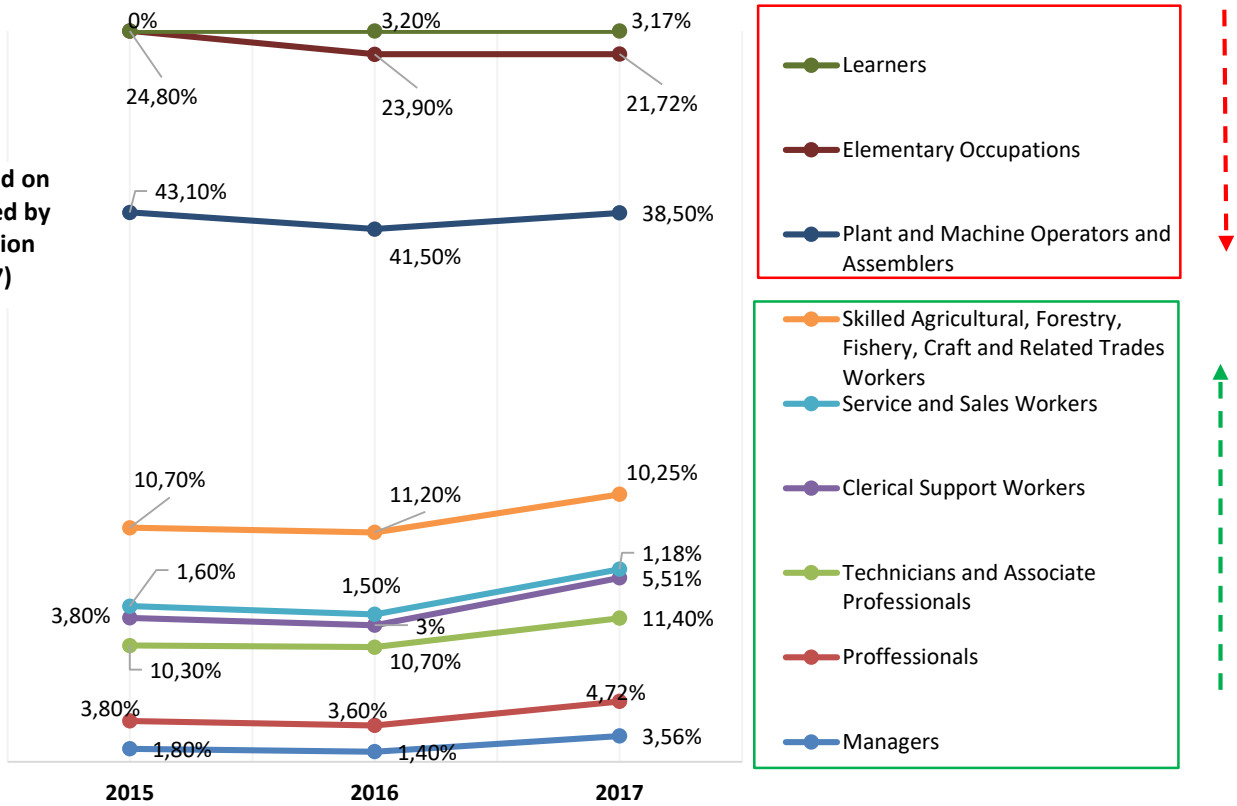


Figure 12: Trend on training planned by main occupation (2015-2017)

1. All employees doing internship

Table 35 below shows the top 10 training interventions planned to be implemented in 2018. The majority of these are not related to the MMS and neither are they identified scarce in the sector. This could indicate reasons behind available vacancies for scarce skills, since what is being implemented or planned is in contrast of what the sector needs to address skills development challenges.

Table 35: Top 10 Training Interventions to be implemented

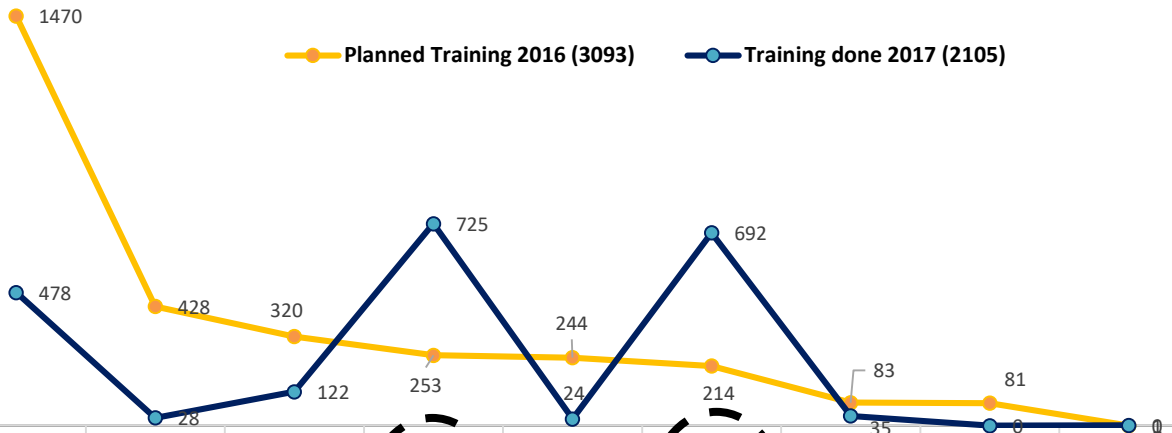
Top 10 Interventions To Be Implemented	No. Of Intervention
Other, not short courses (Not related to mining)	2227
Other short courses (Not related to mining)	1136
Safety, Supervisory/ Leadership and Management Skills	459
Engineering Core	159
Mining Engineering	100
Mining Core	91
OHS for: Part Time/Workplace Rep and Shop Stewards in the MMS - MQA/SP/0120/10	79
Other Portable Skills	70
Mechanical Engineering	65
Electrical Engineering (Heavy Current Only)	56

6.4. Training planned for community members

This section provides an indication of the number of community members (employed elsewhere) who were assisted with bursaries and / community or community programmes or who completed training during the year 2017. These people are non-employees, who may or may not become employees at a later stage.

The section also provides details on training planned for non-employees during the next calendar year i.e. 1 January 2018 – 31 December 2018.

6.4.1 Training planned for employed community members (2016) VS training done (2017) by subsector

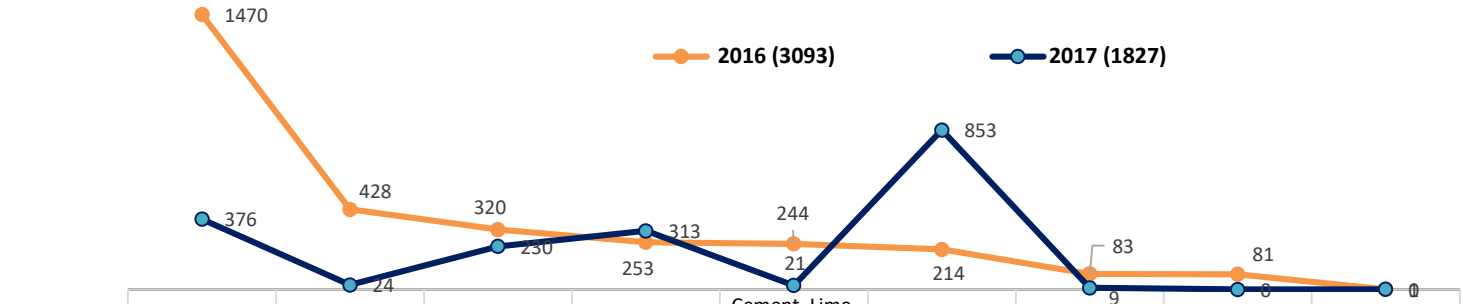


	Other Mining	Coal Mining	Services Incidental to Mining	Gold Mining	Cement, Lime, Aggregates and Sand (CLAS)	Diamond Mining	PGM Mining	Jeweler Manufacturing	Diamond Processing
Planned Training 2016 (3093)	1470	428	320	253	244	214	83	81	0
Training done 2017 (2105)	478	28	122	725	24	692	35	0	1

Figure 13: Training planned for employed community members by subsector

A total of 3 093 training interventions were planned in 2017 for employed community members. Of those 3 093, the sector managed to achieve 2 105 (68%). Gold and Diamond mining were the only subsectors that achieved and exceeded their targets for planned training aimed at employed community members.

6.4.2 Training planned for employed community members (2016 vs. 2017)



	Other Mining	Coal Mining	Services Incidental to Mining	Gold Mining	Cement, Lime, Aggregates and Sand (CLAS)	Diamond Mining	PGM Mining	Jeweler Manufacturing	Diamond Processing
2016 (3093)	1470	428	320	253	244	214	83	81	0
2017 (1827)	376	24	230	313	21	853	9	0	1

Figure 14: Training planned for employed community members 2016 vs. 2017

6.4.3 Training planned for employed community members (2016) vs. training done (2017) by gender

In ranking order, Table 36 below shows that Diamond Mining ranks 1st across all subsectors as the subsector empowering females as training implemented for females surpassed those of their male counterparts. This was followed by the Gold Mining subsector and Services Incidental to Mining.

In contrast, Coal and PGM Mining had allocated most of their planned training to females, but were unable to implement them. The failure to upskill females in the MMS indicates the need for rigorous efforts to be placed in closing the gender gap between male and female employees in the sector.

Table 36: Training planned for employed community members (2016) vs. training done (2017) by gender

Subsector	Total trained planned (2016)	Male		Female		Total training done (2017)	Male		Female	
		N	%	N	%		N	%	N	%
Other Mining	1470	803	46.0%	667	49.4%	478	304	27.7%	174	17.3%
Coal Mining	428	180	10.3%	248	18.4%	28	14	1.3%	14	1.4%
Services Incidental to Mining	320	300	17.2%	20	1.5%	122	59	5.4%	63	6.3%
Gold Mining	253	153	8.8%	100	7.4%	725	382	34.8%	343	34.1%
Cement, Lime, Aggregates and Sand (CLAS)	244	141	8.1%	103	7.6%	24	15	1.4%	9	0.9%
Diamond Mining	214	117	6.7%	97	7.2%	692	308	28.0%	384	38.2%
PGM Mining	83	30	1.7%	53	3.9%	35	17	1.5%	18	1.8%
Jewellery Manufacturing	81	21	1.2%	60	4.5%	_	_	_	_	_
Diamond Processing	_	_	_	_	_	1	_	_	1	0.1%
Total	**3093**	**1745**	**100%**	**1348**	**100%**	**2105**	**1006**	**100%**	**1099**	**100%**

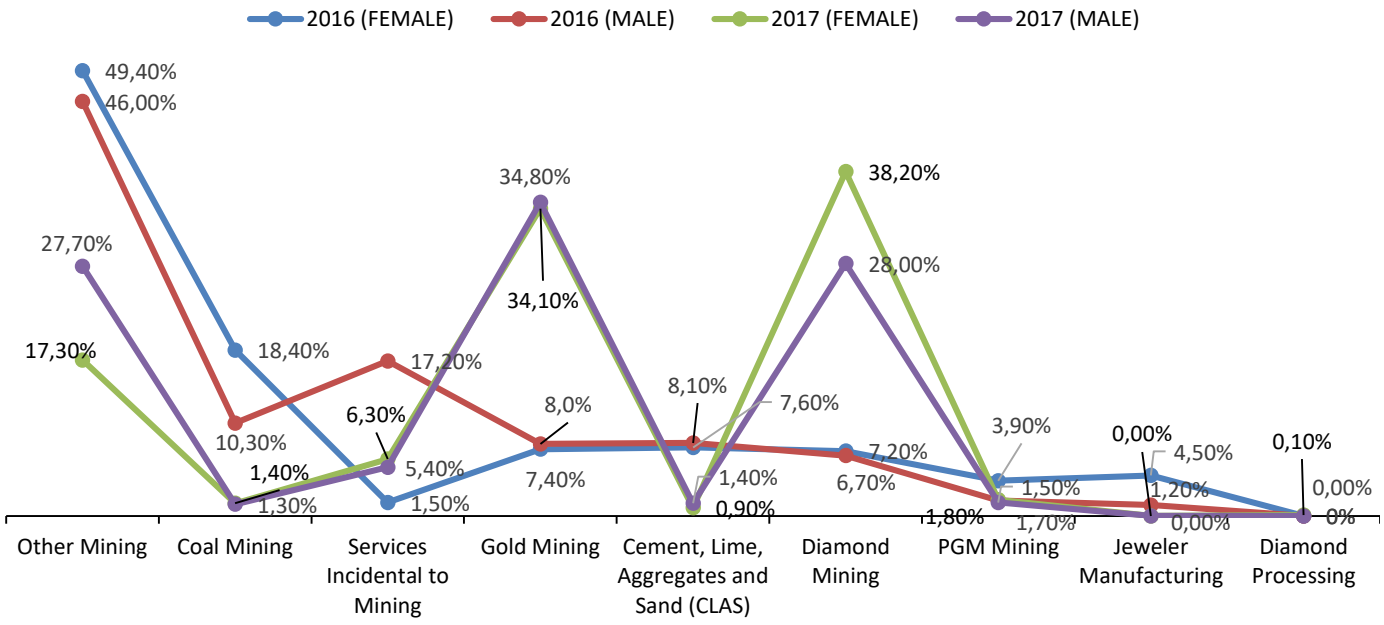


Figure 15: Trend graph on training planned for employed community members (2016) vs. training done (2017) by gender

6.4.4 Training planned vs. training done for unemployed community members

Furthermore, analysis was also conducted for planned training versus training implemented for unemployed community members. Unlike the planned training for employed community members, it was interesting to note that the number of training interventions implemented for unemployed non-employees tended to be higher than the previously reported planned training targets for all subsectors.

Table 37: Training planned for unemployed community members by subsector

Subsector (in order of highest number of planned training)	Training planned (2016)	Training done (2017)- (in order of highest increase)	Difference
PGM Mining	8421	13849	5428
Other Mining	6357	10173	3816
Cement, Lime, Aggregates and Sand (CLAS)	469	1853	1384
Gold Mining	1248	2613	1365
Coal Mining	7801	8552	751
Services Incidental to Mining	410	986	576
Jewellery Manufacturing	323	718	395
Diamond Processing	3	120	117
Diamond Mining	3533	3546	13
Total	**28565**	**42411**	**13846**

6.4.5 Training planned for unemployed community members

Just as it has been the past years, the target for planned training for unemployed persons was significantly higher compared to that of non-employees who are employed elsewhere as earlier reported. In the previous year (2016), the PGM, Coal and Other Mining subsectors had the highest targeted planned training totals. However, the contrary is true for 2017 where all of these subsectors plan on decreasing the number of training to be provided to community members. What is noted however, is the increase of the bottom ranked subsectors' disposition to increase planned training for community members and that these are the same subsectors that could not meet their targets for planned training for their employees.

Table 38: Training planned for unemployed community members

Subsector	2016	2017 (in order of highest increase)	Difference
Cement, Lime, Aggregates and Sand (CLAS)	469	1606	1137
Jewellery Manufacturing	323	653	330
Services Incidental to Mining	410	642	232
Diamond Processing	3	204	201
Gold Mining	1248	1324	76
PGM Mining	8421	4876	-3545
Diamond Mining	3533	491	-3042
Coal Mining	7801	6105	-1696
Other Mining	6357	4666	-1691
Total	**28565**	**20567**	**-7998**

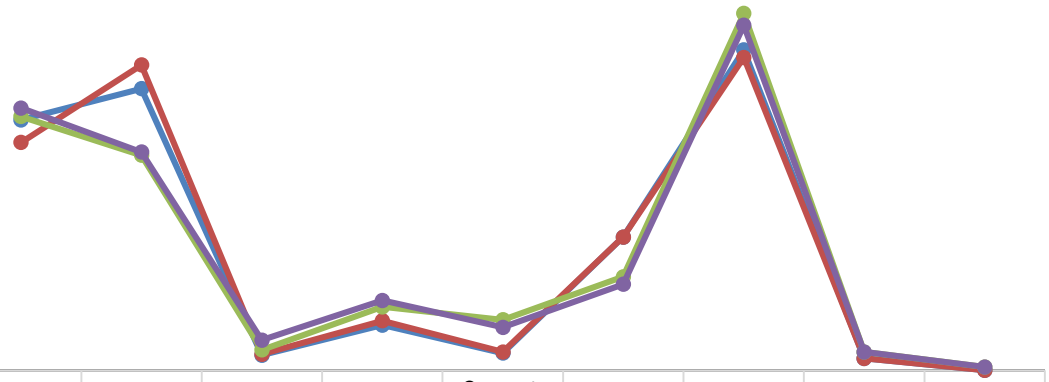
6.4.6 Training planned for unemployed community members by training done by gender

In analysing training planned for unemployed community members by gender, findings revealed progressive efforts by the majority of the subsectors (80%) to upskill females in the sector. In 2016, all subsectors, except Gold Ming and Services Incidental to Mining had most of their planned training allocated to females than males. What is more encouraging is the fact that these subsectors all surpassed their targets in implementing training interventions aimed at developing females. Albeit this is a positive indication for sector's quest in ensuring equality in terms of gender representation, concerns are in the absorption of the trained females in the sector as they still remain under-represented as indicated earlier.

Table 39: Training planned for unemployed non-employees by subsector and gender

Subsectors	Total Training planned (2016)	Male		Female		Total Training done (2017)	Male		Female	
		N	%	N	%		N	%	N	%
PGM Mining	8421	4072	29.1%	4349	29.8%	13849	6633	32.1%	7216	33.2%
Coal Mining	7801	3982	28.4%	3819	26.2%	8552	4199	20.3%	4353	20.0%
Other Mining	6357	2963	21.2%	3394	23.3%	10173	5033	24.4%	5140	23.6%
Diamond Mining	3533	1728	12.4%	1805	12.4%	3546	1655	8.0%	1891	8.7%
Gold Mining	1248	637	4.6%	611	4.2%	2613	1337	6.5%	1276	5.9%
Cement, Lime, Aggregates and Sand (CLAS)	469	238	1.7%	231	1.6%	1853	820	4.0%	1033	4.7%
Services Incidental to Mining	410	194	1.4%	216	1.5%	986	568	2.8%	418	1.9%
Jewellery Manufacturing	323	157	1.1%	166	1.1%	718	346	1.7%	372	1.7%
Diamond Processing	3	3	0.0%	0	0.0%	120	59	0.3%	62	0.3%
Total	**28565**	**13974**	**100%**	**14591**	**100%**	**42411**	**20651**	**100%**	**21761**	**100%**

6.5. Training planned for people with disability by training done



	Other Mining	Coal Mining	Services Incidental to Mining	Gold Mining	Cement, Lime, Aggregates and Sand (CLAS)	Diamond Mining	PGM Mining	Jeweler Manufacturing	Diamond Processing
2016 (FEMALE)	23,30%	26,20%	1,40%	4,20%	1,60%	12,40%	29,80%	1,10%	0,00%
2016 (MALE)	21,20%	28,40%	1,50%	4,60%	1,70%	12,40%	29,10%	1,10%	0,00%
2017 (FEMALE)	23,60%	20,00%	1,90%	5,90%	4,70%	8,70%	33,20%	1,70%	0,30%
2017 (MALE)	24,40%	20,30%	2,80%	6,50%	4,00%	8,00%	32,10%	1,70%	0,30%

Figure 16: Training planned for people with disability by training done

Further analysis was conducted on training planned for people living with disabilities against training conducted. It appears that the MMS is lagging behind in terms of developing individuals living with disabilities. In 2017, there were 13 864 training interventions planned at developing disabled people. However, of that amount, 44.8% (6215) of that training was implemented. The subsectors with the least planned training surpassed those with the highly promised numbers of training.

Table 40: Training planned for persons with disability by subsector

Subsector	N (Planned 2016)	N (Done 2017) (in order of highest training implemented)
Gold Mining	2	1160
Diamond Processing	3	68
Cement, Lime, Aggregates and Sand (CLAS)	28	75
Services Incidental to Mining	72	80
Jewellery Manufacturing	11	10
PGM Mining	5098	3397
Other Mining	1612	873
Coal Mining	5936	394
Diamond Mining	1102	158
Total	**13864**	**6215**

6.6. Training planned for people with disability in 2018

Similarly as the pattern for all other planned training interventions for other demographic groups, there was a decrease in the number of planned training for 2018. The slightest increase is only seen for CLAS, Gold and Diamond Processing Mining.

Table 41: Training planned for people with disability in 2018

Subsector	2017	2018 (in order of highest planned training)
Other Mining	1612	413
PGM Mining	5098	162
Diamond Mining	1102	97
Coal Mining	5936	94
Services Incidental to Mining	72	64
Cement, Lime, Aggregates and Sand (CLAS)	28	63
Gold Mining	2	26
Diamond Processing	3	5
Jewellery Manufacturing	11	2
Total	**13864**	**926**

6.7. Conclusions

This chapter reflected on the efforts to equip employees with necessary competencies such as knowledge, skills and attributes to improve performance as well as increasing productivity levels in the workplace with specific focus on the period under review. Through the analysis, it is evident that most companies planned less training interventions in the 2017/18 than what was planned and achieved in the 2016/17 financial year. However, what is encouraging is the investment in planned training for scarce and critical occupations, i.e. Managers, Professionals and Technicians.

There is a decrease in training planned for people with disabilities as well as discrepancies in that their training targets were not achieved. The factors that could be attributed to this is the reason that the employment equity efforts are approached from a compliance perspective not built in organisational recruitment, retention, human capital development systems and procedures.

Little investment is implemented on organizational employees, employed community members, compared to unemployed community members. It was interesting to note that the number of training interventions implemented for unemployed non-employees tended to be higher than any other training provided. With that is the progressive efforts to develop women in the sector – with 80% of the subsectors reported to have trained more females than males in the financial year 2017/2018.

CHAPTER 7- DISCUSSION OF FINDINGS AND RECOMMENDATIONS

A summary of the key findings from analysis of the 2017 WSP-ATR submissions and recommendations are presented below. Some inferences around the WSP-ATR processes as well as general skills development in the sector are drawn from the results of the study and possible solutions thereof.

FINDINGS 1

- In terms of employment by population group, the sector is still dominated by African males. However, this is not reflected in professional or skilled occupations as the majority of blacks occupy low level jobs.
- Although there was an increase in submissions of WSP/ATRs, there were still a few number of submissions which were rejected due to incomplete supply of information.

Recommendation

- Continuous capacity building programme should be provided to companies whose submissions still get rejected.

FINDINGS 2

- The majority of the workforce is constituted by employees who are youthful, semi-skilled and unskilled, while there is a shortage in management, professional and technical occupations. Therefore, this is a challenge as many young employees cannot move up to occupy managerial positions due to them being unskilled or semi-skilled.

Recommendations

- MQA to investigate other engagement methods involving senior mine executives that can be adopted to elevate matters related to skills development in mines.
- MQA to continue providing funding that prioritise scarce and critical skills as well as skills that drive the transformational agenda in the MMS through human capital development.
- MQA to encourage companies to conduct skills audits to inform WSP/ATRs. Thus, increasing accuracy of identifying and actualising training.
    - In their training plans, employers should focus on the skills development interventions through courses that improves the proficiency levels of employees and programmes that equip them with competencies necessary for movement to professional, skilled and managerial positions.

FINDING 3

- In terms of training provision, male employees still account for the largest group attaining training. This is against the backdrop of the fact that the MMS is predominantly male dominated, albeit efforts through various skills development interventions to increase female representation.
- The persistent challenge is that there is still little representation of technically skilled employees, particularly women, disabled and African employees in general.

Recommendation

- MQA should conduct research on the factors that influence female career progression in the technical occupations and provide recommendations that could inform the direction which funding should take to address gender inequalities within the MMS.

FINDING 4

- There was a downward trend in terms of training interventions planned for employees living with a disability. The planned training for 2018 is 93% below what was planned in 2017 (926 vs. 13864). This planned training is also below training interventions implemented in 2017 (6215) - which is 55% below what was planned.

Recommendation

- MQA should ring-fence funding for projects that involve training of people with disabilities and should also use this training as one of the conditions of accessing grants.

FINDING 5

- In terms of employment of foreign nationals, the majority of them are in the occupational categories that include semi-skilled and discretionary decision makers as well as unskilled and defined decision makers. These occupational categories do not necessarily fall under hard to fill and scarce occupations.

Recommendations

- MQA to continue observing this trend to establish whether future research will be needed to investigate foreign nationals' employment in occupations that are neither scarce, nor critical in the sector.

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