



Sector Skills Plan for the Mining and Minerals Sector

**Submitted by the
Mining Qualifications Authority
(MQA)**

**To the
Department of Higher Education and
Training**

16 February 2011



MINING QUALIFICATIONS AUTHORITY

FOREWORD

It is with pleasure that the Mining Qualifications Authority Management Board submits to the Department of Higher Education and Training (DHET) the Sector Skills Plan (SSP) for the Mining and Minerals Sector for the period 2011 to 2016.

The Sector Skills Plan has been prepared in accordance with the guidelines included in the draft National Skills Development Strategy (NSDS) III for the period 2011 to 2016, as well as the DHET Guide to the Process and Timeframes for Developing Sector Skills Plans and the NSDS III (23 June 2010). The comments received from the DHET on the draft SSP submitted on 31 August 2010 were taken into account in the preparation of this final SSP.

The improvement of the skills of our workforce is imperative for the economic development of our sector, for the improvement of our health and safety record and for the growth and well being of all employees. The main purpose of this SSP is to guide and inform skills development initiatives in the sector. It is the result of, not only a thorough research process, but also of extensive stakeholder consultation. Through the consultative processes the stakeholders have taken ownership of this plan and now all stakeholders are urged to work together over the next five years to address the skills development priorities and to achieve the goals and objectives set in this SSP.

This SSP will be revised and updated on an annual basis and will be aligned to Government policies and growth plans as these become operational.



Mr David Msiza
Chairperson: MQA Board

STAKEHOLDER ENDORSEMENT

This is the Sector Skills Plan prepared by the Mining Qualifications Authority (MQA) for the Mining and Minerals Sector (2011 – 2016). It is submitted to the Minister of Higher Education and Training in partial compliance with the requirements of the Skills Development Act of 1998 as amended. The MQA was registered as a Sector Education and Training Authority for this sector on 20 March 2000. The Sector Skills Plan is hereby endorsed by duly authorized representatives of the State, Employer organizations and Organised Labour in this national economic sector.


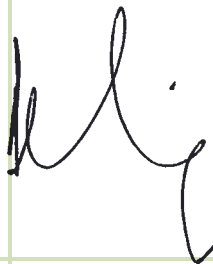


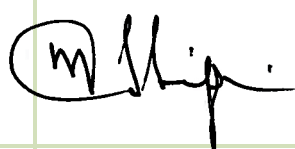
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LIST OF ABBREVIATIONS AND ACCRONYMS

ABET	Adult Basic Education and Training
AGOA	African Growth and Opportunity Act
AIDS	Acquired Immune Deficiency Syndrome
ASPASA	Aggregates and Sand Producers Association of Southern Africa
ATR	Annual Training Report
BEE	Broad-Based Black Economic Empowerment
CAD	Computer Aided Design
CLAS	Cement, Lime, Aggregates and Sand
CPI	Consumer Price Index
CSMI	Centre for Sustainability in the Mining Industry
DEA	Department of Environmental Affairs
DHET	Department of Higher Education and Training
DME	Department of Minerals and Energy
DMR	Department of Mineral Resources
DoL	Department of Labour
DTI	Department of Trade and Industry
Exco	Executive Committee
FC	Foundational Communication
FET	Further Education and Training
FLC	Foundational Learning Competence
FML	Foundational Mathematical Literacy
GDP	Gross Domestic Product
GET	General Education and Training
GVA	Gross Value Added
HDSA	Historically Disadvantaged South African
HEMIS	Higher Education Management Information System
HIV	Human Immunodeficiency Virus
HSRC	Human Sciences Research Council
IPAP	Industrial Policy Action Plan
JIPSA	Joint Initiative on Priority Skills of South Africa
JSE	Johannesburg Securities Exchange
LED	Local Economic Development
LFS	Labour Force Survey
merSETA	Manufacturing, Engineering and Related Services SETA
MHSA	Mine Health and Safety Act
MHSC	Mine Health and Safety Council
MIGDETT	Mining Industry Growth, Development and Employment Task Team
MIS	Management Information System
MMS	Mining and Minerals Sector
MPRDA	Mineral and Petroleum Resources Development Act
MQA	Mining Qualifications Authority
MTSF	Medium Term Strategic Framework

NATED	National Technical Education
NCV	National Certificate Vocation
NQF	National Qualifications Framework
NSDS	National Skills Development Strategy
NSF	National Skills Fund
NUM	National Union of Mineworkers
OFO	Organising Framework for Occupations
OHS	Occupational Health and Safety
PIVOTAL	Professional, Vocational, Technical and Academic Learning
PGM	Platinum Group Metals
QCTO	Quality Council for Trades and Occupations
R	Rand
RPL	Recognition of Prior Learning
RDP	Reconstruction and Development Plan
SA	South Africa
SADPMR	South African Diamond and Precious Metals Regulator
SAQA	South African Qualifications Authority
SDL	Skills Development Levy
SDT	State Diamond Trader
SEE	Survey of Employment and Earnings
SETA	Sector Education and Training Authority
SIC	Standard Industrial Classification
SOC	Standard Occupational Classification
SSP	Sector Skills Plan
TB	Tuberculosis
TEBA	The Employment Bureau of Africa
UNISA	University of South Africa
US	United States
USD	United States Dollar
UASA	United Association of South Africa
WIL	Workplace Integrated Learning
WSP	Workplace Skills Plan
ZAR	South African Rand

EXECUTIVE SUMMARY

INTRODUCTION

The Sector Education and Training Authority (SETA) for the Mining and Minerals Sector (MMS), the Mining Qualifications Authority (MQA), prepared this Sector Skills Plan (SSP) in response to the requirement set out by the Department of Higher Education and Training (DHET) in the Draft National Skills Development Strategy III (NSDS III) framework document.

From the outset it is important to take cognisance of the fact that the MQA was established in terms of the Mine Health and Safety Act (Act 29 of 1996) (MHSA); i.e. before the promulgation of the Skills Development Act and the establishment of SETAs. The MQA was established in order to improve health and safety standards through education and training in the mining sector. The MHSA also prescribes the composition and governance structures of the MQA. It specifies the tripartite nature of the MQA, with the State in the form of the Department of Mineral Resources (DMR), organised labour, and employers playing equally important roles in the governance of the organisation. In this tripartite structure the State (in the person of the Chief Inspector of Mines) occupies the chairperson position on a permanent basis.

Furthermore, the Minerals and Petroleum Resources Development Act (Act 28 of 2002) (MPRD) establishes the Minerals and Mining Development Board that must “in consultation with the Mining Qualifications Authority, ensure the promotion of human resource development in the mining and minerals industry”.

The legislative arrangements set out above impose on the MQA a legislated responsibility to place health and safety at the centre of its focus and skills development activities. It also means that the MQA has a dual mandate: to satisfy the requirements of the skills development legislation as well as those of the mine health and safety legislation.

The analysis presented in this SSP draws on a range of information sources including the official statistical information published by the DMR, Statistics South Africa and the Department of Education. The MQA has also developed its own data system, which is updated annually with information from the workplace skills plans (WSP). Notably, these WSPs contain considerably more information than the legislated minimum requirements and in the financial year 2009/10 represented approximately 80% of the workforce in the sector. This information, combined with the information that all mines submit to the DMR every three months, was used to build a coherent statistical picture of the MMS and to track trends over time, and forms the foundation of the data used in the sector profile. The projections of the future demand for labour were derived from two models: an econometric model that produces forecasts for the total economy and a demand projection model developed for the MQA.

In addition to the quantitative analysis and the desktop research presented in this SSP, information was obtained through a consultative process. The MQA established a project team to work with its research partner in the development of this SSP. This team consisted of the MQA managers and key personnel in

the Skills Development and Research Unit and representatives from each of the three constituencies: employers, labour and the DMR. The team provided information for the original sector analysis and commented on the document.

Following the submission of the sector analysis document the MQA also conducted a series of workshops with its stakeholder constituencies. A total of six workshops were held (including one with the MQA Board). At these workshops the sector analysis report was interrogated and commented on. The workshops also focused on the stakeholders' views regarding the skills development priorities that the MQA should set for the next five years and the contributions that the MQA and the sector can make to the national imperatives set out in various government policies. Subsequently a further MQA Board workshop was held to present and receive comment on the draft SSP and the Strategic Plan. Written input was also received from the Department of Environmental Affairs and from the Department of Public Works on the skills needs that emanate from the Extended Public Works Programme.

After submission of the draft SSP to the DHET, the SSP was put out for comment in the sector. It was distributed to all MQA committees and participants in the SSP workshops, all MQA skills development facilitators, MQA accredited training providers, relevant national government departments, the premiers' offices of all provincial governments and relevant professional associations. Comments from stakeholders, and the comments received by the DHET, were considered at a MQA Board Strategic Planning session held on 18 and 19 November 2010. As far as possible, comments were accommodated and incorporated. When final NSDS III was released by the DHET on 13 January 2011, MQA moved quickly to align the SSP with the NSDS III. The additions and amendments were minimal as the SSP was developed taking the draft NSDS III into consideration. The SSP was then finalised and presented to the various stakeholder representatives for final sign-off.

PROFILE OF THE SECTOR

The MMS, as demarcated by the Department of Labour in 1999 for the purpose of the skills development legislation, includes all mining activities covered by the Standard Industrial Classification (SIC) codes 21000 to 29000, as well as a small component of manufacturing, namely the Manufacturing of Cement, Lime and Plaster (SIC code 34240), Jewellery Manufacturing (SIC code 39210) and the Cutting and Polishing of Diamonds (SIC code 39212) and of Other Precious and Semi-precious Stones (SIC code 39219).

In order to facilitate the 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 (which includes the mining of iron ore, chrome, manganese, copper, phosphates and salt);

- Cement, Lime, Aggregates and Sand (CLAS);
- Services Incidental to Mining;
- Diamond Processing; and
- Jewellery Manufacturing

In the 2009/2010 financial year a total of 1 284 organisations paid skills development levies (SDLs) to the MQA. The largest proportion (34%) belonged to the subsector Other Mining. This was followed by the subsector Services Incidental to Mining to which 18% of the levy-paying organisations belonged. In addition to the levy-paying organisations, the sector also includes the DMR which is a non-levy-paying organisation.

Organisations range within each subsector from very large companies, with up to 50 000 employees, to very small companies with just one or two people employed. Although the majority of MQA organisations (74%) were small (employed fewer than 50 people), the majority of employees (62%) were employed in very large organisations (with 5 000 or more employees) while another 34% worked in organisations that employed between 150 and 4 999 people. Medium and small organisations employed respectively 3% and 1% of the total workforce. The CLAS and Jewellery Manufacturing subsectors include relatively large numbers of very small non-levy-paying and informal organisations.

Total employment at the end of 2009 was estimated at approximately 548 000. This figure includes permanent employees as well as contractors. The largest subsector was PGM Mining with 183 914 employees (34% of total employment), followed by Gold Mining with 160 102 employees (29% of total employment) and Coal Mining with 70 703 employees (13% of total employment). The subsector Other Mining employed 52 749 people (10% of total employment) and Services Incidental to Mining employed 33 193 people (6% of total employment). The smallest subsectors were CLAS with 28 595 employees (5%), Diamond Mining with 12 046 employees (2%), Jewellery Manufacturing with 4 894 employees (1%) and Diamond Processing with 1 776 employees (less than 0.5% of total employment).

The MMS has a significant presence in six provinces: North West, Gauteng, Mpumalanga, Limpopo, Free State and Northern Cape. In the last of these provinces the employment numbers are relatively small (compared to employment in the other provinces), however the Northern Cape has the greatest concentration of people employed in the Diamond Mining subsector and mining plays an important role in the provincial economy. It is thus important for the MQA to consider linkages with the economic growth strategies of these provinces. The Western and Eastern Cape have very little mining activity however the Eastern Cape is one of the areas from which the MMS sources labour, through this making a contribution to the economy of the province.

The occupational composition of the MMS shows that managers constituted only 2% of total employment and professionals 4% in 2009. Technicians and trades workers formed 14% of the workforce. Professionals and technicians are employed in the following technical-skills areas: mining engineering, metallurgy, chemical engineering, geology, electrical engineering, mechanical engineering, analytical chemistry, mine surveying, and jewellery design and manufacturing. Professionals are also employed in non-line function areas such as accounting, financial management, human resources

management, and information technology. Trades workers include artisans and the artisan occupations that occur most frequently in the mining components of the MMS are: diesel mechanics, electricians, fitters, fitters and turners, instrument mechanics, millwrights, plater/boilermakers, plater/welders, and rigger ropemen. While professionals and technicians are generally training in higher education institutions, artisans are typically trained through further education and training institutions (FET colleges) and through apprenticeships and learnerships.

A very large proportion of the workforce (36%) works as machinery operators and drivers. This category of workers includes a wide range of specific occupations that are linked to the technology and equipment used in the sector. Training for this category of workers is shorter than that for artisans and is mostly done in the industry – either on the job or through specialised training providers. Elementary workers constitute 37% of the workforce. These occupations do not require high levels of education, but industry-specific knowledge is necessary.

The MMS employs large numbers of people with no or very little formal schooling. However, many have years of experience in the mining industry. The sector therefore retains responsibility with regard to adult basic education and training (ABET) and the recognition of prior learning (RPL). The language diversity of the MMS poses specific challenges to the training environment, with research currently underway on how best to deal with this.

The majority of employees in the MMS are Black¹ – in 2009 85% of the employees were African and 2% Coloured, while Whites constituted 13% of employment. Although Blacks formed the majority of the workers in the sector, they were not equally represented in all the occupational groups. The majority of managers (72%) and of professionals (57%) were White, while Whites also accounted for 41% of technicians and trades workers.

Most of the employees in the MMS are men. One of the objectives of the original Mining Charter was to increase the participation of women in the sector. The analysis of employment trends shows that the percentage of women in the sector has increased over the last ten years (in 2000 only 3.2% of the workers were female, but this figure tripled to 10.1% in 2010). The MQA will continue to target women in its skills development programmes.

In addition to the large numbers of migrant workers from the different provinces, the MMS also employs foreigners (non-South Africans) from outside South Africa. It was estimated that in 2009 the sector employed approximately 77 000 non-South Africans – 14% of the total workforce. The use of migrant workers means that the MMS is not only involved in the economic development and well-being of the provinces in which it is located, but that it also has an effect on the labour-sending areas – within South Africa as well as beyond its borders.

Most of the work in the MMS is of a strenuous physical nature and the opportunities for the employment of people with disabilities in certain occupations (especially those on the mining sites) are limited. However, some of the professional, clerical and administrative positions in mining and positions

¹ Throughout this SSP the term Black refers to African, Coloured and Indian people collectively.

in the non-mining subsectors such as Diamond Processing and Jewellery Manufacturing lend themselves to the employment of people with disabilities. In 2009 the sector employed almost 3 500 people with disabilities – 0.7% of total employment. The subsector with the highest employment of people with disabilities was PGM Mining with people with disabilities constituting 1.1% of total employment.

The MMS is a highly regulated sector with a myriad of policies and pieces of legislation regulating the functioning of its organisations. The most important of these are the MHSA and the MPRD, the latter of which requires compliance with the National Environmental Management Act (Act 107 of 1998). The MMS is also highly organised, with employers being well organised and with non-contract workers being largely unionised. The National Union of Mineworkers (NUM) has the largest membership.

A number of sector characteristics pose particular challenges to organisations as well as to the various agencies tasked with regulation, support and service delivery: First, there is a general lack of information about, and organisation within, the small-scale mining sector, with some of these operating outside of the legislative framework. Second, the incidence of HIV and AIDS in the MMS is considerably higher than the national average, which is linked to an incidence of TB that is also higher than the national average – both impacting negatively on labour productivity. Third, mining remains a dangerous occupation. Together these factors underscore the importance of the MQA's focus on health and safety.

Finally, the transformation of the MMS, both in terms of ownership and increased representation of historically disadvantaged South Africans (HDSAs) in management and professional positions, is driven by a growing body of general and sector-specific legislation. Stemming from this legislation has been the development and revision of the Mining Charter and its Scorecard, which is monitored by the DMR; the development by Government of a set of Codes of Good Practice for the Minerals Industry (gazetted in April 2009); and the legal requirement for mining applicants to submit a Social and Labour Plan that addresses various aspects of both the social and economic welfare of workers. These various aspects of the transformation effort will of necessity direct the skills development agenda of the MQA.

THE ECONOMIC PERFORMANCE OF THE SECTOR

Adherence to the principles of sustainable development is becoming vital for the MMS as a foundation for sustainable growth into the future: mining operations increasingly have to meet the demands of a diverse range of stakeholders (shareholders, consumers, governments, employees, communities, human rights activists, and environmental organisations) if they want to be granted not only the legal but also the 'social licence to operate'. The reason for this is that while the importance of the MMS to national and global economic development is unquestioned, the huge cost of production on the environment and on communities is becoming more widely appreciated, and that the trade-offs between economic growth and sustainable development need to be carefully considered.

In addition to this a wide range of factors also impact directly on the economic performance of the sector, and therefore on its ability to operate profitably. While some of these have had a positive impact on the local demand for MMS products (such as the impact of the demand for electricity on coal production, and governments' infrastructure development programme on the demand for steel and

products from the CLAS subsector), many factors (including those on the demand side and the supply side, as well as the regulatory framework of the sector) have over the past decade undermined the economic performance of the sector.

From a quantitative perspective, the economic pressure that the MMS in South Africa has been under over the last decade is evident in the fact that it has performed worse than the rest of the economy. In 2000 the sector contributed 7.6% to national GDP, dropping to only 5.2% by 2009. This sector has been particularly hard hit by the economic crisis of 2008 and 2009 and it experienced the worst contraction in 2009. The Gold Mining subsector has been in decline for about two decades now and although other subsectors (especially PGM Mining) are compensating for the loss in gold production, it has not been enough to prevent contraction of the total sector. Unfortunately, no statistical information is available on the performance of the downstream components of the MMS (the Diamond Processing and Jewellery Manufacturing subsectors) and the subsector Services Incidental to Mining.

Increased beneficiation (or value-added) is widely considered to be the primary means by which the economic performance of the sector may be improved into the future. A range of recent policy documents place a renewed focus on value-adding activities, including:

- The Mineral and Petroleum Resources Development Act, No 28 of 2002 (DMR)
- The Diamonds Amendment Act, No. 29 of 2005 (DMR)
- The Diamonds Second Amendment Act, No 30 of 2005 (DMR)
- The Precious Metals Act, No 37 of 2005 (DMR)
- The Metals Sector Development Strategy, 2006 (Department of Trade and Industry - DTI)
- The draft Mineral Beneficiation Strategy (2009) (DMR)
- The Industrial Policy Action Plan (2010) (DTI)
- The amended Mining Charter
- The New Growth Path: The Framework (2010)

However, these have as yet been unable to successfully address the complex set of challenges that obstruct beneficiation within the local economy.

THE DEMAND FOR LABOUR IN THE SECTOR

Total employment in the mining industry plummeted from more than 800 000 in 1985 to just more than 400 000 in 2000. However, despite the sector's relatively poor economic performance over the past decade, employment increased by almost 100 000 workers between 2000 and 2007. In 2008 and 2009 the contraction of the industry due to the impact of the global economic crisis became evident in the employment figures, with some 20 000 job losses reported. Job losses continued in 2010 and by March 2010 some 45 000 unemployed mine workers were reported in the Labour Force Survey.

The analysis of labour demand shows that mining in South Africa is labour intensive. Furthermore, if labour demand is viewed in terms of very broad skills levels, very little change has occurred over the last three decades in the skills composition of the sector. However, technological advancements have

brought about changes in the skills required of people in the industry and will continue to drive skills needs into the medium- to longer-term future.

Projections of the demand for labour over the period 2010 to 2016 were developed according to three demand scenarios: The baseline scenario, which is regarded as the most likely scenario, a negative scenario, and a positive scenario. The negative and positive scenarios were created by altering four exogenous variables: world economic growth, the USD/ZAR exchange rate, year-on-year changes in international metal prices, and South African producer price inflation. The variation of economic variables produced different estimates of new positions in the MMS. In addition, estimates of replacement demand were also made based on assumptions regarding retirement, mortality and people leaving the MMS.

Overall it is clear that replacement demand exceeds new demand and that even if the MMS were to further contract, the sector will still have to train new people to satisfy the replacement demand of the labour market. Conversely, in the event of high economic growth the sector may need as many as 50 000 new workers per year to satisfy new as well replacement demand.

THE SUPPLY OF SKILLS TO THE SECTOR

The supply of skills to the sector is viewed from three distinct perspectives: the current supply or stock of skills available to the sector; the flow of new skills into the sector; and the development of skills in the work environment.

Current supply includes the people currently employed as well as those who are unemployed and available for work in the sector. As a result of the cyclical nature of employment in the MMS, the number of unemployed people who were previously employed in mining and who have some of the skills necessary for work in the MMS also changes over time. The decline in employment that took place over the last two decades created excess capacity in the labour market and left large numbers of previous employees of the MMS unemployed. In March 2001 the Labour Force Survey recorded almost 140 000 unemployed mineworkers. As employment increased the number of unemployed mine workers decreased and in March 2008 the Labour Force Survey reported only 30 000 unemployed mine workers. Retrenchments started to occur again in the first two quarters of 2009 and in March 2010 it was reported that approximately 45 000 mine workers were unemployed. Higher levels of surplus mining labour, and therefore people with some level of sector-related skill and experience can be expected in the labour market next year or two.

In terms of the flow of new skills into the sector the education and training of professionals, technicians and artisans is of particular importance. In many instances the training of these occupational groups takes place before the learners take up permanent employment in the sector. It is therefore necessary to ensure that bursary schemes and other incentive schemes are sufficient to provide an adequate flow of learners through the educational system and into the MMS. As the education and training of these occupational groups also take several years, a long-term view with regard to the development of their skills is crucial.

The student output in entry-level engineering qualifications (three-year diplomas and four-year first degrees) over the period 1999 to 2008 increased substantially in all fields of study, with the highest average annual increase (13.5%) in chemical engineering. This is followed by geology (13.3%), metallurgical engineering (12.9%), mechanical engineering (9.9%) and electrical engineering (7.8%). The MMS, however, competes with the rest of the economy for many of these skills – for example, mechanical and electrical engineering. It is only mining engineering that is specific to the MMS. It is thus unsurprising that despite positive growth in graduation trends, these increases were not sufficient to alleviate the overall shortages experienced in these fields in the country.

The transformation of the higher education sector is also visible in the educational statistics. By 2008 the majority of graduates in all the relevant fields were Black. Substantial numbers of women are also graduating in fields of study that historically have been male dominated. However, it will take time for this transformation to have a significant effect on the pool of professionals available in the labour market.

The profile of the sector clearly indicates the predominance of the occupational categories machinery operators and drivers, and elementary workers in the sector. These categories of workers are typically trained for their specific positions after entering into employment contracts. Their training thus becomes the responsibility of employers. The same applies to clerical and administrative and sales workers. At the same time it is critical that all categories of workers need to stay abreast of changes in the work environment and with health and safety regulations.

The skills development provision of the MMS is comprehensive and covers many aspects. The MQA has registered a wide spectrum of learnerships and the uptake of these learnerships is substantial. Another important training offering is skills programmes. These programmes provide workers (especially those at lower educational levels) with the opportunity to obtain recognition for some of the skills attained in the work environment. Skills programmes are also important vehicles for training in terms of health and safety requirements.

The most significant challenges facing the improved supply of currently scarce artisan and professional skills into the MMS include: the poor quality of secondary schooling, particularly in the areas of mathematics and physical science; the poor image of the sector that does not attract high quality school-leavers; the poor articulation of FET programmes with other qualifications; the difficulties that many HDSA students face in accessing study financing; the difficulties that university of technology students face in accessing the workplace based training necessary for graduation; the low throughput rates for both artisan learnerships and engineering qualifications; and the extremely high dropout rates and low pass rates for the DMR certificates of competency.

MQA interventions aimed at addressing these challenges span: ABET level training in the workplace; formal collaboration with FET colleges; the development and delivery of foundational learning; the focus of artisan learnerships on unemployed learners; the provision of bursaries for higher education qualifications; and the development of a career guide for the sector. These interventions will be ongoing throughout the period of this SSP. Finally the MQA acknowledges the challenges faced by the sector in

respect of the high dropout rates and low pass rates for the certificates of competency and the variable quality of training providers.

SKILLS NEEDS OF THE MMS

While data and other constraints prohibit a direct quantitative comparison of the future demand for skills within the MMS to the future supply of such skills, a qualitative analysis does however provide useful and directive information.

Broad categories of skills development needs for the sector emerge from the analysis undertaken for this SSP. These include the continued development of core skills (or the basic skills required for safe and efficient mining activities); a specific focus on mine health and safety skills; a continued focus on HIV/AIDS awareness and prevention; an ongoing engagement with ABET; and an increased focus on developing ways of recognising the skills that employees already have (RPL) and recognising these towards qualifications. They also include a specific focus on scarce skills; the development of Black management skills; and environmental skills. By the same token, adherence to legislation and to the principles of sustainable development demands that the training of retrenched employees, the development of mining communities and communities in labour-sending areas, support for the development of beneficiation in local areas through skills development; and strengthening Government capacity become sector training priorities. Consideration of all these skills categories is necessary for a balanced skills development programme for the sector.

The information on scarce skills was obtained by analysing the results set out in the scarce-skills table of the WSPs submitted for Year 2010/2011, thus reflecting the situation as experienced by employers at the end of March 2010. Only 128 indicated that they experienced a scarcity of skills in the sense that they could not find suitable people to fill positions in their organisations. The total number of people reported to be needed in occupations in which there were skills shortages is 1 301. This translates to about 0.2% of total employment in the sector. Despite being relatively small compared to the need for core skills development and ongoing health and safety training in the sector, specific skills shortages do however have a negative impact on the current productivity and potential future growth of the sector.

The occupational group with the highest percentage of people needed is technicians and trades workers (46.7% of the scarce skills positions), followed by machine operators and drivers (28.9%), professionals (14.5%), and directors and corporate managers (9.1%).

The scarce skills positions reported are substantially lower than the numbers reported in previous years and the decline in scarce skills may be attributed to the contraction of the sector and the overall decline in employment. It is also very likely that some of the shortages that were reported in previous years have been relieved by increases in the supply to the market.

With the exception of artisans, the majority of skills shortages in the sector (58.8%) are 'relative', meaning that people are available in the labour market but for various reasons cannot easily be attracted to the sector. These reasons include the 'unattractiveness' of the sector in general as well as the rural and remote location of most mines, and underlie high levels of labour turnover in some

occupational categories. This same factor hinders transformation efforts particularly in the manager, professional and artisan occupational categories as people with these skills have many often more lucrative options for employment in other sectors of the economy.

Finally, employers were asked to indicate if they are planning to import some of the scarce skills from outside South Africa. Of the total of 139 people that employers were planning to recruit from outside South Africa, 61 (44.9%) would be technicians and trades workers, 45 (36.0%) machine operators and drivers, 11 (7.9%) professionals, and 7 (5%) directors or corporate managers.

SKILLS DEVELOPMENT PRIORITIES

The final chapter forms the conclusion of the MQA SSP's for the period 2011 - 2016. Five skills development priorities were identified by the MQA, representing the culmination of the sector analysis and stakeholder consultation process. These skills development priorities are intended to guide the MQA's strategic objectives as set out in the Strategic Plan.

Priority 1 is to support transformation of the sector through skills development. This first priority of the MQA is crosscutting and will be reflected in all the activities of the MQA. Throughout the planning period covered by this SSP the MQA will support the objectives of the amended Mining Charter and it will focus specifically on providing support for charter element 2.4 – Employment Equity, which requires that by 2014 a minimum of 40% of companies' employees at executive, senior management, core and critical skills, middle management and junior management levels should be historically disadvantaged South Africans.

Priority 2 is to support objective decision making for skills development through research in the sector. In the planning period of this SSP the MQA envisages the strengthening and improvement of its research function to support decision making regarding skills development in the sector.

Priority 3 is to enhance knowledge management for skills development in the sector. It is a critical strategic priority to continuously track and monitor the development of the knowledge base through a well-designed and fully operational management information system (MIS). The MQA has experienced many challenges with regard to its MIS in recent years – to the extent that its design and implementation has become a critical imperative. For this reason the development of a MIS is seen as a strategic priority for the NSDS III period.

Priority 4 is to facilitate and support the development and implementation of core skills development programmes aligned with the sector qualifications framework. This is the most important priority for the MQA and most of the funding available over the planning period will be channelled towards this priority.

In terms of the MHSA, through which the MQA was established, the MQA is responsible for ensuring that workers in the mining sector have the necessary competencies required in specific occupations. The MQA also houses a permanent standards-generating function and has developed a qualifications framework aligned with the Organising Framework for Occupations (OFO) and based on research into

the sector's needs. The qualification development work will continue in the period covered by NSDS III and once the Quality Council for Trades and Occupations (QCFO) becomes operational, qualifications will be re-designed according to the new regulations. Programmes under this priority include:

- Mathematics and Science at grades 10, 11 and 12 in rural mining community schools;
- Adult Basic Education and Training;
- Skills programmes for specific needs such as occupational health and safety, mine community development, mine inspector development, workplace coaches and education and training practitioners;
- Intermediate-(FET) level core skill programmes through learnerships and work experience; and
- High- (HET) level core skill programmes through bursaries, work experience and internships.

Priority 5 is to enhance the monitoring, evaluation and review of the delivery capacity and quality of skills development in the sector. Under the new dispensation of the QCTO quality assurance is set to shift away from accreditation towards monitoring, evaluation and assessment. As such the role of the SETAs with regard to quality assurance is expected to change. Apart from adapting to the new role, the MQA will also focus strongly on the strengthening and development of existing private and public training capacity –including the development of trainers, mentors and assessors in order to support the increased investment into skills development undertaken by stakeholders in the amended Mining Charter.

Notably, while the MQA formulated its skills development priorities within a framework that suits the needs of the sector, the priorities were also formulated with due consideration for all relevant Government policy and strategy documents. Thus this SSP directly supports the amended Mining Charter as well as the NSDS III, while its alignment with Government's MTSF and IPAP policy documents is evidence that the MQA, and the MMS, is directly supportive of the wider programme of sustainable economic and social development that these policies seek to implement.

At the time of finalisation of this SSP Government published the "The New Growth Path: The Framework". Once the details of the implementation of this policy and its implications for the MMS become clear the MQA's role and responsibilities with regards to the policy will be assessed and the MQA's Strategic Plan will be adapted accordingly. This policy will also be reflected in more detail in future updates of the SSP. Similarly, any changes to the NSDS III will be reflected in future updates of the SSP.

1 INTRODUCTION

1.1 BACKGROUND

On 30 April 2010 the Minister of Higher Education and Training in consultation with the National Skills Authority released the first draft framework for the National Skills Development Strategy 2011/12 to 2015/16 (NSDS III) for comment and response from stakeholders.

According to this document, all Sector Education and Training Authorities (SETAs) were required to submit sectoral analyses to the Department of Higher Education and Training (DHET) that were to follow broad guidelines given in the framework document. The submission date for the sector analyses was 30 June 2010 and the Mining Qualifications Authority (MQA) duly submitted a sector analysis of the Mining and Minerals Sector (MMS).

Subsequently the Sector Skills Plan (SSP) development process continued and a draft SSP was submitted by the MQA to the DHET on 30 September 2010. This current document is the final version of the SSP and it is submitted to the DHET on 31 January 2011.

The main purpose of the SSP is described in the guideline document issued by the DHET on 23 June 2010, entitled: “Department of Higher Education and Training – Guide to the Process and Time Frames for Developing Sector Skills Plans and the NSDS III”. According to this guideline the purpose of the SSP is to:

- “Determine skills development priorities after an analysis of the skills demand and trends, and supply issues within the sector.
- Identify a set of sector specific [skills development] objectives and goals that will meet sector needs, economic or industrial growth strategies, and meet scarce and critical skills [needs] in the sector.
- Identify strategies to address these objectives and goals.
- Identify activities that will support these strategies.
- Report on performance in relation to these objectives and goals.”

This SSP addresses the first three bullet points and is submitted together with the MQA’s Strategic Plan to the DHET in which detail is given of the specific strategies and activities that will address the skills development priorities and the budget allocations to each of these. The last bullet point will receive attention in the subsequent updates of the SSP and as part of ongoing quarterly performance reporting requirements.

Although the writing of this SSP was guided by the DHET requirements, it is, from the outset important to take cognisance of the fact that the MQA was established in terms of the Mine Health and Safety Act (Act 29 of 1996) (MHSA); i.e. before the promulgation of the Skills Development Act and the establishment of SETAs. The MQA was established in order to improve health and safety standards through education and training in the mining sector. The MHSA also prescribes the composition and

governance structures of the MQA. It specifies the tripartite nature of the MQA, with the State in the form of the Department of Mineral Resources (DMR), organised labour and employers playing equally important roles in the governance of the organisation. In this tripartite structure the State (in the person of the Chief Inspector of Mines) occupies the chairperson position on a permanent basis.

Furthermore, the Minerals and Petroleum Resources Development Act (Act 28 of 2002) establishes the Minerals and Mining Development Board that must “in consultation with the Mining Qualifications Authority, ensure the promotion of human resource development in the mining and minerals industry”.²

The legislative arrangements set out above impose on the MQA a legislated responsibility to place health and safety at the centre of its focus and activities. It also means that the MQA has a dual responsibility: to satisfy the requirements of the skills development legislation and those of the mine health and safety legislation.

1.2 PROCESS FOLLOWED IN THE DEVELOPMENT OF THIS SSP

1.2.1 Sector participation

When the DHET announced that SETAs had to submit sector analysis reports, the MQA established a project team to work with its research partner in the development of this report. This team consisted of the MQA managers and key personnel in the Skills Development and Research Unit and representatives from each of the three constituencies: employers, labour and the State (DMR). The team provided information for the original sector analysis and commented on the document.

Subsequent to the submission of the sector analysis document the MQA conducted a series of workshops with its stakeholder constituencies. A total of six workshops were held (including one with the MQA Board). At these workshops the sector analysis report was interrogated and commented on. The workshops also focused on the stakeholders’ views regarding the skills development priorities that the MQA should set for the next five years and the contributions that the MQA and the sector could make to the national imperatives set out in various government policies. Subsequently a further MQA Board workshop was held to present and receive comment on the draft SSP and the Strategic Plan.

1.2.2 Other consultations

In the SSP preparation process the MQA contacted all nine provinces via their premiers’ offices in order to obtain their economic development plans and inputs into the skills needs and priorities in their provinces. In this process the inputs were limited, but the MQA continues to participate in the relevant forums in the provinces, particularly where the MMS has a significant presence. Written input was also received from the Department of Environmental Affairs (DEA), which was then followed up by further engagements on the SSP. Discussions between the MQA and this department will continue in the longer term.

² Minerals and Petroleum Resources Development Act, Act 28 of 2002, Section 58(1)(b).

1.2.3 Information sources utilised

No single database currently provides a complete and comprehensive profile of the MMS as it has been defined for the purposes of the Skills Development Act, thus necessitating the use of a range of data sources in the development of this SSP:

- The MQA has, over the years, developed a format for the workplace skills plans (WSPs) that exceeds the minimum legislated requirements. This is because the MQA has always argued that the information submitted in the WSPs should provide detailed baseline statistical information on the sector. The WSP information has been captured in an electronic data system and analysed every year. Notably, the WSP's submitted for the financial year 2009/10 represented approximately 80% of the workers in the sector.
- The DMR's database of mines is updated quarterly through mandatory submissions. This data, which is also regarded by Statistics South Africa as the official statistics on employment in the mining industry, was used to supplement and weight the information from the WSPs in the MQA's data system (see Appendix 1 for more details).
- Other national data sources used include for example, the economic data series of the Labour Force Survey (LFS) published by Statistics South Africa and the Higher Education Management Information System (HEMIS) maintained by the DHET.

In addition to quantitative data sources outlined above, the MQA has also undertaken a range of research projects based on its research agenda. Several of the research projects contributed to the understanding of the MMS and were used in the preparation of the SSP. These were augmented with research conducted by other institutions in the sector, such as the Mine Health and Safety Council (MHSC).

Finally, the demand projections presented in Chapter 4 of this report were derived from two models: an econometric model that produces forecasts for the total economy and a demand projection model developed specifically for the MQA.

1.2.4 Finalisation of the SSP

After submission of the draft SSP to the DHET, the SSP was put out for comment in the sector. It was distributed to all MQA committees and participants in the SSP workshops, all MQA skills development facilitators, MQA accredited training providers, relevant national government departments, the premiers' offices of all provincial governments and relevant professional associations. Comments from stakeholders, and the comments received by the DHET, were considered at a MQA Board Strategic Planning session held on 18 and 19 November 2010. As far as possible, comments were accommodated and incorporated. When final NSDS III was released by the DHET on 13 January 2011, MQA moved quickly to align the SSP with the NSDS III. The additions and amendments were minimal as the SSP was developed taking the draft NSDS III into consideration. The SSP was then finalised and presented to the various stakeholder representatives for final sign-off.

1.3 STRUCTURE OF THE SSP

This SSP consists of seven chapters. Chapter 1 serves as an introduction to both the MQA as an organisation as well as to the process followed in developing this document. Chapter 2 provides a descriptive profile of the sector. After a brief overview of the nine MQA subsectors and the profile of the organisations that make up the MMS, employment in the sector is discussed from various perspectives. This is followed by a summary of the characteristics of the sector that have a particular impact on skills development priorities and programme implementation. Finally, the transformation of the sector is considered in light of the relevant Government legislation and policy documents.

Chapter 3 deals with the economic performance of the sector. Within a framework of sustainable development, this chapter considers the various factors that have an impact on the economic performance of the MMS, presently and into the future; data on the economic growth of the sector and its contribution to GDP; as well as the initiatives that are in place to enhance the sector's growth.

Chapter 4 considers the sectors demand for labour. Past demand is described and forecasts for future demand are made according to a baseline (most likely) scenario, as well as a positive and a negative scenario.

Chapter 5 describes the supply of labour to the sector: A description of current supply (including both employed and unemployed workers) is supplemented by a discussion on the supply of new skills into the sector as well as development of skills among those already employed within the sector. The chapter also considers the MQA's interventions that are aimed at alleviating skills shortages.

Chapter 6 provides a qualitative comparison between skills demand and skills supply. An outline of the broad categories of skills development needs as they emerge from this SSP is followed by more detailed information on specific scarce skills in the sector. The final section, which directly compares demand and supply, highlights the areas of skills shortages and skills gaps, and the challenges that need to be considered if the mismatch is to be addressed.

Chapter 7 forms the conclusion of this SSP. It outlines the five skills development priorities for the MQA - the culmination of the research and consultations processes described above. This chapter also outlines the MQA's contribution to the strategic areas of focus of the National Skills Development Strategy III (NSDS III), Government's Medium Term Strategic Framework (MTSF) objectives, Governments Industrial Policy Action Plan (IPAP), and the recently released NGP.

It is important to note when reading this SSP, that while issues are complex and cross-cutting, adherence to the structure of an SSP document demands that only particular aspects of any given issue are discussed in one particular chapter. This document must therefore be read as a whole.

2 SECTOR PROFILE

2.1 INTRODUCTION

The profile of the MMS presented in this chapter highlights the most important characteristics of the sector that impact on skills development. This is intended to provide a descriptive overview of the sector. The description starts with an exposition of the industrial sectors and activities included in the sector and the subsectoral demarcation used in the MQA and in the rest of this SSP. This is followed by a description of the organisations and the employees working in the sector. This description portrays the sector as at the end of 2009. The next part of this chapter deals with special characteristics of the sector that have a direct bearing on the skills needs and requirements of the sector and on the work of the MQA. These include: the regulation of the sector; labour, employer and professional organisation; the geographic location of mining activities; the use of migrant and contract workers; small scale mining; the language situation in the MMS; the prevalence of HIV/AIDS and occupational diseases; mine accidents and fatalities and the environmental impact of the sector and its responsibilities in this regard. In the last part of the chapter the transformation of the sector is discussed.

2.2 INDUSTRIAL COVERAGE

The MMS, as demarcated by the Department of Labour (DoL) in 1999 for the purpose of the skills development legislation, includes all mining activities covered by the Standard Industrial Classification (SIC) codes 21000 to 29000, as well as a small component of manufacturing – namely the Manufacturing of Cement, Lime and Plaster (SIC code 34240), Jewellery Manufacturing (SIC code 39210), and the Cutting and Polishing of Diamonds (SIC code 39212) and of other Precious and Semi-Precious Stones (SIC code 39219).

Although the DoL has defined the sectors to be served by the respective SETAs, organisations have some choice regarding the SETA with which they want to register. A number of organisations not strictly involved in mining activities as such, but closely associated with the sector, have chosen to register with the MQA or have been allocated to the MQA by the DoL.

In order to facilitate the 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, which includes the mining of iron ore, chrome, manganese, copper, phosphates and salt
- Cement, Lime, Aggregates and Sand (CLAS)

- Services Incidental to Mining
- Diamond Processing and
- Jewellery Manufacturing.

The SIC codes included in each of the subsectors can be seen in Appendix 2. All the organisations that don't fall within the designated SIC codes but that have elected to register with the MQA or remained with the MQA after being allocated to the SETA by the DoL, are grouped in the subsector "Services Incidental to Mining".

2.3 OVERVIEW OF MQA SUBSECTORS

This section provides a brief overview of each of the MQA's nine subsectors. In describing the profile of the sector in the rest of this chapter, subsector breakdowns are presented wherever possible.

2.3.1 Coal Mining

The South African coal mining industry is ranked 6th in the world for both production and reserves, contributing 4.2% to global output. In 2009 47.3% of local coal by value (roughly one quarter in terms of volume) was exported.³ South Africa exports coal to 34 countries, with the European Union being the primary market (84.5%). Over 80% of the country's saleable coal is supplied by the five largest mining groups. Coal reserves, and therefore mining activity, are predominantly in Mpumalanga and Limpopo provinces.⁴

2.3.2 Gold Mining

The South African gold mining industry is ranked 1st in the world in terms of gold reserves and 3rd in the world in terms of production, after China and Australia.⁵ Three of the world's ten largest gold mining companies have headquarters in South Africa and have operations not only in South Africa, but also in Australia, West Africa and in South America.

Gauteng province dominates in gold mining, accounting for roughly 49.9% of South African production. This is followed by North West (23.1%), Free State (21.3%), Mpumalanga (4.5%) and Limpopo (1.2%). Only about 5% of the country's gold production is beneficiated locally to coins and jewellery.⁶

³ Chamber of Mines, Facts & Figures booklet, 2010.

⁴ Mwape P, Roberts MJ, Mokwena E, Musi L, Tjatjie T, Mnguni M, Mashaba P, Kwata PG. Part One: South Africa's Mineral Industry-General Review, Department of Minerals and Energy, South Africa's Mineral Industry, 2007/2008.

⁵ Chamber of Mines, Facts & Figures booklet, 2010.

⁶ Mwape P, Roberts MJ, Mokwena E, Musi L, Tjatjie T, Mnguni M, Mashaba P, Kwata PG. Part One: South Africa's Mineral Industry-General Review, Department of Minerals and Energy, South Africa's Mineral Industry, 2007/2008.

2.3.3 Platinum Group Metals (PGM) Mining

The platinum-group metals (PGMs) are a family of six chemically similar elements: platinum, palladium, rhodium, ruthenium, iridium and osmium. The South African reserve base constitutes 87.7% of the global reserve, while the country contributes 56.7% to global production, ranking 1st in both categories. South African reserves are concentrated in the North West and Limpopo provinces, respectively contributing 63.5% and 30.2% to national production. The PGM mining subsector consists of a small number of very large companies.⁷

2.3.4 Diamond Mining

South Africa was ranked 5th in the world in terms of diamond production by value in 2009, after Russia, Canada, Botswana and Angola⁸. In South Africa, deposits are concentrated in the Northern Cape and Limpopo Provinces.

De Beers Consolidated Mines dominates South African diamond mining, with mines in SA, Botswana, Namibia and Tanzania. This company contributed 29% of global production by mass, and 41% by value, in 2007. There are however also a few independent mines, with small scale miners mainly involved in alluvial diamond mining operations.⁹

2.3.5 Other Mining

Included in South Africa's 'other mining' sector are the producers of uranium, copper, iron ore, manganese and salt. Uranium production is a by-product of gold mining and distribution of the sector mirrors that of gold mining. South Africa's copper deposits lie mainly in Limpopo province, with copper being mined mainly by one large company.

In terms of iron ore, South Africa is ranked 9th in the world for reserves, 7th for production and 5th for exports. For manganese the country is ranked 1st in the world for reserves, 2nd for production and 2nd for exports.¹⁰ Notably, due to reductions in demand from the 2009 global economic crisis, local production was reduced by 41%. Iron ore and manganese deposits are concentrated in the Northern Cape.¹¹

⁷ Mwape P, Roberts MJ, Mokwena E, Musi L, Tjatjie T, Mnguni M, Mashaba P, Kwata PG. Part One: South Africa's Mineral Industry-General Review, Department of Minerals and Energy, South Africa's Mineral Industry, 2007/2008.

⁸ Chamber of Mines, Facts & Figures booklet, 2010.

⁹ Mwape P, Roberts MJ, Mokwena E, Musi L, Tjatjie T, Mnguni M, Mashaba P, Kwata PG. Part One: South Africa's Mineral Industry-General Review, Department of Minerals and Energy, South Africa's Mineral Industry, 2007/2008.

¹⁰ Ibid.

¹¹ Chamber of Mines, Facts & Figures booklet, 2010.

2.3.6 Cement, Lime, Aggregates and Sand (CLAS)

This subsector is dominated by medium and smaller sized mining companies. The vast majority of small scale mining applications (90%) also fall into this group of industrial commodities. Sales are mainly local, with aggregate and sand contributing 43% to total sales, limestone and lime 21% and phosphate concentrate 15%. Larger firms in this subsector include cement manufacturers, phosphates, vermiculite, and dimension stone producers. Dimension stone is also the one commodity in this group that is exported in bulk.

2.3.7 Services Incidental to Mining

Made up of a large group of relatively smaller companies, the Services Incidental to Mining subsector consists of an array of companies that provide services to the mining sector. This subsector includes organisations involved in research and development in the field of mining and mineral extraction and organisations that render services to mining companies – for example, training; catering services; payroll services; the manufacturing, distribution, hiring and maintenance of machinery and equipment used in mining; mining consulting services; and shaft sinking.

2.3.8 Diamond Processing

The South African diamond processing industry consists of 221 licenced diamond manufacturers. The Diamond Trading Company of De Beers is the major supplier of rough diamonds to the industry, although some are sourced from local independent mines and others imported from Belgium, a major global buyer of rough diamonds. The Master Diamond Cutters' Association has 80 members, which employ approximately 95 per cent of the labour in this small subsector.¹²

The processing of diamonds for industrial use is often linked to manufacturing processes and as a result, some of the diamond processing firms are located in the manufacturing sector and are associated with other SETAs.

South Africa's State Diamond Trader (SDT) was launched in February 2008 and is mandated to purchase 10% of South Africa's rough diamond production and to sell these to local beneficiaries.

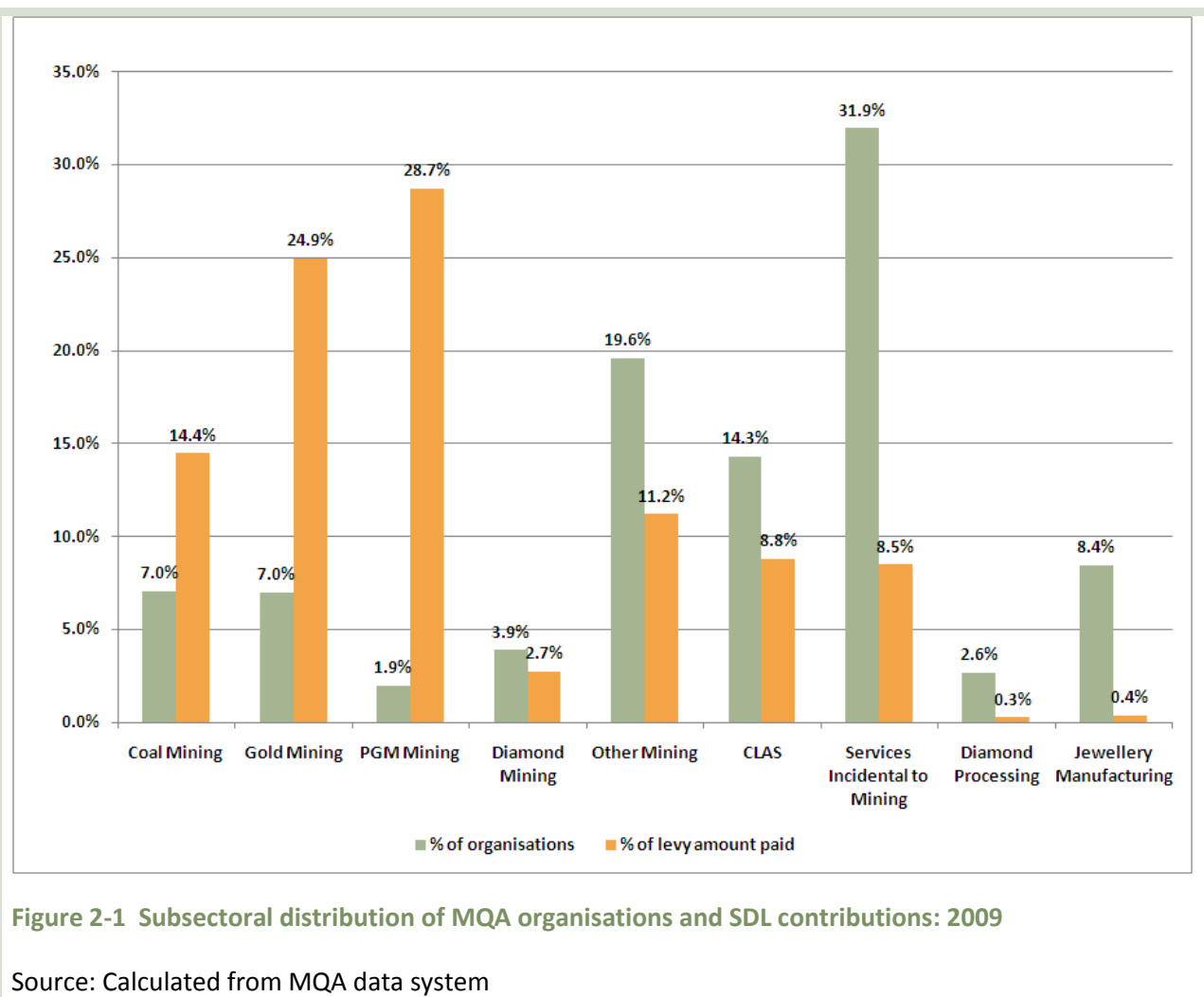
2.3.9 Jewellery Manufacturing

Firms in this subsector benefit from mining outputs such as precious metals (gold, platinum and silver), and diamonds in the manufacture of jewellery for both the domestic and the export markets. The majority of the companies in this subsector are small. The jewellery manufacturers are located mainly in Gauteng, the Western Cape and KwaZulu-Natal. Jewellery manufacturing is very often combined with the wholesale or retail sales of jewellery products and for this reason many of the jewellery manufacturers are registered with the Wholesale and Retail SETA.

¹² <http://www.essentialsjewelry.com/southafrica-gem-jewelry/south-africa-rough-diamond.html>, Accessed 11 November 2010.

2.4 ORGANISATIONS IN THE SECTOR

In the 2009/2010 financial year a total of 1 284 organisations paid skills development levies (SDLs) to the MQA. The majority (74%) of these organisations were small (employed fewer than 50 people). The subsectoral distribution of the levy-paying organisations and levy payments at the time of this analysis can be seen in Figure 2-1. The largest proportion of organisations (31.9%) belonged to the subsector Services Incidental to Mining, but these organisations contributed only 8.5% of the total SDL collected by the MQA. The subsector PGM Mining consists of only a small number of large organisations but paid 28.7% of the total SDL. Similarly, the small number of gold mining companies paid 24.9% of the SDL.



In addition to the levy-paying organisations, the sector also includes the Department of Mineral Resources (DMR), which is a non-levy paying organisation.

The CLAS and Jewellery Manufacturing subsectors both have relatively large numbers of very small non-levy-paying organisations, which are not represented in Figure 2-1, but who have been accounted for in the employment figures presented in the following sections.¹³

2.5 EMPLOYMENT IN THE SECTOR

2.5.1 Total employment

Total employment at the end of 2009 was estimated at approximately 548 000.¹⁴ This figure includes permanent employees as well as contractors. The largest subsector was PGM Mining with 183 914 employees (34% of total employment), followed by Gold Mining with 160 102 employees (29 % of total employment) and Coal Mining with 70 703 employees (13% of total employment). The subsector Other Mining employed 52 749 people (10% of total employment) and Services Incidental to Mining employed 33 193 people (6% of total employment). The smallest subsectors were CLAS with 28 595 employees (5%), Diamond Mining with 12 046 employees (2%), Jewellery Manufacturing with 4 894 employees (1%), and Diamond Processing with 1 776 employees (less than 0.5% of total employment) (Figure 2-2). This figure also shows the relative levy contributions of each subsector and the correlation between the number of employees and the levy contributions of the respective subsectors.

¹³ In the weighting of sector data, some provision was made for non-levy paying organisations. See Appendix 1.

¹⁴ This is a conservative estimate. It is possible that the CLAS and Services Incidental to Mining subsectors are larger. The MQA is currently analysing its information system in greater depth in order to arrive at a more accurate estimate of employment in these subsectors.

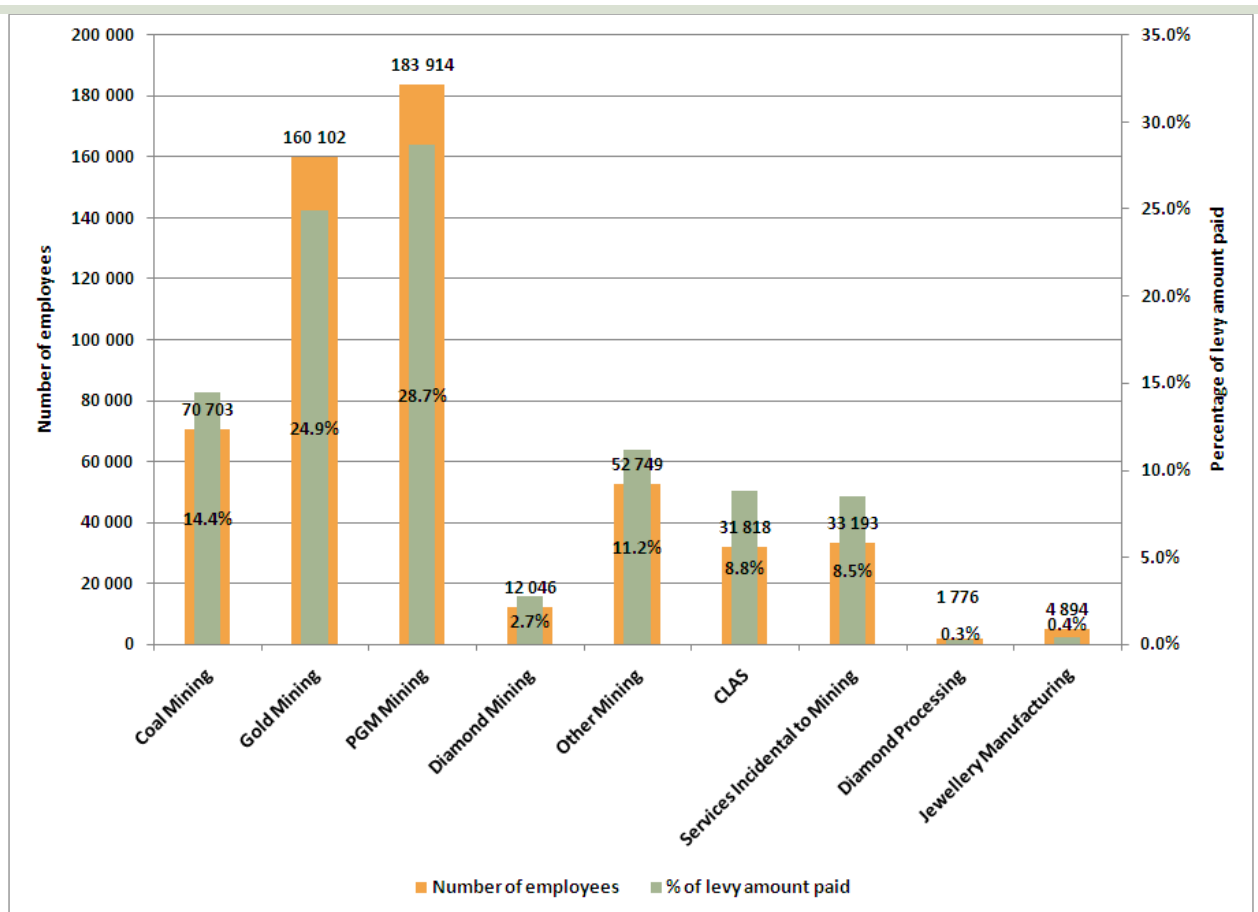


Figure 2-2 Total number of employees per subsector and SDL contribution:2--9

Source: Calculated from MQA data system

The majority (62%) of employees in the sector are employed in very large organisations (with 5 000 or more employees) while another 34% work in large organisations with 150 to 4 999 employees. Medium and small organisations employ respectively 3% and 1% of the workforce of the sector (Table 2-1). The size breakdown of the Diamond Processing and Jewellery Manufacturing subsectors is not given in this chapter because of a lack of detailed information on employment in these two subsectors in the MQA data system.¹⁵ Most of the organisations in the two subsectors are, however, small.

¹⁵ Information is limited because since the 2009/2010 WSP submissions small companies fill in a shortened version of the WSP/ATR forms and because many of the companies in these two subsectors are levy-exempt and are not recorded on the MQA database. The MQA is currently in the process of obtaining more information on small companies in the sector through a dedicated survey of small organisations. Details from this survey will be added to the 2011/12 SSP update.

Table 2-1 Employment distribution according to organisation size: 2009

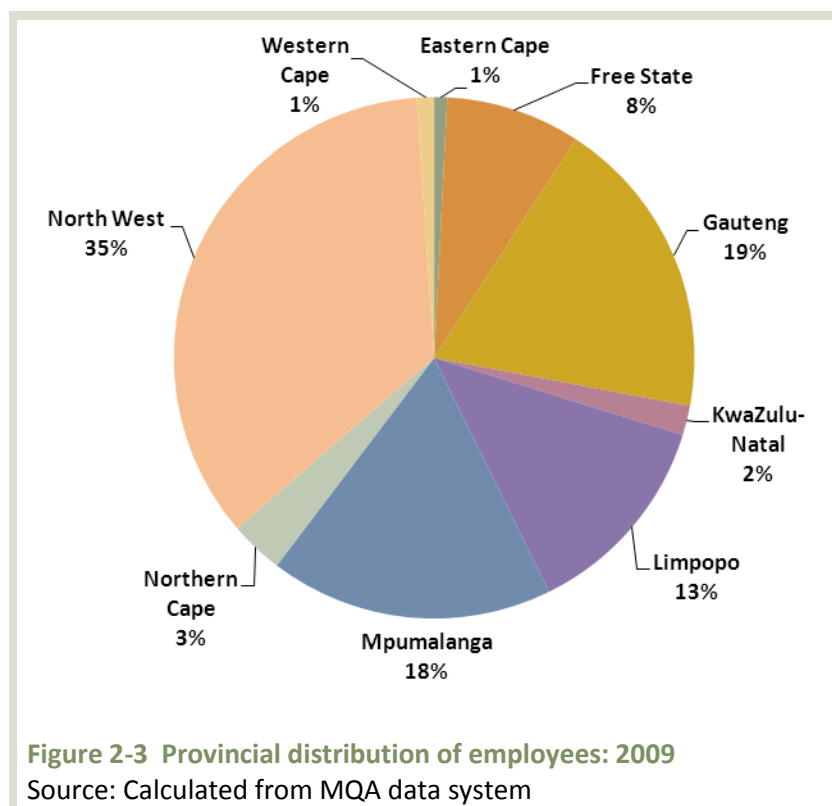
Subsector	0-49		50-149		150-4999		5000+		Total N
	N	%	N	%	N	%	N	%	
Coal Mining	494	1	1 933	3	55 801	79	12 476	18	70 703
Gold Mining	47	0	846	1	31 911	20	127 298	80	160 102
PGM Mining	0	0	403	0	8 948	5	174 564	95	183 914
Diamond Mining	15	0	481	4	11 549	96	0	0	12 046
Other Mining	1 162	2	3 646	7	38 806	74	9 135	17	52 749
CLAS	236	1	2 983	10	25 376	89	0	0	28 595
Services Incidental to Mining	790	2	3 147	9	16 932	51	12 324	37	33 193
Diamond Processing*									1 776
Jewellery Manufacturing*									4 894
Total**	4 619	1	16 671	3	190 887	34	335 796	62	547 973

*Not calculated due to insufficient information

**Total includes Diamond Processing and Jewellery Manufacturing

Source: Calculated from MQA data system

2.5.2 Provincial distribution of employees



The provincial distribution of employees can be seen in Figure 2-3 and Table 2-2. The province with the largest number of workers is North West (35%). This is because of the large-scale PGM mining that takes place in the province. Gauteng is home to some of the large gold mines and 19% of the total MMS resides in this province. Mpumalanga houses 18% of the sector, with most of the coal mines situated in this province.

The Western Cape and the Eastern Cape have very little mining activity. However, the Eastern Cape is one of the areas from which the MMS sources

labour. Therefore, the MMS contributes to the economy of this province. Although only 3% of the employees in the MMS are based in the Northern Cape, this province has the greatest concentration of people employed in the Diamond Mining subsector and mining plays an important role in the provincial

economy. The provincial breakdown of the Diamond Processing and Jewellery Manufacturing subsectors is not shown in Table 2-2 because of a lack of information on small organisations.

Table 2-2 Provincial distribution of employees according to subsector: 2009

Subsector		Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape	Total
Coal Mining	N	212	3 745	1 234	2 226	39	62 659	128	84	376	70 703
	%	0	5	2	3	0	89	0	0	1	100
Gold Mining	N	0	39 830	71 477	0	3 592	11 925	11	33 266	0	160 102
	%	0	25	45	0	2	7	0	21	0	100
PGM Mining	N	2 561	206	4 571	147	46 265	2 977	34	126 945	209	183 914
	%	1	0	2	0	25	2	0	69	0	100
Diamond Mining	N	1	486	1 754	1 934	1 088	0	5 236	953	595	12 046
	%	0	4	15	16	9	0	43	8	5	100
Other Mining	N	571	377	4 798	1 399	14 076	5 424	10 467	14 891	746	52 749
	%	1	1	9	3	27	10	20	28	1	100
CLAS	N	784	556	5 704	2 590	2 062	9 157	1 914	2 947	2 882	28 595
	%	3	2	20	9	7	32	7	10	10	100
Services Incidental to Mining	N	48	707	10 460	298	2 658	4 143	414	14 113	352	33 193
	%	0	2	32	1	8	12	1	43	1	100
Diamond Processing*	N										1 776
	%										100
Jewellery Manufacturing*	N										4 894
	%										100
Total**	N	4 391	45 907	102 911	9 978	70 939	96 486	18 204	193 289	5 867	547 973
	%	1	8	19	2	13	18	3	35	1	100

*Not calculated due to insufficient information

**Total includes Diamond Processing and Jewellery Manufacturing

Source: Calculated from MQA data system

2.5.3 Educational profile

The MMS employs large numbers of people with no or very little formal schooling. The educational profile of employees is depicted in Table 2-3. In 2009 48% of the employees in the sector had an educational qualification below NQF Level 1 (the first level on the National Qualifications Framework). At the same time the sector employs very few people with post-school qualifications – just more than 10% of employees.

Table 2-3 Highest educational qualifications of employees in the MMS: 2009

Educational level	N	%	NQF Level	N	%
No Schooling	82 439	15			
Pre-ABET	15 699	3			
Grade 3/ABET 1	27 239	5			
Grade 4	21 561	4			
Grade 5/ABET 2	25 254	5			
Grade 6	26 417	5			
Grade 7/ABET 3	37 448	7			
Grade 8	26 895	5	Below Level 1	262 951	48
Grade 9/ABET 4	32 475	6	Level 1	32 475	6
Grade 10	45 444	8	Level 2	45 444	8
Grade 11	43 167	8	Level 3	43 167	8
Grade 12	109 748	20	Level 4	109 748	20
Diploma/Certificate	42 536	8			
First Degree	7 326	1			
Honours Degree	2 671	0	Levels 5 - 8	52 533	10
Master's/Doctoral Degree	1 655	0	Levels 9 - 10	1 655	0
Total	547 973	100		547 973	100

Source: Calculated from MQA data system

The MQA started to collect information on educational levels in the 2002/2003 financial year (Table 2-4). Since this time significant changes have occurred in the educational profile of the workforce. The percentage of people with educational qualifications below Grade 9 (i.e. people who could possibly benefit from Adult Basic Education and Training (ABET)) decreased from 66.2% in 2002 to 48.9% in 2009.

The proportion of people in the sector with post-school qualifications increased from 4.5% in 2002 to 9.5% in 2009. The percentage of people within the sector with matric increased from 11.5% in 2002 to 19.5% in 2009.

Table 2-4 Highest educational qualifications of employees in the MMS: 2002-2009

Qualification level	2002	2003	2004	2005	2006	2007	2008	2009
	%							
No Schooling	16.3	14.2	20.3	16.9	17.8	19.0	19.0	15.4
Pre ABET	2.8	4.7	4.9	6.0	6.2	3.8	4.6	3.0
STD 1/Grade 3/ABET 1	12.3	5.8	7.7	6.4	7.1	5.6	4.0	5.0
STD 2/Grade 4	7.0	5.3	5.2	4.5	3.2	3.9	4.1	4.1
STD 3/Grade 5/ABET 2	6.7	6.3	6.2	6.4	6.2	4.9	5.2	4.6
STD 4/Grade 6	6.0	5.6	4.9	5.1	5.1	5.5	4.4	4.9
STD 5/Grade 7/ABET 3	8.2	8.4	8.3	7.6	7.3	7.5	7.1	6.9
STD 6/Grade 8	6.9	5.7	4.8	5.3	5.7	5.6	4.8	5.0
Sub-total	66.2	56.1	62.2	58.2	58.8	55.7	53.2	48.9
STD 7/Grade 9/ABET 4	5.6	13.7	5.0	6.2	5.4	6.9	5.8	6.1
STD 8/Grade 10	7.9	7.7	8.0	7.9	8.4	7.5	7.1	8.2
STD 9/grade 11	4.4	4.4	5.2	5.3	5.8	6.4	7.0	7.8
Matric/Grade 12	11.5	12.3	13.5	15.9	15.0	15.9	17.9	19.5
Post-school Qualifications	4.5	5.7	6.1	6.5	6.6	7.6	9.1	9.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Calculated from MQA data system

2.5.4 Race and gender distribution of employees

The majority of employees in the MMS are Black – in 2009 85% of the employees were African and 2% Coloured (Figure 2-4). Whites constituted 13% of employment.

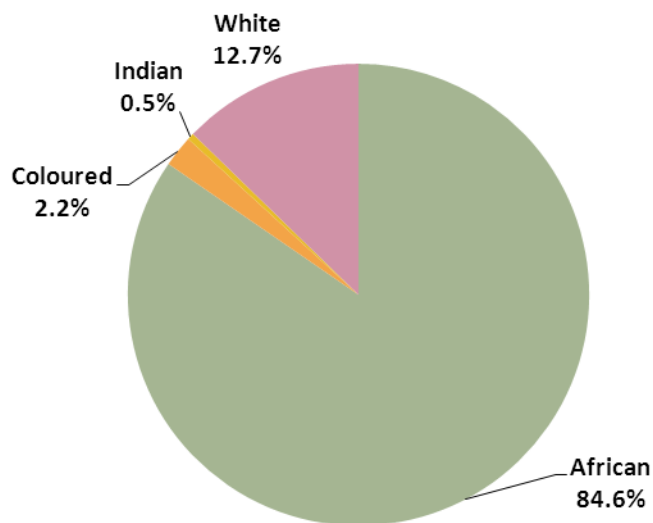


Figure 2-4 Racial distribution of employees: 2009

Source: Calculated from MQA data system

Although Blacks formed the majority of the workers in the sector, they were not equally represented in all the occupational groups. The majority (72%) of managers, 57% of professionals and 41% of technicians and trades workers were White (Table 2-5).

Table 2-5 Racial distribution of employees according to occupational group: 2009

Occupational group		African	Coloured	Indian	White	Total
Managers	N	2 392	364	332	7 881	10 969
	%	22	3	3	72	100
Professionals	N	7 565	641	720	11 895	20 821
	%	36	3	3	57	100
Technicians and Trade Workers	N	42 601	3 620	631	32 120	78 971
	%	54	5	1	41	100
Clerical and Administration Workers	N	15 507	1 687	522	8 907	26 623
	%	58	6	2	33	100
Sales Workers	N	1 157	168	82	665	2 072
	%	56	8	4	32	100
Community and Personal Service Workers	N	6 602	175	25	1 140	7 943
	%	83	2	0	14	100
Machinery Operators and Drivers	N	189 350	3 871	232	4 938	198 391
	%	95	2	0	2	100
Elementary Workers	N	198 324	1 508	82	2 268	202 183
	%	98	1	0	1	100
Total	N	463 499	12 033	2 626	69 814	547 973
	%	85	2	0	13	100

Source: Calculated from MQA data system

In 2009 10% of the employees in the MMS were women – 8% Black women and 2% White women. Almost 19 000 were employed as elementary workers and women formed 9% of the workforce in this occupational group. Another 14 000 were employed as clerical and administrative workers and in this occupational group women constituted 51% of the workforce. Almost 5 000 women were employed as professionals and they constituted 23% of all professionals in the sector. In the occupational group “managers” the sector employed 1 300 women – 12% of the workers in this group. (See Figure 2-5 and Table 2-7.)

Table 2-6 shows the increases in women’s share of employment from 2000 to 2009.¹⁶ In 2000 only 3.2% of the workers were female. This figure tripled to 10.1% in 2009. Information on the number of women employees in the different subsectors is only available from 2002. Increases in the employment of

¹⁶ The Centre for Sustainability in the Mining Industry (CSMI), Coaltech 2020 study (Ashworth G, Molapo M, Molefe N, Schutte S and Malmsey Z, 2004) on ‘Human and social issues influencing the incorporation of women into the mining workforce’ found that women’s participation in the production sections of mining was increasing, albeit slowly. A number of factors limited progress, including challenges pertaining to the physical environment, physiological adjustments and psycho-social adaptation to mining. Progress could be accelerated if the following were addressed: planning for pregnancy and breastfeeding without compromising the basic conditions of employment and rights of team members; making investments in infrastructure that accommodates both males and females (such as ablution facilities and personal protective equipment); and developing an appropriate system to address the manual handling capacity needs of the industry that takes cognisance of the varying physiological needs of men and women.

women occurred in all subsectors (Table 2-6), with the highest percentage increase in the Diamond Processing subsector. The subsectors Diamond Processing and Jewellery Manufacturing have proportionally the largest employment of women (52.4% and 50.5% respectively in 2009), while about 8% of the workforce in Gold Mining, PGM Mining and the subsector Services Incidental to Mining are women.

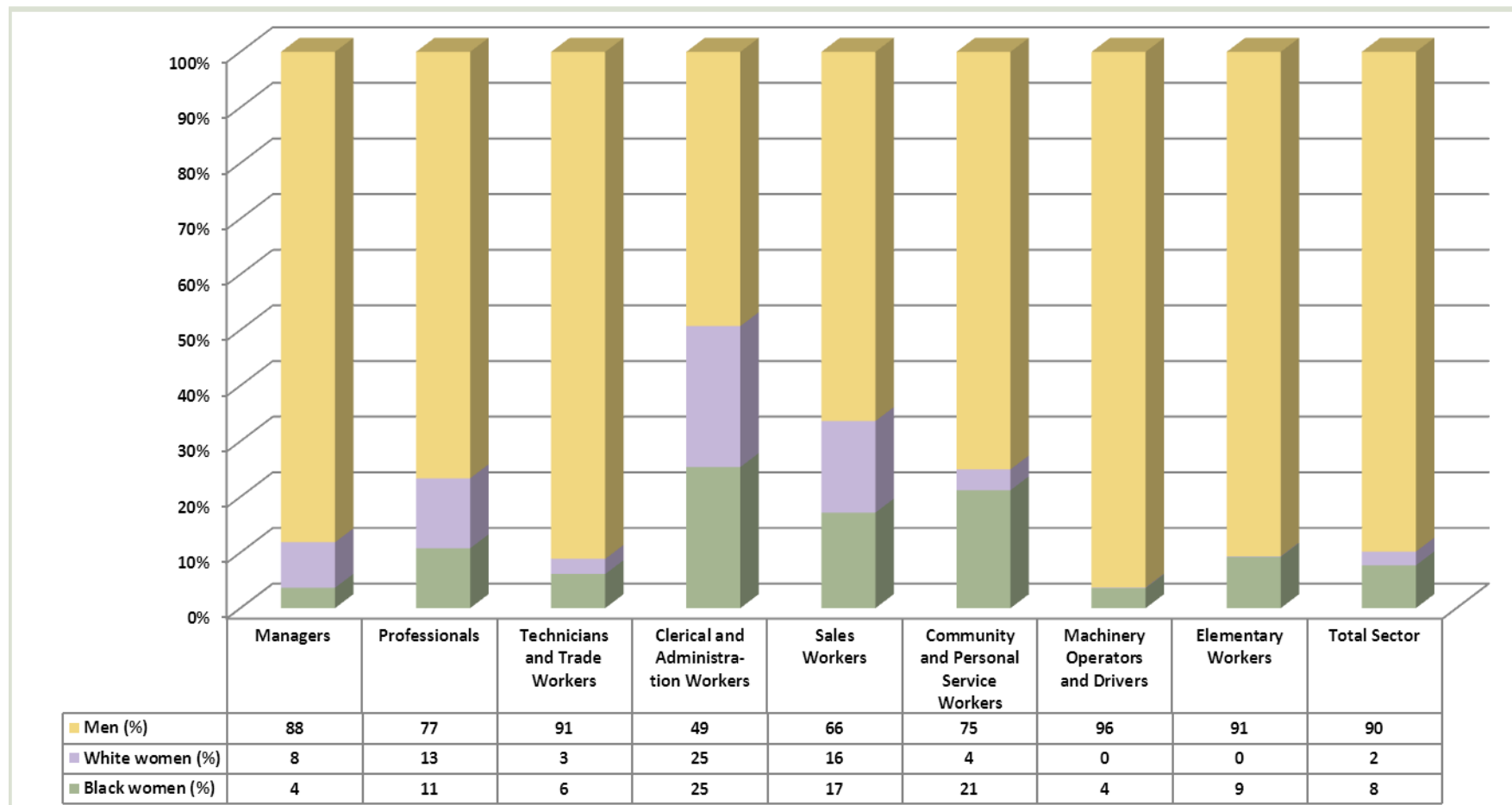


Figure 2-5 Gender distribution by race according to occupational category: 2009

Source: Calculated from MQA data system

Table 2-6 Women employed according to subsector: 2000-2009

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Subsector		Women employed									
Coal Mining	N			2 228	3 038	3 383	3 863	5 729	6 745	8 112	8 848
	%			4.7	6.4	6.7	6.8	8.1	9.5	12.4	12.5
Gold Mining	N			5 430	5 193	6 568	5 422	6 454	9 508	12 945	13 080
	%			2.7	2.6	3.6	3.4	4.0	5.9	7.8	8.2
PGM Mining	N			3 008	3 953	4 872	5 097	8 491	10 400	11 488	15 555
	%			2.7	3.1	3.2	3.3	4.6	5.7	5.7	8.5
Diamond Mining	N			1 318	1 490	1 557	2 930	1 627	1 479	3 543	2 092
	%			8.0	8.1	7.3	13.3	13.5	12.3	19.0	17.4
Other Mining	N			3 634	3 024	2 257	3 714	4 032	4 712	4 022	6 042
	%			10.6	8.3	6.1	9.6	7.6	8.9	7.2	11.5
CLAS	N			910	1 546	1 833	2 749	2 133	969	2 711	3 997
	%			3.5	4.9	5.2	5.7	12.7	9.9	12.0	12.6
Services Incidental to Mining	N			976	1 671	1 758	1 310	1 999	3 002	2 044	2 930
	%			4.6	4.1	4.6	3.3	6.0	6.0	5.7	8.8
Diamond Processing	N			160	724	1 245	638	1 132	1 783	1 479	931
	%			34.4	38.7	45.7	36.7	49.9	64.0	54.1	52.4
Jewellery Manufacturing	N			611	1 984	2 637	2 448	2 530	2 213	1 918	2 470
	%			47.9	55.3	55.3	52.0	47.5	53.4	54.8	50.5
Total	N	12 537	10 602	18 275	22 623	26 110	28 171	34 127	40 811	48 261	55 945
	%	3.2	3.6	4.0	4.5	5.0	5.3	6.4	7.5	8.5	10.1

Source: Calculated from MQA data system

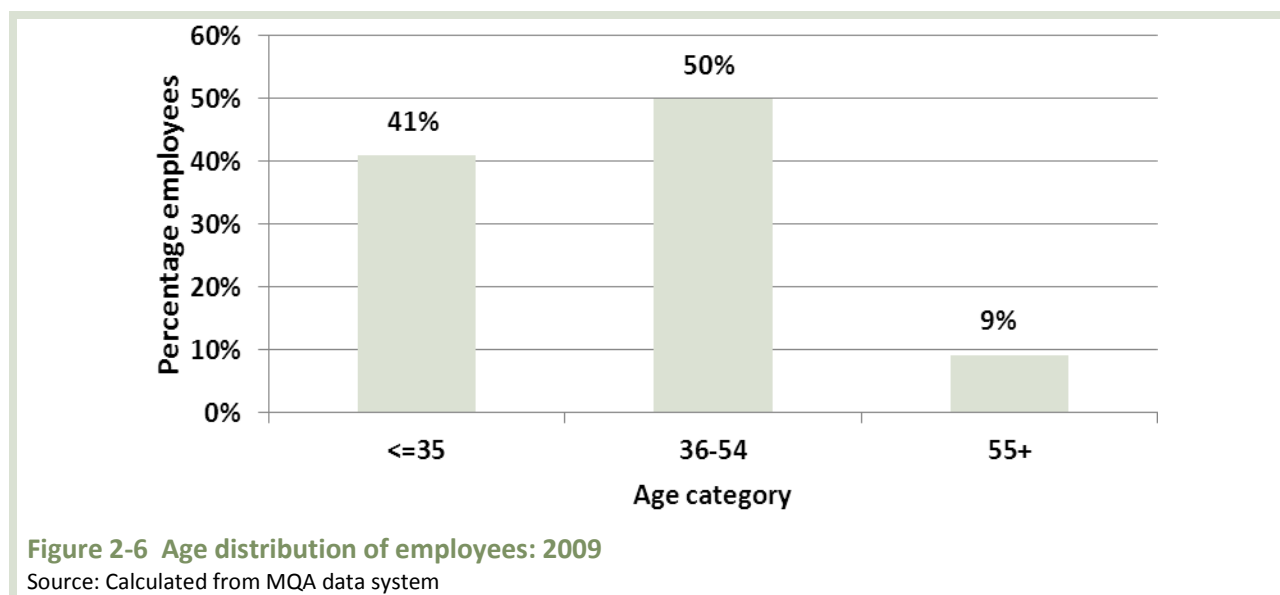
Table 2-7 Gender distribution of employees according to occupational group: 2009

Occupational group	Male		Female		Total	
	N	%	N	%	N	%
Managers	9 669	88	1 300	12	10 969	100
Professionals	15 969	77	4 852	23	20 821	100
Technicians and Trade Workers	71 962	91	7 010	9	78 971	100
Clerical and Administration Workers	13 122	49	13 501	51	26 623	100
Sales Workers	1 379	67	693	33	2 072	100
Community and Personal Service Workers	5 962	75	1 981	25	7 943	100
Machinery Operators and Drivers	191 004	96	7 387	4	198 391	100
Elementary Workers	183 366	91	18 816	9	202 183	100
Total	492 433	90	55 540	10	547 973	100

Source: Calculated from MQA data system

2.5.5 Age distribution of employees: 2009

The age distribution of employees in the MMS can be seen in Figure 2-6. In 2009 half of the total number of employees were between 36 and 54, 41% were 35 or younger, and 9% were 55 or older.



2.5.6 Disability

Most of the work in the MMS is of a strenuous physical nature and the opportunities for the employment of people with disabilities in certain occupations (especially those on the mining sites) are limited. However, some of the professional, clerical and administrative positions in mining and positions in the non-mining subsectors such as Diamond Processing and Jewellery Manufacturing lend themselves to the employment of people with disabilities. In 2009 the sector employed almost 3 500 people with

disabilities – 0.7% of total employment (Table 2-8). The subsector with the highest employment of people with disabilities was PGM Mining, with people with disabilities constituting 1.1% of total employment.

Table 2-8 People with disabilities according to subsector: 2009

Subsector	People with disabilities	People with disabilities as Percentage of employment
Coal Mining	338	0.5
Gold Mining	574	0.4
PGM Mining	2 093	1.1
Diamond Mining	44	0.4
Other Mining	143	0.3
CLAS	146	0.5
Services Incidental to Mining	55	0.2
Diamond Processing	7	0.4
Jewellery Manufacturing	31	0.6
Total	3 431	0.7

Source: Calculated from MQA data system

2.6 CHARACTERISTICS OF THE SECTOR

2.6.1 Regulation of the sector

The MMS is highly regulated with a myriad policies and pieces of legislation regulating the functioning of organisations in the sector. The most important of these are the MHSA and the MPRDA.

The MHSA and its regulations prescribe, among other things, the competency requirements of people performing certain functions in the mining industry. Some of the certificates of competency are currently issued by the DMR and mines are obliged to have people with the required certificates in their service in order to retain their mining licences.

The MQA is also responsible for the development and registration of qualifications that provide the necessary competency levels and for the certification of people who have reached the required competency levels.

The MPRDA determines that mineral rights vest in the State and that organisations that wish to engage in or continue with mining activities have to apply for mining licences with the DMR. This means that mining companies have to comply with the requirements set by the DMR in order to secure or to retain mining rights.

The MPRDA also determines that all mining operations have to comply with the National Environmental Management Act (Act 107 of 1998) and that they are responsible for the management of the

environmental impact of their activities and for the rehabilitation of the environment. Environmental management and rehabilitation is, therefore, an important issue in skills development in the sector.

Another important provision of the MPRDA is the establishment of the Minerals and Mining Development Board, which has, as one of its functions, to ensure (in consultation with the MQA) the development of the human resources of the MMS.¹⁷

2.6.2 Labour organisation

The workforce of the MMS, particularly in mining, is largely unionised. The union with the largest membership is the National Union of Mine Workers (NUM). Other unions active in the mining industry include the United Association of South Africa (UASA) and Solidarity (as well as a few others). The most active union in the jewellery industry is the Jewellers and Goldsmiths Union (which is currently active only in the Western Cape).^{18,19}

2.6.3 Employer organisation

Employers in the MMS are equally well organised. The largest employer organisation is the Chamber of Mines, which represents most of the large mining companies. Many employers in the CLAS subsector belong to the Aggregates and Sand Producers Association of Southern Africa (ASPASA), while many of those in the Diamond Processing subsector belong to the Diamond Council. The Jewellery Council is the largest employer organisation in the Jewellery Manufacturing subsector.

2.6.4 Professional organisations

The professionals working in the sector are affiliated to various professional **associations and** bodies and many belong to voluntary professional associations. The professional bodies play important roles in skills development in the sector and close relationships exist between them and the MQA.

2.6.5 Geographic location

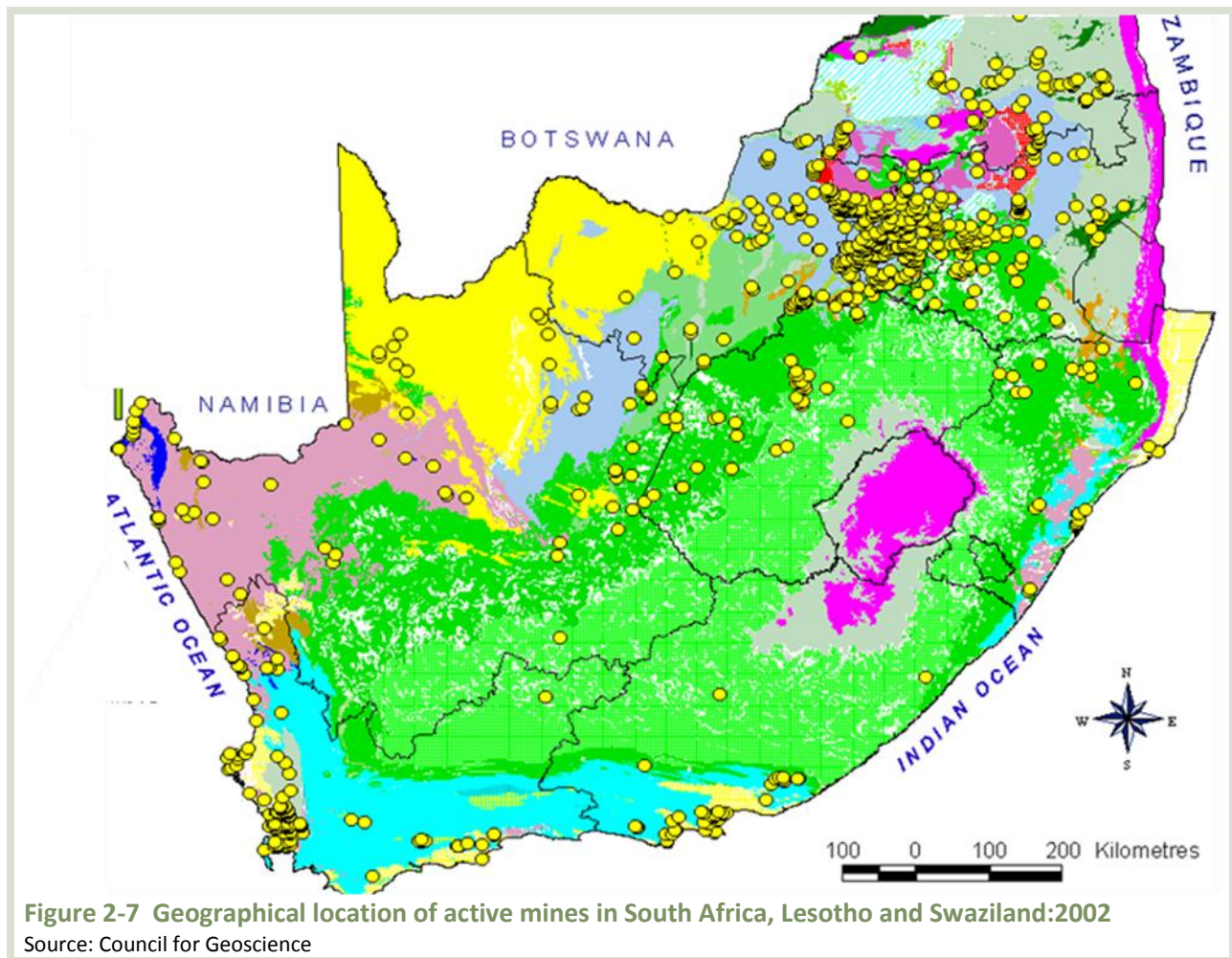
The geographical location of active mining operations in South Africa, Lesotho and Swaziland can be seen in Figure 2-7. The map clearly shows the high concentration of mines in the northern part of the country. Although Gauteng, which has a very high concentration of mining operations, is for the most part urbanised, mining operations are mostly situated in the rural areas of the country and in many instances villages and towns have developed as a result of and around mining operations. This has caused the development of close relationships between mines and the surrounding communities. The mining industry also has a long history of involvement with local communities. Information from the WSP submissions show that in the 2008/2009 financial year, 93 organisations in the sector provided

¹⁷ Minerals and Petroleum Development Act (Act 28 of 2002) Section 58.

¹⁸ Information provided by the Jewellery Council of South Africa.

¹⁹ At the time of writing this report statistical information on membership of the various unions was sought, but complete and reliable information could not be obtained in time.

support to 278 skills development projects or programmes. These organisations together reached over 86 000 people through their community programmes. The HIV/AIDS awareness programmes had the largest reach (over 40 000 people benefited). Over 15 000 people benefited from programmes that supported schools and learners at school level, while just over 10 000 people benefited from career guidance programmes.²⁰ Many of these programmes formed part of organisations' Social and Labour Plan contributions.



The geographic location of mining operations has many implications that need to be taken into consideration in skills planning:

- In many areas mines are the main employers and through their involvement with local communities they play an important role in the development of rural areas;
- Small towns and rural communities are seriously affected when mining operations close down; and

²⁰ EE Research Focus, Analysis of the WSP and ATRs submitted to the MQA Year 2008/2009.

- Because of their location mining operations are often not a first choice for new entrants to the labour market.

The implication of this last point is that the sector is left in an uncompetitive situation – especially in occupations that require high levels of skill and where there are general shortages in the country.

2.6.6 Small-scale mining

Although most of the mining operations are large, small-scale mining also forms an important part of the sector. Small scale mining activities have grown considerably since 1994, and includes both men and women operators of a diverse racial profile. In South Africa, small-scale mining is defined, on the basis of the guidelines provided for in the National Small Business Amendment Act, 2003, as a mining activity that employs fewer than 50 people, that has an annual turnover of less than R7.5 million, and that has a gross asset value of less than R4.5 million. However as entities do not fit neatly into this category, classification is often difficult.²¹

Opportunities for small-scale mining in South Africa fall into two broad categories: the mining and quarrying of high-bulk, low-value industrial minerals and construction materials,²² and the mining of relatively high-value minerals including gold, alluvial diamonds and precious stones, as well as coal. However, 90% of small-scale mining ventures are associated with industrial commodities such as slate, sand, clay, sandstone, dolerite and granites for the production of products for construction and infrastructure such as tiles, clay and cement bricks, aggregates, and dimension stone for cladding.

The MPRDA supports the development of the small scale-mining sector through a number of provisions that include technical and financial assistance to the subsector, access to historic classified information, a special permit regime, and preference to HDSAs. Other support to operators in the sector from the Department of Finance comes in the form of tax incentives for small businesses, and from the Department of Trade and Industry through support for education and training and special interest rates on capital loans for small businesses of HDSAs.²³

Despite this, specific challenges faced in supporting the small-scale mining sector in South Africa are:

- To provide research and development support for the small-scale mining sector;
- To equip small scale-mining operators with the requisite expertise, capacity and skills;
- To facilitate small-scale miners' access to finance;
- To ensure the orderly and sustainable exploitation of deposits;

²¹ MQA-CSMI, Small Scale Mining Colloquium, Johannesburg, South Africa – Report and Analysis of Outputs, September 2010.

²² South Africa has abundant resources of aggregate and sands. There are two types of aggregates: (i) fine sand and aggregate and (ii) manufactured sand (milled or crushed rock) and coarse aggregate. The former results from weathering and disintegrating of rocks and is used mainly as building sand, while the latter, which comprises fresh and un-weathered crushed rock, is extensively used in the concrete, road and other pavement construction industries. All South Africa's provinces produce aggregate and sand from different rock types.

²³ Cawood F, 2005, Social change through mineral law in South Africa. Paper presented at the Annual Mining Seminar organised by the Centre for Energy, Petroleum and Mineral Law & Policy, University of Dundee, and held in the Natural History Museum, London, 21st June 2005.

- To ensure that all small-scale miners become compliant with Section 28 of the MPRDA in terms of the submission of data on a monthly basis for statistical recording; and
- To document the contribution of small scale mining to the total mining sector.

The DMR has developed a draft National Small-Scale Mining Strategy, through which it hopes that a number of challenges that are faced by the small-scale mining sector can be met. A comprehensive implementation plan has since been drafted and, once the strategy and its implementation have been approved, the implementation plan will be used to address all the challenges.²⁴ The MQA will play a key role in the development of expertise, capacity and skills. Skills development will invariably also have an indirect impact on the other challenges faced by small-scale miners, such as becoming compliant with legislation.

2.6.7 Migrant labour

The MMS uses large numbers of foreign workers. Table 2-9 shows the countries of origin and the total number of migrant workers brought to South Africa by TEBA (The Employment Bureau of Africa Limited). As the table shows, the majority of migrant workers are from Mozambique and Lesotho. The table also shows the marked decline since 1996 in the number of foreign workers employed.

The MQA required employers who submitted WSPs in 2009/2010 to provide information on the number of foreign nationals that they employed. Based on this information it was estimated that in March 2009 the sector employed approximately 77 000 non-South Africans – 14% of the total workforce.²⁵ The largest employer of foreign workers is the Gold Mining subsector – 29% of its total workforce (Table 2-10). In the Mining Charter stakeholders in the MMS undertook to ensure that no discrimination occurs against foreign migrant workers. This implies that these workers are entitled to the same training and development opportunities as local workers.

²⁴ Input from the Department of Mineral Resources.

²⁵ The difference in the number of foreign migrant workers reported by TEBA and those reported in the WSPs can probably be attributed to the fact that TEBA reports on the total number of foreign workers placed in a particular year, while employers reported on the total number of foreign workers employed at a particular point in time (i.e. on 31 March 2009).

Table 2-9 Foreign migrant workers employed in the SA Gold, Platinum and Coal Mines: 1996-2007

Year	Swaziland	Mozambique	Lesotho	Botswana	Total
1996	14 371	55 022	81 357	7 932	158 682
1997	12 960	55 027	76 360	7 536	151 883
1998	10 338	52 011	60 450	6 223	129 022
1999	9 307	46 890	52 436	5 130	113 763
2000	8 160	44 014	51 351	4 343	107 868
2001	7 794	45 254	49 599	3 651	106 298
2002	8 587	50 589	54 390	3 551	117 117
2003	7 885	52 205	54 202	4 246	118 538
2004	7 521	48 099	48 437	3 923	107 980
2005	6 878	46 256	43 693	3 257	100 084
2006	7 124	46 709	46 082	2 992	102 907
2007	7 099	44 879	45 608	2 845	100 431
2008	6 397	43 004	42 851	2 654	94 906
2009	5 855	39 090	38 559	2 357	85 861

Source: TEBA, 2010

Table 2-10 Non-South African citizens in the MMS: 2009

Subsector	Non South Africans			% of total employment
	Male	Female	Total	
Coal Mining	2 384	22	2 406	3
Gold Mining	45 111	594	45 705	29
PGM Mining	19 037	14	19 051	10
Diamond Mining	179	8	187	2
Other Mining	2 949	6	2 956	6
CLAS	486	10	496	2
Services Incidental to Mining	5 688	19	5 707	17
Diamond Processing	3	0	3	0
Jewellery Manufacturing	88	22	110	1
Total	75 926	695	76 621	14

Source: Calculated from MQA data system

The MMS also uses migrant workers from other parts of the country – specifically from the Eastern Cape. This migrant labour system has created a unique relationship between the MMS and labour-sending areas. Many areas that are situated far from mining activities are essentially dependent on the MMS for economic survival. These areas are severely affected by the contraction of the MMS. This in

turn has extended the mining companies' social responsibility to these areas – especially if they are in South Africa. In the Mining Charter stakeholders, in partnership with all spheres of Government, undertook to co-operate in the formulation of integrated development plans for communities where mining takes place and for major labour-sending areas, with special emphasis on development of infrastructure.²⁶

2.6.8 Outsourcing and subcontracting of labour

Similar to global trends in employment, roughly one third of all people working in the mining industry are now employed through a non-standard employment contract.²⁷ The majority of these are employed by labour brokers, to whom the mines have outsourced or subcontracted a portion of their labour requirements, and with whom the mines have commercial contracts. Subcontracting firms range all the way from larger, established contractors employing over 1 000 workers to micro-enterprises employing between one and 100 people.

While labour subcontracting is not a new phenomenon in the industry, it has increased substantially since the 1990s. Surface mine work that tends to be subcontracted includes 'non-core' functions such as catering, cleaning, security, and building construction and maintenance. Subcontracting of 'core' underground work includes specialised work, such as shaft sinking, as well as general mining activities where contractors either mine certain shafts or parts of shafts, or work in integrated teams alongside permanent employees. And while labour unions' concerns around labour subcontracting relate to issues such as lower pay, more dangerous work, and limited or no access to social benefits such as sick-leave and death benefits, employers point to the challenges of maintaining profitable operations in uncertain market conditions as a key reason for using subcontractors. In addition, as many subcontractors are BEE companies, this has a positive impact on employers' BEE compliance scores.²⁸

2.6.9 Language use

As a consequence of the fact that the MMS uses large numbers of migrant workers, the industry is faced with the challenge of accommodating people from different language groups in the same work environment – some of them foreign workers who have little command of any of the South African languages. This led to the introduction of a pidgin, Fanakalo, into the mining industry.

The language diversity poses many challenges to the MMS and the MQA. The challenges relate to the language(s) used in the preparation of learning materials, the offering of training and assessment, and particularly in the offering of literacy and numeracy training and ABET. The MQA is currently considering how to address such challenges.

²⁶ Mining Charter, Section 4.4.

²⁷ A standard contract of employment refers to: a *full-time* contract of employment of *indefinite duration* for work that is performed at the *premises of the employer*. Part-time work, fixed-term contracts, casual work or piece, or work that is arranged through a third party such as a labour broker, are all forms of non-standard employment to which implies that the employment contract is no longer subject to regulation by the state or other agencies such as the unions.

²⁸ Bezuidenhout A. Chapter 7 New Patterns of Exclusion in the South African Mining Industry, in *Racial Redress and Citizenship in South Africa*, HSRC Press, 2008.

2.6.10 HIV and AIDS

In 2009 Statistics South Africa estimated that the overall prevalence of HIV and AIDs in the South African population was 10.6%.²⁹ Studies show that the prevalence in the mining industry is markedly higher – 27% in gold mining and 24.6% in platinum mining.³⁰ In 2005 the DMR estimated that 24 % of the mining industry's workers were living with HIV and AIDS.³¹

Mining is a high-risk environment. The use of migrant labour, single-sex hostels and the severing of family structures contribute to the spread of the infection. The hard physical work required of mine workers plus the risk of occupational disease may speed the onset of illness among HIV-positive workers.³²

In 2008 the DMR reported that most of the large mines have been implementing awareness and wellness programmes to improve the situation with regard to HIV and AIDS and to curb infection rates, which have a profoundly negative impact on labour productivity. Most of the mines are also administering anti-retroviral medication to boost the health status of infected workers.³³ The availability of anti-retroviral medication may prevent sectoral mortality rates from surging far above the national mortality rates.

2.6.11 Occupational diseases

Tuberculosis (TB), Noise-Induced Hearing Loss and Silicosis are the main occupational health challenges faced by the mining industry.³⁴

According to the DMR, the incidence of TB is also higher than the national average and this is fuelled by the surge in HIV and AIDS co-infection. The bigger mines have good TB programmes but the emergence of drug-resistant strains is making control of TB much more difficult. Living conditions in some of the mines also contribute to the scourge of TB.³⁵

The monitoring and reporting of occupational diseases, the keeping of reliable statistics and the monitoring of trends in the incidence of occupational diseases are major challenges facing the mining industry, along with the need to raise awareness, change human behaviour that leads to excessive exposure, and to provide enough well trained occupational health and safety professionals.³⁶

²⁹ Statistics South Africa, Mid-year Population Estimates, 2009.

³⁰ Rees D, Murray J, Nelson G, Sonnenberg P. Oscillating Migration and the Epidemics of Silicosis, Tuberculosis, and HIV Infection in South African Gold Miners, Published online in Wiley InterScience, www.interscience.wiley.com.

³¹ Chamber of Mines, Bringing the Underground AIDs Fight to Surface, [www/http.bullion.org.za](http://http.bullion.org.za), published 2003/06/20.

³² Department of Minerals and Energy, Annual Report of the Mine Health and Safety Inspectorate 2004/2005.

³³ Department of Minerals and Energy, Annual Report of the Mine Health and Safety Inspectorate 2007/2008.

³⁴ Department of Minerals and Energy, Annual Report of the Mine Health and Safety Inspectorate 2007/2008.

³⁵ Department of Minerals and Energy, Annual Report of the Mine Health and Safety Inspectorate 2007/2008.

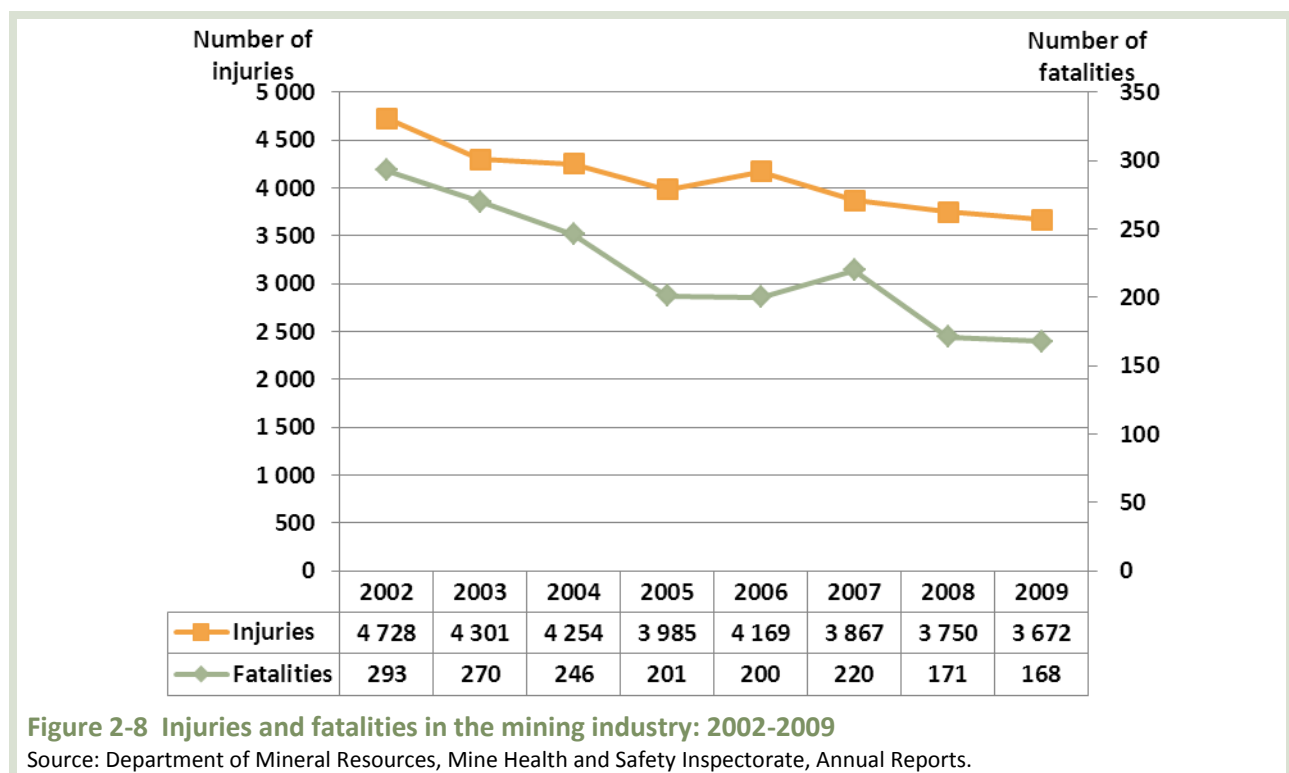
³⁶ Views expressed by a representative of the Mine Health and Safety Council.

2.6.12 Mine accidents and fatalities

Mining is an inherently risky activity and the industry worldwide has a record of recurring accidents (and occasional disasters). South Africa has very large, deep and labour-intensive mines. In the early 1990s, mainly as a result of pressure exerted by the National Union of Mineworkers (NUM), the Leon Commission of Enquiry into Mine Health and Safety was established. The resulting report led to the establishment of a new legal and regulatory environment governing health and safety (including the **MHSA**), as well as tripartite (government/labour/employer) structures and processes for implementation. The report also increased the pressures on companies and management to improve the health and safety record of the industry.

At the Mine Health and Safety Summit of 2003, it was decided that it was imperative that the safety statistics of the South African mining industry become comparable with international trends. The then Department of Minerals and Energy (DME), employers and labour reached an agreement to implement new fatality milestones based on the fatality rates of Australia, the United States of America and Canada at that time. This required a 20% decline in the accident and fatality statistics of the South African mining industry per year.³⁷ Mine health and safety summits have been held more or less every two years since 2003 and role players remain committed to the improvement of the health and safety record of the industry.

As Figure 2-8 shows, there was indeed a marked decline in the number of injuries between 2002 and 2009. Fatalities also declined from 293 in 2002 to 168 in 2009.



³⁷ Department of Minerals and Energy, Annual Report of the Mine Health and Safety Inspectorate 2007/2008.

Mine health and safety audits were ordered by former President Thabo Mbeki after 3 200 workers were trapped underground at gold producer Harmony Gold's Elandsrand mine in 2007. The DMR completed audits on 250 of about 333 high-risk mines and in its report it identifies numeracy and literacy as fundamental requirements for skills transfer and maintains that the lack of these skills among nearly one quarter of the employees is an obstacle to communication and effective health and safety training.³⁸

Mine health and safety summits have become regular events in the industry. The last summit was held in September 2008. At this summit the participants once again committed themselves to the improvement of the health and safety situation in South African mines. Various targets were set and an important part of the declaration signed at the summit is the development of a learning industry. The MQA was specifically tasked with the improvement of the Occupational Health and Safety (OHS) skills capacity in the industry, by reducing the rate of illiteracy and increasing the human resources supply in scarce skills areas that are critical to OHS.³⁹

Mine safety remains a very important issue for the MMS and safety-related training will remain prominent on the MQA's agenda. In 2009 the MQA undertook a research project in which, among other things, a selection of MQA qualifications were evaluated in terms of their coverage of the relevant health and safety issues.⁴⁰ The shortcomings identified are in the process of being corrected and the MQA will continue with the evaluation of qualifications in order to ensure that the competencies necessary for and the attitudinal aspects of health and safety are sufficiently covered.

Various of the research reports commissioned by the MHSC were also analysed as part of this project and several of them suggested that the attitudinal component of learning is neglected in health and safety training and that this results in workers in the industry having poor attitudes towards health and safety – even though they may have a fair understanding of health and safety requirements. The reports emphasised the need for the development of a “Culture of Safety” in the MMS. The MQA needs to support the development of such a culture in the planning period covered by this SSP.

2.6.13 Environmental impact

Although mining is an important industry and employment creator in South Africa, it has also been noted for its environmental footprint, which ranges from biodiversity loss (due to habitat destruction) to air, land and water pollution. The issue of current and future acid mine drainage from deserted gold mines across the Witwatersrand area is currently causing major concern.⁴¹

Developing South Africa's natural resources in a way that is sustainable and does not degrade environmental quality in an unwarranted manner are State priorities reflected in the National Sustainable Development Framework. Legislation exists for environmental impact assessments (to

³⁸ Department of Minerals and Energy, Presidential Mine Health and Safety Audit. Undated.

³⁹ Mine Health and Safety Council, Mine Health and Safety Tripartite Leadership Summit, 5 September 2008.

⁴⁰ EE Research Focus, Mine Health and Safety – an Exploratory Study, March 2010.

⁴¹ Mail&Guardian, Rising water, rising fear: SA's mining legacy. Part 1 in a series on acid mine drainage. Vol 26, No 43, November 12 to 18, 2010.

inform new developments), waste stream reduction and pollution control, rehabilitation of mined areas and the restoration of spent mines.⁴² The mining industry has to comply with this legislation and therefore needs to develop and cultivate the skills necessary for environmental management.

In addition, there is a growing demand for diligent sustainability reporting. Global reporting standards increasingly integrate sustainability practices into their criteria for best practice, and the King III report argues strongly for the full integration of environmental considerations with the economic and social aspects of sustainability. Companies in the mining sector need to become involved in sustainability reporting and they need the associated skills.

2.7 TRANSFORMATION OF THE SECTOR

2.7.1 Mineral rights and mine ownership

Mineral rights and ownership are regulated through the MPRDA. The MPRDA very strongly emphasises the State's custodianship of mineral and petroleum resources and Government's intention to ensure that these resources are utilised in the best interest of the country and its people. The MPRDA also gives effect to Government's intention to transform the MMS – especially in terms of providing access to HDSAs and spreading the benefits of mineral and petroleum resources in a more equitable manner.⁴³

Despite this legislation a study commissioned by the South African Mining Development Association published in April 2010 revealed that the gross value of Black shareholdings was 5,27% of the total R1,8-trillion market capitalisation of the Johannesburg Securities Exchange's (JSE) top 25 mining firms. This report more or less confirms the findings of a draft Government review of the Mining Charter, which was completed in October 2009 and found that Blacks still owned only about 9% of the R2-trillion net assets of the mining industry.⁴⁴

The implication is that a renewed emphasis on Black ownership can be expected in the next decade or over a longer term and that the need for the development of appropriate mining and business skills for new entrants to the sector will intensify.

2.7.2 Black economic empowerment and employment equity

Closely linked to the need for transformation of ownership is the issue of Black economic empowerment and employment equity. Since 1994 a number of Acts pertaining to social transformation, the eradication of the effects of previous discriminatory legislation and practices, Black economic empowerment and employment equity have been promulgated. These include, for example, the Employment Equity Act (Act No 55 of 1998), the Preferential Procurement Framework Act (Act No 5 of 2000) and the Broad-Based Black Economic Empowerment (BEE) Act (Act No 53 of 2003).

⁴² Department of Environmental Affairs, Integrating the Environmental Driver into Sector Skills Plans: an Enabling Document for all SETAs, July 2010.

⁴³ Republic of South Africa, Mineral and Petroleum Resources Development Act, (Act 28 of 2002), Section 2.

⁴⁴ Mopfo, B. *Black share of mine ownership 'remains small'*, Business Day, 23 April 2010.

2.7.3 The Mining Charter and Codes of Good Practice

In addition to this legislation, the MPRDA required the development of a broad-based socio-economic empowerment charter that would set the framework, targets and timetable for affecting the entry of HDSAs into the mining industry. As a consequence, the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry (Mining Charter) was developed in 2002 and was – after an intense consultation process with Government, employers and organised labour– accepted by Parliament in October 2002. The Charter covers a wide range of areas for transformation. These areas include human resources development, employment equity, migrant labour, mine community and rural development, housing and living conditions, procurement, ownership and joint ventures, beneficiation, licensing and financing. The Charter specifies mechanisms and targets for human resources development.

The original Charter made provision for its revision and in 2009 a review of the Charter was undertaken.⁴⁵ Following the review, the stakeholders signed a declaration on a “Strategy for the Sustainable Growth and Meaningful Transformation of South Africa’s Mining Industry”.⁴⁶ This was followed in September 2010 by the acceptance and publication of an amended Charter.⁴⁷ The vision of the amended Charter is to facilitate sustainable transformation, growth and development of the mining industry. According to the amended Charter, “sustainable development” refers to “the integration of social, economic and environmental factors into planning, implementation and decision making, to ensure that the petroleum and mineral resources development serves present and future generations”.⁴⁸

The declaration contains 13 different commitments, most of which are also reflected in the amended Charter. Several of the declaration’s commitments and the requirements of the amended Charter have a direct bearing on skills development and on the work of the MQA. The most important of these are highlighted below.

First of all, in the declaration the parties agreed to conduct at least two skills audits by 2014 and assess institutional and organisational absorptive capacity by no later than December 2010. Skills audit is an area that the MQA is already involved in and it plans to provide assistance to employers with the implementation of this undertaking.

Secondly, the amended Charter retains an objective of 26% HDSA ownership of mines by 2014.

⁴⁵ Department of Mineral Resources, Mining Charter Impact Assessment Report, October 2009, http://www.dmr.gov.za/Policie_And_Promotion/Documents/Documents/Mining_Charter_Impact.pdf, Accessed 22 September 2010.

⁴⁶ Department of Mineral Resources, Stakeholders’ Declaration of Strategy for the Sustainable Growth and Meaningful Transformation of South Africa’s Mining Industry, 2010.

⁴⁷ Department of Mineral Resources, Amendment of the Broad-Based Socio Economic Charter for the Mining and Minerals Sector, September 2010, http://www.dmr.gov.za/Policie_And_Promotion/Documents/Documents/Amended_of_BBSEE_Charter.pdf, Accessed 22 September 2010.

⁴⁸ Department of Mineral Resources, Amendment of the Broad-Based Socio Economic Charter for the Mining and Minerals Sector, September 2010, page v, http://www.dmr.gov.za/Policie_And_Promotion/Documents/Documents/Amended_of_BBSEE_Charter.pdf, Accessed 22 September 2010.

Thirdly, mining companies are bound to invest a percentage of annual payroll in all skills development activities, but excluding the mandatory skills levy, as follows:

Target for 2010 – 3%

Target for 2011 – 3.5%

Target for 2012 – 4%

Target for 2013 – 4.5%

Target for 2014 – 5%

Stakeholders also undertook to ensure that mechanisms for directing the mandatory skills levy are in place, efficient and effective. Human resources development is clearly regarded as one of the cornerstones of the transformation that needs to be brought about by the Mining Charter. In the scorecard that accompanies the Charter human resources development carries a weight of 25%.⁴⁹

The implication of the increased spending on training is that the MQA has to ensure that the necessary programmes are in place, that there is a sufficient supply of accredited providers, and that all training that takes place is quality assured.

Fourthly, in terms of employment equity, companies are bound to the following:

- To create an environment conducive to promoting and encouraging diversity in order to increase and retain requisite skills;
- To ensure demographic representation of HDSAs with a minimum target of 40% by 2014 in each of the following occupational categories:
 - Top Management (Board)
 - Senior Management (Exco)
 - Core and Critical Skills
 - Middle Management
 - Junior Management
- To identify and fast-track their existing talent pools to ensure high-level operational exposure in terms of career path programmes.

Employment equity is also an important aspect of the Charter and carries a total weight of 16% on the scorecard. The employment equity targets necessitate a greater emphasis on the development of Black managers and the development of HDSAs in occupations that are regarded as core and critically important to mining operations.

⁴⁹ Department of Mineral Resources, Scorecard for the Broad-Based Socio Economic Charter for the South African Mining Industry, http://www.dmr.gov.za/Policy_and_Promotion/Documents/Documents/Scorecard/scorecard.pdf, Accessed 22 September 2010.

Fifthly, the amended Mining Charter places great emphasis on the sustainable development and growth of the mining industry. In this regard the mining companies are bound to:

- Improve the industry's environmental management;
- Improve the industry's health and safety record by, among other things, providing all employees with health and safety training and by requiring all contractors to provide their employees with such training; and
- Enhance the capacity and skills in relevant South African research and development facilities in order to ensure quality, quick turn-around, cost effectiveness and integrity of such institutions.

The focus of the Charter on environmental management places the development of environmental management and related skills on the MQA's skills development agenda. The importance of health and safety training and the role that the MQA has to play in this regard was mentioned in Section 2.5. The Charter requirements underscore the importance of health and safety in the skills development agenda of the MQA.

The Mining Charter Scorecard is attached to this SSP as Appendix 5.

In addition to the above-mentioned initiatives to transform the mining industry, the Government developed a set of Codes of Good Practice for the Minerals Industry, which was gazetted in April 2009. The Codes cover the following:

- Ownership
- Management control
- Employment equity
- Human resources development
- Preferential procurement
- Mine community and rural development
- Beneficiation and
- Housing and living conditions standards.

The publication of the Codes sparked some controversy as to its constitutionality and coherence with the Mining Charter. However, it is important to note that Section 3 of the Code implies that failure to comply with provisions of the Mining Code will make the mining rights of the holder concerned vulnerable to suspension or cancellation by the Minister in terms of Section 47 of the MPRDA.⁵⁰

2.7.4 Social and Labour Plan

Another way in which the MPRDA ensures the effective transformation of the mining industry is by legally requiring applicants to submit a Social and Labour Plan before prospecting and mining rights are granted.

⁵⁰ Wait M. *Codes of good practice clash with Mining Charter*, Business Day, 13 November 2009.

A Social and Labour Plan requires applicants to develop and implement:

- Comprehensive human resources development programmes that will promote employment and the advancement of the social and economic welfare of the workers;
- Local economic development programmes that focus on how the mine or production operation will address the socio-economic needs of the area within which it operates and the area from where it sources its workforce; and
- Processes to address situations that may negatively affect the employment of workers – i.e. processes that will mitigate the effect of possible downscaling or job losses at the operation.⁵¹

As regards the second of these points, the programmes should be initiatives over and above the social investment that companies have been involved with all along and have to focus on what the mine or production operation would leave behind.

Applicants also have to submit annual reports on the implementation of their social and labour plans to the DMR in order to retain their mining licences.

Thus the Social and Labour Plan aims to ensure that organisations in the MMS are deeply involved in rural development.⁵²

2.8 CONCLUSIONS

This sector analysis gives an overview of the MMS from the perspective of the MQA and highlights certain aspects of the sector that are important from a skills development perspective.

The South African MMS, with a total employment of roughly 548 000 at the end of 2009, is divided by the MQA into 9 subsectors – coal mining; gold mining; PGM mining; diamond mining; other mining; cement, lime, aggregates and sand (CLAS); services incidental to mining; diamond processing; and jewellery manufacturing. Firms range within each subsector from very large organisations, with up to 50 000 employees, to very small companies with just one or two people employed. The PGM and Gold Mining subsectors have the largest concentration of very large organisations and together contribute to about 62% of employment in the sector. The Services Incidental to Mining subsector has the largest concentration of small companies, while small scale mining activities are concentrated in the CLAS subsector. For the MQA it is important to attend to the needs of both large and small firms.

The MMS has a significant presence in six provinces: North West, Gauteng, Mpumalanga, Limpopo, Free State and Northern Cape. In the last of these provinces the employment numbers are relatively small (compared to employment in the other provinces), however this province has the greatest concentration of people employed in the Diamond Mining subsector and mining plays an important role in the provincial economy. It is thus important for the MQA to consider linkages with the economic growth strategies of these provinces that are important to the MMS.

⁵¹ Department of Mineral Resources, http://www.dme.gov.za/minerals/minreg_social.stm, Accessed 1 June 2010.

⁵² Awaiting more information on the implementation of the Social and Labour Plan from the DMR.

The MMS employs large numbers of people with no or very little formal schooling. However, many have years of experience in the mining industry. The sector therefore retains responsibility with regard to ABET and the recognition of prior learning (RPL). The language diversity of the MMS poses specific challenges to the training environment, with research currently underway on how best to deal with this.

Most of the employees in the MMS are men. One of the objectives of the Mining Charter is to increase the participation of women in the sector. Although the analysis of employment trends shows that the percentage of women in the sector has increased over the last ten years, it is likely that new targets will be set in future. This means that the MQA will continue to target women in its skills development programmes.

The MMS is a highly regulated sector with a myriad of policies and pieces of legislation regulating the functioning of organisations in the sector. The most important of these are the MHSA and the MPRDA, the latter of which requires compliance with the National Environmental Management Act (Act 107 of 1998).

The MMS is also highly organised, with employers being well organised and with non-contract workers being largely unionised. The National Union of Mine Workers – NUM – has the largest membership. The use of migrant workers by large organisations means that the MMS is not only involved in the economic development and well-being of the provinces in which it is located but that it also has an effect on the labour-sending areas – within South Africa as well as beyond its borders.

A number of sector characteristics pose particular challenges to organisations and to the various agencies tasked with regulation, support and service delivery: There is a general lack of information about, and organisation within, the small-scale mining sector; and the incidence of HIV and AIDS in the MMS is considerably higher than the national average, which is linked to the incidence of TB that is also higher than the national average – both impacting severely on labour productivity. In addition to this, mining remains a dangerous activity. Thus training to improve mine health and safety remains a critically important aspect of the work of the MQA, as dictated by its founding mandate. This has to remain a strong focus in the years to come if the workers in the mining industry are to receive the necessary training to improve the safety record of the industry.

Finally, the transformation of the MMS, both in terms of ownership and increased representation of HDSA's in management and professional positions, is driven by a growing body of general and sector-specific legislation. Stemming from this legislation has been the development and revision of the Mining Charter, with its Scorecard, which is monitored by the DMR; the development by Government of a set of Codes of Good Practice for the Minerals Industry (gazetted in April 2009); and the legal requirement for mining applicants to submit a Social and Labour Plan that addresses various aspects of both the social and economic welfare of workers. These various aspects of the transformation effort will of necessity direct the skills development agenda of the MQA.

3 ECONOMIC PERFORMANCE OF THE SECTOR

3.1 INTRODUCTION

This chapter provides an overview of the economic performance of the sector and the factors that impact on it. The first section considers mining, minerals and sustainable development. It highlights the fact that increasingly, mining operations have to meet the overall objectives set in the National Framework for Sustainable Development in South Africa and the demands of a diverse range of stakeholders if they are to be granted not only the legal, but also the social licence to operate. While the importance of the MMS to national and global economic development is unquestioned, the huge cost of production on the environment and on communities is becoming more widely appreciated, and it is becoming increasingly clear that the trade-offs between economic growth and sustainable development need to be carefully considered.

In the second section the factors that influence the economic performance of the MMS are outlined. These inter-related factors include: the various sources of demand for MMS products; economic cycles, commodity markets and commodity prices; access to and the cost of credit; the exchange rate; international trade and local access to raw materials; electricity supply; government expenditure and infrastructure development; technological advancements; the issuing of mining licences; the availability of skills; environmental conservation and rehabilitation; and the physical availability of mineral resources.

The following sections consider the economic growth of the sector and its contribution to GDP. Unfortunately, the national accounts data, which is mostly used in this chapter, covers mining only and not the total MMS. No statistical information is available on the performance of the beneficiation components of the MMS (the Diamond Processing and Jewellery Manufacturing subsectors) and the subsector Services Incidental to Mining. This economic overview thus focuses on economic-growth trends and the contribution of the mining sector to the gross domestic product (GDP) of the country.

The final section looks at the current and planned initiatives to enhance the transformation and economic performance of the sector. A range of recent policy documents are considered in relation to their commitment to and actual impact on beneficiation, or value-added, activities.

3.2 MINING, MINERALS AND SUSTAINABLE DEVELOPMENT

The MMS is of vital importance to national and global economic growth and development. The millions of products constructed or manufactured, using the more than 90 substances mined around the world are central to almost all aspects of modern living. Despite this, the supply of metals and minerals is not without heavy social and environmental costs.⁵³ The issue of sustainable development has received an

⁵³ World Business Council for Sustainable Development, 2010, Mining, Minerals and Sustainable Development, Executive Brief, March 2010.

increasing amount of attention over the last decade. In 2008 the South African government published the Framework for Sustainable Development in South Africa. According to this document sustainable development is about enhancing human well-being and quality of life for all time, in particular those most affected by poverty and inequality. The efficient use of resources and intergenerational equity are the core principles of sustainable development. The purpose of the National Framework on Sustainable Development is to enunciate South Africa's national vision for sustainable development and indicate strategic interventions to re-orientate South Africa's development path in a more sustainable direction. It proposes a national vision, principles and areas for strategic intervention that will enable and guide the development of the national strategy and action plan. The Framework identifies five priority areas or pathways towards sustainable development. These are:

- Enhancing systems for integrated planning and implementation
- Sustaining our ecosystems and using natural resources efficiently
- Economic development via investing in sustainable infrastructure
- Creating sustainable human settlements
- Responding appropriately to emerging human development, economic and environmental challenges.⁵⁴

The most challenging aspect of embedding sustainable development in the MMS is the difficulty of tying the concept to financial success, particularly when companies operate in areas characterised by poor governance capacity and corruption. Sustainable development practices – engaging with and considering the needs of all the various stakeholders - will however become increasingly critical to the economic success of the MMS. Less and less will the bottom line be purely a function of national and global demand for metal and mineral products.⁵⁵

3.3 FACTORS THAT INFLUENCE THE ECONOMIC PERFORMANCE OF THE SECTOR

The economic performance of the MMS is the result of the interaction between a number of factors. These include: the sources of demand for MSS products, both locally and internationally; commodity markets and commodity prices; economic cycles; the monetary exchange rate; international trade and local access to raw materials; the electricity supply; Government expenditure and infrastructure development; the demand for energy; technological advancements; the issuing of mining licences; the availability of skills; companies' responsibilities regarding environmental conservation and rehabilitation; and last but not least, the physical availability of mineral resources. While these are discussed separately in the sections below, it is important to remember that in reality these issues are all inter-related.

⁵⁴ Department: Environmental Affairs and Tourism, People, Planet and Prosperity – A Framework for Sustainable Development in South Africa, Pretoria, 2008.

⁵⁵ World Business Council for Sustainable Development, 2002, Breaking New Ground - Final report of the Mining, Minerals and Sustainable development Project.

3.3.1 Sources of demand for MMS products

The outputs of the global MMS are in demand as primary inputs by a range of other sectors:

- The overwhelming majority of demand for coal is from the electricity generating sector, followed by the synthetic fuels sector. The mining and metallurgical industries are minority consumers in comparison.⁵⁶
- Gold demand is highly dependent on implied net investment, on hedging and on bar-hoarding. In addition, the demand for gold is influenced by the demand for gold jewellery.⁵⁷
- The bulk of demand for PGM is from the global vehicle and engine manufacturing industry. These metals are used in the production of catalytic convertors, which reduce the toxicity of emissions from internal combustion engines. In addition, platinum is in demand from the jewellery sector as well as the industrial sector including glass, electronics and petroleum refining.⁵⁸
- The demand for diamonds comes from two main sectors: the jewellery manufacturing sector and the industrial sector. Only roughly 20% of global production of diamonds is of gemstone quality, the remainder is destined for the industrial market in the form of cutting and grinding tools.
- Copper is used predominantly by the building sector. The electrical and engineering sectors are also significant sources of demand, while the light engineering and transport sectors make a notable, but minor contribution. Infrastructure development is also the primary driver in iron ore demand, while demand for manganese is dependent on steel production, which accounts for over 90% of its consumption.⁵⁹
- Demand for the industrial minerals, in particular aggregate, sand, limestone, dimension stone, brick clay and gypsum, is to a large extent dependent on activity levels in the building and construction sector. Phosphate rock, limestone, magnesite, gypsum, vermiculite and sulphur are used in the manufacture of fertilizer and animal feed, with demand driven by the agriculture sector. Various other industrial minerals are also used in the manufacture of pulp and paper, abrasives, plastics and polymers, ceramics and glass.⁶⁰

The South African MMS is fully integrated into and thus dependent upon an international system of demand for, and supply of, these commodities.

⁵⁶ Mwape P, Roberts MJ, Mokwena E, Musi L, Tjatjie T, Mnguni M, Mashaba P, Kwata PG. Part One: South Africa's Mineral Industry-General Review, Department of Minerals and Energy, South Africa's Mineral Industry, 2007/2008

⁵⁷ Mwape P, Roberts MJ, Mokwena E, Musi L, Tjatjie T, Mnguni M, Mashaba P, Kwata PG. Part One: South Africa's Mineral Industry-General Review, Department of Minerals and Energy, South Africa's Mineral Industry, 2007/2008

⁵⁸ Ibid.

⁵⁹ Mwape P, Roberts MJ, Mokwena E, Musi L, Tjatjie T, Mnguni M, Mashaba P, Kwata PG. Part One: South Africa's Mineral Industry-General Review, Department of Minerals and Energy, South Africa's Mineral Industry, 2007/2008

⁶⁰ Ibid.

3.3.2 Economic cycles, commodity markets and commodity prices

The demand for metal and mineral products is highly sensitive to fluctuations in local and international economic and market conditions. A major challenge for the sector is matching supply to demand in order to sustain commodity prices and therefore profitability: Where demand outstrips supply, prices rise, which in turn raises the input costs for downstream beneficiaries and ultimately the cost of manufactured products. This has a generally negative impact on global economic growth. Conversely, where supply outstrips demand, prices can fall quickly, resulting in the uneconomical and unsustainable production of raw materials from the MMS. The challenge is that while demand can rise or drop quite quickly, supply volumes are much more sticky as they are related to factors such as exploration and new mine development in the case of increasing supply, and laying off labour or even shutting down operations in the case of reducing supply.

With the exception of the outputs of the CLAS subsector, which are mainly sold into the domestic market, the local markets for mining and mineral products are relatively small and for this reason most of South Africa's mining product is exported. The profitability of operations is thus directly affected by world commodity prices and the demand for commodities.

The world economic recession of 2008 and 2009 had a profound effect on commodity markets and prices. Prior to the crisis the world experienced a commodities boom, which however imploded unexpectedly in 2008 as the positive factors that had driven the boom changed for the worse. With few exceptions, commodity demand and prices fell abruptly in the last six months of 2008. Global copper prices fell by 70%, iron ore prices fell by 56%, platinum group metals declined by 58%, nickel by 50%, export energy coals by 50%, diamonds by 40% to 50%, and the gold price fell by 8%.⁶¹

Commodity prices and demand are however cyclical and individual, and while there is evidence of some recovery for the 2009 data for some commodity markets, others remain depressed:

Demand for investment gold through 2009 – with gold being re-affirmed as a safe haven in uncertain times –outstripped demand from the jewellery sector and resulted in a new record average annual gold price of US\$972 per ounce. This supported increased production volumes and sales value for the South African industry.

Despite the impact of the recent global economic crisis, which reduced electricity and steel production in many first world countries, overall global hardcoal production rose, due mainly to increases in production by China in support of its own requirements? Continued net demand from China, however, also sustained coal demand through the recession for exporting nations, and is expected to continue to do so in the short- to medium-term future. Similarly, a surge in demand for steel from China, the world's largest producer, supported a 6.3% increase in South African iron ore sales value compared with 2008.

⁶¹ Chamber of Mines, Annual Report 2008/2009.

Despite the demand for manganese being closely linked to steel production, prices of manganese remained depressed through 2009 as inventory stocks were used, especially in the first half of the year. Overall, the South African manganese ore sales value dropped by 67% through 2009.

Continued depressed demand for copper through 2009, based on a generally depressed global building industry, also resulted in a further contraction of South African production volumes and sales, compared with the sales value high of 2007.

While South African PGM production declined only modestly through 2009, the average sales value dropped a substantial 42%. This was due to continued global depression of the automotive and industrial sectors. Demand from the jewellery sector did however increase due to dropping prices and the conversely increasing price of gold.⁶²

While the impact of economic fluctuations on commodity prices is complex and variable, depending on whether demand increases or decreases for particular commodities in uncertain times, the demand for luxury items such as high value jewellery is almost always negatively impacted by an economic downturn and the Diamond Processing and Jewellery Manufacturing subsectors are usually some of the first to experience a drop in demand for their products. Reductions in demand by the United States, Europe and Japan (which account for about 75% of global demand) through the recent recession saw the value of sales of rough diamonds to the diamond cutting centers fall by 51.1%. Destocking and consumer demand contraction impacted diamond miners severely, with the South African industry not being spared: domestic production shrank by 52%.⁶³

The Jewellery Manufacturing subsector has additionally had to carry the cost of an increase in the gold price of more than 350% over the past six years. This has significantly impacted on manufacturing capacity for the local sector as gold is self-financed based on own equity. During the recent economic crisis large numbers of small diamond processors and jewellery manufacturers had to close down.⁶⁴

3.3.3 Access to and the cost of credit

The National Credit Act of South Africa (Act No 34 of 2005), which came into effect on the 1 June 2007, had a negative impact on the ability of potential consumers to access credit, particularly for large expenditure items such as new motor vehicles and houses, with a concurrent reduction in local demand. This was then compounded by the impact of the national economic crisis through 2008 and 2009. As the vehicle manufacture and construction sectors are major consumers of MMS products, demand for related mining and mineral products has been adversely affected. And while a reduction in interest rates, or the cost of credit, generally serves to stimulate demand in new vehicle sales and in the building

⁶² Chamber of Mines, Facts & Figures booklet, 2010.

⁶³ Ibid.

⁶⁴ Information shared by participants in the Diamond Processing and Jewellery Manufacturing workshop arranged by the MQA

of new homes, the impact of the National Credit Act in South Africa continues to limit the results of such interventions.⁶⁵

3.3.4 The exchange rate

The volatility displayed by the rand in the last decade has had a profound impact on export industries, including the mining industry. The weakening of the rand obviously benefits the mining industry while the relatively strong rand has an adverse effect.⁶⁶ The exchange rate also affects the cost of production in dollar terms, with rapid fluctuations in the exchange rate making profitable production planning very difficult.

For the Diamond Processing and Jewellery Manufacturing subsectors the volatility of the local currency is particularly problematic as raw materials are bought at international (dollar-denominated) prices and sold at a later stage. Thus, the risk of holding materials and stock is high for these businesses, which are generally small in size.⁶⁷ Most of the global competitors address these fluctuations in part by creating competitive metals financing products, “Gold Loans”, for the industry. No comparative facility currently exists in South Africa. Gold leasing would, for example, enable the manufacturer to build stock with minimal exposure to the exchange rate.

3.3.5 International trade and local access to raw materials

The growth of the Diamond Processing and Jewellery Manufacturing subsectors is highly dependent on their access to raw materials such as rough diamonds, gold, and platinum. Access to these materials is controlled by Government through licences and through the central-government-controlled sales of rough diamonds. At this stage the respective regulatory authorities are not operating optimally and are making it very difficult for local (and especially small) businesses to compete for raw materials with large international buyers. According to stakeholders, these two industries are in a critical situation as a result of the unintended negative consequences of Government intervention in the raw material mineral market.⁶⁸

3.3.6 Electricity supply

The electricity crisis that occurred in the first months of 2008 in South Africa highlighted the link between mining production and infrastructural provision of the country – specifically the provision of electricity. During January 2008 the industry was reduced to a 50% electricity supply level, which effectively shut down most of the mines. At that time the Chamber of Mines warned that:

⁶⁵ EE Research Focus, 2010, The impact of the 2008/9 economic crisis on merSETA firms.

⁶⁶ Chamber of Mines, Annual Report 2007/2008.

⁶⁷ Human Sciences Research Council (HSRC) and Povey, Mulvenna and Associates, A Skills Analysis of the Jewellery Manufacturing and Gemstone Processing Industries in South Africa, MQA and GTZ, Johannesburg, May 2003.

⁶⁸ Views expressed by participants in the Diamond Processing and Jewellery Manufacturing workshop.

The key problems for mining companies, especially the deep level gold and platinum group metals (PGM) mines, is the fact that electricity is not only an integral part of their production processes, but crucial to a safe environment for workers underground. On average, over 50% of the electricity used by deep level mines is for cooling, ventilation and pumping, which cannot be switched off or reduced.⁶⁹

In line with the above, the deeper the mining the more electricity is needed for cooling the shafts sufficiently for humans to work (28 degrees Celsius at the 100% humidity levels). Platinum mines also require more cooling than gold mines at the same depth because the virgin rock is much hotter. Commodity prices for these metals, as well as the price of electricity, determine to a large extent the financial feasibility of mining ores at increasing depths.⁷⁰

Although Eskom's electricity generation capacity has remained constrained, there has been no need to implement demand-reduction measures since the crisis in 2008. This has mainly been because of the reduced demand from the platinum, diamond and base metal sectors, as a result of the global economic downturn. Electricity constraints are expected to prevail until at least 2015, when additional generation capacity will come on line.⁷¹ The local MMS will thus be limited in its ability to increase supply in response to, and therefore take advantage of, any major increase in global demand before that time.

3.3.7 Government expenditure and infrastructure development

The influence of Government's infrastructure development programmes on the MMS is twofold: On the one hand the mining component of the MMS is dependent on the infrastructure (specifically the transport infrastructure) for the distribution of its products. The industry therefore stands to benefit from the upgrading of the roads and rail network.

On the other hand the CLAS subsector, as a supplier, is a major contributor to the upgrading of the roads network, and tends to grow or contract as a result of public investment in infrastructure. This subsector has seen substantial growth over the last few years as a result of the upgrading of the roads and rail networks and the building of stadiums for the 2010 Soccer World Cup.

3.3.8 The demand for energy

In addition to the demand for electricity generated from the industrial sector in periods of economic growth, factors such as urbanisation trends, the building of RDP housing⁷², and the formalisation of services to informal housing areas increase the demand for electricity from the national grid. Through the commissioning of the new coal-fired power stations South Africa has committed itself to coal-based electricity generation for at least the next few decades. The head of Eskom operations stated in late

⁶⁹ Chamber of Mines, Annual Report 2007/2008.

⁷⁰ Dr Declan Vogt, Mining Technology Research Development Manager for the Centre for Scientific and Industrial Research (CSIR), in a personal interview, 15 November 2010.

⁷¹ Chamber of Mines, Annual Report 2008/2009.

⁷² Low cost housing built by government according to the Reconstruction and Development Plan (RDP).

2009 that in response to the increased demand for coal for electricity, South Africa needs at least 40 new mines to prevent electricity shortages over the long term.⁷³

3.3.9 Technological advancements

Technological advancements that allow access to previously inaccessible metal or mineral deposits, that increase extraction levels from existing operations, or that make extraction safer, easier or more cost effective, have a direct impact on the competitive supply of MMS products onto the market. Many of South Africa's metal deposits occur at great depth and will require ongoing advances in technology in order to be safely mined.^{74 75} Technological advancements also make it feasible to rework old mining waste such as mine dumps.⁷⁶

3.3.10 Issuing of mining licences

The DMR is responsible for the issuing of prospecting and mining licences. The efficiency with which this is handled in the department, as well as the actual utilisation of prospecting and mining rights by successful applicants, is an important factor in the growth and development and, ultimately, in the economic performance of the MMS.

In the small scale mining sector, legal non-compliance is partly blamed by illegal (or informal) operators on the complex legal framework and on the difficulties and delays in obtaining licences from the DMR. Additional challenges are the difficulty these operators have in accessing the necessary information regarding the licensing requirements and processes and in the cost of obtaining licences. Calls by this sector are for simplification of the permit process.⁷⁷

It has recently been conceded by the DMR that certain ambiguities in the interpretation of the MPRDA need to be addressed in order to improve the efficiency of the national mining regulatory framework. As such the Mineral Resources Minister, Susan Shabangu, announced a six-month moratorium on licence applications, effective as of 1 September 2010, while a review of those applications granted in the past six years takes place. The DMR is at the same time developing an integrated system of 'license-process-tracking' that will be ready for public access at the end of the licence application moratorium period.⁷⁸

⁷³ South Africa.info, South African needs 40 new coal mines, 12 August 2009, <http://www.southafrica.info/news/business/832012.htm>, Accessed 14 November 2010.

⁷⁴ Pickering R G B, 1996, Deep Level Mining and Role of R&D, The Journal of the South African Institute of Mining and Metallurgy, September/October 1996, <http://www.saimm.co.za/Journal/v096n05p173.pdf>, Accessed 14 November 2010.

⁷⁵ Mining Weekly, S African miners 'going beyond limits of knowledge', new research urgent – Wits, <http://www.miningweekly.com/article/s-african-miners-going-beyond-limits-of-knowledge-new-research-urgent-wits-2010-08-19>, Accessed 14 November 2010.

⁷⁶ ABC Money, S. African mine dumps turn to gold mines, 16 April 2007, <http://www.abcmoney.co.uk/news/12007156777.htm>, Accessed 14 November 2010.

⁷⁷ MQA-CSMI, Small Scale Mining Colloquium, Johannesburg, South Africa – Report and Analysis of Outputs, September 2010.

⁷⁸ Law and Tax News.com, South African moratorium on new mining licences, 24 August 2010, http://www.lawandtax-news.com/asp/South_African_Moratorium_On_New_Mining_Licences_____44911.html, Accessed 14 November 2010.

3.3.11 The availability of skills

The MMS is dependent on the availability of certain specific professional and technical skills in order to grow. Mine health and safety legislation and regulations set very strict competency requirements for certain positions and without people with the necessary competencies mining operations cannot extend. The MMS has experienced quite severe shortages over the last number of years. The shortages are exacerbated by the lack of HDSAs with the requisite skills amid the drive for transformation referred to in Chapter 2 of this SSP. These shortages have constrained the growth of the sector.

3.3.12 Environmental conservation and rehabilitation

Environmental conservation and the rehabilitation of areas where mining or exploration have taken place are regulated through various Acts and Government policies. As indicated in the previous chapter, the Mineral Resources Development Act places the responsibility for rehabilitation on the holder of a prospecting permit or mining authorisation. In addition, the DMR has specific policies regarding financial provision for rehabilitation upon the closure of a mining operation. At the same time, the Mining Charter places strong emphasis on sustainable development and environmental conservation and rehabilitation – on the Mining Charter Scorecard environmental management is weighted at 12%.

While critical for environmental preservation, the health and safety of the general population, and the sustainable exploitation of our national resources, a change from the past practice of externalising the cost of conservation and rehabilitation efforts onto society towards internalising this cost as part of the production process, needs to be factored into profitable production planning. Furthermore, this needs to be done from the outset and factored into the initial feasibility studies. In some instances the balance between environmental considerations, growth of the sector, and job creation or maintenance may be challenging to achieve. However, consideration of competing demands through the framework of integrated and sustainable development provides possibilities for achieving outcomes that go a long way towards meeting diverse stakeholder expectations.^{79 80}

3.3.13 The availability of mineral resources

Finally, a major factor in the future of the MMS is the availability of local mineral resources. It is well known that South Africa is richly endowed with mineral resources: South Africa's high world rankings in terms of both production and reserves of the various MMS products were outlined in Chapter 2.

However, as mineral reserves are non-renewable, the depletion of mineral resources may lead to the contraction of the industry. This is specifically true of the gold mining industry. Annual gold production decreased by approximately 57% over the period 1994 to 2007⁸¹ and is bound to continue on a

⁷⁹ World Business Council for Sustainable Development, 2002, Breaking New Ground - Final report of the Mining, Minerals and Sustainable development Project.

⁸⁰ Centre for Sustainability in the Mining Industry (CSMI), The Socio Economic Aspects of Mine Closure and Sustainable Development: Literature Overview and Lessons for the Socio-Economic Aspects of Closure, Report 1 of 1, Coaltech Project 7.8.5, January 2010.

⁸¹ Calculated from Chamber of Mines, South African Mining Industry – Statistical Tables 2008.

downward path as most of the remaining gold reserves occur at depths underground that prohibit the economic mining of them. The economic mining of a commodity is obviously also linked to other factors discussed above, such as available technology, the supply of electricity, the commodity price, and the exchange rate.⁸² And while past global scares of mineral depletion resulted in increased exploration activities and in the discoveries of new deposits, the reality remains that metals and minerals remain non-renewable resources and that mining activities will depend upon their finite availability.

3.4 ECONOMIC GROWTH

Figure 3-1 depicts the changes in gross domestic product (GDP) experienced in the South African economy and in the mining sector specifically over the period 1994 to 2009. The South African economy grew at a steady pace from 1994 to 2008 and went into recession in 2009. However, the mining industry experienced nine years of contraction from 1994, with the worst decline in production in 2008 and 2009.

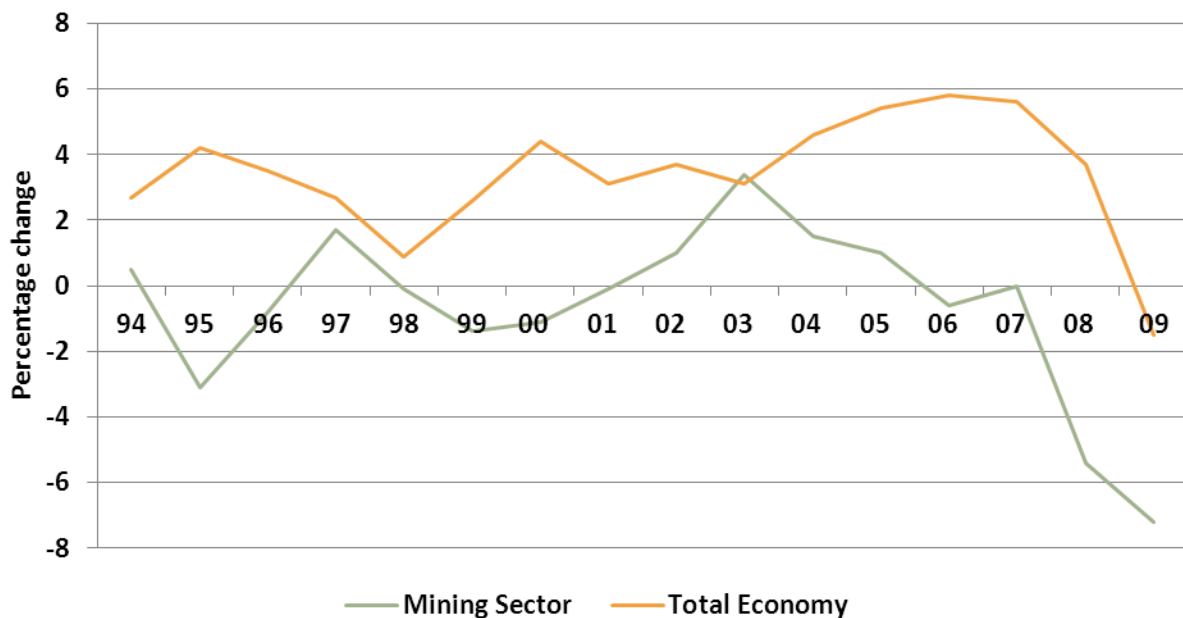


Figure 3-1..Changes in real GDP at market prices in mining and in the total economy: 1994-2009

⁸² South Africa's underground gold resource base is estimated to be 45 000 tonnes. The Chamber of Mines developed some estimates of the future life of the gold mines in South Africa based on data from certain parts of the Witwatersrand basin where geological conditions are accounted for. According to its estimates of this area, over the past decade the average cut-off grade was 4 grams per tonne, which implies that some 35% of the ore-body was uneconomic to mine. If this information is applied to the total resource base of about 45 000 tonnes and assuming that about 20 000 tonnes of gold are uneconomic to mine because they are beyond the technology frontier of the industry (which is currently at 4 000 metres below the surface), then the total resource base underground is really 25 000 tonnes of gold. Based on data for the past decade, some 65% was economically recoverable, which means that about 16 250 tonnes can be mined. Taking cognisance of ore depletion and assuming no new mines are developed in the interim, at current rates of production the defined ore reserve will last for about 40 years. However, the cut-off grades are directly linked to market conditions and increase with decreases in the gold price. Source: Chamber of Mines, Chamber's Memorandum to the National Treasury on the Draft Mineral and Petroleum Royalty Bill, www.bullion.org.za.

Figure 3-2 shows the output trends in Gold Mining, Coal Mining, PGM Mining, Diamond Mining and Other Mining over the period 1981 to 2009. It is clear that the most severe decline was experienced in Gold Mining. Although the output of the combined grouping of PGM Mining, Diamond Mining and Other Mining increased up to 2007, it was not sufficient to compensate for the decline in output from the gold mining industry. The Chamber of Mines has also ascribed the contraction of the mining industry over the last few years to a number of other factors: “the closure of various mines and shafts owing to safety incidents, curtailment of electricity supply as a result of Eskom using demand market participation agreements, infrastructure constraints (rail, port, housing and roads), bottlenecks in the goods and services procurement pipeline into the mines, regulatory constraints – especially environmental permits – and shortages of appropriately skilled human capital”.⁸³

The steep decline in output seen in 2008 and 2009 is the result of these factors, exacerbated by the global economic slow-down, which caused a decline in the demand for commodities.⁸⁴ The effect of the decline in production on employment is discussed in Chapter 4.

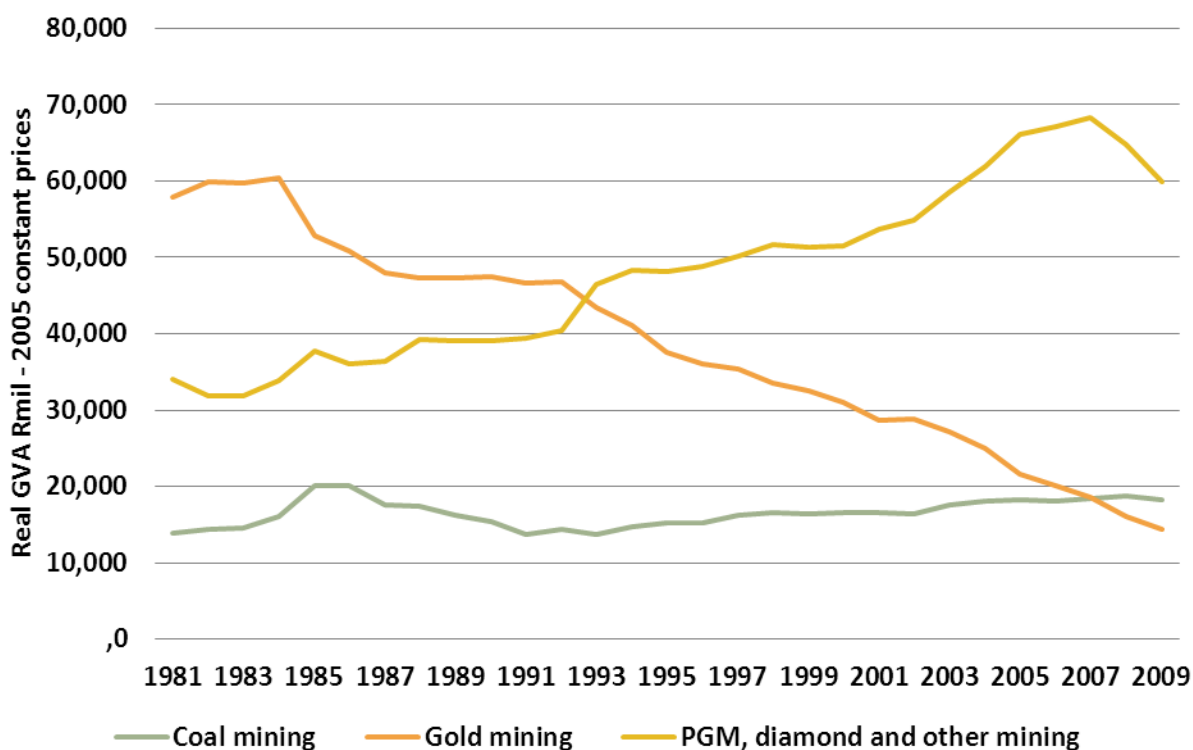


Figure 3-2 Real gross value added by mining subsectors: 1981-2009

Source: Statistics South Africa, electronic data series

⁸³ Chamber of Mines, Annual Report 2007/2008.

⁸⁴ Chamber of Mines, Annual Report, 2008/2009.

3.5 CONTRIBUTION TO GDP

Mining's contribution to the total GDP of the country can be seen in Figure 3-3. In 2000 the sector contributed 7.6% to the national output. This decreased steadily over the decade until in 2009 the contribution was only 5.2%.

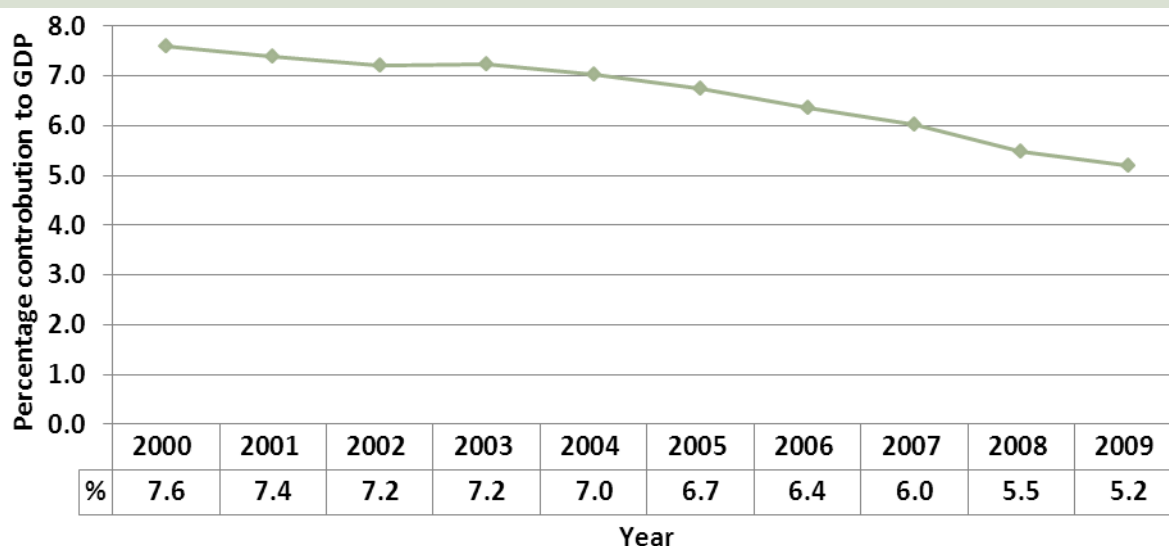


Figure 3-3 The Mining Sector's contribution to GDP: 2000-2009

Source: Statistics South Africa PO441, Fourth Quarter 2009

3.6 INITIATIVES TO ENHANCE THE ECONOMIC PERFORMANCE OF THE SECTOR

In December 2008, the mining sector, in collaboration with tripartite stakeholders from Government and organised labour, responded to the economic crisis by establishing the Mining Industry Growth, Development and Employment Task Team (MIGDETT). The task team focused on ways to manage the crisis in the short term, while looking to reposition the country for the next commodity up-cycle in the long term. Innovative ways of helping companies to survive in the short term included: proposals on reducing cost pressures, dealing with constraints affecting the sector and avoiding retrenchments where possible. In areas where retrenchment became unavoidable, measures to alleviate the consequences of retrenchment were proposed by MIGDETT, including more effective use of social plans.⁸⁵ MIGDETT currently continues with its work and focuses on the sustainable growth and meaningful transformation of South Africa's mining sector.⁸⁶

In line with the principles of sustainable development, a key driver of increased sector performance is considered to be metals and minerals beneficiation (or value addition). A range of recent policy documents place a renewed focus on beneficiation or local value addition:

- The Mineral and Petroleum Resources Development Act, No 28 of 2002 (DMR)

⁸⁵ Chamber of Mines, Annual Report 2008/2009.

⁸⁶ Department of Mineral Resources, <http://www.info.gov.za/speeches/2010/10012509251001.htm>, Accessed 9 June 2010.

- The Diamonds Amendment Act, No. 29 of 2005 (DMR)
- The Diamonds Second Amendment Act, No 30 of 2005 (DMR)
- The Precious Metals Act, No 37 of 2005 (DMR)
- The Metals Sector Development Strategy, 2006 (Department of Trade and Industry - DTI)
- The draft Mineral Beneficiation Strategy (2009) (DMR)
- The Industrial Policy Action Plan (2010) (DTI)
- The amended Mining Charter
- The New Growth Path: The Framework (2010)

The MPRDA allows that 11% of the required 26% BEE ownership in mining houses can be offset by facilitating local beneficiation. This prompted shareholding of for instance AngloGold in Oro Africa and of Impala Platinum in Silplat. At the same time, the African Growth and Opportunity Act (AGOA) provides a 6% advantage to South Africa on jewellery exported to the US. The current absence of a gold financing mechanism for the Jewellery Manufacturing subsector has however limited the impact of these incentives. The Jewellery Council of South Africa argues that if a viable gold financing mechanism could be developed, strong incentives will exist for foreign investment in local beneficiation.⁸⁷

The South African Diamond and Precious Metals Regulator (SADPMR) was created in 2007 when the Diamonds Amendment Act, the Diamonds Second Amendment Act and the Precious Metals Act, that together widened the scope of the previous South African Diamond Board to include the regulations of precious metals, were promulgated. Among the objects of the regulator are to: ensure that the diamond and precious metals resources of the country are exploited and developed in the best interest of the people of South Africa; and to promote equitable access to, and local beneficiation from, the country's diamonds and precious metals. While the SA Diamond Board had only a regulatory function, SADPMR has a promotional role as well, which they admit will be a 'challenge' to fulfil.⁸⁸

South Africa's State Diamond Trader (SDT), launched in February 2008⁸⁹, was also established as a direct result of the Diamonds Amendment Act and the Diamonds Second Amendment Act. The SDT is mandated to purchase 10% of South Africa's rough diamond production at 'market-related' prices and to sell these on to local beneficiaries – cutters and polishers. Prior to 2008 De Beer's Diamdel subsidiary provided rough diamonds to smaller local cutting and polishing firms which were not part of the group's main rough diamond sales system. When the SDT came into operation, De Beers closed Diamdel, with many of its employees being seconded to the SDT for a three-year period to lend their experience to the start-up phase and to transferring critical skills. Unfortunately, it appears as if the SDT has not fulfilled its mandate – focussing instead on legal compliance issues and issues around the operations of the

⁸⁷ Input from the Jewellery Council of South Africa.

⁸⁸ South African Diamond and Precious Metals Regulator, www.sadpmr.co.za, Accessed 17 November 2010.

⁸⁹ Mining Weekly, State Diamond Trader Officially Launched, www.miningweekly.com/article/state-diamond-trader-officially-launched-2008-02-29, Accessed 12 November 2010.

government diamond valuator – with local cutters and polishers now struggling to get access to stones. Industry has even made calls for Diamdel to resume its operations.^{90 91}

The Metals Sector Development Strategy, approved in 2006 by the DTI, is aimed at increasing downstream beneficiation in the metals sector, particularly at Stage 4, which involves the conversion of intermediate refined products into finished goods for market consumption. The strategy targets five priority metal industry groupings, including precious metals and jewellery. Weak linkages and import parity pricing by large capital intensive upstream metal producers (involved in Stage 2 and 3 beneficiation processes) are identified as significant challenges to downstream beneficiation activities, as are security of raw materials supply, the lack of affordable metal financing, and specialised skills and manufacturing capacity. While the strategy set goals for 2014 and related interventions⁹², in reality the challenges and obstacles remain.

The draft mineral Beneficiation Strategy, which was released by the DMR in March 2009, recognises all the same challenges in supporting beneficiation as earlier policy documents. Identifying the diamond processing and jewellery manufacturing subsectors as a priority value chain for support, the strategy proposes as key action plans the establishment of Jewellery Hubs across the country; the establishment of an effective metal advance scheme for the sector to promote access to raw materials; as well as a focus by the MQA on structured training in supporting these activities.⁹³

The Industrial Policy Action Plan (IPAP), which was finalised by the DTI in February 2010, identifies the necessity to set minimum beneficiation levels for key commodity chains. These will be defined for ten selected commodities, with five being promoted through to Stage 4 levels of beneficiation. The target for the identification of commodities and beneficiation offset opportunities, as provided for by the MRDPA and the revised Mining Charter, is the end of 2012. The IPAP additionally proposes the establishment of a financing mechanism to enable jewelers to acquire gold at a competitive interest rate and stable prices. The target date for the finalisation of the architecture of the mechanism is the end of 2011, with the roll out of the programme to industry to take place during 2013/14.⁹⁴

As mentioned above, the revised Mining Charter promotes beneficiation through its BEE ownership off-set opportunity. One major challenge in the implementation is that from industry's perspective the issue of beneficiation remains clouded and ill-defined, with no standard formulas for calculating or measuring beneficiation activities. Furthermore, while the Charter refers to the *mineral beneficiation framework*, no such document has been released.⁹⁵

⁹⁰ Mining Weekly, Diamond Council slams South Africa's State Diamond Trader, www.miningweekly.com/article/diamond-council-slams-south-africas-state-diamond-trader-2009-11-27, Accessed 12 November 2010.

⁹¹ MmegiOnline, De Beers criticises State Diamond Trader, www.mmegi.bw/index.php?sid=4&aid=710&dir=2010/March/Friday5, Accessed 17 November 2010.

⁹² Department of Trade and Industry, 2005, Metals Sector Development Strategy.

⁹³ Department of Mineral Resources, 2009, Draft Beneficiation Strategy.

⁹⁴ Department of Trade and Industry, 2010, Industrial Policy Action Plan (IPAP).

⁹⁵ Mining Matters, Spring 2010, The revised Mining Charter 2010.

The most recent government document to contain a central focus on beneficiation is The New Growth Path: The Framework, presented by Minister Ebrahim Patel on the 23 November 2010. The document focuses on growing the economy in a way that supports job creation. This is to be done through targeting labour-absorbing activities across the main economic sectors, including the mining value chain. In addition to placing emphasis on eliminating the factors that are currently limiting growth in the sector, such as the shortages of artisans and engineers (with targets set for the training of each), the New Growth Path stresses the importance of a renewed focus on Stage 4 metal and minerals beneficiation, as outlined in the draft mineral Beneficiation Strategy.⁹⁶

Overall, while there is widespread government acknowledgement of the importance of beneficiation as a primary means to promote the economic development of the MMS in South Africa, and a similarly widespread understanding of the factors that are currently limiting this, there appears at this stage to be little concrete progress towards promoting beneficiation, particularly within diamond processing and jewellery manufacturing. This may however change if an efficient gold financing mechanism can be established according to target dates, if the State Diamond Trader is able to perform its mandate, and if the New Growth Path can be effectively implemented as proposed.

For its part, the MQA is directing efforts towards focused relationships with industry representative bodies through the creation of beneficiation skills development steering committees and engaging all stakeholders of the MMS in identifying and focusing skills development interventions. These interventions are based on the original memorandum of understanding between the MQA and the Jewellery Council of South Africa and interpret the identified skills shortages in terms of the legislation. The interventions form an integrated approach with industry to address skills needs in the subsector-focused interventions.

3.7 CONCLUSIONS

This chapter has considered the economic performance of the MMS in South Africa. Using the framework of sustainable development, the various competing demands that are being place on the sector by shareholders, consumers, governments, employees, communities, human rights activists, and environmental organisations were outlined, highlighting the major challenges facing mining houses who seek to obtain a 'social licence to operate'.

In addition to this a wide range of factors also impact directly on economic performance of the sector, and therefore on its ability to operate profitably. While some of these have had a positive impact on the local demand for MMS products (such as the impact of the demand for electricity on coal production, and governments' infrastructure development programme on the demand for steel and products from the CLAS subsector), many factors (including those on the demand side and the supply side, as well as the regulatory framework) have over the past decade undermined the economic performance of the sector.

⁹⁶ Republic of South Africa, The New Growth Path: The Framework, November 2010.

This pressure is evident in the fact that from an economic perspective the MMS in South Africa performed worse than the rest of the economy. This sector has been particularly hard hit by the economic crisis of 2008 and 2009 and it experienced the worst contraction in 2009. The Gold Mining subsector has been in decline for the past two decades and although other subsectors (especially PGM Mining) are compensating for the loss in gold production, this has not been enough to prevent contraction of the total sector.

And while a range of recent policy documents place a renewed focus on beneficiation as a primary means of improving the economic performance of the sector, these have as yet been unable to successfully address the complex set of challenges that obstruct beneficiation within the local economy.

Yet despite this relatively bleak economic picture, employment did not follow exactly the same trajectory as economic growth. This is discussed in the next chapter.

4 THE DEMAND FOR LABOUR

4.1 INTRODUCTION

The demand for labour by the MMS is a central issue in this SSP and is discussed from different perspectives. First, total employment and changes in the total demand for labour in the sector and in the respective subsectors is discussed, followed by description of labour demand in specific occupational groups and occupations. Second is a discussion of remuneration trends within the sector.

The third section presents a forecast of future demand derived from a labour demand projection model developed for the MMS. The demand projections span the period covered by NSDS III – the period 2011 to 2016. The final section considers the range of factors that are driving changes in the need for particular types of skills as well as the overall levels of labour required by the sector.

4.2 TRENDS IN EMPLOYMENT

4.2.1 Total employment

Figure 4-1 depicts trends in total employment in the South African mining industry compared to employment in the total economy over the period 1970 to 2009. Total employment in South Africa, which is shown on the left axis of the graph, increased from just more than 7 million to just more than 12 million over the total period. Employment in the mining industry (shown on the right axis) increased from approximately 650 000 in 1970 to 850 000 in 1985. It then fell to just more than 400 000 in 2000 and slowly increased again to 500 000 in 2008. In 2009 employment dropped again to approximately 485 000.

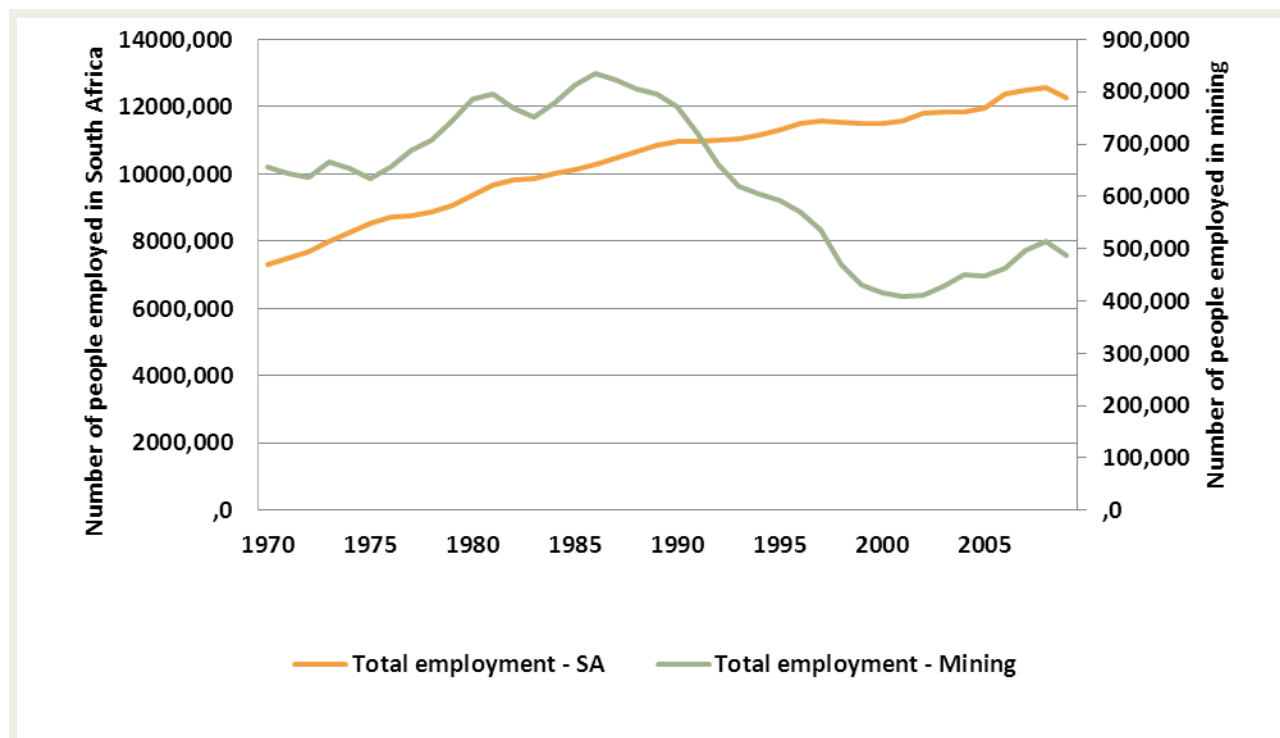


Figure 4-1 Total employment in mining and in South Africa: 1970-2009

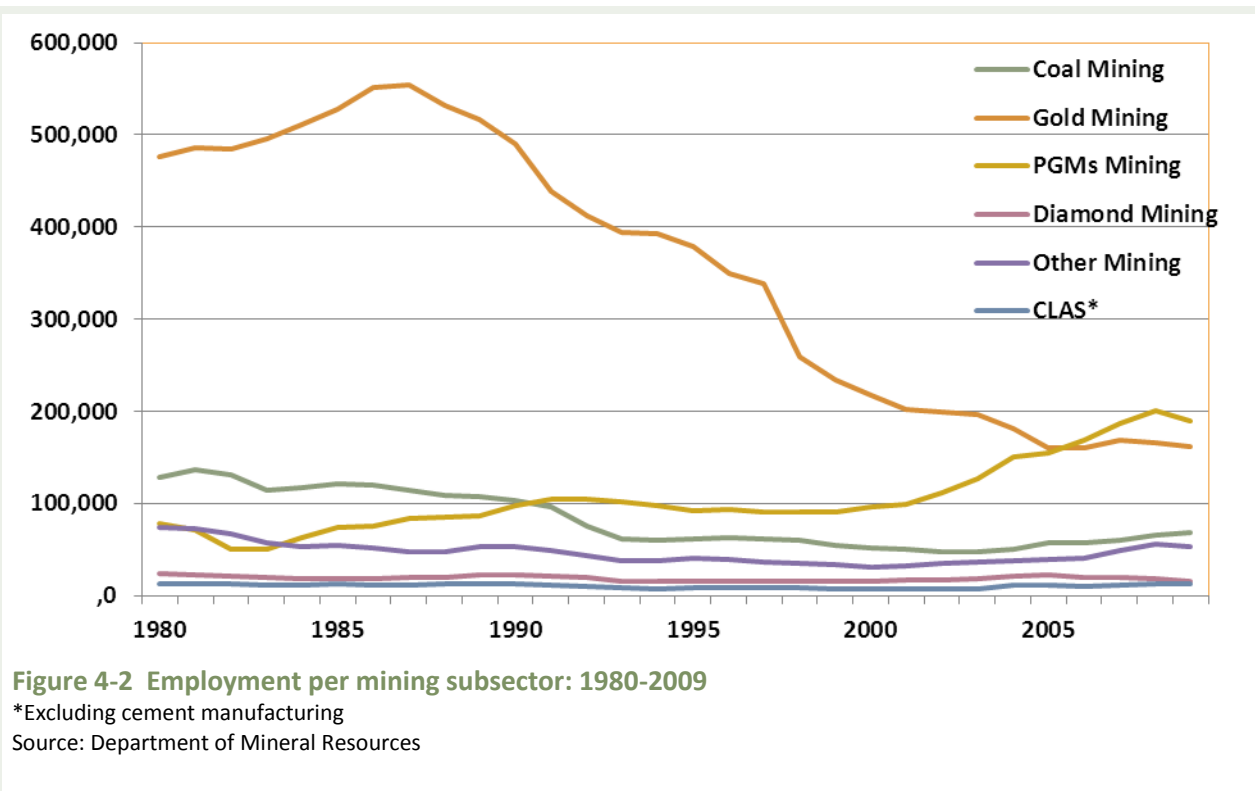
Source: Department of Mineral Resources (employment in mining) and data series on total employment in the SA economy provided by Quantec Research⁹⁷

Figure 4-2 illustrates the changes in employment in each of the mining subsectors. Employment in the Gold Mining subsector declined along with the decrease in production that was discussed in the previous chapter. However, employment in the PGM subsector started increasing systematically in 2000 and by 2005 it exceeded employment in gold mining. From a total-sector perspective the job losses in gold mining were, between 2000 and 2008, countered by the growth in PGM Mining and to a lesser extent also by increases in employment in the Coal Mining and Other Mining subsectors. In 2009 PGM Mining also contracted, which resulted in a decline in employment in the total MMS.

It is unlikely that the full effect of the recession is reflected in the 2009 statistics and it could be expected that retrenchments would continue in 2010: A study commissioned by the MQA at the beginning of 2009 estimated that approximately 48 000 employees were vulnerable to job loss. According to this study, the Diamond Mining subsector has been dealing with downscaling since the middle of 2008 and it was, at the time of the study, still ongoing. Individuals and communities in the diamond mining areas are thus badly affected. The job losses in platinum have also been considerable, and in this sector retrenchments may still continue. The study furthermore found that contractor employees were worst hit, being three times more likely to be retrenched than their directly employed counterparts. The communities from which contractors come have been, or will be, adversely affected.

⁹⁷ This data series was compiled by Quantec Research from various official sources – including manpower surveys, quarterly employment surveys, labour force surveys, household surveys, and census data.

This includes the labour-sending areas in Lesotho and Mozambique. The provinces most affected thus far are North West, Limpopo, and the Northern Cape.⁹⁸



The discussion and trend analysis of total employment so far has focused only on the mining components of the MMS. As indicated in Chapter 2, the MMS also includes three downstream manufacturing activities – Diamond Processing; Jewellery Manufacturing and Cement Manufacturing – as well as the subsector Services Incidental to Mining. In 2009 total employment in the sector was estimated to be approximately 551 000. The largest number of employment opportunities existed in PGM Mining – almost 184 000 – followed by Gold Mining, with 160 000 jobs. Coal Mining provided employment to more than 70 000 people and Other Mining to almost 53 000 people. The subsector Services Incidental to Mining employed just more than 33 000 people and the CLAS subsector employed almost 32 000 workers. The Diamond Processing and Jewellery Manufacturing subsectors are very small and in 2009 they employed 1 776 and 4 894 people respectively (Figure 4-3).

⁹⁸ Teba Development, Data Collection on Recent, Current & Planned Retrenchments in the Mining Sector. A report compiled for the Human Resource Development Committee of the Minerals & Mining Development Board and the Mining Qualifications Authority. June 2009.

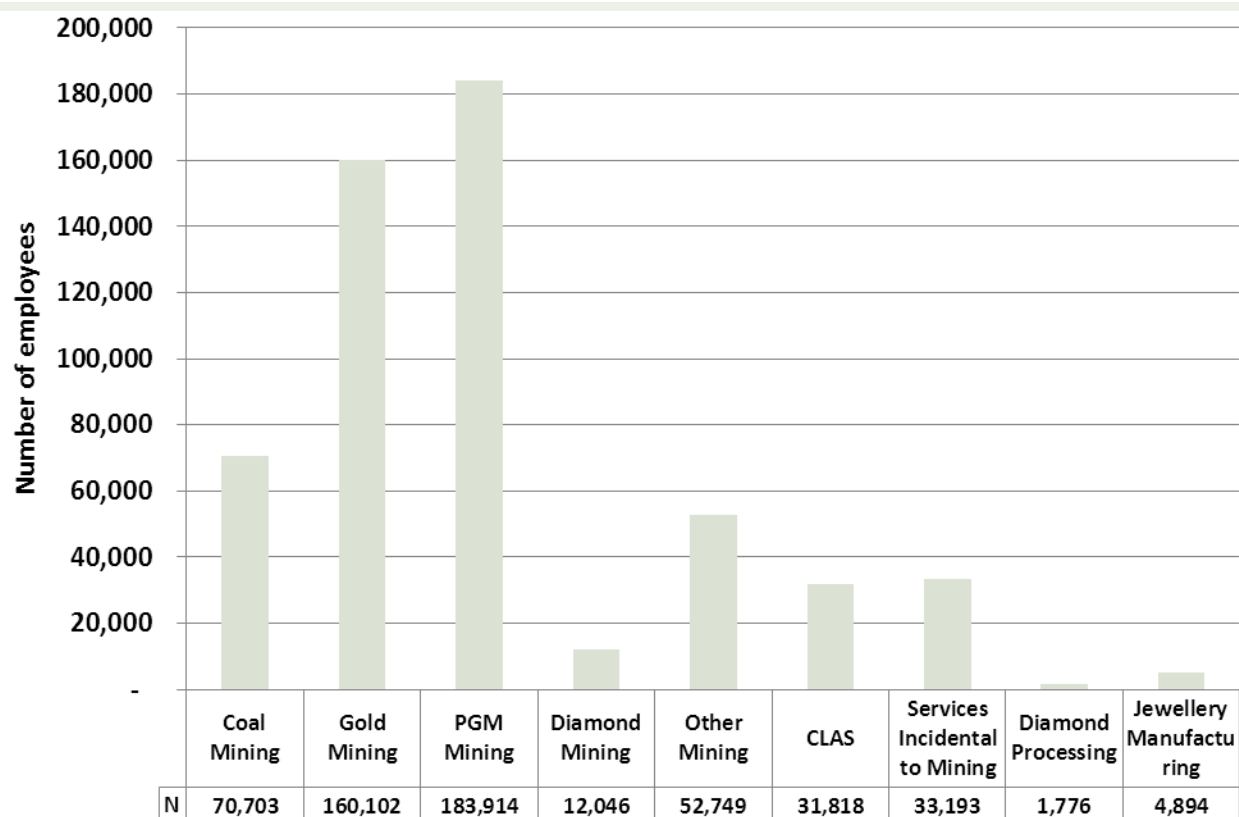


Figure 4-3 Total employment per subsector: 2009

Source: Calculated from MQA data system

Figure 4-4 shows that the subsectoral composition of the demand for labour has remained relatively stable since the inception of the SETA system. The only exceptions are the decline in labour demand of the Gold Mining subsector and the growth of labour demand by the PGM Mining subsector referred to earlier in this section.

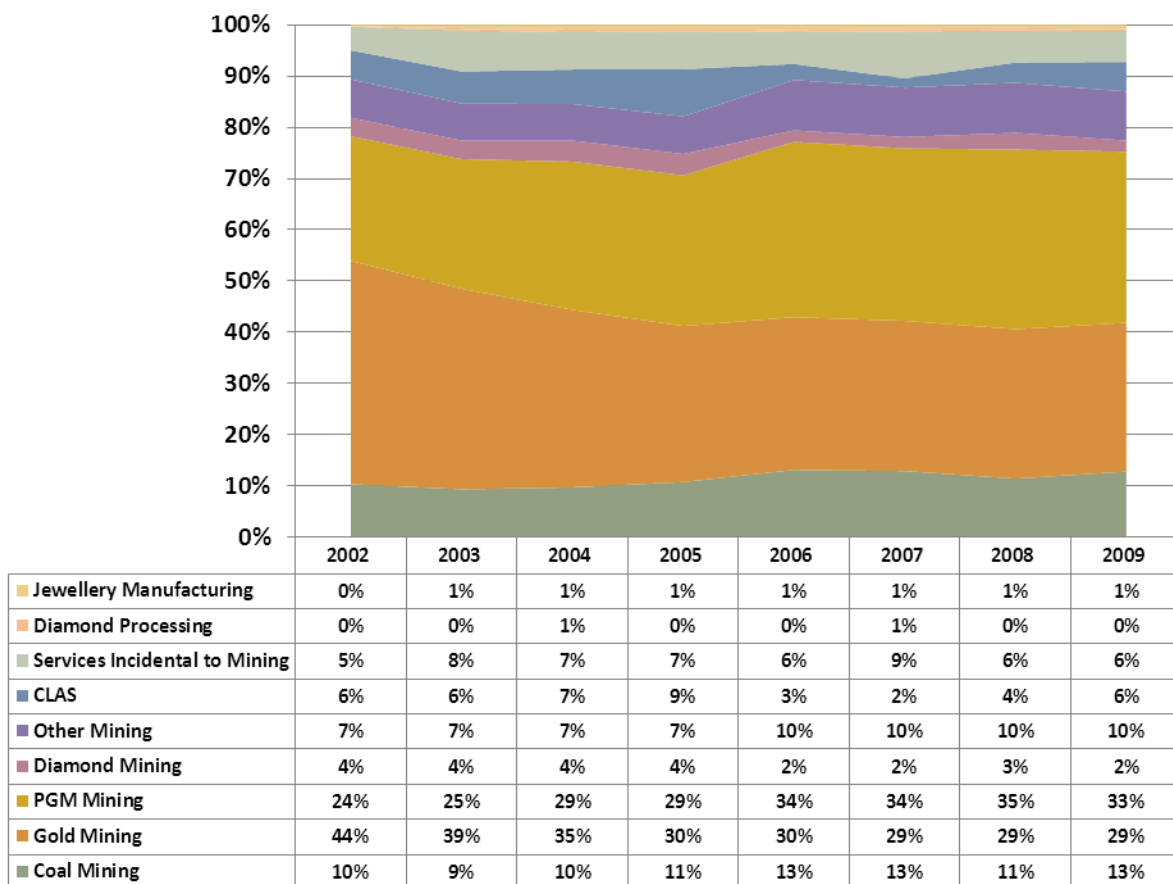


Figure 4-4 Subsectoral composition of the demand for labour: 2002-2009

Source: Calculated from MQA datasystem

4.2.2 Occupational demand

The occupational composition of the MMS in 2009 can be seen in Figure 4-5. As mentioned above, the demand for highly skilled and skilled workers is limited compared to the need in the rest of the economy. Managers comprised only 2% and professionals 4% of total employment in 2009. Technicians and trade workers formed 14% of the workforce.

Professionals and technicians are employed in the following technical-skills areas: mining engineering, metallurgy, chemical engineering, geology, electrical engineering, mechanical engineering, analytical chemistry, mine surveying and jewellery design and manufacturing. Professionals are also employed in non-line function areas such as accounting, financial management, human resources management, and information technology.

Trades workers include artisans. The artisan occupations that occur most frequently in the mining components of the MMS are: diesel mechanics, electricians, fitters, fitters and turners, instrument mechanics, millwrights, plater/boilermakers, plater/welders, and rigger ropemen. These workers

are typically trained through further education and training institutions (FET colleges) and through apprenticeships and learnerships.⁹⁹

A very large proportion of the workforce (36%) works as machinery operators and drivers. This category of workers includes a wide range of specific occupations that are linked directly to the technology and equipment used in the sector. Training for this category of workers is shorter than that of artisans and is mostly done in the industry – either on-the-job or through specialised training providers.

Elementary workers constitute 37% of the workforce. These occupations do not require high levels of education, but industry-specific knowledge is necessary.

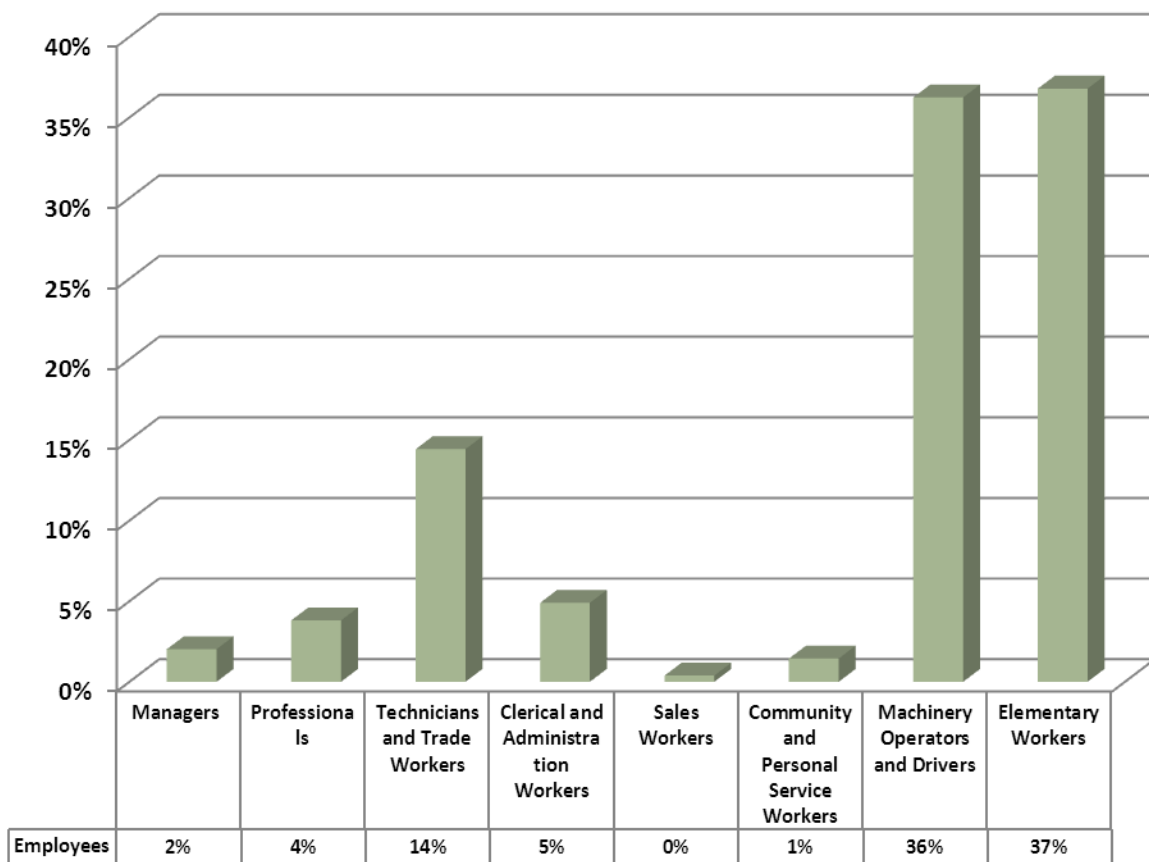


Figure 4-5 Occupational composition of employment: 2009

Source: Calculated from MQA datasystem

⁹⁹ At the time of writing this report no information was available on the exact numbers of people employed in the specific occupations. However, the MQA was in the process of occupational profiling in order to assist employers to classify the jobs in their organisations according to the OFO. Employers will also be required in future to report on employment in their organisations against the detailed OFO occupational codes. This will make it possible to provide a much more detailed analysis of the demand for labour in the MMS.

At this stage it is not possible to determine the changes in the occupational structure of the MMS. These changes are normally gradual and can only be tracked through relatively long time series data. Although the MQA has been collecting occupational information over the last ten years, the occupational classification system was changed in 2008 from the Standard Occupational Classification (SOC) to the Organising Framework for Occupations (OFO). The occupational categories differ to such an extent that changes in the occupational structure cannot be tracked.

4.3 REMUNERATION TRENDS

As mentioned in Chapter 2, the MMS is largely unionised. Wage levels are to a large extent the result of collective bargaining processes and they are therefore not indicative of market demand. Unfortunately, no sector-specific information is available on salary trends in particular occupations. The only information available is on total wages paid to workers in the mining industry. The per capita real wages paid from 1981 to 2009 are shown in Figure 4-6.¹⁰⁰

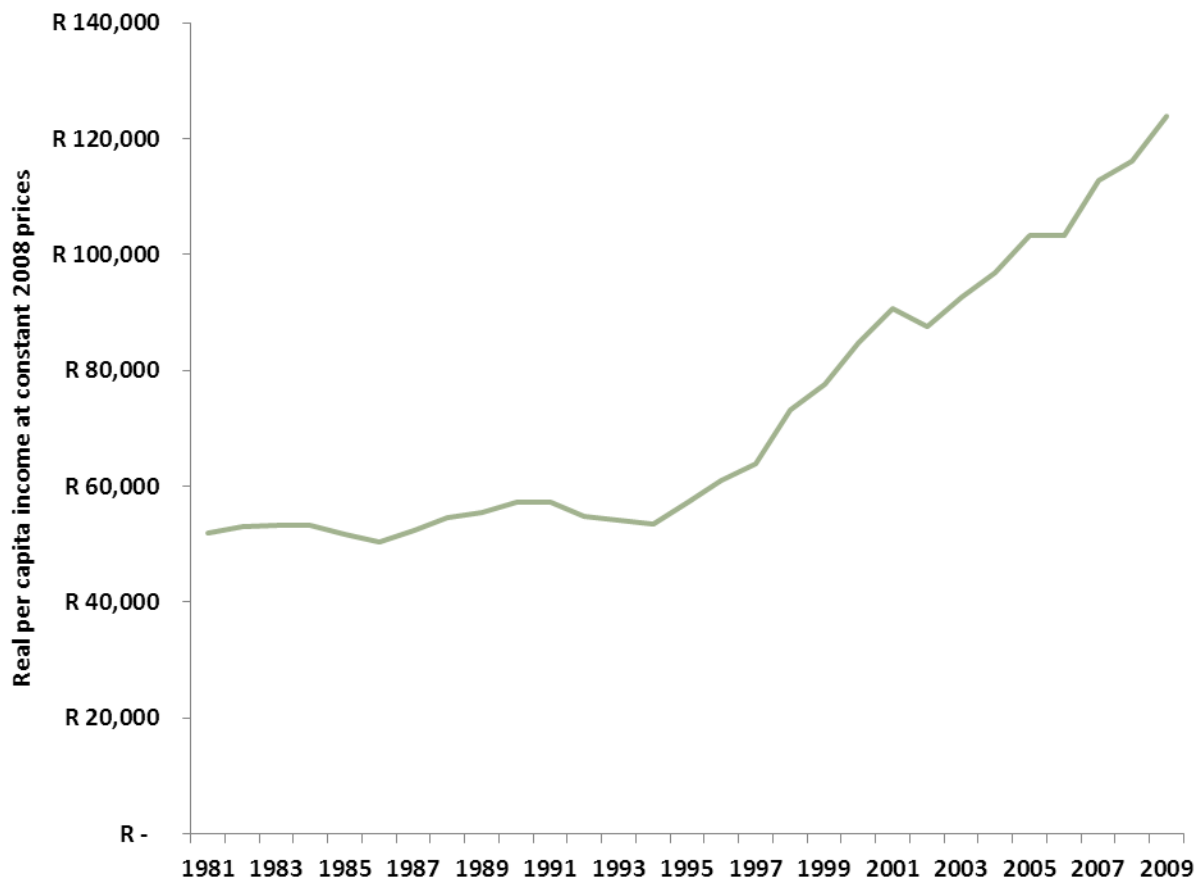


Figure 4-6 Annual remuneration per capita in the mining industry: 1981-2009

Source: Calculated from data provided by the Department of Mineral Resources

¹⁰⁰ Real wages were calculated by using the consumer price index (CPI) as deflator.

Over the period 1981 to 1994 the average income earned by people working in the mining industry remained more or less the same – between R50 000 and R60 000 per year (at 2008 prices). However, from 1994 to 2009 real per capita income increased sharply and passed the R120 000 mark in 2009. Several factors could have contributed to the rise in real wages: an increase in the membership and bargaining power of the unions; an increase in the educational levels of the workers (see Section 2.4.3); and the Social and Labour Plan requirements that oblige employers to recruit locally, instead of using foreign migrant labour.

4.4 FUTURE DEMAND

One of the requirements of this SSP is that it should provide some indication of the future demand for skills in the sector. To arrive at estimates of future demand, a labour demand projection model was developed for the MMS. The labour demand projection model uses the results of an input-output econometric model of the total economy.¹⁰¹ The econometric model provides estimates of growth in total labour demand given certain assumptions. These estimates are used in the labour demand model to project new demand at the occupational group level. The labour demand model then also projects replacement demand, given certain assumptions.

At this stage the demand model does not project demand at the detailed occupational level, but only at the occupational group level of the OFO. This is because there is currently no information available on employment at a detailed occupational level. The MQA is, however, in the process of assisting employers to map their job titles to OFO codes and to report on employment at the detailed occupational level. Once this is done, the occupational demand model will be adapted to project demand at a detailed occupational level.

4.4.1 Assumptions used in the creation of the models

As demand projections are based on assumptions regarding certain economic variables that are uncertain, it was decided to develop three possible scenarios – one that is regarded as the most probable scenario and that is called the “baseline scenario”, one that is regarded as a negative scenario, and one that is regarded as a positive deviation from the baseline scenario. The baseline scenario is the current scenario produced by the econometric model based on historical trends and relationships in the total set of variables used in the model. The positive and negative scenarios were created by adding or subtracting from four exogenous variables: world economic growth, the USD/ZAR exchange rate, year-on-year changes in international metal prices, and South African producer price inflation. The values added or subtracted from the values used in the baseline scenario are the standard deviations observed in the respective data series over the last 30 years. The assumptions used to create the three scenarios are shown in Table 4-1.

¹⁰¹ The econometric model was developed by EcoQuant – an econometric research consultancy.

Table 4-1 Assumptions for macro-economic drivers used in econometric model

Negative scenario	2009	2010	2011	2012	2013	2014	2015	Average 2010- 2015
World growth (% y/y)	-2.3	1.7	1.1	1.4	1.6	1.7	1.9	1.5
USD/ZAR exchange rate	8.44	7.72	7.15	6.74	6.35	5.92	5.49	6.56
International metal prices (% y/y)	-28.6	28.6	-8.4	-8.7	-1.0	-10.5	-3.5	-1.4
SA Producer Price Inflation (% y/y)	0.0	6.8	10.2	10.2	10.2	10.0	10.1	9.5
Baseline scenario	2009	2010	2011	2012	2013	2014	2015	Average 2010- 2015
World growth (% y/y)	-2.3	3.1	2.5	2.8	3.0	3.1	3.3	3.0
USD/ZAR exchange rate	8.44	7.55	7.99	8.63	9.33	9.94	10.57	9.00
International metal prices (% y/y)	-28.6	35.4	5.1	4.8	12.5	3.0	10.0	11.3
SA Producer Price Inflation (% y/y)	0.0	4.5	5.6	5.6	5.6	5.4	5.5	5.4
Positive scenario	2009	2010	2011	2012	2013	2014	2015	Average 2010- 2015
World growth (% y/y)	-2.3	3.8	3.9	4.2	4.4	4.5	4.7	4.3
USD/ZAR exchange rate	8.44	8.23	10.17	11.56	13.14	14.72	16.44	12.38
International metal prices (% y/y)	-28.6	42.2	18.6	18.3	26.0	16.5	23.5	23.9
SA Producer Price Inflation (% y/y)	0.0	2.2	1.0	1.0	1.0	0.9	0.9	1.2

The economic growth (growth in Gross Value Added (GVA)) resulting from each set of assumptions can be seen in Table 4-2. All three scenarios assume that the mining industry as a whole will come out of the current negative territory and that it will show positive growth from 2011 onwards.

Table 4-2 Gross Value Added according to different growth scenarios

Negative scenario	2009	2010	2011	2012	2013	2014	2015	Average 2010- 2015
Coal Mining	-3.1	-3.1	4.7	3.5	3.1	3.4	4.2	2.6
Gold Mining	-10.3	0.2	-5.5	-5.6	-6.3	-6.7	-5.8	-5.0
PGM, Diamond and Other Mining	-7.6	2.7	0.2	0.9	0.9	2.0	2.1	1.5
Total Mining	-7.2	1.2	0.1	0.5	0.4	1.2	1.6	0.8
Baseline scenario	2009	2010	2011	2012	2013	2014	2015	Average 2010- 2015
Coal Mining	-3.1	-1.8	7.1	6.2	6.0	6.1	6.6	5.0
Gold Mining	-10.3	4.6	0.7	0.4	-0.4	-0.9	-0.2	0.7
PGM, Diamond and Other Mining		2.8	5.4	5.1	5.1	5.4	5.6	4.9
Total Mining	-7.2	2.2	5.0	4.6	4.5	4.6	5.0	4.3
Positive scenario	2009	2010	2011	2012	2013	2014	2015	Average 2010- 2015
Coal Mining	-3.1	0.2	10.7	8.5	7.5	7.2	7.4	6.9
Gold Mining	-10.3	12.3	7.9	1.2	0.5	-0.1	0.5	3.6
PGM, Diamond and Other Mining	-7.6	6.8	11.4	6.6	6.6	6.5	6.8	7.5
Total Mining	-7.2	6.4	10.7	6.1	5.9	5.7	6.1	6.8

Based on the assumptions described above, the econometric model produced estimates of total employment growth at three skills levels: Levels 1 to 3. These growth estimates were used in the labour demand forecasting model and were applied to the OFO occupational groups as follows: Level 1 refers to managers and professionals; Level 2 to technicians and trades workers, clerical and administrative workers, and sales workers; and Level 3 to machinery operators and drivers and elementary workers.

Three sets of assumptions were also used in the projection of replacement demand: assumptions regarding mortality, retirement, and people leaving the sector.

Mortality

Mortality rates were calculated for each occupational group using the age distribution of people in each occupational group, mortality figures reported in Statistics South Africa's 2007 mortality report¹⁰² and Statistics South Africa's 2007 midyear population estimates.¹⁰³ The mortality rates used in the model can be seen in Table 4-3.

¹⁰² Statistics South Africa, Mortality and causes of death in South Africa, 2007: Findings from death notification. Statistical release PO0309.3. This was the most recent mortality report available at the time of writing this report.

¹⁰³ Statistics South Africa, Mid-year population estimates, 2007. Statistical release PO302.

Table 4-3 Mortality rates used in labour demand projection model

Occupational group	Annual mortality rate
Managers	2.1
Professionals	1.8
Technicians and Trades Workers	1.8
Community and Personal Service Workers	1.7
Clerical and Administrative Workers	1.7
Sales Workers	2.0
Machinery Operators and Drivers	1.9
Elementary Workers	1.7

Retirement rates

Calculation of retirement rates was based on the age distribution of people in each occupational group. Retirement age was taken as 60. The retirement rates used for the respective occupational groups are shown in Table 4-4.

Table 4-4 Retirement rates used in labour demand projection model

Occupational group	Annual retirement rate
Managers	3.0
Professionals	2.1
Technicians and Trades Workers	1.7
Community and Personal Service Workers	1.7
Clerical and Administrative Workers	2.0
Sales Workers	2.0
Machinery Operators and Drivers	1.8
Elementary Workers	1.5

People leaving the sector

There are various reasons for people leaving the labour market or leaving the sector, including illness or permanent disability, emigration, or to find employment elsewhere in the economy. In the absence of any statistical information on these movements, estimates were made for each occupational group. The percentage of professionals and technicians and trades workers leaving the sector was taken to be higher than in the other occupational groups because of the high demand for these types of skills in the economy in general and even in the rest of the world (Table 4-5).

Table 4-5 Estimates of people leaving the sector used in labour demand projection model

Occupational group	Percentage people leaving the sector each year
Managers	3.0
Professionals	4.0
Technicians and Trades Workers	4.0
Community and Personal Service Workers	2.0
Clerical and Administrative Workers	2.0
Sales Workers	2.0
Machinery Operators and Drivers	1.0
Elementary Workers	1.0

The final estimates of people needed in the various occupational groups under the three scenarios can be seen in Table 4-6 to Table 4-8. First, Table 4-6 indicates the number of new positions that need to be filled each year from 2010 to 2016. Under the negative scenario employment will decline each year and, therefore, there will be no new positions to be filled but the number of positions available in the sector will shrink each year. Under the baseline scenario employment will shrink in 2010, but from 2011 it will grow again, with about 4 500 new positions being created in 2011. Under the positive scenario more than 9 000 new positions will be created in 2010 and more than 24 000 in 2011.

Table 4-7 shows the replacement demand that will occur over the period 2010 to 2016. These figures do not vary much for the different scenarios because the same assumptions regarding mortality, retirement and people leaving the sector were used in all three scenarios. The figures presented in this table show that replacement demand is much larger than new demand.

The net effect of new demand and replacement demand is shown in Table 4-8 – i.e. the total number of positions that need to be filled under the three scenarios. The table shows that, even under the negative scenario, replacement demand exceeds the job losses that may occur and the sector will have to recruit new workers. Under the negative scenario the sector will have to recruit almost 20 000 workers in 2010; under the baseline scenario this number is almost 26 000; and under the positive scenario it is almost 38 000.

Table 4-6 New positions to be filled: 2010-2016

	Occupational group	2010	2011	2012	2013	2014	2015	2016
Negative Scenario	Managers	5	-119	-281	-275	-273	-214	-209
	Professionals	10	-224	-529	-518	-514	-403	-394
	Technicians and Trades Workers	-1 491	-291	-1 466	-1 299	-1 106	-614	-609
	Community and Personal Service Workers	-506	-99	-498	-441	-376	-209	-207
	Clerical and Administrative Workers	-40	-8	-39	-34	-29	-16	-16
	Sales Workers	-149	-29	-147	-130	-111	-61	-61
	Machinery Operators and Drivers	-3 275	-2 257	-5 211	-4 993	-4 608	-3 036	-2 985
	Elementary Workers	-3 324	-2 291	-5 289	-5 068	-4 677	-3 082	-3 030
	Total	-8 768	-5 317	-13 459	-12 757	-11 694	-7 635	-7 512
Baseline Scenario	Managers	126	102	87	63	48	84	85
	Professionals	237	192	163	118	91	158	160
	Technicians and Trades Workers	-647	1 275	1 158	1 161	1 310	1 696	1 730
	Community and Personal Service Workers	-220	433	393	394	445	576	588
	Clerical and Administrative Workers	-17	34	31	31	35	45	46
	Sales Workers	-65	127	116	116	131	170	173
	Machinery Operators and Drivers	-1 147	1 637	1 246	931	1 073	2 323	2 350
	Elementary Workers	-1 164	1 662	1 265	944	1 089	2 358	2 385
	Total	-2 897	5 462	4 459	3 759	4 222	7 411	7 516
Positive Scenario	Managers	374	490	341	179	161	188	314
	Professionals	705	923	642	337	303	354	591
	Technicians and Trades Workers	1 093	4 021	2 991	2 050	2 206	2 563	2 744
	Community and Personal Service Workers	371	1 366	1 016	696	749	870	932
	Clerical and Administrative Workers	29	107	79	54	59	68	73
	Sales Workers	109	402	299	205	220	256	274
	Machinery Operators and Drivers	3 231	8 469	5 698	2 964	3 068	4 243	4 323
	Elementary Workers	3 280	8 596	5 783	3 009	3 114	4 307	4 388
	Total	9 192	24 373	16 848	9 494	9 880	12 850	13 639

Table 4-7 Replacement demand: 2010-2016

	Occupational group	2010	2011	2012	2013	2014	2015	2016
Negative Scenario	Managers	914	914	904	882	859	837	820
	Professionals	1 683	1 684	1 666	1 624	1 583	1 542	1 510
	Technicians and Trades Workers	5 999	5 887	5 866	5 756	5 659	5 577	5 531
	Community and Personal Service Workers	1 486	1 459	1 453	1 426	1 402	1 382	1 370
	Clerical and Administrative Workers	123	121	120	118	116	115	114
	Sales Workers	479	470	468	459	452	445	441
	Machinery Operators and Drivers	9 470	9 317	9 211	8 966	8 732	8 516	8 373
	Elementary Workers	8 612	8 472	8 376	8 153	7 940	7 744	7 614
	Total	28 766	28 323	28 064	27 385	26 743	26 156	25 773
Baseline Scenario	Managers	914	924	932	939	944	948	955
	Professionals	1 683	1 702	1 717	1 730	1 739	1 747	1 759
	Technicians and Trades Workers	5 999	5 950	6 046	6 132	6 219	6 317	6 443
	Community and Personal Service Workers	1 486	1 474	1 498	1 519	1 541	1 565	1 596
	Clerical and Administrative Workers	123	122	124	126	128	130	132
	Sales Workers	479	475	483	489	496	504	514
	Machinery Operators and Drivers	9 470	9 417	9 493	9 552	9 596	9 646	9 755
	Elementary Workers	8 612	8 563	8 633	8 686	8 726	8 772	8 871
	Total	28 766	28 627	28 926	29 174	29 389	29 628	30 026
Negative Scenario	Managers	914	944	984	1 011	1 026	1 039	1 054
	Professionals	1 683	1 739	1 812	1 863	1 890	1 914	1 942
	Technicians and Trades Workers	5 999	6 080	6 381	6 604	6 757	6 922	7 114
	Community and Personal Service Workers	1 486	1 506	1 581	1 636	1 674	1 715	1 762
	Clerical and Administrative Workers	123	125	131	136	139	142	146
	Sales Workers	479	485	509	527	539	552	568
	Machinery Operators and Drivers	9 470	9 622	10 020	10 287	10 426	10 570	10 769
	Elementary Workers	8 612	8 750	9 111	9 355	9 481	9 612	9 793
	Total	28 766	29 252	30 529	31 419	31 933	32 467	33 149

Table 4-8 Total number of positions to be filled: 2010-2016

	Occupational group	2010	2011	2012	2013	2014	2015	2016
Negative Scenario	Managers	919	795	624	607	586	623	610
	Professionals	1 693	1 460	1 137	1 106	1 069	1 139	1 116
	Technicians and Trades Workers	4 508	5 596	4 400	4 457	4 553	4 962	4 921
	Community and Personal Service Workers	980	1 360	955	985	1 027	1 173	1 163
	Clerical and Administrative Workers	84	113	82	84	87	98	97
	Sales Workers	330	441	322	330	341	384	381
	Machinery Operators and Drivers	6 196	7 060	4 000	3 973	4 124	5 479	5 388
	Elementary Workers	5 288	6 182	3 087	3 086	3 263	4 662	4 584
	Total	19 998	23 007	14 605	14 628	15 050	18 521	18 260
Baseline Scenario	Managers	1 039	1 026	1 019	1 002	993	1 032	1 040
	Professionals	1 920	1 894	1 880	1 848	1 831	1 905	1 919
	Technicians and Trades Workers	5 352	7 225	7 203	7 293	7 529	8 013	8 174
	Community and Personal Service Workers	1 267	1 907	1 891	1 914	1 986	2 141	2 184
	Clerical and Administrative Workers	106	156	155	157	162	175	178
	Sales Workers	414	602	598	605	627	674	687
	Machinery Operators and Drivers	8 323	11 054	10 740	10 482	10 668	11 969	12 105
	Elementary Workers	7 448	10 225	9 898	9 631	9 814	11 130	11 256
	Total	25 869	34 089	33 384	32 933	33 611	37 039	37 542
Positive Scenario	Managers	1 288	1 434	1 324	1 190	1 187	1 227	1 368
	Professionals	2 388	2 662	2 454	2 200	2 193	2 268	2 533
	Technicians and Trades Workers	7 092	10 102	9 371	8 654	8 963	9 485	9 857
	Community and Personal Service Workers	1 857	2 872	2 596	2 332	2 423	2 585	2 694
	Clerical and Administrative Workers	152	232	210	190	197	210	219
	Sales Workers	588	887	808	732	760	809	842
	Machinery Operators and Drivers	12 702	18 091	15 718	13 251	13 494	14 814	15 093
	Elementary Workers	11 892	17 346	14 895	12 363	12 595	13 919	14 181
	Total	37 958	53 625	47 377	40 913	41 813	45 317	46 788

4.5 FACTORS IMPACTING ON THE DEMAND FOR SKILLS IN THE SECTOR

The MMS has seen dramatic changes in technology and work organisation in the past decade. Restructuring has taken place and/or is underway at several levels: at mining-group level, as well as at mining-company and workplace levels. The aim of this restructuring is to develop a leaner, more focused and internationally competitive industry, bearing in mind all the challenges that the sector is facing in meeting competing stakeholder demands while still remaining profitable.¹⁰⁴

The effect of restructuring on employment and skills needs requires further research and close monitoring in order to align skills development to changes in the industry. Part of the restructuring is the widespread tendency to outsource non-core activities to other, often smaller, companies. This has led to the proliferation of smaller organisations that provide services to the mining industry. In some instances even the core mining functions, such as shaft-sinking, are outsourced to other specialised mining companies (see also section 2.6.8).

Technological changes have had a profound effect on the MMS and have greatly enhanced the efficiency of the industry. Technological advancements impact on every aspect of the mining process. For example, new technologies such as satellite imaging and information technology have revolutionised exploration. Electromagnetic spectrum analysis of the target landmass gathered from satellites is now the first stage of many exploration efforts, enabling geologists to home in on promising areas. This is then supplemented by geomagnetic information gathered from aircraft and, ultimately, by exploratory drilling. The general availability of electromagnetic and geological data has removed a massive scale barrier to exploration, and transformed the exploration business through the entry of a myriad small exploration companies, or 'juniors', often consisting only of a few geologists and a small budget. Exploration costs have also fallen with the use of satellite images and information technology: Once core samples are gathered and analysed, the raw data is manipulated via computer, with geographical information systems thus allowing a wide range of geological and other attributes to be mapped accurately at dramatically reduced cost. Large scale, cost-effective exploration has resulted in deposits being found much more quickly.¹⁰⁵

Engineering design has been revolutionised through computer-aided design (CAD) and engineering techniques. For example, it has become possible to design and simulate an entire plant through three-dimensional modelling.

Computer modelling of a mine and its geological features now enable a mine planner to minimise ground instability and maximise ore recovery. In the past the equations were so complex and calculations took so long that this technique could not be used for daily mine planning. Advances in computer technology now make these techniques feasible for daily problem solving. The techniques have led to reduced rock burst problems and increased ore recovery rates.

¹⁰⁴ University of Cape Town, *A Perspective on the South African Mining Industry in the 21st Century*, www.bullion.co.za, Accessed 10 June 2010.

¹⁰⁵ University of Cape Town.

Advances in biotechnology, chemistry and mechanical engineering have cumulatively made reduction plants, where the mineral is extracted from the mineral-bearing rock, more efficient. These improvements have been large enough to change the financial viability of projects that span many minerals.¹⁰⁶

Internationally, mechanisation of mining activities is seen as the only real way for the sector to make its jobs safer and more meaningful, while at the same time making operations more efficient, extending their lifespan, improving the image and attractiveness of the sector (as people are able to live and work away from the physical rural local of the mines), and thus retaining operational profitability.¹⁰⁷ There are however many challenges to mechanisation, particularly in deep level, gently sloping and narrow hardrock ore bodies such as South Africa's gold and platinum deposits: First, while horizontal veins would eliminate the influence of gravity, and severe slopes or vertical veins would allow gravity to be harnessed, SA's gently sloping ore veins serve only to make the logistics of moving machinery more difficult; Second, the narrowness of the ore veins necessitate the use of small machinery, which does not yet exist. Finally, the hardness of the rock would require these small machines to be very strong, yet still require high levels of maintenance. At the same time, a general inertia to change means that mechanisation is likely to be put off until it is uneconomical to do so any longer.¹⁰⁸

The impact that mine mechanisation will have on employment and skills in the sector has not yet been the subject of any detailed study, either in South Africa or internationally.¹⁰⁹ It is however the view of industry experts that over time the inevitable adoption of mechanisation will increase the level of basic skills required by the sector, particularly in the subject areas of maths and science; that the demand for artisans will rise dramatically¹¹⁰; and that at an overall level jobs will shift out of the mining sector and into the manufacturing sector, where the capital equipment for mining will be made. A key challenge for South Africa will be to retain these manufacturing jobs locally –something that can only be done by having the right skills in the labour market and an economic framework conducive to manufacturing.¹¹¹ In light of this, cooperation regarding long-term skills planning between the MQA and the manufacturing, engineering and related services SETA (merSETA) will be necessary.

The Diamond Processing subsector also has to keep up with the latest technology in order to compete with the rest of the world. For example, conventional sawing and maxicut bruting are becoming obsolete as these techniques are being replaced with laser- and discron cutting machines. The computerised rough analyser is becoming more and more sophisticated and coning of stone is now

¹⁰⁶ University of Cape Town, *A Perspective on the South African Mining Industry in the 21st Century*, www.bullion.co.za.

¹⁰⁷ Sloan Career Cornerstone Center, Career Planning Resources in Mining, <http://www.careercornerstone.org/industries/mining.htm>, Accessed 14 November 2010.

¹⁰⁸ Dr Declan Vogt, Mining Technology Research Development Manager for the Centre for Scientific and Industrial Research (CSIR), in a personal interview, 15 November 2010.

¹⁰⁹ This has just been identified as a PhD study by a student at the Wits Centre for Mechanised Mining Systems. The study will look at both the changes in the numbers of people in employed in mining due to future mechanization, as well as the changes in the types of work. The outcome of the study will be available in 2-3 years time.

¹¹⁰ Vogt D, Mining Technology Research Development Manager for the Centre for Scientific and Industrial Research (CSIR), personal interview, 15 November 2010.

¹¹¹ Du Plessis A, Professor at Wits Centre for Mechanised Mining Systems, personal interview, 12 November 2010.

possible. All these techniques have a major impact on the skills development in this component of the MMS.¹¹² At the same time should Government succeed in its current effort to increase local and foreign investment into metals and minerals beneficiation, particularly in the Diamond Processing and Jewellery Manufacturing subsectors, demand for the volumes of these higher-level skills in the local labour market will increase dramatically.

Clearly, technological developments do not have a uniform effect on the demand for labour. On the one hand, the mechanisation and computerisation of processes may reduce the demand for labour. On the other hand, technology also saves jobs – for example, by improving exploration, facilitating mining at deeper levels, and lengthening the lifespan of mines. At the same time technological changes are the biggest drivers of skills demand in the industry and all levels of workers have to continuously upgrade their skills if they are to keep up with technological changes.

Small-scale mining is fairly widespread in South Africa and has grown in the last ten years. It therefore warrants special attention. Small-scale miners are involved in the mining of all mineral commodities but are distinguished on the basis of the scale of operations and the level of technology deployed. The degree of participation of small-scale miners in the mining of a particular commodity depends on the availability of deposit, and the ease of mining, processing and extraction of the commodity. Small-scale miners are attracted to small deposits that are unsuitable for exploitation by large mining companies as well as the reprocessing of tailing dumps left behind by large mining companies. The uncomplicated processing requirements of commodities such as sand and clay for brick making also attract small-scale miners.¹¹³

At this stage the level of technology deployed by small-scale miners is low and outdated and a substantial amount of work is required to raise operations to the level of profitable and properly managed operations. Small-scale mining often involves the use of adapted or very old equipment. Miners, particularly informal miners, often practise very unsafe mining and mineral extraction methods.¹¹⁴

A small scale mining colloquium held in Johannesburg in August 2010, hosted by the MQA and facilitated by the Centre for Sustainability in Mining and Industry (CSMI), sought to identify priority actions to inform the Small Scale Mining Framework for Support document that is currently being developed. In relation to the issues of skills and capacity development in particular, participants identified the need for training in the areas of: practical mining, entrepreneurship, small business management, beneficiation, marketing, and legal compliance. While the numerous practical challenges related to the delivery of training in this sector were acknowledged, it was argued that ways must be found by mandated organisations to deliver training that has a balance between skills enhancement and mandatory SHE training through mechanisms that allow small scale miners to attend without

¹¹² Migogo B, CEO Diamond Council, written communication 7 June 2010.

¹¹³ Human Sciences Research Council (HSRC), Skills and Training Analysis in the Small-Scale Mining and Minerals Sub-Sector, MQA, 2004.

¹¹⁴ Ibid.

jeopardising production. Training was seen to be a key means of breaking the ‘vicious cycle of small scale mining that is characterised by lack of investment, low production, low returns, low revenue and low savings (and that) keeps most small scale mining operators in a poverty trap’.¹¹⁵

Changes in the skills required in the MMS are also driven by the need for greater environmental responsibility referred to in sections 2.6.13 and 3.3.12. Apart from the need for environmental specialists in the sector, there is also a need for the development of environmental knowledge and skills among workers in various occupations. These needs span a wide spectrum – including basic environmental literacy; basic skills in environmental practices such as energy and resource efficiency and risk prevention and mitigation; new technologies for environmental management, rehabilitation and waste water treatment; environmental policy, ethics and sustainable business practices; mine rehabilitation and restoration; disaster management; and environmental risk mitigation and climate change risks.¹¹⁶

Finally, Government’s recent policy document The New Growth Path: The Framework is focussed on growing a range of economic sectors including the mining sector, with a focus on increasing the number of jobs. According to initial projections undertaken by the Industrial Development Corporation, mining (excluding beneficiation activities) can increase its employment by an additional 140 000 jobs by 2020 and 200 000 jobs by 2030. The successful implementation of this strategy will thus also impact on the demand skills in the sector.¹¹⁷

4.6 CONCLUSIONS

This chapter analysed the demand for labour in the MMS from different perspectives. First it looked at total employment and found that the mining industry’s employment plummeted from more than 800 000 in 1985 to just more than 400 000 in 2000. However, despite the poor economic performance of the sector described in Chapter 3, employment increased by almost 100 000 workers between 2000 and 2007. In 2008 and 2009 the contraction of the industry due to the impact of the global economic crisis became evident in the employment figures, with some 20 000 job losses reported. Job losses continued in 2010 and by March 2010 some 45 000 unemployed mine workers were reported in the LFS.

The analysis of labour demand further shows that mining in South Africa is relatively labour intensive and is likely to remain so in the near future. However, technological advancements have brought about changes in the skills required of people in the industry and will continue to drive skills needs into the medium- to longer-term future.

This chapter includes projections of the demand for labour over the period 2010 to 2016. Three demand scenarios were developed: a baseline scenario that is regarded as the most likely scenario, a negative scenario, and a positive scenario. The last two scenarios were created by altering four

¹¹⁵ MQA-CSMI, Small Scale Mining Colloquium, Johannesburg, South Africa – Report and Analysis of Outputs, September 2010.

¹¹⁶ Department of Environmental Affairs, Integrating the Environmental Driver into Sector Skills Plans: an Enabling Document for all SETAs, July 2010.

¹¹⁷ Republic of South Africa, The New Growth Path: The Framework, November 2010.

exogenous variables: world economic growth, the USD/ZAR exchange rate, year-on-year changes in international metal prices, and South African producer price inflation. The variation of economic variables produced different estimates of new positions in the MMS. In addition, estimates of replacement demand were also made based on assumptions regarding retirement, mortality and people leaving the MMS.

Overall it is clear that replacement demand exceeds new demand and that even if the MMS were to further contract, the sector will still have to train new people to satisfy the replacement demand of the labour market. Conversely, in the event of high economic growth the sector may need as many as 50 000 new workers per year to satisfy new as well replacement demand.

5 THE SUPPLY OF SKILLS TO THE SECTOR

5.1 INTRODUCTION

The main aim of this chapter is to describe the supply of skills to the MMS. The supply of skills is viewed from different perspectives. First of all it is necessary to consider the current supply or the stock of skills available to the sector. This includes the people currently employed as well as those who are unemployed and available for work in the sector. As a result of the cyclical nature of employment in the MMS, the number of unemployed people who were previously employed in mining and who have some of the skills necessary for work in the MMS changes over time. This issue is explored.

Secondly, the chapter looks at the flow of new skills into the sector. Of particular importance is the education and training of professionals, technicians and artisans. In many instances the training of these occupational groups takes place before the learners take up permanent employment in the sector. It is therefore necessary to ensure that bursary schemes and other incentive schemes are sufficient to provide an adequate flow of learners through the educational system and into the MMS, which is in competition with other sectors for these skills. As the education and training of these occupational groups also take several years, a long-term view with regard to the development of their skills is crucial.

A third aspect of skills supply that is dealt with in this chapter is the development of skills among those who are already in the work environment. The profile of the sector sketched in previous chapters clearly indicates the predominance of the occupational categories of machinery operators and drivers, and elementary workers in the sector. These categories of workers are typically trained for their specific positions after entering into employment contracts. Their training thus becomes the primary responsibility of employers. This applies equally to clerical and administrative and sales workers. At the same time, it is critical that all categories of workers stay abreast of changes in the work environment and of health and safety regulations. Consequently, in-service training is a large and important aspect of the supply of skills to the MMS.

The final sections of this chapter consider the MQA's interventions to alleviate skills shortages within the sector, as well as the issue of perceptions of inadequate quality of training for the sector.

5.2 CURRENT SUPPLY

5.2.1 Current employment

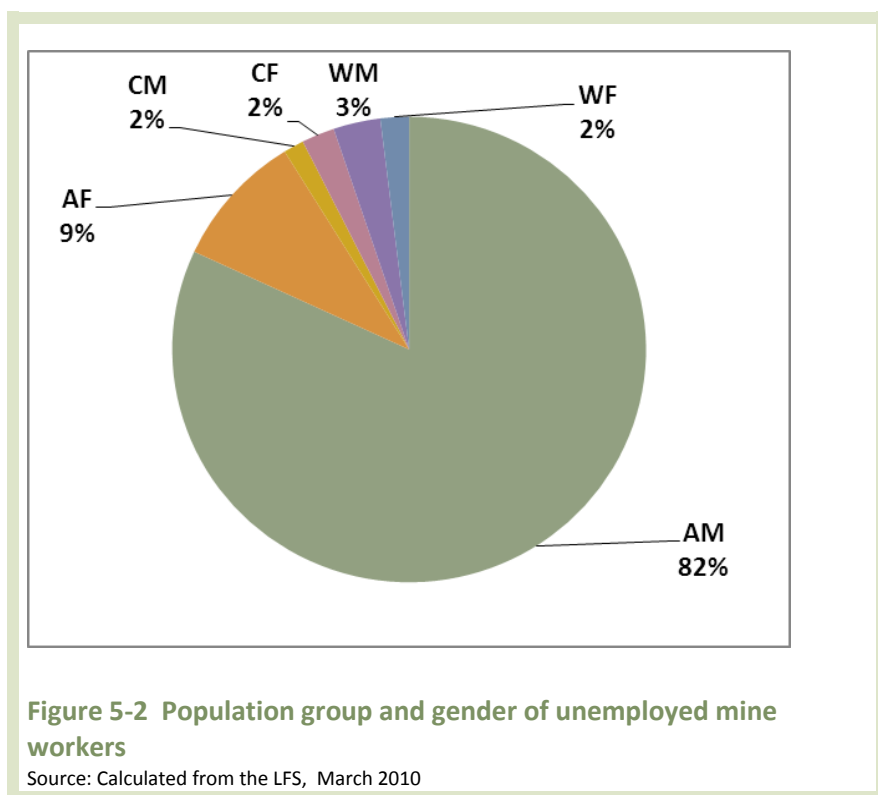
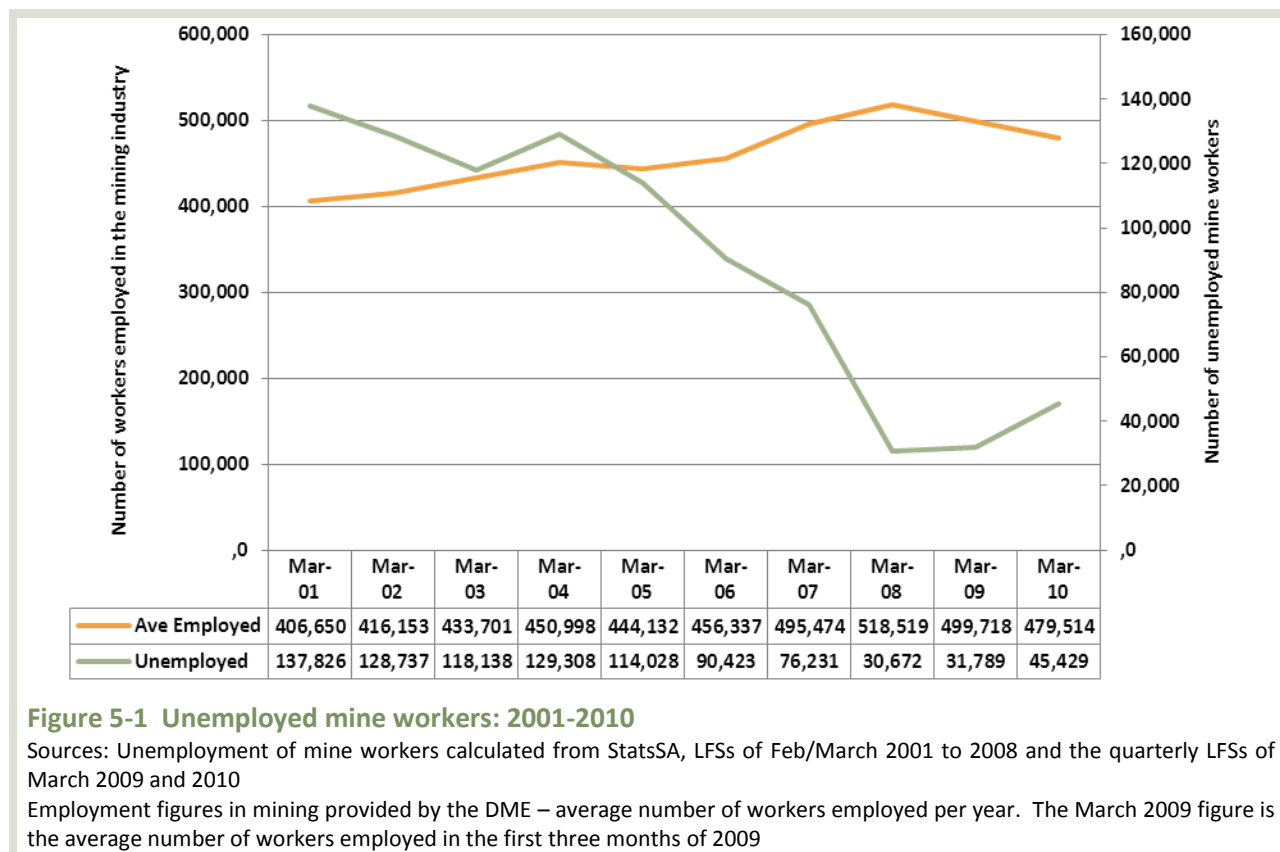
The stock of skills available to the sector consists of the people currently employed, as well as those that are unemployed but available for work. The previous chapters gave an overview of the people currently employed in the MMS. Most of the workers have relatively low educational levels. It is estimated that 17.8% have no formal schooling, 36.0 % have some formal schooling in the General Education and Training (GET) band, 36.3 % have qualified in the Further Education and Training (FET) band, and only 9.9% have higher education qualifications.

Another aspect of the educational profile of the current workforce that needs to be mentioned is the fact that many workers have attained certain skills and literacy levels that are not reflected in their educational qualifications. For this reason RPL is very important – especially in times when mines are reducing worker numbers and workers have to find employment elsewhere.

5.2.2 Unemployment

The decline in employment that took place over the last two decades created excess capacity in the labour market and left large numbers of previous employees of the MMS unemployed. The March 2001 LFS recorded almost 140 000 unemployed mineworkers.¹¹⁸ As employment increased, the number of unemployed mine workers decreased and in March 2008 the LFS reported only 30 000 unemployed mine workers. This figure increased to just more than 45 000 in March 2010, despite the fact that employment in the mines decreased by approximately 20 000 towards the first quarter of 2010 (Figure 5-1). One of the possible reasons why the reduction in employment is not directly reflected in the unemployment statistics is that mines tend to first reduce the number of contractors that they employ, many of whom are foreign nationals who may return to their countries of origin after termination of their contracts.

¹¹⁸ The term “unemployed mineworker” refers to a person who is currently unemployed but whose previous work was in the mining industry. The expanded definition of unemployment was used to determine unemployment figures among workers previously employed in this industry. This means that people who were not working and who were available for work but who were not actively looking for employment in the four weeks preceding the survey (i.e. discouraged work seekers) were included in the definition.



According to the Quarterly LFS of March 2010, the majority of unemployed mineworkers (82%) are African men. African women constitute 9% of the unemployed, coloured men 2%, coloured women 2% and white men 3%. The LFS did not find any unemployed Indian men or women who had previously worked in the mining industry.

The provincial distribution of unemployed mineworkers over the period 2001 to 2010 can be seen in Table 5-1. In the first four years a large percentage of unemployed

mine workers were found in the Eastern Cape. However, it seems as if these workers were either re-

absorbed into the industry from 2006 onwards or that they found employment elsewhere. The other province that is mostly affected by the unemployment of mine workers is North West. In March 2010 29% of the unemployed mine workers recorded by the LFS resided in North West.

Table 5-1 Provincial distribution of unemployed mineworkers

	March 2001	March 2002	March 2003	March 2004	March 2005	March 2006	March 2007	March 2008	March 2009	March 2010
Province	Percentage of unemployed workers									
Eastern Cape	32	23	32	25	27	14	24	2	6	8
Free State	12	11	8	8	14	12	7	4	17	12
Gauteng	7	11	11	7	10	16	8	13	11	8
KwaZulu-Natal	8	12	5	14	5	7	9	0	0	10
Limpopo	8	8	11	7	12	12	10	10	10	15
Mpumalanga	7	9	7	9	8	8	7	25	17	11
North West	23	21	23	28	19	24	27	35	32	29
Northern Cape	2	3	2	3	4	5	5	11	8	8
Western Cape	1	2	2	0	1	2	3	1	0	0
Total	100	100	100	100	100	100	100	100	100	100

Sources: Calculated from StatsSA, LFS March 2001 to 2008 and the Quarterly LFS of March 2009 and June 2009

5.3 THE SUPPLY OF NEW SKILLS TO THE SECTOR

5.3.1 Higher education and training

The fields of study relevant to this sector have been identified in Chapter 2 as mining engineering, metallurgy, chemical engineering, geology, electrical engineering, mechanical engineering, analytical chemistry, environmental management, mine surveying, and jewellery design and manufacturing. (CAD is a component of many of qualification in these study areas).

Mining engineering is offered at the University of the Witwatersrand, the University of Pretoria, the University of Johannesburg, and UNISA. Mine Surveying is offered at the University of Johannesburg. Jewellery design and manufacturing is offered at Stellenbosch University and at four universities of technology. The other fields of study are each offered at a number of institutions. The student output in entry-level engineering qualifications (three-year diplomas and four-year first degrees) over the period 1999 to 2008 can be seen in Figure 5-3.

Output increased substantially in all fields of study, with the highest average annual increase (13.5%) in chemical engineering. This is followed by geology (13.3%), metallurgical engineering (12.9%), mechanical engineering (9.9%) and electrical engineering (7.8%). However, these increases were not sufficient to alleviate the overall shortages experienced in these fields in the country. Furthermore, with the exception of mining engineering, the MMS competes with the rest of the economy for many of

these skills – mechanical engineering and electrical engineering – and relative to other sectors is seen as undesirable due to the difficult working environment and the rural location of the mines.

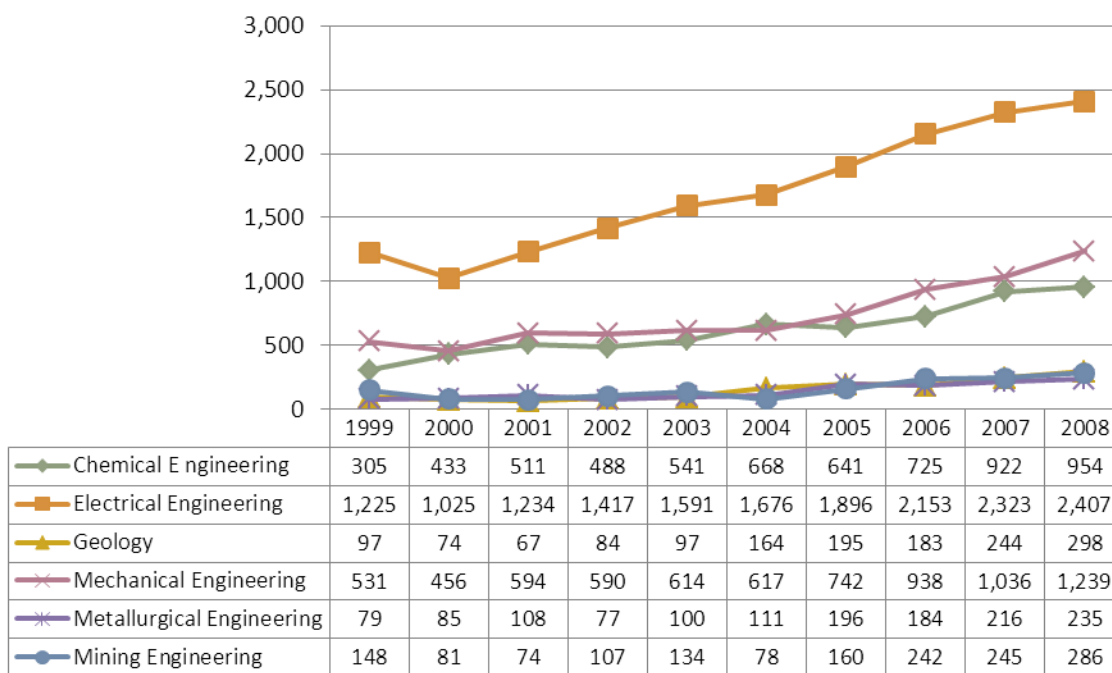


Figure 5-3 Total number of entry-level qualifications awarded in the relevant fields of study: 1999-2008

Source: Department of Education, HEMIS, Table 2.13, 1999 to 2008

Another matter of concern to the MMS is the racial and gender representivity among new entrants and the transformation of some of the occupational fields. Figure 5-4 illustrates the population group composition of the graduates in 2008 who qualified from universities and universities of technology in the relevant fields. In all fields of study the majority of graduates were Black (African, Coloured and Indian). The field with the lowest Black representation was mechanical engineering, with 60.2% Black graduates.

Figure 5-5 shows the gender distribution of the 2008 graduates. In some of the fields of study women formed a substantial percentage: in metallurgical engineering and geology women formed over 40% of the total and in chemical engineering they formed 37.1%. Substantial numbers of women are also qualifying in electrical engineering (21.5%), mining engineering (17.5%), and mechanical engineering (14.1%).

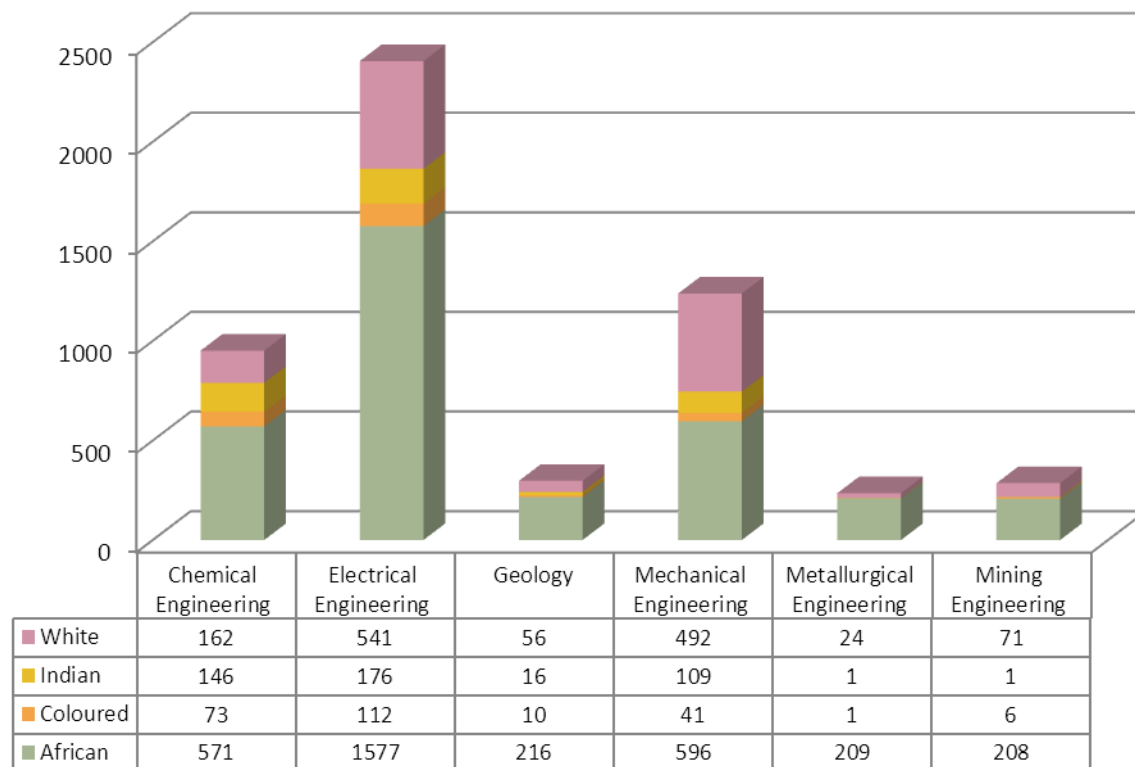


Figure 5-4 Population group distribution of graduates* according to field of study: 2008

*Graduates include people who qualified with national diplomas and three- and four-year first degrees

Source: Calculated from DHET, HEMIS, Table 2.13, 2008

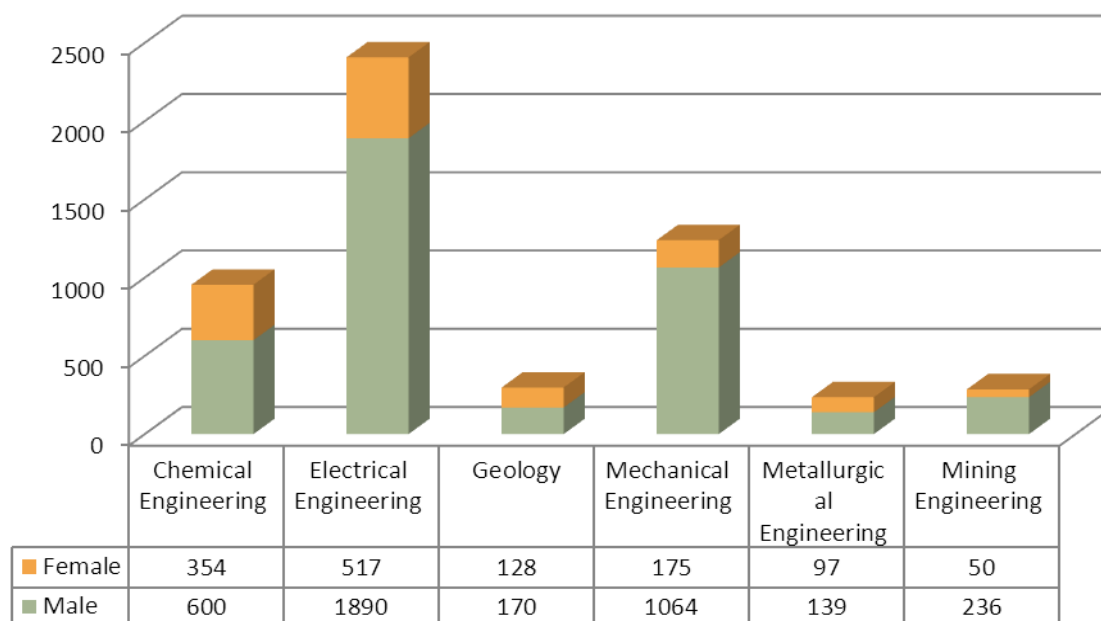


Figure 5-5 Gender distribution of graduates* according to field of study: 2008

*Graduates include people who qualified with national diplomas and three- and four-year first degrees

Source: calculated from Department of Education, HEMIS, Table 2.13, 2008

In the MMS specific disciplines of mining and metallurgical engineering, it is positive to note that both Black and female graduations showed a steady growth in numbers over the period 2003 to 2008 (**Table 5-2**). As a percentage of the overall group of graduates, the transformation in both disciplines is clearly evident. Racial transformation in particular has shown significant progression.

Table 5-2 Graduations in mining specific engineering disciplines (2003 – 2008)

	Mining Engineering					Metallurgical Engineering				
	Black		Female		Total	Black		Female		Total
	N	%	N	%	N	N	%	N	%	N
2003	36	59.0	9	14.8	61	74	74.0	39	39.0	100
2004	43	66.2	7	10.8	65	93	83.8	28	25.2	111
2005	103	66.0	17	10.9	156	167	85.2	63	32.1	196
2006	150	57.7	25	9.6	260	159	85.5	63	33.9	186
2007	186	76.2	48	19.7	244	198	91.7	73	33.8	216
2008	215	75.2	50	17.5	286	211	89.8	97	41.3	235

Source: Landelahni, 2010¹¹⁹

The general shortage of engineering skills in the South African labour market is widely acknowledged to be critical. Government's Joint Initiative on Priority Skills (JIPSA) (now incorporated into the Human Resources Development Strategy) identified engineering as one of its five priority skill areas, working with engineering faculties in institutions of higher education to increase enrolment.

A study undertaken by the Human Sciences Research Council (HSRC) found that the engineering skills development pipeline is long and is being negatively impacted on by a number of factors. Fundamental to the challenge of growing the national pool of engineers is the country's poor quality schooling system, with low enrolment and pass rates, combined with low quality teaching, in the critical subject areas of Maths and Physical Science. Engineering faculties also compete with other faculties for enrolments from a small pool of eligible school-leavers, whose demographics are not yet reflective of the country's population. Poor school preparation, together with other issues such as increased class sizes, the difficulty some students have in accessing study finance, and limited workplace training opportunities that are compulsory for students from the universities of technology to graduate, all contribute to poor engineering throughput rates.¹²⁰

Besides for changing the funding formula to tertiary institutions to promote the education of engineers, Government's The New Growth Path: The Framework aims to strengthen measures that promote a greater and more equitable access to physical science and mathematics education at secondary level

¹¹⁹ Landelahni Business Leaders, Fast Facts: Mining Research Report, 2010: Local mining industry mirrors global skills crisis, pg. 4, http://www.landelahni.co.za/industry_reports/Mining%20Research%20Summary%20Report%202010.pdf, Accessed 18 November 2010.

¹²⁰ Du Toit R & Roodt J (2009) Engineers in a Developing Country: The profession and professional education of engineers in South Africa, HSRC Press, Pretoria, 2009.

and expand bridging programmes to tertiary courses as primary means to target at least 30 000 additional engineers for the national labour force by 2014.¹²¹

The SA mining sector competes for engineering skills not only with other sectors in the national economy, but also with the global mining industry. While the percentage of mining engineering graduates that joining the industry is 75% for the US and 80% for Australia, only 15% of SA mining engineers remain in the industry for a long-term career, choosing instead to move to the higher remuneration options of financial services companies or becoming consultants, contractors or equipment service providers to the industry¹²². SA also continuously loses general and mining engineering skills to other countries such as Australia and Canada, who are active recruiters. And while the country produces more mining engineers than all other English-speaking countries combined, the supply pipeline is too small and the output still insufficient to counter international losses at the same time as replace the aging engineering and artisan population. This places the industry at a severe disadvantage in respect of future growth.

Engineering graduates are also a primary feeder into mining management positions. Graduates require up to 15 years of work in the sector before they are sufficiently experienced to serve in any basic managerial capacity. Given this situation, it is increasingly important that the MMS takes a long term view of the training and development of engineers – not only to meet the direct need for their professional skills in the short- to medium-term, but also to meet the demand for their skills in a managerial capacity in the longer-term.¹²³

Organisations in the MMS strongly support skills development through higher education. In 2008/2009 the organisations that submitted annual training reports (ATRs) to the MQA provided 235 bursaries to people who were not in their employ. The largest numbers of bursaries were given for study in the fields of mining engineering (36 bursaries), electrical engineering (34 bursaries) and mechanical engineering (31 bursaries). Other fields that were also supported with bursaries are geology (29 bursaries), metallurgy (25 bursaries) and chemical engineering (14 bursaries). Bursaries were also provided in fields such as accounting / finance (21 bursaries) and human resources (7 bursaries).¹²⁴

Employers also provide study assistance in the form of bursaries and loans to employees who want to improve their qualifications. The organisations that submitted ATRs for 2008/2009 awarded 851 bursaries to their own employees. Relatively large numbers of bursaries were awarded to employees to

¹²¹ Republic of South Africa, The New Growth Path: The Framework, November 2010.

¹²² 'A combination of factors contributes to engineering professionals leaving the technical environment. The adaptability of engineering skills in many environments, insufficient incentives, appointment policies, lack of opportunities to get the required experience, lack of continuing professional development, insufficient career paths, underutilisation of engineers (because of too few technicians and artisans available) in some environments, and under qualified engineering staff in other environments such as at local government level because of a shortage in engineers, all contribute to migration of technical skills to more lucrative environments.' Du Toit R & Roodt J (2009) Engineers in a Developing Country: The profession and professional education of engineers in South Africa, HSRC Press, Pretoria, 2009, p16.

¹²³ Landelahni Business Leaders, Fast Facts: Mining Research Report, 2010: Local mining industry mirrors global skills crisis, http://www.landelahni.co.za/industry_reports/Mining%20Research%20Summary%20Report%202010.pdf, Accessed 18 November 2010.

¹²⁴ EE Research Focus, Analysis of WSPs and ATRs Year 9, Report prepared for the MQA, 2010.

study in the field of engineering – mining engineering (62 bursaries), mechanical engineering (53 bursaries) and electrical engineering (52 bursaries). Another 212 bursaries were awarded for studies in human resources and in the field of accounting or finances.¹²⁵

The MQA also has a bursary scheme for tertiary studies. The bursaries awarded over the period 2002 to 2009 in the respective fields of study can be seen in Table 5-3. The figures refer to the number of awards made per year for studies in that particular year. The total number of awards made over the total period was 1 346. The bursary scheme was discontinued in 2006 and 2007 but re-introduced in 2008.

Table 5-3 Bursaries awarded by the MQA: 2002-2009

Discipline	2002	2003	2004	2005	2006	2008	2009
Analytical Chemistry	9	3	9	43	1	3	1
Geology and Mining Geology	15	6	27	51	4	140	8
Electrical Engineering	12	10	24	77		91	5
Mechanical Engineering	18	14	16	60	1	63	14
Metallurgical Engineering							85
Metallurgy	10	19	13	23	1	50	
Jewellery Design	32	6	15	11		28	16
Electro Mechanical	0	1	2	7			
Mining Engineering	24	25	34	19		38	109
Industrial Engineering				14			
Chemical Engineering							
Mine Surveying			1	1			6
Environmental Engineering			1	11			
Engineering Related Design						16	
Accounting / Finance							
Human Resources							
Other		1	1			1	
Total	120	85	143	317	7	430	244

Source: Statistics from 2002 to 2005 provided by Career Wise, an institution contracted to administer the MQA's bursary scheme at that time and, from 2006 onwards, the MQA data system

In addition to the bursary scheme, the MQA has programmes in place that provide work experience for students (the 12 month P1 and P2 practical programme) that is required by the universities of technology for graduation. The MQA also supports the Work Integrated Learning (WIL) that is required for university qualification achievement through an internship project.

5.3.2 Learnerships

At the time of writing this report, the MQA had 109 learnerships in total registered with the DHET, each leading to one of 62 qualifications registered with the South African Qualifications Authority (SAQA). These learnerships span NQF levels 2 to 4, and are mostly presented by private training providers, which include training centres on the mines. While some learnerships (such as those at Level 2 and 3 for

¹²⁵ EE Research Focus, 2010.

underground hardrock mining that have essentially replaced the old Blasting Certificate for Scheduled Mines) are targeted at employed miners, a significant proportion of learnerships, especially those focussed on artisan training, are targeted at unemployed learners. Learnerships thus provide an important mechanism for the training of new entrants to the MMS.

Figure 5-6 shows the number of learnership enrolments and completions from 2001 to 2009. A total 22 552 learners had enrolled on learnerships in that period and 6 608 learnerships were completed.¹²⁶ A detailed breakdown of learnership enrolments and achievements can be seen in Appendix 6.

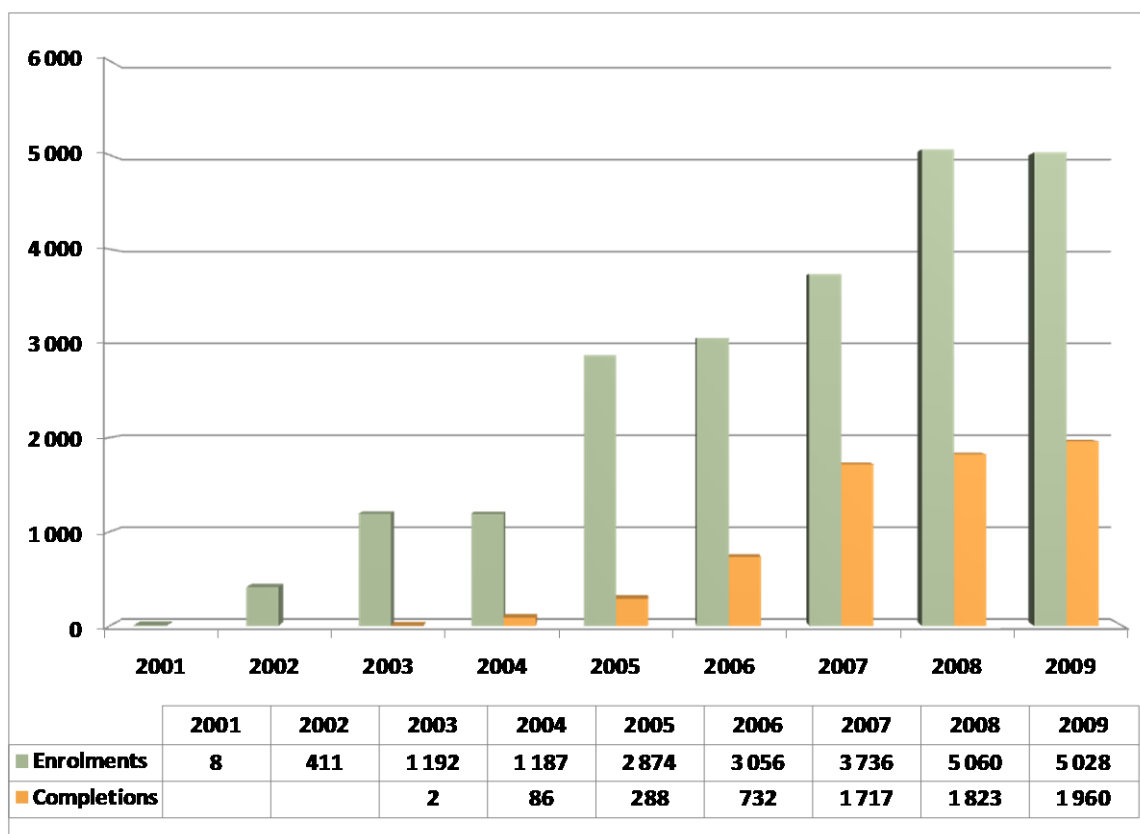


Figure 5-6 Learnership enrolments: 2001 to 2009

Source: MQA data system

A relatively large proportion of learnerships in the MMS are aimed at the training of artisans, another skill area of critical importance for technical and engineering-based industries, and a target of JIPSA interventions due to severe national shortages. In the Skills Development Amendment Act, a

¹²⁶ Information obtained from the MQA's data system.

learnership is equated with an apprenticeship. The MQA has embraced the concept of learnerships and has registered learnerships for all the engineering trade qualifications. Over the past 18 months an attempt has been made by the MQA to discontinue its apprenticeship contracts and to put these learners onto the related learnership agreements, which is seen as an improvement on the contract.

Table 5-4 shows the number of learners who qualified on trade-related learnerships over the period 2003 to 2009. Over this period a total of 3 080 learners qualified. Although the figures fluctuated somewhat, the marked increase in 2007 and in 2008 is positive. (The drop in 2009 could possibly be ascribed to a time-lag in data submission.)

Table 5-4 Number of learners registered on trade-related learnerships: 2003-2009

QUALIFICATION	2003	2004	2005	2006	2007	2008	2009	Total
National Certificate Diesel Mechanic		10	22	63	115	103	52	365
National Certificate Electrical	1	25	56	79	247	291	173	872
National Certificate Engineering Maintenance for Underground Hard Rock (Metalliferous)		1	26	61	64	151	91	394
National Certificate Fitting (including Machining)		10	32	66	137	186	97	528
National Certificate Fitting and Turning		1	13	12	48	32	22	128
National Certificate Millwright			19	27	78	64	79	267
National Certificate Rigger Ropesman - Opencast		2	1	4	17	16	10	50
National Certificate: Instrumentation Mechanician	1	4	5	5	46	49	27	137
National Certificate: Plater/Boilermaker				8	35	39	22	104
National Certificate: Plater/Welder			12	49	66	64	44	235
Total	2	53	186	374	853	995	617	3 080

Source: MQA data system.

While these learnerships are multi-year learnerships, with some 8 000 learners still in the system and therefore not reflected in the completion figures given in the previous table, low trade test pass rates present a major challenge to achieving JIPSA's target of 50 000 artisans trained between 2008 and 2011.

5.3.3 FET colleges

FET college programmes in engineering have traditionally been very limited and narrow in content as they were designed to meet the demands of manual low-skills-low-wages industries. Because of this there have been challenges for universities and universities of technologies in recognising these

qualifications for articulation purposes. Furthermore, as the work experience component of the training cannot be enforced, uptake of students by employers has been very low.¹²⁷

In response to ECSA's demand that the FET college engineering education curriculum be reviewed, the MQA has entered into collaboration with FET colleges with the aim to¹²⁸:

- Review of NCV courses to align them to mining and minerals industry needs;
- Provide National Technical Education (NATED) programmes' theory to support apprenticeships delivery mode and access to trade testing;
- Map the NCV with MQA trade qualifications for horizontal articulation and learning pathways;
- Add other relevant MQA programmes to the National Certificate Vocation (NCV) as additional subjects;
- Collaborate jointly on the curriculum assessment specifications development for occupational qualifications;
- Consider a form of RPL for learners with nated trade qualifications but without language subjects; and to
- Deliver foundational learning.

In relation to the last point, the MQA piloted the delivery and assessment of the Foundational Learning Facilitator qualification at the NQF Level 5, with training of facilitators taking place between February and August 2010. Facilitators will follow one of two streams – Foundational Communication (FC) in English or Foundational Mathematical Literacy (FML) – with 20 students being accommodated in each stream. Once qualified, these facilitators will provide courses in FC and FML also at FET colleges, which are intended to provide bridging training for learners with ABET Level 3 and ABET Level 4/NQF Level 1 qualifications in order to facilitate success in occupationally directed courses at NQF Levels 2 – 4.¹²⁹

Thus while the contribution of FET colleges to skills supply for the MMS has been limited, this must change if the country is to come close to meeting the need for mid-level skills. The MQA has recognised this need and is currently focussing attention on this area.

5.4 TRAINING AND DEVELOPMENT OF THE CURRENT WORKFORCE

5.4.1 Qualifications developed by the MQA

Companies in the MMS are involved in a range of training and development initiatives that focus on developing the skills of their current workforce. These initiatives both supplement and build on the training that supplies new skills into the sector, and are a critical source of skills supply, particularly for the mining industry.

¹²⁷ Du Toit R & Roodt J (2009) Engineers in a Developing Country: The profession and professional education of engineers in South Africa, HSRC Press, Pretoria, 2009.

¹²⁸ Information supplied by the MQA.

¹²⁹ MQA FLC Forum, 30 July 2010, <http://www.mqa.org.za/siteimgs/J%20Moodle%20FLC%20Forum%20-%20Consolidated.pdf>, Accessed 19 November 2010.

Mining overall is a highly regulated sector, and this extends to its training activities. Skills competencies are required by law for practice in many occupations and professions in the sector, with formal qualifications representing competency. Over time, the old mining certification system has been incorporated into the new system of qualifications developed by the MQA.

By February 2010 the MQA had 62 registered qualifications with SAQA, ranging from NQF levels 1 to 4. These qualifications, which are attained through either learnerships or skills programmes that are comprised of a group of registered unit standard, have been specifically developed by the MQA to support requirements that emanate from the regulations of the MHSA, which prescribes the competency requirements of people in certain positions in the mining industry.

The vast majority of training undertaken within the MMS is linked to MQA qualifications and therefore contributes to the formal skills development of the current workforce.

5.4.2 Certificates of competency

In addition to the qualifications developed by the MQA, both the Chamber of Mines and the DMR issue certificates of competency to specific categories of workers, which essentially serve as a licence to practice. The training for, and assessment of, the Chamber of Mines certificates are administered by the University of South Africa (UNISA). The number of certificates awarded over the period 2004 to 2009 can be seen in Table 5-5. The total number of certificates awarded grew substantially from 2006 to 2009.

Table 5-5 Chamber of Mines Certificates awarded: 2004-2009

Name of certificate	Number of certificates awarded					
	2004	2005	2006	2007	2008	2009
Basic Mine Sampling	85	94	122	182	220	209
Elementary Mine Sampling	65	35	40	25	102	100
Advanced Mine Valuation	9	8	16	16	21	36
Advanced Mineral Evaluation	0	0	0	0	0	0
Basic Mine Surveying	63	60	87	112	191	147
Elementary Mine Surveying	42	36	29	20	51	173
Advanced Mine Surveying	10	7	11	10	12	26
Mine Survey Draughting	10	7	9	20	19	22
Intermediate Mine Environmental Control	26	49	36	61	39	77
Mine Environmental Control	15	17	11	12	7	15
Strata Control (Metalliferous)	10	17	16	35	72	45
Strata Control (Coal)	2	4	1	3	9	0
Rock Mechanics	9	12	13	2	4	9
Total	2350	2351	2397	2505	2755	2868

Source: UNISA

The certificates issued by the DMR are generally referred to as “Government Certificates of Competency” and are prerequisites for the performance of certain functions in mines. These certificates therefore play a very important role in the supply of skills to the MMS. The number of certificates issued from 2004 to 2009 can be seen in Table 5-6. The numbers are quite small and did not increase significantly over the time period. A major concern for the industry is the extremely high dropout rate and failure rate in the assessment of these certificates, which represents a severe constraint to the supply of these critical high-level skills into the sector.

Table 5-6 Government Certificates of Competency issued: 2004-2009

Name of Certificate	2004	2005	2006	2007	2008	2009
Mine Engineer's Certificate (Electrical)	19	22	20	35	27	17
Mine Engineer's Certificate (Mechanical)	27	39	25	39	22	34
Mine Manager's Certificate	42	86	97	28	150	106
Mine Overseer's Certificate	188	207	218	201	213	217
Mine Surveyor's Certificate	4	9	6	11	12	13
Total	2284	2368	2372	2321	2432	2396

Source: DMR

5.4.3 Management and supervisory development

Managers and supervisors in the MMS need a combination of industry-specific knowledge and understanding: technical knowledge of, and skills in, the functional area to be managed, as well as supervisory and management skills. In most instances managers and supervisors are drawn from the workforce (and therefore already have technical and functional knowledge) and are developed through combinations of formal training programmes such as MBA programmes, short courses, and in-service training.

5.4.4 Skills programmes

A skills programme is a structured leaving programme that comprises an agreed cluster of unit standards. A skills programme goes further than a qualification in that the design of the programme may specify the sequence in which the unit standards must be achieved and the practical (workplace) experience that forms part of the programme. A completed skills programme constitutes credits towards an NQF-registered qualification. This means that some or all of the unit standards in the skills programme form part of the list of unit standards that together make up a qualification. Credits obtained during the course of a skills programme will thus constitute credits towards the qualification.¹³⁰

Skills programmes form an important part of the training and development of the occupational groups machinery operators and drivers, and elementary workers. By December 2010 the MQA had 140

¹³⁰ <http://www.mqa.org.za/division.asp?contID=54&mdivID=11>.

registered skills programmes – many of which provide learning towards the competencies specified in the mine health and safety regulations. In 2006/2007 the MQA awarded 38 196 skills certificates; in 2007/2008 41 639; and in 2008/2009 44 719.

5.4.5 ABET

The need for ABET in the MMS has been stated in earlier chapters of this report. The educational profile portrayed in Section 2.4.3 indicates that almost half of the workers in the sector are at qualification levels lower than ABET Level 4. These workers could benefit from ABET programmes.

Employers that submitted ATRs in respect of year 2008/2009 reported that more than 18 000 workers had completed ABET programmes (at different levels) in that year. These workers constituted 6.3% of all the workers with an educational level below NQF Level 1 (ABET Level 4). The workers who had completed ABET in the previous year constituted 4.7% of those with an educational level below NQF Level 1.

Almost two thirds (60.0%) of the 2008/2009 ABET learners completed ABET levels 1 to 3. Only 12.3% completed ABET Level 4. More than a quarter (27.9%) completed pre-ABET programmes. Figure 5-7 shows the numbers of ABET learners who had completed programmes between 2005/2006 and 2008/2009. At pre-ABET level there was a substantial increase in the numbers of learners. There were also slight increases at ABET levels 1 to 4.

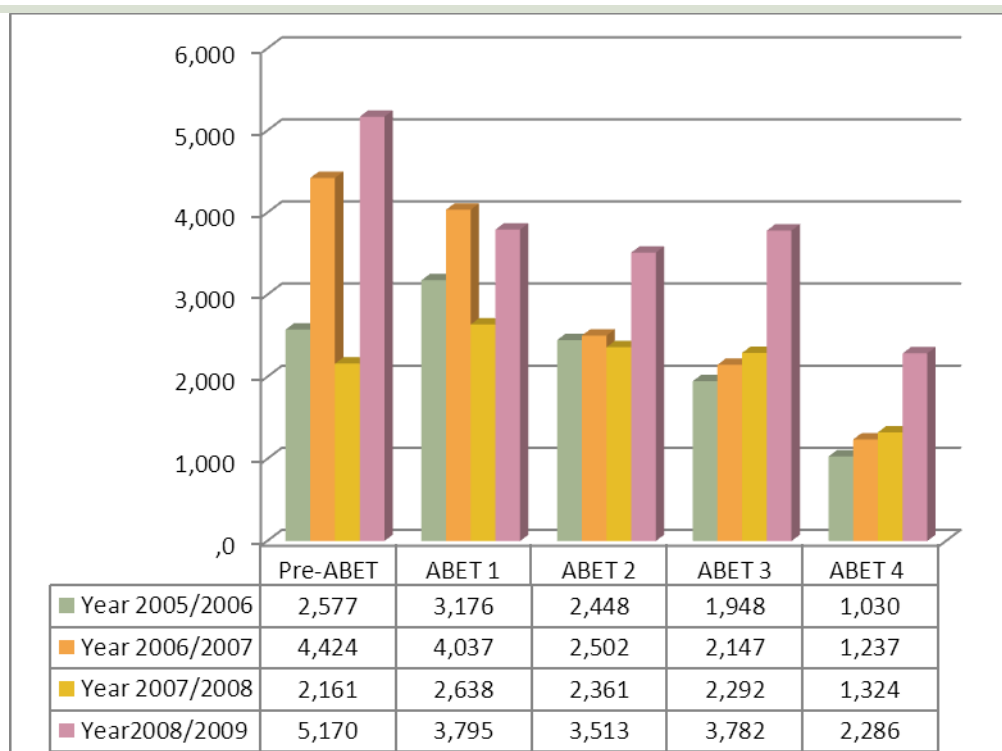


Figure 5-7 Employees who completed ABET: 2005/2006 to 2008/2009

Source: EE Research Focus, Analysis of WSPs and ATRs Year 8, 2009 and Year 9, 2010

5.4.6 In-service training

Finally, in-service training also forms a very important component of skills development in the MMS. In-service training spans a wide array of skills areas and skills needs and takes place through a variety of training methods that range from structured courses offered in classroom-type environments to informal on-the-job training. In-service training is generally not linked to formal qualifications.

The percentage of payroll spent on training is a good measure of the extent of employers' involvement in training. The combined training budget of all the organisations that submitted WSPs for 2008/2009 amounted to R 1.7 billion. This is 3.8% of their estimated payroll. In the previous year the budgeted amount for training was 3.6% of payroll.

5.5 THE MQA'S INTERVENTIONS TO ALLEVIATE SKILLS SHORTAGES

Since its inception (i.e. prior to the development of the SETA system) the MQA has deliberately intervened to alleviate skills shortages in the MMS. The specific interventions into the occupations that were most often cited by employers in terms of skills shortages and the type of training interventions that received financial and other support from the MQA are listed in Table 5-7 below.

Apart from bursaries and grants, the MQA has ensured that the necessary qualifications and learnerships were registered, has accredited providers, supported the training and registration of assessors and moderators, verified assessments and awarded qualifications. The MQA has also supported the development of learning materials in some instances. The publication by the MQA of a career guide, in which scarce skills were flagged, was developed to stimulate the supply-side of the market.

Table 5-7 MQA interventions to alleviate scarce skills

Occupational Category	Occupation	OFO Code	Level	Supply-side interventions
MANAGERS	Production / Operations Manager (Mining)	133503	HET	Learnership to be developed
PROFESSIONALS	Mechanical Engineer	233502	HET	Bursaries Workplace Experience Internships
	Mining Engineer (excluding Petroleum)	233601	HET	Bursaries Workplace Experience Internships
TECHNICIANS AND TRADES WORKERS	Civil Engineering Draftsperson	312201		Currently no MQA intervention
	Electrical Engineering Technician	312302	HET	Bursaries Workplace Experience Internships
	Mining Technician	312903	HET	Bursaries Workplace Experience Internships
	Diesel Motor Vehicle Mechanic	321202	FET	Trades Learnership
	Metal Fabricator	322301	FET	Trades Learnership
	Fitter (General)	323201	FET	Trades Learnership
	Fitter and Turner	323202	FET	Trades Learnership
	Electrician (General)	341101	FET	Trades Learnership
	Boat Builder and Repairer	399101	FET	Learnership to be developed
	Miner	399910	FET	Learnership
MACHINERY OPERATORS AND DRIVERS	Mineral Processing Machine Operator	711104	FET	Learnership
	Driller	712201	FET	Skills Programme
	Earthmoving Plant Operator (General)	721201	FET	Skills Programme
	Excavator Operator	721204	FET	Skills Programme

This table includes only interventions relating to occupations in which more than 20 positions needed to be filled by 31 March 2010.

5.6 THE QUALITY OF TRAINING

While the volume of training within the MMS is positive, there is currently great concern in the sector about the quality of training on offer. Quality concerns span a wide range of issues including: the quality of training materials and classroom offerings; the qualifications and actual competence of mentors and assessors; the language(s) of instruction and assessment; low throughput rates in critical areas such as the Government Certificates of Competence; and the high dropout rates in ABET.

These concerns do not only relate to private providers, but also to the public FET colleges, which are set to play an increasingly important role in artisan and other technical training.¹³¹ These concerns need to be addressed by the MQA and are reflected in the current MQA Strategic Plan.

5.7 CONCLUSIONS

The downsizing that occurred in the MMS up to 2001 left more than 100 000 workers unemployed. However, most of them were re-absorbed in the industry and by 2009 the number of unemployed mine workers had dropped to approximately 30 000. Retrenchments started to occur again in the first two quarters of 2009 and in March 2010 it was reported that approximately 45 000 mine workers were unemployed. Higher levels of surplus mining labour, and therefore people with some level of sector-related skill and experience, can be expected in the labour market next in the year or two.

The number of new graduates in the fields of study relevant to the MMS has grown substantially between 1999 and 2008. The transformation of the higher education sector is also visible in the educational statistics. By 2008 the majority of graduates in all the relevant fields were Black. Substantial numbers of women are also graduating in fields of study that have historically been male dominated. It will however take time for this transformation to have a significant effect on the pool of professionals available in the labour market.

The skills development provision of the MMS is comprehensive and covers many aspects. The MQA has registered a wide spectrum of learnerships and the uptake of these learnerships is significant. Another important training offering is skills programmes. These programmes provide workers (especially those at lower educational levels) with the opportunity to obtain recognition for some of the skills attained in the work environment. Skills programmes are also important vehicles for training in terms of health and safety requirements.

The most significant challenges facing the improved supply of currently scarce artisan and professional skills into the MMS include: the poor quality of secondary schooling, particularly in the areas of mathematics and physical science; the poor image of the sector that does not attract high quality school-leavers; the poor articulation of FET programme with other qualifications; the difficulties that many HDSA students face in accessing study financing; the difficulties that university of technology students face in accessing the workplace based training necessary for graduation; the low throughput

¹³¹ Viewpoints raised in most of the workshops conducted in preparation of this SSP.

rates for both artisan learnerships and engineering qualifications; and the extremely high dropout rates and low pass rates for both the DMR certificates of competency. MQA interventions aimed at addressing these challenges span: ABET level training in the workplace; formal collaboration with FET colleges; the development and delivery of the FLC programme; the focus of artisan learnerships on unemployed learners; the provision of bursaries for higher education qualifications; and the development of a career guide for the sector. These interventions will be ongoing throughout the period covered by this SSP. Finally the MQA acknowledges the challenges faced by the sector in respect of the variable quality of training providers.

6 SKILLS NEEDS OF THE MMS

6.1 INTRODUCTION

Chapters 4 described the demand for labour in the MMS while Chapter 5 provided an overview of the supply of skills into the sector. This chapter seeks to bring the discussion of skills demand and supply together in a more structured manner.

The first section summarises the skills needs of the sector according to broad categories, as these emerge from the discussions of the previous chapters of this SSP. These broad categories include core skills (the basic skills necessary for safe and efficient production within the sector); mine health and safety skills; HIV/AIDS awareness and prevention; ABET; RPL; scarce skills; Black managers; environmental skills; training of retrenched employees; the development of mining communities and communities in labour-sending areas; supporting the development of beneficiation in local areas through skills development; and strengthening Government capacity. This sector provides a context and framework for the more detailed discussions of the specific skills shortages within the MMS, which is the subject of the second section.

While it is not currently possible to make direct quantitative comparisons between future demand and supply of skills within the MMS, the final section of this chapter presents a qualitative comparison of skills demand and skills supply according to the seven primary occupational groups in the sector. Scarce skill occupations are included for each group as well as the reasons for imbalances in the market place, any special factors influencing the demand for these skills, the main sources of education and training, factors relating to the responsiveness of supply to demand, and any problems related to skills supply that require ongoing attention.

6.2 BROAD CATEGORIES OF SKILLS DEVELOPMENT NEEDS

6.2.1 Core skills

Core skills refer to the skills that are essential to the basic functioning of the sector. These include the skills that new entrants to the sector need in order to safely and efficiently support sector production. In Chapter 4 it was stated that, under the most likely economic growth scenario, the MMS will have to train between 25 000 and 38 000 people to take up positions in the MMS in order to fill the positions that will become available in the job market. These people will have to be trained in the core skills required in the sector.

Core skills also include the additional skills that workers in the sector need in order to stay abreast of changes, for example the impact of new technology developments. Covering all the basic mining skills, core skill requirements form the bulk of skills needs in the MMS.

6.2.2 Mine health and safety

Part of the sector core skills, but requiring special focus, is the issue of training in support of mine health and safety regulations. This remains a key priority in the MMS. Health and safety training includes induction and refresher training, as well as training towards qualifications required for specific positions in the sector. The training of mine health and safety officers, health and safety representatives, as well as mine inspectors, who can ensure adherence to health and safety requirements, is also critical.

6.2.3 HIV/AIDS awareness and prevention

Although organisations in the sector have instituted various interventions to curb the spread of HIV infections and to treat HIV positive and AIDS sick workers, infection rates remain very high and therefore the sector, with some assistance from the MQA, needs to continue with HIV/AIDS awareness and prevention programmes.

6.2.4 ABET

While the positive changes in the educational profile of MMS workers were shown in Chapter 2, educational levels of the majority of workers in the MMS remains low. Increasing the sector's basic educational levels also forms part of the sector's focus to improve its core skills, and is to a large extent the result of ongoing ABET (as shown in Chapter 5). Through the Mining Charter commitments and the Social and Labour Plan requirements, role players in the MMS remain committed to the improvement of the educational levels of the workers, with ABET remaining high on the list of skills needs.

6.2.5 Recognition of prior learning (RPL)

Although many of the workers in the MMS have very little formal schooling and few formal qualifications, most of them have many years of work experience and skills acquired in the work situation. These skills have not yet been assessed in the context of awarding formal recognition of skills.

Although the assessment of the skills of all individual workers is essential for skills development, there are numerous challenges in implementing such initiatives, especially on the scale required in the MMS. Despite these challenges, RPL remains imperative to the sector and ways of addressing the difficulties need to be found and implemented.

6.2.6 Scarce skills

While small in relation to the overall size of the workforce, skills shortages do exist within the MMS specifically in the professional and technicians and trades worker categories. These shortages are not only the result of general shortages in the labour market (i.e. absolute shortages), but are often related to factors specific to the industry that deter people with these skills from taking up employment in the sector (i.e. relative shortages). These factors include: the relative unattractiveness of the mining

industry in relation to other industries in the economy; the fact that many mining operations are situated in remote rural areas; and the generally limited supply of HDSAs with the requisite skills necessary to meet employment equity targets. The Mining Charter stresses the need for the development and operational exposure of HDSAs in core and critical skills areas. More often than not these skills areas coincide with areas in which skills shortages are experienced. Therefore, the MQA's skills development interventions aimed at the alleviation of skills shortages will focus mainly on the development of HDSAs.

6.2.7 The development of Black managers

Related to the above, the Mining Charter Review, and the emphasis that the amended Mining Charter and the Charter Scorecard, place on HDSAs in management underscore the need for the development of Black managers in the MMS. Management development entails the development of the technical competencies required in management positions (and thus a focus on the development of professional skills), as well as on the subsequent development of managerial skills.

6.2.8 Environmental skills

The importance of skills that will support sustainable natural resource use and environmental conservation and rehabilitation was emphasised in Chapter 2 and Chapter 4. As these skills are likely to become increasingly important into the future, they need to be incorporated in the skills development priorities and interventions of the MQA now.

6.2.9 Training and development of retrenched employees

The training of employees who have already been retrenched or who stand to be retrenched is also a priority for the MMS. It is important to start the training for positions outside the MMS as early as possible before retrenchment, while the workers are still in employment. The main aim would be to provide these employees with skills for life beyond mining that are in demand in other sectors and with entrepreneurial skills. In terms of the Social and Labour Plan employers have a responsibility in this regard.

6.2.10 Development of mining communities and communities in labour-sending areas

In line with its broader social mandate and in support of sustainable development, it is a priority for the MMS to support the economic and social development of those communities where mining takes place and those based in the main labour-sending areas of the country. In Chapter 2 the close relationship between mining companies and the surrounding communities was explained. By stimulating other economic activities through skills development in the mining communities and in communities from which migrant workers originate, the potential for job creation is enhanced, as well as the potential for absorbing retrenched mine workers into the local labour markets.

6.2.11 Supporting beneficiation in local areas through skills development

The relatively low levels of beneficiation and the fact that most of our mineral production is exported remains a concern to the MMS. Although the bulk of beneficiation activities would fall outside the MMS – for example, in the Manufacturing Sector – the MMS needs to support skills development in terms of beneficiation in general and specifically where it ties in with local community development and job creation for retrenched workers of the MMS. The components of beneficiation that fall within the MMS – Jewellery Manufacturing, Diamond Processing and aspects of the CLAS subsector – need special attention. (add HIV/AIDS)

6.2.12 Strengthening Government capacity

The DMR is important to the MMS through the various aspects of regulation that it is involved in. In the consultative workshops the need for a well-resourced and effective Department was emphasised repeatedly, while stakeholders requested that urgent attention should be given to the skills shortages experienced by the DMR. The DMR itself participated in the SSP development process and outlined its skills needs to the MQA. These skills needs should also be addressed in the planning period covered by this SSP.

6.3 SPECIFIC SCARCE SKILLS

In the context of the above discussion, this section deals more specifically with scarce skills in the MMS. The information on scarce skills was obtained by analysing the results set out in the scarce-skills table of the WSPs submitted for Year 2010/2011. In other words, the information reflects the situation as experienced by employers at the end of June 2010. At that time only 28.3% of the employers that submitted WSPs reported that they experienced skills shortages in the market in the sense that they could not find suitable people to fill positions in their organisations.

In the scarce-skills table that employers completed, they first had to name the occupation in which they experienced scarcity, and then had to select from three possible descriptions the one that described the scarcity they experienced— i.e. “relative scarce skill” (referring to a situation where people are available in the labour market but cannot easily be attracted to the sector); “absolute scarce skill” (where people are generally in short supply in the labour market); or “specialised skill lacking” (referring to a situation where people are available in the labour market but where the specialised skills necessary in this particular sector or in the employer organisations are in short supply). If they selected the option “specialised skill lacking” they had to describe what specialised skill was lacking in respect of the identified occupation.

For all the occupations in which scarcity was experienced employers also had to indicate how many vacancies were available at the time they completed the WSP. In addition, they were requested to identify what type of learning interventions they were planning to use to address the skills shortage and

at what NQF level the interventions would be. Lastly, employers were asked to indicate if they were planning to import the skills from outside South Africa and, if so, the number of people they would bring into the country.

Only 128 organisations in the sector indicated that they experienced a scarcity of skills. The numbers of people that employers said they would need per occupational group can be seen in Table 6-1. The total number of people reported to be needed in occupations in which there were skills shortages is 1 301. This translates to only 0.2% of total employment in the sector.

Table 6-1 Scarce skills according to occupational group: June 2010

Occupational Group	Vacancies	% of total vacancies	% of total occupational category
Directors and Corporate Managers	119	9.1	1.1
Professionals	188	14.5	0.9
Technicians and Trades Workers	607	46.7	0.8
Community and Personal Service Workers	1	0.1	0.0
Clerical and Administrative Workers	4	0.3	0.2
Sales Workers	0	0.0	0.0
Machine Operators and Drivers	376	28.9	0.2
Elementary Workers	6	0.5	0.0
Total	1 301	100.0	0.2

The occupational group with the highest percentage of people needed is technicians and trades workers (46.7% of the scarce skills positions), followed by machine operators and drivers (28.9%), professionals (14.5%), and directors and corporate managers (9.1%).

These scarce skills positions are substantially lower than the numbers reported in previous years. The decline in scarce skills may be linked to the contraction of the sector and the overall decline in sector employment reported in chapters 3 and 4. It is also very likely that some of the shortages that were reported over the years have been relieved by increases in the supply to the market. In Section 5.3.1 it was, for example, indicated that the number of engineering students qualifying from the higher education institutions grew substantially over the last ten years.

In terms of the reason for the existence of scarce skills, employers indicated that more than half (58.8%) of the skills are scarce because of their “relative” scarcity and a third (33.0%) because of their “absolute” scarcity.

Occupations with ten or more vacancies are considered noteworthy from a scarce skills perspective (see Appendix 3 for more details). In the directors and corporate managers’ group, production/operations managers represented the highest percentages of people in short supply (45 vacancies were indicated). In the professional category the largest number of vacancies was for mining engineers (27), followed by mechanical engineers (20), surveyors (19), geologists (18), metallurgists (17), and occupational health and safety advisors (11).

In the group technicians and trades workers, the largest number of vacancies was for miners (120), followed by electricians (73), metal fabricators (69), diesel motor vehicle mechanics (64), fitters (general) (52), boat builders and repairers (41) (skills needed in the marine mining industry), electrical engineering technicians (37), fitters and turners (24), mining technicians (23), civil engineering draftspersons (22), millwrights (18), precision instrument makers and repairers (17), automotive electricians (17), electricians (special class) (13), mechanical engineering technicians (12), and electronic instrument trades workers (special class) (11).

Finally, in the machine operators and driver category the largest number of vacancies was for drillers (180), excavator operators (50), crane, hoist or lift operators (30), and earthmoving plant operators (20).

With a few exceptions, shortages in these occupations have been experienced by the sector consistently over the past five years. Reasons for the difficulty to find candidates to fill the positions include: the geographic location of the mine; the relative unattractiveness of the mining sector; and the difficulty in finding HDSAs for specific occupational groups in order to meet employment equity requirements.

Employers were also asked the type of learning interventions they planned on using to address the scarcity and at what NQF level the interventions would be. Table 6-2 below provides a summary of the type of learning interventions employers plan to apply to address the scarcity of skills. Just over one third (34.6%) specifically mentioned that they were going to use formal training that would lead to certificates, diplomas and degrees; more than a quarter (26.2%) indicated that they were going to use learnerships as a learning intervention; while 9.3% said that they were going to provide workplace experience in the hope that this type of intervention would address the scarcity of current skills. Other learning interventions employers plan to apply are internships, skills programmes, mentorship programmes, articles and short courses.

Table 6-2 Learning interventions to address scarce skills: June 2010

Learning intervention	Number	Percentage
Articles	4	0.3
Certificate	76	5.0
Degree	85	5.6
Diploma	77	5.1
Internship	45	3.0
Learnership	180	11.9
Mentorship	24	1.6
Short Course	29	1.9
Skills Programme	36	2.4
Work Placement	12	0.8
Workplace Experience	52	3.4
Other	897	59.1
Total	1 517	100.0

Just more than a quarter (24.2%) of the interventions that employers planned to use to address their scarce-skills problems would be at NQF Level 5; almost a fifth (17.6%) would be at NQF Level 3; 14.3% at NQF Level 4; and 12.5% at NQF Level 6. Employers further indicated that 9.9% of the interventions would be at NQF Level 7 and 5.5% at NQF Level 8.

Employers were asked to indicate if they were planning to import some of the scarce skills from outside South Africa. Of the total 139 people that employers were planning to recruit from outside South Africa, 61 (44.9%) would be technicians and trades workers, 45 (36.0%) machine operators and drivers, 11 (7.9%) professionals, and 7 (5%) directors or corporate managers. (See Appendix 4 for detailed occupations.)

6.4 COMPARING SKILLS DEMAND TO SKILLS SUPPLY

While it is not currently possible to make direct quantitative comparisons between future demand and supply of skills in the MMS,¹³² this section presents a qualitative comparative discussion, bringing together the key issues of the demand and supply situations in the seven occupational groups as they emerge from the rest of this SSP.

¹³² As explained in Chapter 4, the MQA doesn't have information on employment at the detailed occupational level and the current demand projection model projects demand at the occupational-group level and not at the detailed occupational level. For an exact comparison of demand and supply detailed occupational information is necessary. Furthermore, in the occupational group "professionals" and to some extent in the group "technicians and trades workers" the main source of new supply is the public higher education system. The MMS shares this supply with the rest of the economy. A direct comparison between demand and supply is impossible in the absence of a separate and distinct supply of skills to the sector.

6.4.1 Occupational group: Managers

Scarce skills in this group are concentrated in the occupation Production/Operations Manager (Mining). Driving the scarcity is the high replacement demand due to retirement as well as the need for greater transformation at top management levels, despite some positive changes to the racial profile of the group.

Managers are generally sourced from within the professional ranks of the MMS. Additional training is then provided through tertiary education (including MBA courses), management development courses and special executive training programmes. General training opportunities for the development of managers are sufficient; however an obstacle for the MMS is the limited availability of sector-specific training.

Key challenges that remain in terms of meeting the demand for managers are the availability of HDSAs with the required skills combinations, as well the chronically insufficient output of Government Certificates of Competency.

6.4.2 Occupational group: Professionals

The reported scarcity of professionals has been dramatically reduced due to the contraction of the sector. However, this may increase again once the world economy emerges from the current recession and the sector starts growing again. Scarcity remains in the following occupations: mining engineer; geologist; surveyor; mechanical engineer; metallurgist; and occupational health and safety advisor.

The demand for professionals by the MMS is driven by high turnover resulting from movement out of the sector because of the 'unattractiveness' of the sector relative to other sectors of the economy. Linked to this is the generally rural and remote location of many mines. The growth in demand for this group may however be contained somewhat by the effective utilisation of professionals at mining group level.

With the exception of jewellery manufacturing, where skills are developed by FET institutions, higher education institutions provide the supply of professional skills into the MMS. There has been substantial growth in the outputs of relevant professionals from HET over the past decade, with concurrent increases in the number of Black and women graduates. However the total number of graduates is still insufficient to meet the needs of a growing economy, and the MMS is unlikely to have the first pickings of Black and women graduates with qualifications that are in short supply in the labour market as a whole. Thus it will take time to change the racial and gender profile of professionals within the sector. The provision of bursaries to existing employees to obtain qualifications, targets people who are willing to work in the sector and generally binds them to their employers for a defined period after they obtain their qualification.

Ongoing challenges in the generation of professionals for the MMS include the low uptake and poor quality of mathematics and physical science at school level (necessary to access the majority of professional higher education programmes); the general shortages of these skills across the economy

(with other sectors attracting these people ahead of the MMS); and again the insufficient output of Government Certificates of Competency.

6.4.3 Occupational group: Technicians and Trade Workers

This occupational group contains the largest number of scarce skill occupations within the MMS: miner; electrician; metal fabricator; diesel motor vehicle mechanic; fitter (general); boat builder and repairer; electrical engineering technician; fitter and turner; mining technician; civil engineering draftsman; millwright; precision instrument maker and repairer; automotive electrician (general); electrician (special class); mechanical engineering technician; and electronic instrument trade worker (special class).

Driving this scarcity is the combined need to change the racial profile of this occupational group, along with an absolute scarcity of suitably skilled people in the general labour force and their demand across a range of sectors.

Generation of these skills is through a range of channels: higher education institutions; FET institutions for jewellery manufacture; apprenticeships; and learnerships. Positively, the number of graduates from the universities of technology has grown substantially, with more women and Black students graduating in the relevant fields. Industry also supplies bursaries to both existing employees as well as new sector entrants.

While long training periods inhibit the responsiveness of supply to demand, other problems related to eliminating the shortages of technicians and trade workers in the MMS include the poor mathematics and science training at school level and their general shortage within the national economy. Furthermore, it is likely that the recession may influence employer's ability to take new learners on learnerships, which may have a long-term negative impact on supply. And while the recession may have reduced shortages in the short-term, these may increase dramatically if the sector starts to grow again.

6.4.4 Occupational group: Clerical and Administrative Staff

There are currently no shortages in occupations within the group Clerical and Administrative Staff. This is due to a relative over-supply of people with matric into the labour market. Sector- and company-specific training for those employed within the clerical and administrative category, is generally achieved through in-service training.

6.4.5 Occupational group: Sales Workers

The demand for sales workers within the MMS is also generally met by people with a matric qualification, of which there is an over-supply in the general labour market. Additional in-service training provides the necessary sector- and company-specific training that is required for competence in the job.

6.4.6 Occupational group: Machinery Operators and Drivers

Scarcity in this group is experienced in the following categories: driller; excavation operator; crane, hoist or lift operator; and earthmoving plant operator. These occupations experience a high replacement demand due to mortality related to occupational and other diseases, and accidents on duty.

Higher levels of literacy are considered necessary to improve the overall health and safety of this group, with education and training initiatives focussing on learnerships, skills programmes, in-service training and ABET. Skills programmes in particular are well suited to the needs of the sector as they address necessary technical skills, and health and safety skills, in a work environment that in reality provides little time for training. There has thus been a large uptake of skills programmes concurrent with large-scale involvement in ABET across the sector. Despite this, ABET suffers from high dropout rates, and the impact of ABET is still slow. Finally, the critical need to formally assess and recognise informally acquired knowledge (through) RPL remains.

6.4.7 Occupational group: Elementary Workers

Workers in this category are the most vulnerable in terms of retrenchments in a climate of recession. Thus unemployment is expected to increase over the next year or two. Demand in this group is also driven by high mortality rates (related to occupational and other diseases, and accidents on duty).

Skills programmes, in-service training, and ABET are the primary means through which an increase in literacy levels is sought, with the sector involved in these initiatives on a relatively large scale. Nevertheless the impact of ABET is slow and the dropout rate high. Critical for this group is the need for training to soften the impact of retrenchments. The need for RPL remains in this group too.

6.5 CONCLUSIONS

While data and other constraints prohibit a direct quantitative comparison of the future demand for skills within the MMS to the future supply of such skills, a qualitative analysis does however provide useful and directive information.

Alluded to in the previous chapters of this SSP and summarised specifically here, are the broad categories of skills development needs for the sector: core skills (or the basic skills required for safe and efficient mining activities); specific mine health and safety skills; HIV/AIDS awareness and prevention; ABET; RPL; scarce skills; Black managers; environmental skills; training of retrenched employees; the development of mining communities and communities in labour-sending areas; supporting the development of beneficiation in local areas through skills development; and strengthening Government capacity. Consideration of all these skills categories is necessary in order to prevent an over-emphasis on the issue of scarce skills, which in the MMS represent only a very small proportion of the overall workforce.

Despite being relatively small compared to the need for core skills development and ongoing health and safety training in the sector, specific skills shortages do however have a negative impact on the current productivity and potential future growth of the sector. The vast majority of skills shortages are concentrated in the occupational group Technicians and Trades Workers, the group that includes artisans, which are in short supply nationally. Shortages also exist in the managers category, with production/operation managers (mining) being the most critical, and in the professional category, with scarcity highest among mining and mechanical engineers

With the exception of artisans, the vast majority of skills shortages in the sector are 'relative', meaning that people are available in the labour market but for various reasons cannot easily be attracted to the sector. These reasons include the 'unattractiveness' of the sector in general, as well as the rural and remote location of most mines, and underlie high levels of labour turnover in some occupational categories. This same factor hinders transformation efforts particularly in the manager, professional and artisan occupational categories as people with these skills have many, often more lucrative, options for employment in other sectors of the labour market.

7 SKILLS DEVELOPMENT PRIORITIES

7.1 INTRODUCTION

The MQA is expected to facilitate the delivery of sector-specific skills interventions that help achieve the goals of the NSDS III, address employer demand and deliver results. This chapter represents the core of this SSP: In essence it presents the action plan for the MQA in respect of skills development in the MMS over the period 2011-2016. Considerable attention is also dedicated in this chapter to linking the MQA's planned interventions with various national policies and strategies to highlight the ways in which this SSP will contribute to the national skills development agenda.

Section 7.2 presents the MQA's skills development priorities. These emerged as the culmination of the analysis presented in Chapters 2 to 6 and stakeholder engagement that took place during the development of this SSP. These priorities guide the strategic objectives set out in the Strategic Plan of the MQA, of which this SSP is an annexure. Notably, the MQA's skills development priorities have been aligned with the current Mining Charter and the NSDS III.

In particular, the MQA will focus skills development interventions related to the following elements of the Mining Charter:

- Employment equity through support for programmes for the development of executives, managers and core skills in the sector;
- Human resources development through support for core skills programmes in the sector, inclusive of support for research programmes;
- Mine community development through support for a customised mining community capacity-building programme aligned with municipal Local Economic Development (LED) plans, as well as support for small-scale mining;
- Sustainable growth and development through support for programmes that improve environmental management as well as health and safety in the sector; and
- Beneficiation through the support of minerals beneficiation programmes, in particular related to the diamond processing and jewellery manufacturing industries.

The MQA will also further support the Mining Charter by continuing to align workplace skills planning and reporting processes with Social and Labour Plan reporting processes in collaboration with the DMR.

The contribution of the MMS (through this SSP) to the strategic areas of focus for the NSDS III is the subject of Section 7.3. Each of the strategic focus area is discussed in turn, with the result that a considerable portion of this chapter is dedicated to this critical issue.

Section 7.4 deals with the MMS's contribution to the President's outcomes approach to planning Government's work. Section 7.5 highlights the ways in which this SSP supports Government's Medium Term Strategic Framework (MTSF) policy objectives, while section 7.6 links this SSP to the objectives and action plans of Government's Industrial Policy Action Plan (IPAP) 2010/2011, which places a high focus on the issue of precious metals beneficiation as a means to improve sustainable development of the

sector and the national economy. Section 7.7 briefly refers to the New Growth Path announced by Government shortly before the finalisation of this SSP.

Importantly, this chapter assumes that the reader is intimately familiar with the first six chapters of this SSP (although internal references are made where applicable) and the MQA's Strategic Plan, and at least moderately familiar with the NSDS III, the MTSF and the IPAP.

7.2 MQA SKILLS DEVELOPMENT PRIORITIES

The skills development priorities are not stated in order of importance. The first priority is cross-cutting and will, apart from specific interventions, also be reflected in all the work of the MQA. The sequence of the other priorities more or less ties in with the process flow of the MQA. (See Appendix 7 for a summary of the priorities and the numerical targets relating to each priority. This Appendix is an extract from the MQA's Strategic Plan for 2011 to 2016.)

7.2.1 Priority 1: Support transformation of the sector through skills development

The importance of the Mining Charter and other sectoral policies aimed at the transformation of the MMS was stressed previously in this SSP. Throughout the planning period covered by this SSP the MQA will support the objectives of the Charter and it will focus specifically on support for Charter element 2.4 – Employment Equity that requires a minimum of 40% HDSA demographic representation by 2014 at the levels of executive, senior management, core and critical skills, middle management, and junior management. In support of Charter element 2.4 the MQA will implement a specific project to support the development and implementation of programmes for HDSAs in the sector with a budget of R4 million for the 2011/2012 financial year and will continue the project into the next three to five years. The Charter will also be supported through the execution of a skills audit in the MMS that will allow for fast tracking of career path processes in the mining industry. The skills audit project has already commenced with a sector occupational profiling process that will be completed in 2011-2012 with a full skills audit system implementation. The development of HDSAs will be prioritised in all other skills development programmes and interventions.

7.2.2 Priority 2: Support objective decision making for skills development through research in the sector

The MQA is in the process of growing its research capacity and it revises its research agenda on an annual basis. Research into skills development in the sector is a core strategic function of the MQA that will continue during the planning period. The research that the MQA undertakes focuses on the skills needs of the sector and ties in with and augments the work of other institutions such as the MHSC. In the planning period of this SSP the MQA envisages the strengthening and improvement of its research function to support decision making regarding skills development in the sector. The MQA also envisages the strengthening of its research network and aims to establish stronger links with other research institutions in the sector and with the DMR as this will directly support Mining Charter element 2.5, which is human resources development. Human resources development includes support for South

African-based research and development initiatives intended to develop solutions in exploration, mining, processing, technology efficiency, beneficiation, and environmental management. Strategic decision making should be based on high-quality research and all changes to the qualifications framework should be research-based. All programmes developed and implemented by the MQA are continually verified against the prevailing qualifications framework.

7.2.3 Priority 3: Enhance information management for skills development in the sector

It has become a critical strategic priority to continuously track and monitor labour market trends, learner achievements and the career progression of individuals through a well-designed and fully operational management information system (MIS). This is crucial for the functioning of the MQA and all related parties within the sector that work with skills development processes, in particular skills development facilitators and training centres/providers. It is equally important that this MIS should effectively interface with other sectoral and national databases in order to support national policy and decision-making processes. The MQA has experienced many challenges with regard to its MIS in recent years – to the extent that the design and implementation have become critical imperatives. For this reason the development of an MIS is seen as a strategic priority for the NSDS III period.

This priority is, however, not limited to the development of an internal MIS; it also includes the development of a more comprehensive and integrated skills development information system for the total sector. Such a system should provide for easy access to and data sharing between the different organisations that collect statistical information on the skills development in the MMS.

MIS systems, and the control and security of data on such systems, has also been recently included as a key element of good corporate governance as per the recently released King III Report on Governance. The MQA Board carries fiduciary responsibility to have a good and well controlled MIS.

7.2.4 Priority 4: Facilitate and support the development and implementation of core skills development programmes aligned with the sector qualifications framework

“Core sector skills development programmes” refers to programmes that are essential for the functioning of the sector. These include programmes that prepare new entrants to the labour market, as well as programmes designed to improve the skills base of the existing workforce. The MQA is, in terms of its Board-approved funding policy, obliged to spend most of its funding in this area. Currently, more than 80% of the discretionary funds are spent on this type of training. This is expected to continue in the planning period.

The activities that will give effect to this priority are described below. The first three activities are not explicitly listed in the Strategic Plan, as they form an integral part of the MQA’s set of core functions. They are, nevertheless an important part of the initiatives and functions of the MQA.

a) *Qualification development and standards setting according to qualifications framework*

In the first chapter of this SSP it was stated that the MQA was established in terms of the MHSA and that in terms of the Act the MQA is responsible for ensuring that workers in the sector have the necessary competencies. The development of qualifications and related learning materials is at the heart of this task and, therefore, the MQA also houses a permanent standards-generating function. Qualifications, programmes and learning materials are developed as the need arises and existing materials are revised on an ongoing basis. The MQA has also developed an OFO-aligned qualifications framework, based on research of the sector's needs. The qualification development work will continue in the period covered by NSDS III and, as indicated in Chapter 5, the certificates of competency issued by the Chamber of Mines and the DMR will be aligned with the MMS qualifications framework within this planning period. Once the Quality Council for Trades and Occupations (QCTO) becomes operational, qualifications will be re-designed according to the new regulations (which are still to be finalised by the QCTO).

b) *Career guidance*

The MQA has developed and distributed a very detailed MMS careers brochure with an accompanying DVD across the entire sector, as well as to numerous schools and career guidance structures. The MQA participates in majority of the skills development exhibitions in the country and will continue to record these interventions. The MQA has over 250 registered skills development facilitators who work in the sector and who are updated at least twice a year through workshops and/or road shows on programme development in the sector.

The MQA also plans and facilitates an annual event that coincides with International Literacy Day in September of every year and that serves as an opportunity to offer people in especially rural communities the chance of receiving guidance on career choices. These activities will continue throughout the planning period.

c) *The recognition of prior learning*

The MQA encourages the sector to use RPL to facilitate access to and as an integral part of the assessment of relevant learning programmes. It has not to date tracked the percentage of each programme that is achieved through RPL processes. However, as part of a business system re-engineering project the MQA is planning to systematically develop monitoring and tracking mechanisms to report on how many learners received credits towards partial or complete achievement of programmes through RPL. Without any existing statistical data the MQA is not in a position to establish a baseline or set a target for RPL in the sector but will strive to get accredited providers to offer RPL to all learners in all programmes. The MQA will investigate RPL best practices, and then launch a concerted RPL drive within the sector.

d) *Mathematics and science at grades 10, 11 and 12 in rural mining community schools*

Many of the core skills in the MMS require mathematics and physical science at grade 12 level. In order to enhance the supply of learners with those subjects the MQA will continue to support special tuition

for learners in rural mining community schools. A total of 1 000 learners will receive assistance over the five-year period.

e) *ABET*

The MMS continues to have one the lowest levels of education in the economy. Table 2.3 clearly indicates this situation, with 48% of workers having an educational level below NQF Level 1. The MQA will therefore continue to support the delivery of ABET within current and estimated budget constraints.

The MQA has set a target of supporting a minimum of 8 800 ABET learners during the planning period. While this is a relatively small figure in comparison to the need, this support augments employers' investments in ABET.

The MQA has initiated a process to develop an ABET curriculum specific to the needs of the sector and also to train and/or retrain at least 40 ABET practitioners. Additional interventions to strengthen foundational learning in the sector are considered.

f) *Targeted skills programmes*

The MQA supports numerous skills programmes for employed people in the sector, especially programmes linked to legislated training requirements as mandated by the MHSA. It also supports skills programmes for the unemployed in the sector, which are linked to small-scale mining operations in support of the National Small-Scale Mining Strategy which is implemented by the DMR. The MQA is also in the process of developing a mine-community capacity-building skills programme that will assist people who live in and around mining communities to be capacitated to engage with and benefit from the development of mining in their communities. This intervention also supports the Social and Labour Plan programmes of the sector.

With regard to skills programmes the MQA has set the one-year and five-year targets as set out in Table 7-1.

Table 7-1 MQA targets for skills programmes: 2011 - 2016

Skills Programme	One-year target	Five-year target
HDSA executive and management development	50 learners	To be determined after completion of pilot
Occupational health and safety representatives appointed by mine managers	10 000 learners	30 000
Mine inspector training	100 learners	150
Workplace coaches	50 learners	250
ETD practitioners (ABET)	40 learners	200
Small scale miners	200 learners	1 000
Mine community development	100 learners	500
Total targets	10 540	32 100

g) Intermediate (FET) level core programmes through learnerships

Supporting learnerships is one of the main mechanisms that the MQA can apply to alleviate skills shortages in the MMS. Support for intermediate level core learnerships will be informed by the scarce skills needs of the sector.

As indicated in Chapter 5 of this SSP, all the apprenticeships in the sector have been converted to learnerships. However, in the MQA a distinction is made between learnerships for the training of artisans and non-artisan learnerships. The annual and five-year targets set for these two types of learnerships can be seen in Table 7-2. It must be noted that most of the artisan learnerships are multi-year learnerships and that a single learner will be counted each year as he or she progresses through a programme. That means that the targets below should not be interpreted as completions, but as the number of learners that will be in the learnership system each year with the financial support of the MQA, as well as other nationally available funds.

The artisan learnership target includes the targets set for the continuation of a joint initiative between the MQA and the Unemployment Insurance Fund (UIF) through which 1 000 unemployed workers will be trained each year on artisan learnerships. This training will be funded on a 50/50 basis between the MQA and the UIF.

Table 7-2 MQA targets for learnerships: 2011 - 2016

Learnership programme*	One-year target	Five-year target
Learnerships/apprenticeships for artisans	2 000 learners	10 000 learners
Learnerships for non-artisans	1 200 learners	6 000 learners
Total targets	3 200 learners	16 000 learners

*Pivotal grants once regulated will be used by the MQA for structured workplace learning for some of the above programmes

h) High (HET) level core skills programmes

The support of learners on HET programmes will also be linked to the scarce skills needs of the sector. At this level learners will be supported through bursaries (for the theoretical or institutional parts of their education) and through financial support for workplace placements required for public HET diplomas and internships following public HET degrees. The targets set for the planning period can be seen in Table 7-4

Table 7-3 MQA targets for HET programmes: 2011 - 2016

HET programme*	Annual Target	Five-year Target
Bursaries at public HET Institutions with mining and mineral related faculties	950 learners	4 750 learners
Workplace experiential learning linked to public HET diplomas		
Internships linked to public HET degrees		

*Pivotal grants once regulated will be used by the MQA for structured workplace learning for some of the above programmes

In all cases the MQA has set a target of 70% of learners who enter a programme successfully completing the programme. The MQA will also set in motion a learner-tracking process to monitor the impact of the programmes it supports by continuously analysing the employment, promotion, or further learning of each learner who completes a learnership or HET programme.

i) Programmes that build the academic profession and engender innovation

The MQA has developed and implemented a public HET institution support programme that sets aside at least R7million per year to develop university lecturers from historically disadvantaged backgrounds to work at seven different public HET institutions in the country. These include those institutions that have mining-and-minerals-related faculties such as the University of the Witwatersrand, the University of Pretoria, and the University of Johannesburg as well as numerous historically disadvantaged

Universities. The MQA plans to expand this programme of support for the academic profession if the budget allows. Extension to supporting the development of FET College lecturers will also be planned and implemented. Collaboration with the Mineral Education Trust Fund will be considered.

7.2.5 Priority 5: Enhance the monitoring, evaluation and review of the delivery capacity and quality of skills development in the sector

In Chapter 5 it was stated that the sector has serious concerns regarding the capacity and quality of the training on offer. The Mining Charter element 2.5 requires the industry to increase its spending on training over the next few years from 3% of payroll in 2010 to 5% of payroll in 2014, over and above the 1% of payroll paid in the form of the SDL. At the same time, the quality assurance system for occupational qualifications is in the process of changing under the new QCTO dispensation. Under the new dispensation quality assurance is set to shift away from accreditation towards monitoring, evaluation and assessment. The role of the SETAs with regard to quality assurance is expected to change in keeping with the development of the QCTO.

The Mining Charter element 2.8 (sustainable development and growth) also requires the ongoing monitoring and evaluation of the implementation of environmental management and health and safety in the industry, through the monitoring of the implementation of the tripartite action plan. The MQA will need to support these processes by monitoring the capacity and quality of delivery of programmes relevant to environmental management as well to health and safety.

In the period covered by this SSP the MQA will focus strongly on the strengthening and development of existing private and public training capacity, including the development of trainers, mentors and assessors.

7.2.6 Programme-delivery partners

The MQA has, over the years, built strong partnerships with HET institutions, FET colleges and private providers for the delivery of education and training for the sector. In this planning period further emphasis will be placed on the strengthening of the capacity of public education institutions at FET and at HET levels.

At present the MQA has over 90 accredited training providers and supports and works with seven public HET providers and 19 public FET Colleges.

7.2.7 NSF funds for the skills development in the MMS

The National Skills Development Strategy (NSDS) III Framework issued by the DHET in April 2010 included the following section on possible additional funding for SETAs from the National Skills Fund (NSF):

“Minister Nzimande has referred to the National Skills Fund as a ‘catalytic’ fund –enabling the state to drive key skill strategies as well as to meet the training needs of the unemployed and vulnerable. The

National Skills Fund is therefore a national resource which can be used to both initiate as well as to respond to national skill priorities. It can be used to target gaps and compliment resource shortages for national priorities. Some of the ways in which it might *respond* to targeted needs are considered below, but in addition to being responsive it can itself trigger interventions needed to meet national strategic goals. The National Skills Fund (NSF) would assess sectoral plans against national goals and use the fund portion of the skills levy to strengthen the overall achievement of the NSDS III.

For the NSF to play a responsive, catalytic role it is envisaged that SETAs, in their approved SSPs, could highlight priority skill interventions that they would like to make but for which they do not have the required resources. These could be submitted together with their SSPs and would enable them to secure NSDS-long commitments from the NSF for supplementary funding. This would assist those SETAs with a currently low levy income to secure additional resources to meet strategic skill priorities into the future.”¹³³

In considering the requirements for additional funding from the NSF in the form of catalytic grants, the medium to long term skills development needs of the MMS are influenced in particular by two tables from Chapter 4 of the SSP on the supply of labour.

The first is Table2-3, that reflects the huge demand in the sector for fundamental learning since 48% of the employees in the sector have educational levels below NQF Level 1. This implies a need for Catalytic Grants especially for ABET.

The second is Table 7-4, shown below, that reflects the average baseline scenario for new positions and replacement demand in the sector by MMS core skill occupational category for period 2010-2016. This implies a need for NSF Funds for bursaries, work experience learning, and internships, artisans and non-artisan learnerships, effectively for PIVOTAL programmes types.

¹³³ Department of Higher Education and Training, Framework for the National Skills Development Strategy 2011/12 – 2015-16, p. 22.

Table 7-4 Total number of positions to be filled: 2010 – 2016 (vacancies and replacement) and planned interventions

Occupational Categories		Years						
		2010	2011	2012	2013	2014	2015	2016
Baseline Scenario	Managers Bursaries, work experience & Internships	1 039	1 026	1 019	1 002	993	1 032	1 040
	Professionals Bursaries, work experience & Internships	1 920	1 894	1 880	1 848	1 831	1 905	1 919
	Technicians and Trades Workers Bursaries, work experience, Internships & Artisan and Non Artisan Learnerships	5 352	7 225	7 203	7 293	7 529	8 013	8 174
	Machinery Operators and Drivers Skills programmes	8 323	11 054	10 740	10 482	10 668	11 969	12 105
	Elementary Workers Skills programmes	7 448	10 225	9 898	9 631	9 814	11 130	11 256
	TOTALS	24 082	31 424	30 740	30 256	30 835	34 049	34 494

The actual value of the NSF application for the MMS will only be calculated and submitted to the DHET once the guidelines and requirements for these applications have been released.

7.3 SECTORAL CONTRIBUTION TO STRATEGIC AREAS OF FOCUS FOR NSDS III¹³⁴

This section focussed on the contribution of the MMS (through this SSP) to the strategic areas of focus for the NSDS III. The section starts with the seven key developmental and transformational imperatives that will guide and against which NSDS will be measured. The way in which the MMS will focus on and the contribution that the MQA will make with regard to these imperatives are first discussed. This is followed by a tabular alignment of the MQA's goals and objectives, as reflected in the Strategic Plan to the NSDS III goals, outcomes and outputs.

¹³⁴ The comments and targets stated in this section are referenced to the detailed MQA Strategic Plan Implementation Schedules as reflected on pages 12 to 17 of the MQA Strategic Plan for 2011-2012.

7.3.1 Key developmental and transformation imperatives

a) *Race*

As mentioned in previous parts of this SSP, the correction of racial imbalances is an important component of the Mining Charter and the integrated transformation processes that are currently implemented in the MMS. In support of these initiatives the MQA programmes and projects will have a strong focus on the training of HDSAs – especially in the occupational categories in which they are under-represented (such as managers). The MQA records and reports on its learners in terms of the racial categories prescribed by employment equity legislation.

b) *Class*

The MMS is one of the largest providers of employment to people with low levels of formal education. The huge emphasis that is placed on ABET and the development of core industry skills should provide access to education and training to people who were previously excluded from such opportunities. It is suggested that this sector's contribution in terms of this aspect of equity should be measured and reported on in terms of the level of education of the employees in the sector, as well as the numbers of workers within each occupational category as defined by the OFO.¹³⁵

Class inequality will also be addressed through the continuation of a joint initiative between the MQA and the Unemployment Insurance Fund (UIF) through which 1 000 unemployed workers will be trained each year on artisan learnerships. This training will be funded on a 50/50 basis between the MQA and the UIF.

c) *Gender*

Another imperative set in the Mining Charter is the increased numbers of women in mining. The sector profile presented in Chapter 2 clearly shows the progress made in this regard. The MQA has in the past supported women's entry into the sector and will continue to do so in the planning period. It will also report on its learners in terms of their gender. The MQA will strive to ensure that at least 10% of all learners on MQA programmes are women, as this is consistent with targets set by the mining and minerals sector.

d) *Geography*

NSDS III places special emphasis on skills development that will support the economic development of rural areas. As mines are generally situated in rural areas (labour sending areas as well as mining areas), the MMS is intensely involved in rural development. Conversely, mine closures or downscaling of operations have a profound negative effect on rural development and on unemployment in rural areas. It is for this reason that mining companies are bound to the submission of a social and labour plan to the DMR. As indicated in Section 2.7.4, these plans have to include local economic

¹³⁵ It may also be useful to monitor wage differentials in the sector. However, at this stage such information is not available.

development programmes that focus on how the mine or production operation will address the socio-economic needs of the area within which it operates and the area from where it sources its workforce. The plans also have to include processes to address situations that may negatively affect the employment of workers – i.e. processes that will mitigate the effect of possible downscaling or job losses at the operation. The MQA’s role is to provide access to, information on and general support regarding learning programmes to be utilised in these processes. It will also provide direct financial support to 100 learners on mine community development projects.

e) *Age*

Most of the learning programmes supported by the MQA focus on youth. Learners’ ages are recorded by the MQA and reporting can take place in terms of the ages of learners.

f) *Disability*

It is acknowledged that the MMS, because of the nature of the work, high accident rates, and the high prevalence of occupational diseases, contributes to disability in the country. However, the sector is committed to the reduction of accidents that cause injury and mortality and the reduction in the prevalence of occupational disease such as TB, silicosis and Noise-Induced Hearing Loss. This commitment was formalised and reiterated at the various health and safety summits held by stakeholders over the past decade.

The retention and retraining of people who become disabled for their original occupations through exposure to the work environment also remains an important objective for the sector. The MQA reports on all learners with disabilities in all of its programmes.

g) *HIV and AIDS*

The MMS is aware of the high HIV infection rate in the sector and the fact that it is an above-average contributor to the national infection rate. As mentioned in Chapter 2, many of the mines have instituted HIV awareness programmes and testing and anti-retroviral treatment programmes that enable workers to continue to work and to remain economically active. HIV and AIDS awareness will remain part of the educational agenda of the MMS. The MQA will analyse and report on the number of programmes on the MMS qualifications framework for the sector that include HIV and AIDS awareness learning materials. Furthermore the MQA will encourage the inclusion of programmes that support HIV and AIDS awareness and prevention in its qualifications, and in liaison with relevant sector bodies that support HIV/AIDS awareness programmes.

7.3.2 NSDS III Goals

In Table 7-5 the alignment of the MQA’s skills development priorities and its objectives and qualitative targets to the NSDS III goals are summarised. Column A in the table describes the NSDS III outcomes relating to each of the goals. Column B describes the output related to each outcome. Column C refers to the MQA skills development priority that addresses the NSDS output and Column D refers to the specific parts of Section 7.2 above in which the relevant MQA’s skills development priorities and

strategies are discussed. The comments in Column E summarises the MQA's response to the specific NSDS III outputs.

Table 7-5 Alignment of MQA strategic objectives with NSDS III

A Outcome	B Output	C Priority	D Ref	E Comments
4.1 Establishing a credible institutional mechanism for skills planning				
4.1.1: National need in relation to skills development is researched, documented and communicated to enable effective planning across all economic sector.	4.1.1.1: Capacity is established within the Department of Higher Education and Training to coordinate research and skills planning.			MQA will participate fully if and when required.
	4.1.1.2: Sector skills plans are professionally researched, provide a sound analysis of the sector and articulate an agreed sector strategy to address skills needs.	2	7.2.2	Development of research capability will support skills planning.
	4.1.1.3: Sector and nationally commissioned research and data is analysed, validated and captured in an integrated database that is accessible to stakeholders.	2	7.2.2	Research information will be held in MQA database. Where possible research data will be made available for inclusion in national system.
4.2 Increasing access to occupationally-directed programmes				
4.2.1: Middle level skills needs are identified and addressed in all sectors	4.2.1.1: SETAs research and identify middle level skills needs in their sectors and put in place strategies to address them, particularly through the use of the public FET colleges and universities of technology working in partnership with employers providing workplace-based training.	2	7.2.2	Research and monitoring will include middle level skills needs. MQA qualifications framework to be adapted continuously based on research.
		4	7.2.4 (a)	
	4.2.1.2: Projects are established to address middle level skills in each sector.	4	7.2.4 (g)	Learnerships will focus on middle level skills needs. Existing partnerships will continue.
		4	7.2.4 (g)	Artisan and non-artisan learnerships

A	B	C	D	E
Outcome	Output	Priority	Ref	Comments
4.2.2: 10,000 artisans per year qualify with relevant skills and find employment	4.2.2.1: SETAs establish projects and partnerships to enable the relevant number of artisans for their sector to be trained, to qualify and become work ready.	4	7.2.4 (g)	Target: 2 000 learners on artisan learnerships per year 10 000 learners over 5 years
	4.2.2.2: The national Artisan Development Project developed by JIPSA and now located in the DHET and M&E framework, is planned, managed and reported on, with interventions made where blockages occur.			An MQA Senior Manager Appointed as the liaison person
4.2.3: High level national scarce skills needs are being addressed by work ready graduates from higher education institutions	4.2.3.1: Sector skills plans identify the supply challenges in relation to high level scarce skills gaps and set out strategies for addressing them.			Some challenges and strategies have been identified which will be elaborated on further in the SSP annual updates. For example scarce skills may be due to the unattractiveness of the location of the mine as opposed to a skills shortage.
	4.2.3.2: Agreements are entered into between SETAs, university faculties and other stakeholders on appropriate interventions to support improved entry to priority programmes, increased work experience and experiential learning for students and access to post-graduate work.	4	7.2.4 (h)	High level scarce skills to be addressed through bursaries, workplace experiential learning and internships. Target: 950 per year = 4 750 learners over 5 years
4.2.4: Relevant research and development and innovation capacity is developed and innovative research projects established	4.2.4.1: Sector skills plans identify the focal areas for research, innovation and development.			To be included in annual SSP updates.
	4.2.4.2: Agreements are entered into between SETAs, university faculties and other stakeholders on flagship research projects linked to sector development in a knowledge economy.			Exploration of opportunities for collaboration to start in April 2011

A Outcome	B Output	C Priority	D Ref	E Comments
	4.2.4.3: Programmes are put in place that focus on the skills needed to produce research that will be relevant and have an impact on the achievement of economic and skills development goals.	4	7.2.4 (i)	MQA is already involved in programmes that build the academic profession. Further engagement will focus specifically on the development of research capabilities in HE institutions.
4.3 Promoting the growth of a public FET college system that is responsive to sector, local, regional and national skills needs and priorities				
4.3.1: The National Certificate (Vocational) and N-courses are recognised by employers as important base qualifications through which young people are obtaining additional vocational skills and work experience, entering the labour market with marketable skills, and obtaining employment	4.3.1.1: The NCV is reviewed with inputs from stakeholders and the curriculum is revised to ensure that it provides a sound foundational basis for building labour market relevant skills.		7.2.6	The MQA will continue and possibly expand its relationships with FET colleges and assist with the revision of programmes relevant to the sector.
	4.3.1.2: The programmes offered to meet industry needs, including those supporting apprenticeships and N-courses, are reviewed, updated and made available to and accessed by employers.		7.2.6	

A	B	C	D	E
Outcome	Output	Priority	Ref	Comments
<p>4.3.2: Partnerships between DHET, SETAs, employers, private providers and public FET colleges are resulting in increased capacity to meet industry needs throughout the country</p> <p>4.3.3: The academic staff at colleges are able to offer relevant education and training of the required quality</p> <p>4.4 Addressing the low level of youth and adult language and numeracy skills to enable additional training</p> <p>4.4.1: A national strategy is in place to provide all young people leaving school with an opportunity</p>	4.3.2.1: The capacity of FET colleges to provide quality vocational training is reviewed. Each college has a strategic plan in place to build capacity and engage in skills development programmes, including programmes offered in partnership with employers.			MQA will participate fully if and when required.
	4.3.2.2: SETAs identify FET colleges with relevant programmes and put in place partnerships to offer vocational courses and work experience for college learners.	4	7.2.6	The MQA will continue and possibly expand its relationships with FET colleges and assist with the revision of programmes relevant to the sector, support lecturer development and engage on partnership agreements with employers.
	4.3.3.1: The capacity of college educators to deliver programmes is reviewed. Skills development programmes, including work placement opportunities, are devised to meet the needs of the college educators.	4	7.2.6	
	<p>4.4.1.1: A DHET-led process, including stakeholders, develops a strategy supported by all stakeholders.</p> <p>4.4.1.2: A national database tracks training and work opportunities, and reports on implementation of the strategy.</p>			The MQA will participate in the DHET led process to develop strategy, and track learners in the sector.

A Outcome	B Output	C Priority	D Ref	E Comments
to engage in training or work experience, and improve their employability	4.4.1.3: The DHET partners with stakeholders in the youth sector to put in place training and work experience projects for young people.			The MQA will initiate processes and discussions.
4.5 Encouraging better use of workplace-based skills development				
4.5.1: Training of employed workers addresses critical skills, enabling improved productivity, economic growth and the ability of the work force to adapt to change in the labour market	4.5.1.1: SETA stakeholders agree on the provision of substantial quality programmes for employed workers and report on the impact of the training.	4	7.2.4 (a)	Skills programmes form part of MQA qualifications framework which is continuously researched and updated.
	4.5.1.2: Sector projects are put in place to address specific sector skills gaps.	4	7.2.4 (f)	Skills programmes address critical skills needs of the sector. 10 540 learners to be supported each year
	4.5.1.3: Cross-sectoral projects are established to address skills needs along local supply chains aimed at supporting local economic development.			Cross-sectoral collaboration to be sought in areas of overlap with other sectors e.g. jewellery manufacturing and beneficiation.
4.6 Encouraging and supporting cooperatives, small enterprises, worker initiated, NGO and community training initiatives				
4.6.1: Cooperatives supported with skills training and development expand and contribute to sector economic and employment growth	4.6.1.1: SETAs identify in their skills planning research, established and emergent cooperatives and their skills needs.	2	7.2.2	MQA is currently engaged with research into training needs of small enterprises. Research initiative will be repeated when necessary.
	4.6.1.2: Sector projects are established by sector stakeholders, supported by the NSF.	4	7.2.4 (f)	Small scale mining projects address, inter alia the needs of cooperatives in the sector.
	4.6.1.3: A national database of cooperatives supported with skills development is established and the impact of training reported on.	3	7.2.3	MQA supported cooperatives will be recorded in MIS

A	B	C	D	E
Outcome	Output	Priority	Ref	Comments
4.6.2: Partnership projects to provide training and development support to small businesses are established in all sectors and their impact reported on	4.6.2.1: SETAs, through their skills planning research, identify the skills needs of small and emerging businesses in their sector, and promote relevant programmes.	2	7.2.2	MQA is currently engaged with research into training needs of small enterprises. Research initiative will be repeated when necessary.
	4.6.2.2: Sector projects are developed that are piloted by SETAs and expanded through partnership funding.	4	7.2.4	Small enterprises are included in all core skills development projects and programmes
	4.6.2.3: A national database of small businesses supported with skills development is established and the impact of training reported on.	3	7.2.3	Small business information included in MIS
4.6.3: Worker, NGO and community-based education programmes are supported and their impact measured and reported on	4.6.3.1: SETAs engage with trade unions, NGOs and community-based organisations in their sector and identify skills needs and strategies to address needs.			The MQA runs on a regular basis capacity building workshops for labour representatives. A labour co-ordinator is funded from the administrative budget of the MQA. Research into the skills needs of NGOs and CBOs in the sector has been conducted in the NSDS II period. Currently these needs are catered for in various projects – notably the projects aimed at skills development of small scale miners
	4.6.3.2: SETAs establish quality pilot projects.			
	4.6.3.3: Stakeholders expand successful projects with support from the NSF.			
4.7 Increasing public sector capacity for improved service delivery and supporting the building of a developmental state				
Outcome 4.7.1: A thorough analysis and reflection is conducted on	4.7.1.1: SETAs with responsibility for public sector training conduct analysis and reflection on achievements and challenges.			DMR identified specific training needs in SSP development process. Will be attended to in all relevant projects.

A	B	C	D	E
Outcome	Output	Priority	Ref	Comments
provision of education and training within the public sector and the contribution of the various role players	4.7.1.2: DHET leads a discussion on factors impacting on provision and publishes proposals on improving the institutional framework for public sector education and training.			MQA will participate fully if and when required.
4.7.2: Education and training plans for the public sector are revised and programmes are implemented to build capacity	4.7.2.1: Sector skills plans set out the capacity needs of relevant departments and entities.	4	7.2.4(f)	Capacity needs of DMR are referred to in Section 6.2.11.
	4.7.2.2: Plans and funding arrangements are agreed between the relevant departments/entities and the SETAs, and are reported on.	4	7.2.4(f)	The MQA committed to the training of 100 mine inspectors per year on skills programmes
4.8 Building career and vocational guidance				
Outcome 4.8.1: Career paths are mapped to qualifications in all sectors and sub-sectors, and communicated effectively, contributing to improved relevance of training and greater mobility and progression	4.8.1.1: Career guides are developed with labour market information from SETAs, addressing sub-sectors within their sector.	4	7.2.4(b)	The MQA has developed a career guide and other career guidance materials. Will continue with its revision and with regular participation in career guidance interventions.
	4.8.1.2: Sector stakeholders are engaged and programmes are adjusted to meet the skills and qualification needs to promote comprehensive career development.	4	7.2.4(a)	The MQA qualifications framework is revised on an ongoing basis with active involvement of stakeholders.

7.4 SECTORAL CONTRIBUTION TO THE PRESIDENT’S OUTCOMES APPROACH TO PLANNING GOVERNMENT’S WORK

The MQA fully supports and endorses the President’s outcomes approach to planning government’s work as is evidenced by the detailed strategic plan implementation schedules reflected under Section 5 of the Strategic Plan. All elements of the outcomes approach – namely inputs, activities, outputs, outcomes and impacts – are contained within the schedules. These schedules form the core of the annual business plan for the MQA and are utilised by the MQA management and board to continuously monitor and report on progress against MQA goals and objectives.

Through the implementation of these schedules the MQA will contribute directly to the Presidential Outcomes for the Minister of Mineral Resources and the Minister of Higher Education and Training;

7.4.1 MQA Contribution to Presidential Outcomes for Minister of Mineral Resources

The MQA will (albeit indirectly) contribute to the outcomes of the Minister of Mineral Resources. The specific contributions will be outlined once more detail regarding these outcomes are made available to the MQA.

7.4.2 MQA Contribution to Presidential Outcomes for Minister of Higher Education and Training

The Minister of Higher Education and Training is accountable for Outcome 5 – “A skilled and capable workforce to support an inclusive growth path” that has the following five outputs and measures:

Output 1: Establish a credible institutional mechanism for skills planning

- Develop a standardised framework for the assessment of skills shortages and vacancies in the country.

MQA Contribution: In support of Output 1, the MQA has submitted an SSP to the DHET that is well-researched and supported by stakeholders, including Government’s line Department. Furthermore the MQA has included research and information management in its Strategic Plan implementation schedules, which will link to the national DHET system. Finally, the MQA has contributed directly to the development of the NSDS III.

Output 2: Increase access to programmes leading to intermediate- and high-level learning

- Provide young people and adults with foundational learning qualifications and increase ABET Level-4 entrants from a baseline of 269 229 to 300 000 per year.
- Improve NCV success rates, prior to massification of the programme. NCV enrolments across Levels 2 and 3 in 2009 were 122 921, of which 8.9% achieved certification at Level 2; 9.9% at Level 3; and 21.5% at Level 4.

- Create 'second-chance' bridging programmes (leading to a matric equivalent) for the youth who do not hold a senior certificate.
- Provide a range of learning options to meet the demand of those with matric but who do not meet requirements for university entrance.

MQA Contribution: In support of Output 2, the MQA has set a target of a minimum of 8 800 ABET learners entering ABET programmes (all levels combined) per year for five years, giving a five-year target of 44 000 ABET learners. Furthermore 200 ABET practitioners will be trained (or retrained) over the next five years.

Output 3: Increase access to occupationally directed programmes in needed areas and thereby expand the availability of intermediate-level skills (with a special focus on artisan skills)

- Increase the number of learnerships to at least 20 000 annually by 2014.
- Produce at least 10 000 artisans annually by 2014
- Put in place measures to improve the trade-test pass rate from its 2009 level of 46% to 60% by 2014.
- Increase the placement rate of learners from learnership and apprenticeship programmes, as well as learners from NCV programmes, who require workplace experience before being able to take trade tests or other summative assessments. At least 70% of learners should have a placement every year.
- By 2011, establish a system to distinguish between learnerships up to and including Level 6 and above.
- Increase the proportion of unemployed people, as compared to employed people, entering learnerships from the current level of 60% to 70%.

MQA Contribution: In support of Output 3 the MQA has set annual and five-year targets for the period 2011-2016 as follows:

Programme	Annual Target	Five-year Target
Learnerships/apprenticeships for artisans	2 000 learners	10 000 learners
Learnerships for non-artisans	1 200 learners	6 000 learners

Output 4: Increase access to high-level occupationally directed programmes in needed areas

- Increase the graduate output in engineering sciences to 15 000 per year by 2014.
- Increase the graduate output in animal and human health to over 15 000 per year by 2014
- Increase the graduate output in natural and physical sciences to 8 000 annually by 2014
- Increase the graduate output in teacher education to 12 000 per year by 2014

MQA Contribution: In support of Output 4 the MQA has set annual and five-year targets for the period 2011-2016 as follows:

Programme	Annual Target	Five-year Target
Bursaries at public HET Institutions with mining-and-mineral-related faculties. (10% PIVOTAL Grant will be applied in this area.)	950 learners	4 750 learners
Workplace experiential learning linked to public HET diplomas		
Internships linked to public HET degrees		

Output 5: Research, development and innovation in human capital for a growing knowledge economy

- Increase the output of
 - Honours graduates to 20 000 annually by 2014,
 - Research masters to 4 500 annually by 2014,
 - Doctoral graduates to 1 350 annually by 2014
 - Post-doctoral graduates to 100 annually by 2014
- Provide increased support to industry/university partnerships.
- Increase investment in research and development, especially in the science, engineering and technology sector.

MQA Contribution: First, through the MQA bursary scheme the SETA will fund post-graduate studies in Rock Engineering. Second, the MQA is in the process of developing learning materials for post graduate Rock Engineering qualifications. Third, as stated under Section 7.2.4(i) the MQA has developed and implemented a public HET institution support programme that sets aside at least R7 million per year to develop university lectures from historically disadvantaged backgrounds to work at institutions that have mining-and-minerals-related faculties. It was also stated in Section 7.2.6 that the MQA has, over the years, built strong partnerships with HET institutions, FET colleges and private providers for the delivery of education and training for the sector.

7.5 SUPPORT OF GOVERNMENT’S MTSF OBJECTIVES

This section highlights the ways in which this SSP supports Government’s Medium Term Strategic Framework (MTSF) policy objectives, by discussing its contribution to each of the ten objectives listed in the policy document.

7.5.1 Speeding up growth and transforming the economy to create decent work and sustainable livelihoods

The MMS is a large contributor to the South African economy but, as indicated in Chapter 3, it has contracted over a relatively long period of time as a result of a number of factors – many of which are

outside the control of the sector itself. One of the constraining factors is, however, the shortages of skills. By focusing on skills areas where shortages are experienced and by stimulating, facilitating and supporting skills development for and in the sector, the MQA will endeavour to reduce the impact of this particular factor on the growth of the sector and contribute to the growth of the total economy in this way.

Similarly, the support for the transformation of the sector mentioned in Section 7.2.1 will ultimately impact on the transformation of the economy and the broader participation of HDSAs in the economy.

7.5.2 Massive programme to build economic and social infrastructure

The MMS, and specifically the CLAS subsector, plays a pivotal role in the provision of raw materials for infrastructural development of the country. The operations that provide cement, lime, aggregates and sand are relatively small and are scattered across the country. In co-operation with ASPASA, the MQA has identified the specific needs of these operations and will support skills development for and in them. Comprehensive rural development strategy linked to land and agrarian reform and food security

In Chapter 2 it was stressed that most mining operations are located in the rural areas and that they attract labour from rural areas across the country. Many of the mining companies are extensively involved with their surrounding communities and contribute to their development. The Social and Labour Plan also binds mining operations to involvement with their local communities. The MQA supports skills development in this regard through continuously engaging with communities that live and work in rural mining areas.

7.5.3 Strengthen the skills and human resources base

All the work undertaken in the planning period will focus on strengthening the skills and human resources base of the sector and ultimately that of the country.

7.5.4 Improve the health profile of all South Africans

As mentioned above, the MMS is committed to the containment and reduction of HIV infection in the industry and the reduction of occupational diseases that are currently undermining the health of the workforce. In the planning period the MQA will, in collaboration with the MHSC, the DMR and other stakeholders, explore ways in which it can actively contribute to these sectoral imperatives.

7.5.5 Intensify the fight against crime and corruption

Unfortunately crime has also permeated the mining sector. Illegal mining poses huge economic, environmental, and safety problems to mining operations. Many of the small-scale mining operations start off informally without the necessary licensing and compliance with DMR regulations. In the MQA's training programmes designed for small-scale mining special attention will be given to the legal requirements and to assisting new entrants to the sector to become compliant.

7.5.6 Build cohesive, caring and sustainable communities

The MQA in partnership with the Department of Environmental Affairs (DEA) and other role players will explore possible ways in which to support communities living on the fringes of poverty and unemployment. This could include DEA input into the proposed MQA Mine Community Capacity-Building Programme

The MQA currently only operates within the borders of South Africa, although many stakeholder organisations supported by the MQA operate within the SADC region. Foreign workers that are employed by the MMS are however entitled to the same training opportunities as local workers, with the development of their skills contributing to African advancement.

7.5.7 Sustainable resource management and use

This is a critically important area for the MMS given the need to protect the environment and conserve non-renewable resources. Section 2.8 of the amended Mining Charter states that: 'Mineral resources are non-renewable in nature, (and that) forthwith, exploitation of such resources must emphasise the importance of balancing concomitant economic benefits with social and environmental needs without compromising future generations, in line with Constitutional provisions for ecological, sustainable development and use of natural resources'.

The MQA supports the training and development of learners on environmentally related programmes and will engage with the Environmental Sector Skills Plan of the DEA in this regard.

7.5.8 Build a developmental state, including improvement of public services and the strengthening of democratic institutions

The DMR plays a crucial role in the regulation and the advancement of the MMS. During the development of this SSP the capacity constraints of the Department and the negative effect of these on the sector were highlighted by various stakeholders. The DMR also participated in this process and identified skills needs in and in support of its work. These needs will receive support from the MQA during the planning period.

7.6 SUPPORT OF GOVERNMENT INDUSTRIAL POLICY ACTION PLAN (IPAP)

In support of the IPAP's focus on downstream metals beneficiation (see Section 3.6), the MQA has established a Diamond Processing and Jewellery Beneficiation Skills Development subcommittee. This subcommittee has a budget of R 10 million for 2011 - 2012 to fund a range of activities. These activities, which support the IPAP's Key Action Plans as presented in section 12.5.1 and section 12.5.2, includes the development of goldsmiths and diamond polishers and cutters.

7.7 SUPPORT OF THE NEW GROWTH PATH

At the time of finalisation of this SSP Government published the “The New Growth Path: The Framework”. Once the details of the implementation of this policy and its implications for the MMS become clear the MQA’s role and responsibilities with regards to the policy will be assessed and the MQA’s Strategic Plan will be adapted accordingly. This policy will also be reflected in more detail in future updates of the SSP.

7.8 CONCLUSION

This chapter forms the conclusion of the MQA SSP’s for the period 2011 - 2016. The five skills development priorities identified by the MQA represents the culmination of the sector analysis and stakeholder consultation process, and are intended to guide the MQA’s strategic objectives as set out in the Strategic Plan. In essence, this chapter presents the action plan that the MQA will seek to implement over the NSDS III period.

The five skills development priorities are:

- Priority 1: Support transformation of the sector through skills development;
- Priority 2: Support objective decision making for skills development through research in the sector;
- Priority 3: Enhance information management for skills development in the sector;
- Priority 4: Facilitate and support the development and implementation of core skills development programmes aligned with the sector qualifications framework; and
- Priority 5: Enhance the monitoring, evaluation and review of the delivery capacity and quality of skills development in the sector.

These skills development priorities have been developed for and aligned with the amendment to the “Broad-Based Socio-Economic Empowerment Charter for the South African Mining and Minerals Industry” (Mining Charter) released by the Minister of Mineral Resources in September 2010, which has a number of elements relevant to skills development interventions. These include:

- Employment equity through support for programmes for the development of executives, managers and core skills in the sector;
- Human resources development through support for core skills programmes in the sector, inclusive of support for research programmes;
- Mine community development through support for a customised mining community capacity-building programme aligned with municipal Local Economic Development (LED) plans, as well as support for small-scale mining;
- Sustainable growth and development through support for programmes that improve environmental management as well as health and safety in the sector; and

- Beneficiation through the support of minerals beneficiation programmes, in particular related to the diamond processing and jewellery manufacturing industries.

Finally, although the MQA formulated its skills development priorities within a framework that suits the needs of the sector, the priorities were also formulated with due consideration for the requirements set out in the NSDS III, with evidence presented of the ways in which this SSP supports each of eight strategic focus areas. Any changes to the NSDS III will be reflected in future updates of the SSP. Finally, due consideration was given to Government's MTSF and IPAP policy documents, with this SSP directly supportive of the wider programme of sustainable economic and social development that these policies seek to implement.

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APPENDIX 1: METHODOLOGY USED IN THE DEVELOPMENT OF SECTOR PROFILES

There is no single database that provides a complete and comprehensive profile of the MMS as it has been defined for the purposes of the Skills Development Act. In order to develop such a profile a variety of data sources were used. For each of the subsectors and for each of the variables needed in the profile, the sources that provided the best data were selected.

Mining

For five of the mining subsectors (Coal Mining, Gold Mining, PGM Mining, Diamond Mining and Other Mining) the DMR's database of mines (average employment in 2009) was used to establish total employment in each subsector. This database is maintained and updated every quarter when all mining operations are required to submit information to the DMR. The employment and earnings figures provided on this database are used by Statistics South Africa in their quarterly Survey of Employment and Earnings (SEE) and are regarded as the official statistics on employment in the mining industry.

Information on population group, gender, occupational distribution and educational levels was not available from the DMR database. However, the MQA has a relatively high return of WSPs every year and the WSPs contain comprehensive information on the workforce of the sector. The WSPs submitted for the financial year 2009/2010 represented approximately 80% of the workers in the sector. Thus, for the purpose of establishing a sector profile these variables were determined by applying the distributions observed in the WSPs submitted for 2009/2010 to the employment totals in the DMR database.

Services Incidental to Mining

The organisations in this subsector are in the MMS by choice. They expressed their choice by registering with the MQA and by submitting WSPs. For this reason the figures provided in the WSPs were used throughout.

CLAS, Diamond Processing and Jewellery Manufacturing

The CLAS subsector includes cement manufacturing which is not included in the DMR data. For this reason the WSP data of the CLAS subsector was weighted, using SDL payment information. Similarly, to arrive at an estimate of total employment in the Diamond Processing and Jewellery Manufacturing subsectors SDL payments were used in weighting the WSP data. It was assumed that there is a direct relationship between the amount of levies paid by an organisation and the number of people employed. It was also assumed that organisations in a particular subsector would have similar wage structures and that the employment-levy relationship of companies that submitted WSPs would be the same as for those in the same subsector that did not submit WSPs. Thus total employment of these three subsectors was calculated using the following formula:

$$E_{ss} = L_{ss} / L_w \times E_w$$

where

E_{ss} – Total employment in the subsector

L_{ss} – Total levies paid by organisations in the subsector

L_w – Total levies paid by organisations that submitted WSPs in Year 2009/2010

E_w – Total employment in organisations that submitted WSPs in Year 2009/2010

After calculating total employment for each subsector the distributions used in the WSPs were used to calculate the other variables. The total sector profile was obtained by adding together the respective subsector profiles.

APPENDIX 2: SIC CODES AND SUBSECTORS USED IN THE MMS

Sub-sector	SIC Code (Dept. of Labour)	Description of activity
Coal Mining	21000	Mining of coal and lignite
Gold Mining	23000	Mining of gold and uranium ore
	23001	Thin tabular operations
	23002	Thick tabular operations
	23003	Massive mining operations
PGM Mining	24240	Platinum group metals
Diamond Mining	25200	Mining of diamonds (including alluvial diamonds)
	25201	Marine mining operations
	25202	Coastal mining operations
Other Mining	24000	Mining of metal ores, except gold and uranium
	24100	Mining of iron ore
	24200	Mining of non-ferrous metal ores, except gold and uranium
	24210	Chrome
	24220	Copper
	24230	Manganese
	24290	Other metal ore mining, except gold and uranium
	25000	Other mining and quarrying
	25102	Open cast/strip mining operations
	25103	Open pit operations
	25300	Mining and quarrying n.e.c.
	25310	Mining of chemical and fertilizer minerals
	25311	Phosphates
	25319	Other chemical and fertilizer mineral mining
	25320	Extraction and evaporation of salt
	25390	Other mining and quarrying n.e.c.
	25391	Mining of precious and semi-precious stones, except diamonds
	25392	Asbestos
	25399	Other minerals and materials n.e.c.
Cement, Lime, Aggregates and Sand (CLAS)	34240	Manufacture of cement, lime and plaster
	25100	Stone quarrying, clay and sandpits
	25110	Dimension stone (granite, marble, slate, and wonderstone)
	25101	Quarrying/dimension stone operations
	25120	Limestone and lime works
	25190	Other stone quarrying, including stone crushing and clay and sandpits
Services Incidental to Mining	92004	Education by technical colleges and technical institutions
	87000	Research and development
	29000	Service activities incidental to mining of minerals
Diamond Processing	39212	Diamond cutting and polishing
	39219	Other precious and semi-precious stone cutting and

Jewellery Manufacturing		polishing
	39210	Manufacture of jewellery and related articles
	39211	Jewellery and related articles composed of precious metals, precious and semi-precious stones and pearls

APPENDIX 3: SCARCE SKILLS ACCORDING TO DETAILED OCCUPATION: JUNE 2010 (10 OR MORE VACANCIES)

OFO Code	OFO Occupation	June 2010	June 2009	June 2008	June 2007*	June 2008*	No. of 2005 vacancies reported as a relative scarce skill	Reasons for the difficulty in finding candidates to fill vacancies:			
								Employment equity requirements	Geographic location of mines	Unattractiveness of the industry	Replacement demand
133503	Production/Operations Manager (Mining) (Skill Level 5)	45	100	14	√	√	45	√	√	√	√
133703	Production/Operations Supervisor (Mining) –Shiftboss (Skill Level 4)	19					15	√	√	√	
232202	Surveyor (Skill Level 5)	19	41	14	√	√	11	√	√	√	√
233502	Mechanical Engineer (Skill Level 5)	20	48	34	√	√	9	√	√	√	√
233601	Mining Engineer (excluding Petroleum) (Skill Level 5)	27	76	42	√	√	8	√	√		√
234401	Geologist (Skill Level 5)	18	74	59	√	√	14	√	√	√	√
234902	Metallurgist (Skill Level 5)	17	29	21	√	√	6	√	√		
251302	Occupational Health and Safety Advisor (Skill Level 5)	11	30	10	√	√	3	√	√	√	
312201	Civil Engineering Draftsperson (Skill Level 4)	22	1	1	√	√	21	√		√	
312302	Electrical Engineering Technician (Skill Level 4)	37	48	2	√	√	28	√		√	√
312502	Mechanical Engineering Technician (Skill Level 4)	12	1	1	√	√	4		√	√	√
312903	Mining Technician (Skill Level 4)	23	76	114	√	√	9			√	√
321101	Automotive Electrician (Skill Level 3)	17	3	3		√	8		√	√	
321202	Diesel Motor Vehicle Mechanic (Skill Level 3)	64	62	37	√	√	33		√	√	√
322301	Metal Fabricator (Skill Level 3)	69	41	16	√	√	34		√	√	√
323201	Fitter (General) (Skill Level 3)	52	164	107	√	√	37		√	√	√
323202	Fitter and Turner (Skill Level 3)	24	43	35	√	√	18	√	√	√	√
323304	Precision Instrument Maker and Repairer (Skill Level 3)	17	8	34			11	√		√	

OFO Code	OFO Occupation	June 2010	June 2009	June 2008	June 2007*	June 2008*	No. of 2005 vacancies reported as a relative scarce skill	Reasons for the difficulty in finding candidates to fill vacancies:			
								Employment equity requirements	Geographic location of mines	Unattractiveness of the industry	Replacement demand
323501	Millwright (Skill Level 3)	18	57	62	√	√	10	√	√	√	
341101	Electrician (General) (Skill Level 3)	73	21	90	√	√	36	√	√	√	√
341102	Electrician (Special Class) (Skill Level 3)	13	20	0	√	√	8			√	
342305	Electronic Instrument Trades Worker (Special Class) (Skill Level 3)	11	16	10			7	√	√	√	
399101	Boat Builder and Repairer (Skill Level 3) ¹³⁶	41	22	0			8		√		√
399910	Miner (Skill Level 3)	120	115	75	√	√	40		√	√	√
711104	Mineral Processing Machine Operator (Skill Level 2)	28	15	20	√		4			√	
712101	Crane, Hoist or Lift Operator (Skill Level 2)	30	14	8	√	√	26		√		√
712201	Driller (Skill Level 3)	180	227	36	√		60		√	√	√
721201	Earthmoving Plant Operator (General) (Skill Level 2)	20	6	0	√		20		√	√	√
721204	Excavator Operator (Skill Level 2) ¹³⁷	50	6	1	√	√					

*In these years scarce skills information was collected, but as the questions were formulated differently, the numbers were not comparable to those of the subsequent years.



¹³⁶ Skills needed specifically by the marine mining industry.

¹³⁷ No indication of the proportion of relative scarce skills, or the reasons for scarcity were given.

APPENDIX 4: PEOPLE EMPLOYERS PLANNED TO RECRUIT FROM OUTSIDE SOUTH AFRICA ACCORDING TO OCCUPATION: JUNE 2010

OFO Code	OFO Description	Number	%
Directors & Corporate Managers			
111201	Corporate General Manager (Skill Level 5)	1	0.7
132601	Contract Manager (Skill Level 4)	5	3.6
133201	Engineering Manager (Skill Level 5)	1	0.7
Sub-Total		7	5.0
Professionals			
231203	Ship's Master (Skill Level 5)	1	0.7
232202	Surveyor (Skill Level 5)	3	2.2
233101	Chemical Engineer (Skill Level 5)	2	1.4
233102	Chemical Engineering Technologist (Skill Level 5)	1	0.7
233502	Mechanical Engineer (Skill Level 5)	1	0.7
233601	Mining Engineer (excluding Petroleum) (Skill Level 5)	2	1.4
234401	Geologist (Skill Level 5)	1	0.7
Sub-Total		11	7.9
Technicians and Trade Workers			
312903	Mining Technician (Skill Level 4)	3	2.2
321202	Diesel Motor Vehicle Mechanic (Skill Level 3)	10	7.2
323201	Fitter (General) (Skill Level 3)	15	10.8
341102	Electrician (Special Class) (Skill Level 3)	8	5.8
399910	Miner (Skill Level 3)	25	18.0
Sub-Total		61	43.9
Machine Operators & Drivers			
712201	Driller (Skill Level 3)	5	3.6
712201	Driller (Skill Level 3)	45	32.4
Sub-Total		50	36.0
Elementary Workers			
821701	Construction Rigger (Skill Level 2)	1	0.7
No Description		9	6.5
Total		139	100.0

APPENDIX 5: MINING CHARTER SCORECARD

ELEMENT		DESCRIPTION	MEASURE	COMPLIANCE TARGET BY 2014	2010	PROGRESS ACHIEVED BY				WEIGH TING
						2011	2012	2013	2014	
1	Reporting	Has the company reported the level of compliance with the Charter for the Calendar year	Documentary proof of receipt from the department	Annually	March 2011	March 2012	March 2013	March 2014	March 2015	Y/N
2	Ownership	Minimum target for effective HDSA ownership	Meaningful economic participation	26%	15%				26%	Y/N
			Full shareholder rights	26%	15%				26%	
3	Housing and living conditions	Conversion and upgrading of hostels to attain the occupancy rate of one person per room	Percentage reduction of occupancy rate towards 2014 target	Occupancy rate of one person per room	Base-line	25%	50%	75%	100%	Y/N
		Conversion and upgrading of hostels to family units	Percentage conversion of hostels into family units	Family units established	Base-line	25%	50%	75%	100%	
4	Procurement and Enterprise Development	Procurement spent from BEE entity	Capital goods	40%	5%	10%	20%	30%	40%	5%
			Services	70%	30%	40%	50%	60%	70%	5%
			Consumable goods	50%	10%	15%	25%	40%	50%	2%
		Multinational suppliers contribution to the social fund	Annual spend on procurement from multinational suppliers	0.5% of procurement value	0.50%	0.50%	0.50%	0.50%	0.50%	3%
5	Employment Equity	Diversification of the workplace to reflect the country’s demographics to	Top Management (Board)	40%	20%	25%	30%	35%	40%	3%

ELEMENT		DESCRIPTION	MEASURE	COMPLIANCE TARGET BY 2014	2010	PROGRESS ACHIEVED BY				WEIGH TING
		attain competitiveness	Senior Management (Exco)	40%	20%	25%	30%	35%	40%	4%
			Middle Management	40%	30%	35%	40%	40%	40%	3%
			Junior Management	40%	40%	40%	40%	40%	40%	1%
			Core Skills	40%	15%	20%	25%	30%	40%	5%
6	Human Resource Development	Development of requisite skills, incl. support for South African based research and development initiatives intended to develop solutions in exploration, mining, processing, technology efficiency (energy and water use in mining), beneficiation as well as environmental conservation	HRD expenditure as percentage of total annual payroll (excl. mandatory skills development levy)	5%	3%	3.5%	4.0%	4.5%	5.0%	25%
7	Mine community development	Conduct ethnographic community consultative and collaborative processes to delineate community needs analysis	Implement approved community projects	Up-to-dat project implementation	Implementation of projects will serve to enhance relationships amongst stakeholders leading to communities owing patronage to projects.					15%
8	Sustainable development and growth	Improvement of the industry’s environmental management	Implementation of approved EMPs	100%	Annual progress against approved EMPs					12%
		Improvement of the industry’s mine health and safety performance	Implementation of tripartite action plan on health and safety	100%	Annual progress achieved against commitments in the tripartite action plan on health and safety					12%
		Utilisation of South African based research facilities for	Percentage of samples in South	100%	Establish baseline	25%	50%	75%	100%	5%

ELEMENT		DESCRIPTION	MEASURE	COMPLIANCE TARGET BY 2014	2010	PROGRESS ACHIEVED BY				WEIGH TING
					2011	2012	2013	2014		
		analysis of samples across mining value	African facilities							
9	Beneficiation	Contribution of a mining company towards beneficiation (this measure is effective from 2012)	Additional production volume contributory to local value addition beyond the base-line	Section 26 of the MPRDA (percentage above baseline)	The beneficiation strategy and its modalities of implementation outline the beneficiation requirements per commodity extracted in South Africa.				-	
TOTAL SCORE									100%	

Y/N applies to pillars that are ring-fenced.

Legend

	0-25% (Gross non-compliance)
	25 -50% (Non-compliance)
	50 – 75% (Marginal to acceptable performance)
	75 – 100% (Excellent performance)

APPENDIX 6: LEARNERSHIP ENROLMENTS AND ACHIEVEMENTS 2003 TO 2009

Learnership enrolments 2001 to 2009 according to qualification

Qualification	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Associate General Accountant				8	1					9
Autotronics L2					5	1	3	12	4	25
Community House Builder (Entrepreneurial)					5	7	5			17
Construction Carpenter (Formwork)			2		13	8	12	86		121
Construction Mason (Face Brick Laying)					7	2	12	30		51
Construction Plumber			1		16	11	20	14		62
Customer Management							9	8		17
First Line Manager					47					47
Further Education and Training Certificate Carbonate Materials Manufacturing Process Level 4									20	20
Further Education and Training Certificate Jewellery Manufacturing Operations Level 4							7	3	2	12
Further Education and Training Certificate Minerals Surveying Level 4								2		2
Further Education and Training Certificate: Carbonate Materials Manufacturing Processes Level 4							21	19	1	41
Learnership National Certificate Furniture Making Wood		16								16
Learnership Towards National Certificate - Supervisor		6		28	89	14	28		15	180
National Certificate - Engineering Fabrication Level 2									3	3
National Certificate Diamond Processing Level 3									325	325
National Certificate Diesel Mechanic Level 3	1	21	99	125	113	185	251	190	184	1 169
National Certificate Electrical Level 4	2	81	222	266	304	438	658	643	457	3 071
National Certificate Electro Mechanics - Engineering and Technology Level 2							10	4		14
National Certificate Engineering Maintenance and Repairing for Underground Coal Mining Level 2								191		191

Qualification	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
National Certificate Engineering Maintenance for Underground Hard Rock (Metalliferous) Level 2		48	33	96	170	113	240	354	144	1 198
National Certificate Fitting (including Machining) - Level 3	2	58	119	159	206	282	440	363	257	1 886
National Certificate Fitting and Turning Level 3	1		47	34	46	35	126	220	82	591
National Certificate General Security Practices					18					18
National Certificate in Autotronics L3			1	1		1	4	1	2	10
National Certificate in Autotronics Level 4								7	11	18
National Certificate in Electrical Engineering (Electrical Construction)					3					3
National Certificate in Jewellery Manufacture in a Production Environment Level 3			20	63	524	66	192	192	292	1 349
National Certificate in Measurement Control and Instrumentation						3	13			16
National Certificate in Winding Engine Driving Level 3				3	7	34	2	75	1	122
National Certificate Lump Ore Beneficiation		40			41	172	58	84		395
National Certificate Lump Ore Beneficiation Level 2						6				6
National Certificate Millwright Level 4		12	88	111	150	232	256	262	162	1 273
National Certificate Mineral Processing						7	1	9	111	128
National Certificate Mining operations underground Coal Level 3			1			1	18	120	182	322
National Certificate Mining operations Underground Hardrock Level 2		45	173	61	447	644	532	953	885	3 740
National Certificate Professional Driving Level 3					38		1	1		40
National Certificate Rigger Ropesman - Opencast Level 3		11	6	9	18	46	36	45	17	188
National Certificate Rockbreaking Underground Hard Rock Level 3		4	186	10	103	121	178	309	595	1 506
National Certificate: Diamond Processing Operator Level 2					151	306	94	410	877	1 838
National Certificate: Electro-Mechanics							5	40	141	186
National Certificate: Instrumentation Mechanician Level 3	1	20	30	45	41	66	102	110	69	484
National Certificate: Plater/Boilermaker Level 3	1	40	57	27	57	61	125	131	46	545

Qualification	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
National Certificate: Plater/Welder Level 3		9	62	120	122	168	205	132	109	927
National Certificate: Rockbreaking: Surface Excavations Level 3			2		25	26	1	22	34	110
NQF 4 National Diploma In ABET Practices			3	10						13
NQF 5 National Diploma in ABET Practices			40	10						50
Occupationally Directed Education and Training Practices							5			5
Payroll Administration					10					10
Team Leader				1	97		66	18		182
Total	8	411	1 192	1 187	2 874	3 056	3 736	5 060	5 028	22 552

Source: MQA data system as on 24 August 2010

Learnships completed: 2002 to 2009 according to qualification

Qualification	2003	2004	2005	2006	2007	2008	2009	Total
Autotronics L2			2	1	1	2		6
Community House Builder (Entrepreneurial)						9		9
Construction Mason (Face Brick Laying)						1		1
Construction Plumber						10		10
First Line Manager								0
Further Education and Training Certificate Jewellery Manufacturing Operations Level 4						6		6
Further Education and Training Certificate Minerals Surveying Level 4							2	2
Learnership Towards National Certificate - Supervisor				1	13			14
National Certificate Diamond Processing Level 3							2	2
National Certificate Diesel Mechanic Level 3		10	22	63	115	103	52	365
National Certificate Electrical Level 4	1	25	56	79	247	291	173	872
National Certificate Engineering Maintenance for Underground Hard Rock (Metalliferous) Level 2		1	26	61	64	151	91	394
National Certificate Fitting (including Machining) - Level 3		10	32	66	137	186	97	528
National Certificate Fitting and Turning Level 3		1	13	12	48	32	22	128
National Certificate in Autotronics L3				1	3		1	5
National Certificate in Autotronics Level 4						3		3
National Certificate in Jewellery Manufacture in a Production Environment Level 3			58	163	96	140	143	600
National Certificate in Winding Engine Driving Level 3					7	3	5	15
National Certificate Lump Ore Beneficiation				5	155	64	15	239
National Certificate Millwright Level 4			19	27	78	64	79	267
National Certificate Mineral Processing					8			8
National Certificate Mining operations underground Coal Level 3						4	84	88
National Certificate Mining operations Underground Hardrock Level 2		7	42	126	192	335	580	1 282

Qualification	2003	2004	2005	2006	2007	2008	2009	Total
National Certificate Rigger Ropesman - Opencast Level 3		2	1	4	17	16	10	50
National Certificate Rockbreaking Underground Hard Rock Level 3		26		53	77	118	257	531
National Certificate: Diamond Processing Operator Level 2				8	295	76	233	612
National Certificate: Electro-Mechanics						4		4
National Certificate: Instrumentation Mechanician Level 3	1	4	5	5	46	49	27	137
National Certificate: Plater/Boilermaker Level 3				8	35	39	22	104
National Certificate: Plater/Welder Level 3			12	49	66	64	44	235
National Certificate: Rockbreaking: Surface Excavations Level 3					17	30	19	66
Team Leader						23	2	25
Total	2	86	288	732	1 717	1 823	1 960	6 608

Source: MQA data system as on 24 August 2010

APPENDIX 7: MQA SKILLS DEVELOPMENT PRIORITIES 2011 – 2016

Skills Development Priority 1: Support transformation of the sector through skills development													
MQA Mission Link : Ensure that the Mining and Minerals sector has sufficient competent people that will improve health and safety, <u>employment equity</u> and increase productivity													
Strategy Map					Measurement Framework				Implementation, Monitoring & Reporting				
BSC Perspective	Goal	Objective	Policy + Partners	Strategy	Quantitative Target	Qualitative Target	Cost Benefit Target	Impact Target	Budget Source	Planned Project Activities	Progress Against Targets & Activities	Annual Budget R000s	Actual Expenditure R 000s
Customer / Stakeholder	In support of the Mining Charter to increase the pool of HDSAs with relevant skills required to fill managerial positions.	Implement programmes for development of HDSAs in the sector by April 2012.	Mining Charter, NSDS III Equity Targets, DHET, DMR, DPSA	Identify and/or develop executive and management programmes for HSDAs	50 HDSA employees in the sector register for the first pilot programmes	All providers and programmes are accredited and competencies required are achieved by learners.	The totals cost per Learner paid by the MQA is equal or less than the cost Internship Grant per Hour.	100 % of the number of HDSA learners given workplace learning opportunities.	New Discretionary Project MQA 041.	ToRs, Tender, Evaluate, Appoint Service provider and develop programme.		4 000	
				Research sector needs, develop recruitment strategy.						Develop learner selection and recruitment criteria and process.			
				Develop learner support strategy that also includes a process of engaging with employers to retain learners.						Develop and implement workplace coaching programme.			
				Implement monitoring and review strategy						Build into project tracking and monitoring mechanisms for feedback			

Skills Development Priority 2: Support objective decision making for skills development through research in the sector

MQA Mission Link : Ensure that the Mining and Minerals sector has sufficient competent people that will improve health and safety, employment equity and increase productivity

Strategy Map					Measurement Framework				Implementation, Monitoring & Reporting				
BSC Perspective	Goal	Objective	Policy + Partners	Strategy	Quantitative Target	Qualitative Target	Cost Benefit Target	Impact Target	Project Numbers	Planned Project Activities	Progress Against Targets & Activities	Annual Budget R000s	Actual Expenditure R 000s
Customer / Stakeholder	Continually improve skills development planning and decision-making through research.	Contribute to the body of skills development knowledge within the sector and nationally through dissemination of research reports and collaborate with relevant partners.	NSDS III, SDA, MHSA, MPRDA, MPRD Board, HET Mintek, SAQA, DHET, MHSC,	Identify research requirements in collaboration with partners (e.g. MHSC) and establish research Agenda that includes sector needs, charter implementation, and inform policy making.	100% of prioritized research projects implemented each year.	MQA Board accepted all research reports, reviewed recommendations and made proposals on implementation by the MQA.	All research projects undertaken within budget and within timeframes allowing for a maximum of 6 months deviation where justified to an approved standard.	MQA decision-making is informed by research-based information. An evaluation study of the research impact is undertaken every 3 years.	MQA 18- SDF Support, MQA 20-Research; MQA -049 Environmental Control.	Review research results, consider SSP priorities and develop Agenda		R 12,5m (MQA 18- R4,5m & MQA 20- R7,5m; MQA -049 - R500 000))	
				Develop research implementation strategy						Builds up internal research capacity, set up research projects, prioritize and implement including capacity building for SDFs.			
				Review and improve research programmes & process						Monitor against Agenda and use of research.			
				Develop and implement a research dissemination strategy.						Implement Board approved plan to disseminate research.			

Skills Development Priority 3: Enhance knowledge management for skills development in the sector

MQA Mission Link : Ensure that the Mining and Minerals sector has sufficient competent people that will improve health and safety, employment equity and increase productivity

Strategy Map					Measurement Framework				Implementation, Monitoring & Reporting				
BSC Perspective	Goal	Objective	Policy + Partners	Strategy	Quantitative Target	Qualitative Target	Cost Benefit Target	Impact Target	Budget Source	Planned Project Activities	Progress Against Targets & Activities	Annual Budget R000s	Actual Expenditure R 000s
Customer / Stakeholder	Accurate and current skills development information available and accessible to all stakeholders in the sector.	User friendly, well maintained and well resourced management information system fully functioning by April 2012.	NSDS III, SDA, MHSA, MPRDA, MHSC, DMR, DHET	Re-engineer all MQA business processes, document and define most efficient processes inclusive of ICT hardware and infrastructure	Revised systems, processes and organizational structure of MQA completed inclusive of all ICT hardware and infrastructure.	Revised systems, processes and organizational re-structured inclusive of ICT hardware and infrastructure approved by stakeholder structures.	Costs of revised system, processes and MQA restructure remains below the legislated threshold of Admin Cost (<10% of levy Income)	Impact of each new system, processes and restructure evaluate through CRM system reports and annual customer satisfaction survey. Check compliance against Governance Requirements (King III Code)	Discretionary Project MQA 022 plus portion of IT Admin Budget and ICT hardware and infrastructure upgrade. (Board proposes that Project MQA 22 is discontinued and the total budget of R 4 million comes from the Admin Budget)	Complete business process mapping from 2010-2011 and agree on revised processes & possible new MQA structure		Total of 4 000 = from admin budget	
				Establish gaps in current processes, systems and resources and develop corrective action plan inclusive of ICT hardware and infrastructure.						Develop detailed flow process charts for revised processes and occupational task requirements (OFO)			
				Allocate budget and implement each revised improved processes and systems inclusive of ICT hardware and infrastructure						Develop detailed change management & project plan within budget allocations and implement as approved by MQA board			
				Maintain, review and improve process as required. This is a critical Governance Requirement (King III Code)						Develop new system, Monitor and adjust progress against change management / project plan			

Skills Development Priority 4: Facilitate and support the implementation of core sector skills and develop programmes aligned to the sector qualifications framework

MQA Mission Link : Ensure that the Mining and Minerals sector has sufficient competent people that will improve health and safety, employment equity and increase productivity

Strategy Map					Measurement Framework				Implementation, Monitoring & Reporting				
BSC Perspective	Goal	Objective	Policy + Partners	Strategy	Quantitative Annual Target	Qualitative Target	Cost Benefit Target	Impact Target	Budget Source	Planned Project Activities	Progress Against Targets & Activities	Annual Budget R000s	Actual Expenditure R 000s
Customer / Stakeholder	Facilitate and support the development and implementation of core skills for the mining and minerals sector	Review sector qualifications framework and register learners on OFO aligned core MMS programmes	NSDS III, SDA, Mining Charter, QCTO, NAMB, Employers, Organized Labour, DMR, Accredited training providers, Learners, FET Colleges, HETs, Community based organizations, DBE, DHET	Maintain currency and accuracy of MMS qualifications framework	Maths & Science Learners Grade 10,11,12 (1000 Learners)	All providers and programmes are accredited.	At least 80% of MQA Discretionary Budget is allocated to Skills Development Priority 4 and all programme types are supported as equally as possible by the MQA	Annual research process is implemented to sample the growth of the pool of competent persons available to sector and employment , promotion and/or further learning outcomes of learners across all programme types. (through longitudinal studies at specific periods of time) (Consider a research process to measure skills levels across industry linked to vision in long term)	Discretionary Projects MQA 001, 002, 003, 005, 007, 009, 010, 011, 012, 019, 023, 024, 026, 030, 031, 035, 037, 038, 039, 040, 042, 043, 044, 045, 046, 047, 048 (including 10% of Mandatory Grants allocated as PIVOTAL Grants to Employers.	Identify core skills requirements for the MMS and update framework		244 136	
				Implement continuous programme review and development strategy	Adult Foundational Learning including ABET (8800 Learners)(FLC subject to discussions)					Monitor programme usage and needs; develop / re-develop programmes on a prioritised basis			
				Facilitate the implementation of core programmes in the sector	Targeted Skills Programmes: HDSDA Managers (50 Learners); OHS Reps (10 000 Learners); Mine Inspectors (100 Learners); Workplace Coaches (50 Learners); ETD Practitioners (40 Learners); Small Scale Miners (200 Learners) and Mine Community Development (100 Learners);					Establish need through grant applications, allocate budget, allocate grants and disburse funds			

Skills Development Priority 4: Facilitate and support the implementation of core sector skills and develop programmes aligned to the sector qualifications framework

MQA Mission Link : Ensure that the Mining and Minerals sector has <u>sufficient competent people</u> that will <u>improve health and safety</u> , <u>employment equity</u> and <u>increase productivity</u>													
Strategy Map					Measurement Framework				Implementation, Monitoring & Reporting				
BSC Perspective	Goal	Objective	Policy + Partners	Strategy	Quantitative Annual Target	Qualitative Target	Cost Benefit Target	Impact Target	Budget Source	Planned Project Activities	Progress Against Targets & Activities	Annual Budget R000s	Actual Expenditure R 000s
				Implement programme monitoring and review strategy	Intermediate (FET) level core programmes through Learnerships (3200 Learners) High (HET) Level core programmes through bursaries, work experience and internships (900 Learners)					Monitor learner uptake and completion by programme and continuously give feedback into development process			

Skills Development Priority 5: Enhance the monitoring, evaluation and review of the delivery capacity and quality of skills development in the sector.

MQA Mission Link : Ensure that the Mining and Minerals sector has sufficient competent people that will improve health and safety, employment equity and increase productivity

Strategy Map					Measurement Framework				Implementation, Monitoring & Reporting				
BSC Perspective	Goal	Objective	Policy + Partners	Strategy	Quantitative Target	Qualitative Target	Cost Benefit Target	Impact Target	Budget Source	Planned Project Activities	Progress Against Targets & Activities		Actual Expenditure R 000s
Customer / Stakeholder	Support sector to develop sufficient training and development capacity and continuously improve the delivery of quality programmes	Sufficient training and development capacity and quality programmes for core mining and minerals occupations by April 2013	NSDS III, SDA, NQFA, MHSA, QCTO, CHE, Umalusi, FET Colleges, Private Providers	Adjust current quality assurance processes and structures to align with emerging good practice requirements of the QCTO	100% of each core programme on the SAMMS qualifications framework and registered on the NQF has at least one accredited provider.	100% of accredited providers and approved workplaces maintain required standards.	Cost of accreditation and monitoring of providers minimized through implementation of cost effective decentralized processes utilizing industry and/or local monitors.	100% of all learners registered on programmes certificated by MQA within 3 weeks of data captured	Discretionary Projects MQA 014, 036 and Admin budgets.	Evaluate, amend and monitor internal processes and structures that is in line with legislation change.		1200 and R1,2m from Admin Budget	
				Improve training and development human resource capacity in the MMS						Identify, implement and evaluate relevant development programmes			
				Monitor and evaluate the quality of the delivery and assessment of learning within the SAMMS						Implement monitoring activities, analyze trends and conduct review required			
				Ensure that the requisite capacity for the training and development of core SAMMS programmes is available						Plan for and accredit skills development providers for all SAMMS programmes			

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MINING QUALIFICATIONS AUTHORITY

