



REPORT
of the
AUDITOR-GENERAL
on the
MANAGEMENT OF OCCUPATIONAL HEALTH AND SAFETY IN MINING
OPERATIONS
BY
THE MINISTRY OF MINES AND MINING DEVELOPMENT



Presented to Parliament of Zimbabwe
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Dear Sir

I hereby submit my Value for Money Audit Report on Management of Occupational Health and Safety in Mining Operations by Ministry of Mines and Mining Development in terms of Section 11 of the Audit Office Act [*Chapter 22:18*].

Yours faithfully,

M. CHIRI (Mrs),
AUDITOR-GENERAL.

Harare,
November 29, 2019.



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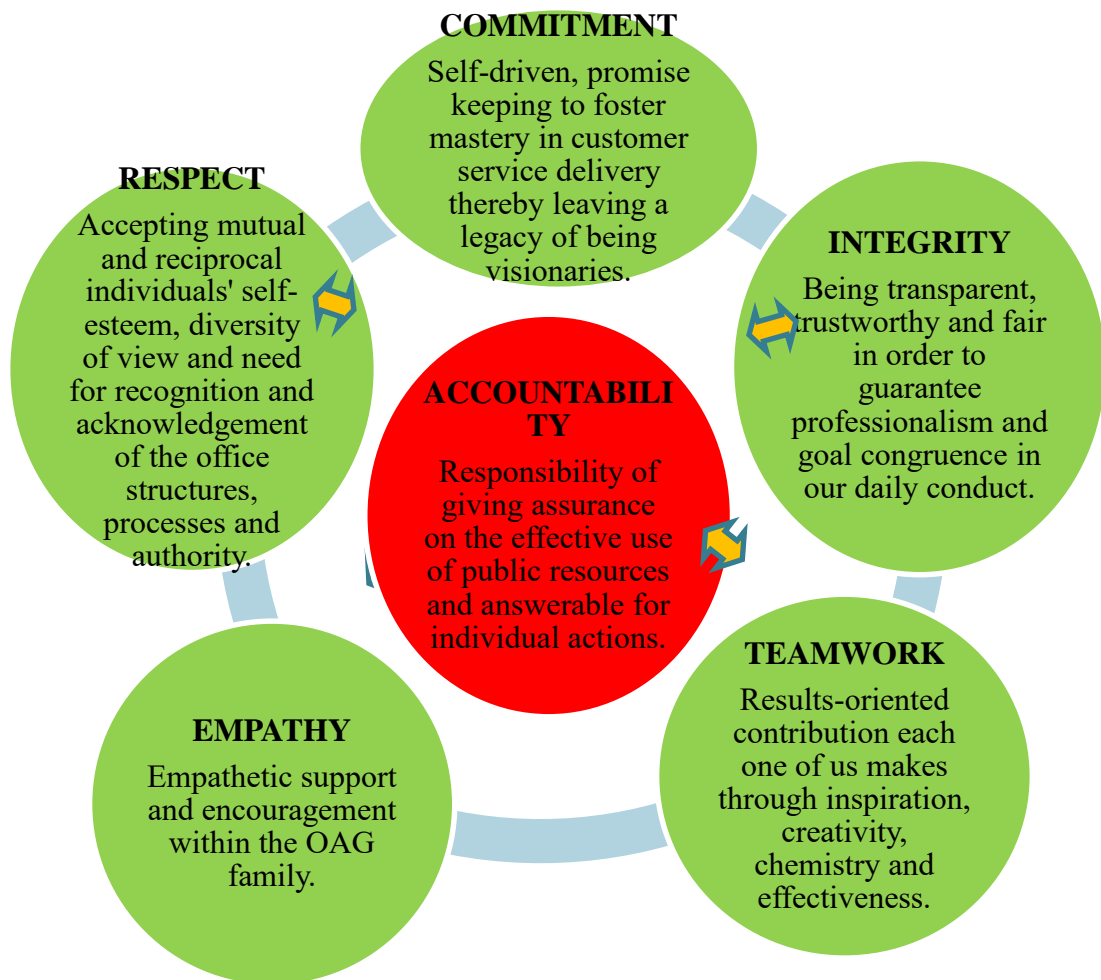


TABLE OF CONTENTS

	Page
GLOSSARY OF TERMS	ii
ACRONYMS	iii
EXECUTIVE SUMMARY	iv-viii
1 INTRODUCTION	
1.1 Background.....	1
1.2 Audit Motivation.....	2
1.3 Organisational Structure.....	2
1.4 Funding.....	3
1.5 Audit Design	3-6
2. SYSTEMS DESCRIPTION	
2.1 Roles and Responsibilities of key players.....	7-8
2.2 Process Description.....	8-12
3. FINDINGS	
3.1 Monitoring of OHS issues in mining operations.....	13-15
3.2 Routine inspections.....	15-26
3.3 Appointment of mine manager.....	26-28
3.4 Testing and disaster recovery equipment.....	28-29
4. CONCLUSIONS	30-31
5. RECOMMENDATIONS	32-33
ANNEXURES	34-43

GLOSSARY OF TERMS

Pneumoconiosis:	A disease of the respiratory organs caused by inhaling mineral dust.
Occupational health and safety:	A discipline dealing with the prevention of injuries, diseases, and fatalities at work. It seeks to promote and protect health and safety of workers including visitors, or any other person in the work place.
Contractor personnel:	These are people who are hired to do a specific job at the mine.
Magazine room:	A place for storage of explosives.
Ambient air:	The mixture of gases with varying amounts of moisture and particular matter that is harmless to humans and natural ecosystem.
Toxic gas:	Poisonous gases harmful to human beings.

ACRONYMS

EMA	Environmental Management Agency
EIA	Environmental Impact Assessment
IOM	Inspector of Mines
MMMD	Ministry of Mines and Mining Development
MMDF	Mines and Mining Development Fund
MS	Mine Supervisor
NSSA	National Social Security Authority
OHS	Occupational Health and Safety
OSHMS	Occupational Safety and Health Management System
PD	Principal Director
PME	Provincial Mining Engineer
PPE	Personal Protective Equipment
SI	Statutory Instrument
ZOSHC	Zimbabwe Occupational Safety and Health Council

EXECUTIVE SUMMARY

The audit of the Ministry of Mines and Mining Development's management of occupational health and safety in mining operations in Zimbabwe was carried out to examine the efficiency and effectiveness with which the Ministry of Mines and Mining Development (MMMD) was carrying out its mandate. The legislative instruments that regulate health and safety issues in mining operations are Section 403 (h-q) of the Mines and Minerals Act [*Chapter 21:05*]; Statutory Instrument 72 of 1989-Explosives Regulations, 1989; Statutory Instrument 109 of 1990-Mining (Management and Safety) Regulations, 1990; Mining (Health and Sanitation) Regulations, 1995 and the Zimbabwe National Occupational Health and Safety policy.

The audit was motivated by the results of a pre-study that was conducted in 2015 and press reports which highlighted that there was poor occupational health and safety in mining operations in Zimbabwe.

From the results of the pre-study the Ministry had failed to carry out adequate monitoring of Occupational Health and Safety (OHS) issues in mining operations and there was a high risk that mining operators would not comply with OHS regulations which require them to create and maintain a safe working environment.

The Reuters of June 11, 2014 reported that seven gold miners died and 11 injured at Golden Valley Mine in Kadoma when a hoist cage transporting them down a shaft broke loose and plunged into a pool of water. The Herald of August 20, 2013 also reported that one employee died and two others were injured at Blanket Mine after a collapse of a footwall ground¹ resulting from a wedge on the edge of the long whole stop bench², which broke off. In addition, the Herald of May 22, 2012 revealed that at least 178 workers narrowly escaped death at Mimososa Platinum Mine in Zvishavane after being trapped 100 metres underground for nearly an hour after a fire broke out in the shaft. Newsday of August 29, 2015 reported that mine workers were at high risk of tuberculosis due to constant exposure to silica dust, which causes a degenerative lung disease called silicosis.

The objective of the audit was to assess the extent of monitoring of OHS issues by MMMD in minimising or reducing accidents/incidence occurrences in mining operations.

Summary of Findings

My audit identified that the Ministry had not been able to carry out adequate monitoring of OHS issues in mining operations and there was a high risk that mining operators would not comply with OHS regulations which require them to create and maintain a safe working environment. The other shortcomings were absence of database of mining claims, inadequate routine(preventive) inspections, uneven vehicle distribution and lack of testing and disaster recovery equipment.

1. Monitoring of OHS in mining operations.

¹ Where mineral reef (a belt with mineral deposit) rests

² Drilling holes charged with explosives.

From documentary review of MMMD Strategic Plan 2014-2018, the Ministry had no goals and budget allocation directly linked to OHS issues in order to reduce occurrence of accidents or incidences. At the time of audit (December 2017), there were no departmental work plans or inspection schedules in the provinces visited (Mashonaland East, Mashonaland Central, Mashonaland West, Matabeleland North and Midlands). Matabeleland South was the only province with departmental work plans or inspection schedules. The work plans provided guidance in the operations of inspectors.

Interviews with the officials revealed that the Ministry had no database of mines in the country. However, in place of a database, the Ministry was relying on mining registration cards and monthly revenue returns submitted as their reference for database of mines. According to the mining registration cards as at November 2017, the mines for all provinces were 57 998.

2. Routine inspections on occupational health and safety issues in mining operations

Documentary review of inspection reports and analysis of statistics in 6 mining provinces visited indicated that routine inspections were not adequately done to monitor and enforce OHS regulations in mining operations. The statistics indicated that inspections conducted averaged 1.32 % for the 6 provinces. The inspection reports availed highlighted that generally small and medium scale mines were not complying with the mining regulations. From the interviews held with the Ministry officials, routine inspections were not being adequately carried out as per the requirement of the Department of Mining Engineering Charter. The Provinces were concentrating mostly on invitations by miners for licensing and attending to reported fatal accidents and incidences. However, poor record keeping from the provinces impacted on the statistics analysed as some Provinces could not locate documentation and absence of a standard way of reporting.

2.1 From review of vehicle registers, audit established that each province visited had at most two vehicles. Of the two vehicles, one was allocated to the Provincial Mining Director and was not available for any other duties. The other vehicle was available for both administrative functions and for use by other departments that is geology, metallurgy, and the inspectorate department for conducting inspections. At the time of audit, December 2017, it was however noted that Matabeleland South and Midlands provinces had at one point, no vehicles for more than a month, as the vehicles were being used by the Gold Mobilisation team.

2.2 Inspections carried out during the audit in 51 mines in the 6 provinces, revealed that improper handling and storage of explosives was more prevalent with small and medium scale miners as compared to large-scale miners. From inspections carried out at 28 small scale mines in the 6 provinces, I noted that all of them were not properly handling explosives. Small scale miners had no licenses to store explosives among other handling issues. Furthermore, 9 medium and 14 large scale mines were properly handling storage of explosives and had licenses to store explosives. The prevalence of unlicensed explosives in small scale mines was attributed to inadequate routine inspections to enforce explosive regulations, lack of education campaigns on the dangers of keeping explosives in unsafe places and inadequate vehicles for the inspectorate department to make visits.

2.3 My audit also revealed that at 37 of the 51 mines visited, workers were not provided with adequate Personal Protective Equipment (PPE). The problem was common with small to medium scale miners. Interviews with mine officials also pointed to negligence to abide by health and safety regulations at work. From documentary review and interviews conducted with the Chief Government Mining Engineer (CGME) and Provincial Mining Directors (PMDs) of the 6 provinces visited, it was revealed that protective clothing for inspectors like work suits, safety shoes and helmets were last provided in 2012 and then provided in June 2017. The helmets which were provided to inspectors did not have cap lamp holders and cap lamp belts, cap lamps and safety belts had not been issued. The inspectors were using protective clothing provided by the mining operators during inspections of underground mining activities. This compromised their independence as inspectors.

2.4 Documentary review of medical examination cards (pneumoconiosis certificates) and interviews held with mine managers, revealed that generally large scale mines were having their workers examined for pneumoconiosis at engagement and the workers were re-tested after every 2 years. Out of the 650 questionnaires administered to workers, 451 revealed that workers at small to medium scale mines were not being subjected to medical examinations for pneumoconiosis. Also, my visit to 37 (28 small scale and 9 medium scale) mines confirmed that workers were not being examined for pneumoconiosis whilst at 14 large mines they were being examined.

3. Appointment of Mine Manager by the Ministry.

According to Section 9 (1) (a-m) the manager of a mine among his/her responsibilities shall be to ensure compliance and enforcement of regulations and any lawful order given by an inspector in the interests of safety, health and discipline. Eighty-four percent (84%) of the mines visited in the six provinces during the audit, had a mine manager duly appointed by the Ministry. Only 8 small mines did not have a mine manager. All large mines had health and risk assessment policies and programs in place. Apart from engaging a mine manager, large scale mining operators had employed qualified Safety, Health and Environment (SHE) representative to manage safety and health issues by putting in place risk assessment policies and programs. Only 14 of the visited mines had safety, health policies. In contrast none of the small scale mines visited had such risk assessment programs. Interviews with mine managers of small scale mines revealed that they were not fully cognisant of health and safety regulations. MMMD Technical Services Report also indicated that there was a challenge with small scale mines who due to limited knowledge of the law were in most cases non-compliant with OHS regulations.

4. Testing and disaster recovery equipment.

From interviews conducted at the MMMD Head Office, audit noted that the Ministry inspectors were not able to conduct tests on critical aspects like gas content, lighting and ventilation in mining working environment. This had a risk that mining operators at times could manipulate the test results for fear of losing mining license. Also I noted that medium and small scale mines did not have testing equipment even though they were carrying out

operations that require tests to be performed regularly. MMMD inspectors could not as well perform tests at these mines as they did not have the equipment to test leaving mine employees prone to hazardous working environment. Lack of equipment had caused the inspectors of mines to use professional judgement instead of technical verifications. For instance, in Matabeleland North, inspectors resorted to borrowing from large mines with the equipment like Turk mine which assisted them during mine accidents that occurred in the province. The MMMD did not have any disaster recovery strategy or equipment to use during disasters.

Recommendations

The Ministry can improve the OHS situations in mining operations by implementing the following solutions:

- 1** MMMD should monitor and enforce compliance of OHS issues in mining operations in order to reduce accidents or incidences that can harm people's lives. The MMMD should enforce the provisions of the Mines and Minerals Act [*Chapter 21.05*] by making sure that all mines not complying with OHS regulations cease operation where need be and only resume operations after the anomalies have been attended to or levying applicable fines. Whilst levying fines may be done, these can be paid by mining operators but lives of workers may still be in danger, hence intensive follow ups on compliance are necessary. The Ministry should prioritise OHS issues in the budget allocations and strategic goals.

The Ministry should maintain a national database of all mining claims to enable monitoring, supervision and accountability of mining operators. A database enables the Ministry to effectively monitor production levels, employment trends, accidents and ensure that all operating mines are licensed annually as well as complying with OHS regulations among other things.

- 2** The Ministry should always have plans for use by the mining inspectors in carrying out routine (preventive) inspections. Also MMMD should have a vehicle distribution policy which ensures that the Ministry mandate is executed by carrying out regular visits to mines. Regular mine visits by inspectors will improve compliance with OHS regulations by mining operators and thereby promoting a safe working environment for employees and management.

The MMMD should make sure that mining operators build standard magazines for storage of explosives as stipulated in Sections 73 to 77 of the SI 72 of 1989. Proper handling and safe keeping of explosives will minimise accidents or incidents which might lead to loss of life. Only authorised personnel with a blasting licence should be allowed to use the explosives.

MMMD should come up with strategies and a budget to enable them to enforce occupational health and safety regulations which require mining operators to provide adequate PPE (hard hats, ear plugs, work suit, dusty masks and safety shoes etc.) to staff in order to prevent injuries during execution of their duties. Also the Ministry should provide the inspectors with adequate PPE to enable them to carry out inspections of underground mining operations.

The MMMD should have joint awareness campaign with Pneumoconiosis Board in educating the mining operators on the importance of having regular medical examinations of employees working in dusty conditions. This will reduce the risk of mine workers contracting pneumoconiosis and diseases such as TB and silicosis.

- 3 The MMMD should ensure that mine managers undergo comprehensive OHS training especially in small to medium mines where SHE officers might not be appointed. This will enable the mine managers to promote compliance with OHS regulations by enforcing Section 3 (1) of Statutory Instrument 109 of 1990 Mining (Management and Safety) Regulations which require that every mine shall be under the management, control and direction of a manager. At small and medium mines, the Ministry should come up with specific guidelines taking into consideration their size as the current regulations tend to be more applicable in large mining operations. Also MMMD should facilitate training and education of employees at small and medium scale mines on issues concerning safety and health.
- 4 MMMD should prioritise acquisition of testing and disaster management equipment for the ministry inspectors to be able to prevent disasters by conducting tests on critical aspects like gas content, lighting and ventilation in a mining working environment. This will enable the Ministry to assist in the event of disaster occurring.

Management Responses

ISSAI 300:29 and 3000:129 requires that the audited entity be given the opportunity to comment on the audit findings, conclusions and recommendations before a performance audit report is issued. At the time of finalising this report, the Ministry was still to respond to the issues raised.

CHAPTER 1

1.0 INTRODUCTION

This Chapter outlines the background of the Auditee, the motivation, organizational structure, funding and the audit design.

1.1 Background

Audit examined the efficiency and effectiveness with which the Ministry of Mines and Mining Development was carrying out its mandate on management of occupational health and safety in mining operations in Zimbabwe.

The mining sector has witnessed tremendous growth over the years, and has attracted investors whose operations are either on a large, medium or small scale. Zimbabwe has different minerals, which require different mining methods. These minerals include gold, chrome, nickel, diamonds, coal etc. The operators use different mining methods depending on the nature of mineral as well as the scale of operations, which has a bearing on OHS issues. One of the main functions of the Ministry of Mines and Mining Development through the Department of Mining Engineering is to enforce Occupational Health and Safety (OHS) regulations in mining operations.

According to Zimbabwe National Occupational Health and Safety Policy, Occupational Health and Safety means the discipline dealing with the prevention of injuries, diseases, and fatalities at work as well as the promotion and protection of health and safety of workers including contractor personnel, visitors, or any other person in the work place. In Zimbabwe, occupational health and safety delivery is the responsibility of the Government through the Ministry of Public Service Labour and Social Welfare, the tripartite National Social Security Authority (NSSA) and the Zimbabwe Occupational Safety and Health Council (ZOSHC) whose membership includes Government, the Employers' Confederation of Zimbabwe (EMCOZ) and labour unions. Various entities extend the work of government in the promotion of Occupational Safety and Health by employing safety and health professionals, appointing competent persons responsible for machinery safety, establishing health policies, committees and adopting Occupational Safety and Health management systems.

In the mining sector, it is the responsibility of the Ministry of Mines and Mining Development to ensure mining operators adhere to Occupational Safety and Health regulations, that is elimination of accidents and incidents, monitoring and control of noise, vibration and radiation and also monitoring land, air and water quality. ZOSHC plays a significant role in ensuring national consensus on OHS issues in the country through regular dialogue with its members and on all Occupational Health and Safety policies, laws and standards.

The legislative instruments that regulate health and safety issues in mining operations are Section 403 (h-q) of the Mines and Minerals Act [*Chapter 21:05*]; Statutory Instrument 72 of 1989-Explosives Regulations, 1989; Statutory Instrument 109 of 1990-Mining (Management and Safety) Regulations, 1990; Mining (Health and Sanitation) Regulations, 1995 and the Zimbabwe National Occupational Health and Safety policy.

1.2 Motivation

The audit was motivated by the results of the pre-study that was conducted in 2015 and press reports on poor occupational health and safety in mining operations in Zimbabwe.

The results of the pre-study were that the Ministry had not been able to carry out adequate monitoring of OHS issues in mining operations and there was a high risk that mining operators would not comply with OHS regulations which require them to create and maintain a safe working environment.

The Reuters of June 11, 2014 reported that seven gold miners died and 11 injured at Golden Valley Mine in Kadoma when a hoist cage transporting miners down a shaft broke loose and plunged into a pool of water. The Herald of August 20, 2013 also reported that one employee died and two others were injured at Blanket Mine after a collapse of a footwall ground resulting from a wedge on the edge of the long whole stop bench, which broke off. In addition, the Herald of May 22, 2012 revealed that at least 178 workers narrowly escaped death at Mimososa Platinum Mine in Zvishavane after being trapped 100 metres underground for nearly an hour after a fire broke out in the shaft. Newsday of August 29, 2015 reported that mine workers were at high risk of tuberculosis due to constant exposure to minerals such as silica, which causes a degenerative lung disease called silicosis. The mining firms reported regular occurrences of tuberculosis cases. For instance, Hwange Colliery mine revealed that it dealt with 1086 cases in 2014 and 486 cases recorded up to August 2015.

It is against this background that it was necessary to carry out a Value for Money audit on management of occupational health and safety in mining operations by the Ministry of Mines and Mining Development.

1.3 Organisational Structure

The Ministry restructured in 2014 and has 8 provincial offices. The Ministry is headed by the Secretary, below him are two Principal Directors for Mining Technical Services and Mining Promotion, Value Addition and Development. There are eight Provincial Mining Directors and three departmental directors which are Director Metallurgy, Director Geo Survey, and Director Mining Engineering or Chief Government Mining Engineer-CGME who reports to the Principal Director Technical Services. The CGME is responsible for OHS issues in mining operations. Below the CGME is the deputy CGME and the assistant CGME. Each province is headed by the Provincial Mining Director. Below the Provincial Mining Director are Deputy PMDs who are Provincial Mining Engineer, Provincial Geologist and Provincial Metallurgist. Below the 3 deputy Directors there is Mining Engineer, Geologist and the metallurgist and there are 3 Mining technicians/Mining Inspectors. **Refer to Annexure A** for details.

1.4 Funding

The Ministry's operations are funded by the Government through the Ministry's Vote and the Mines and Mining Development (MMMD) Fund. The income of MMMD fund consists of mining fees as provided by SI 10 of 2016. The Ministry retains 25% of revenue generated by this fund and

the remainder 75% is remitted to Treasury. However, the Ministry does not have a specific budget to do with management of Occupational Health and Safety in mining operations.

Table 1: Funding

	2012	2013	2014	2015	2016	2017	Total
	\$	\$	\$	\$	\$	\$	\$
Revenue Retained 25%	1 554 618	1 385 879	4 665 852	4 416 088	2 945 740	13 712 673	24 014 998

Source: Audited financial statements

1.5 Audit Design

1.5.1 Audit Objective

The objective is to assess the extent of monitoring of OHS issues by MMMD to minimise or reduce accidents/incidence occurrences in mining operations.

1.5.2 Audit Scope

My audit focused on the extent of monitoring of OHS issues by MMMD to minimise or reduce accidents/incidence occurrences in mining operations. The focus was on all the 8 mining provinces during the period 2012 to 2017.

1.5.3 Audit Questions and Criteria

A.Q.1 (a) Are Occupational Health and Safety issues prioritised in the strategic and annual plan of the Ministry of Mines and Mining Development?

A.C.1 (a) According to Section 104 (2) (m) of the Mines and Minerals Act [*Chapter 21:05*] the MMMD must institute regulations to ensure safety and health of persons employed in or about any mining location, quarry or mining operations. The MMMD should have a budget allocation for monitoring of OHS issues in mining operations.

A.Q.1 (b) Does the Ministry of Mines and Mining Development have a database of all the mining claims in the country?

A.C.1 (b) Section 14 (1) of Mines and Mineral Act [*Chapter 21:05*] stipulates that, the Secretary shall establish and maintain at the Head Office of the Ministry of Mines and Mining Development a register to be known as a Register of Mining Claims.

A.Q.2 (a) Does the Ministry of Mines and Mining Development carry out routine inspections as per Department of Mining Engineering Charter?

A.C.2 (a) According to the Department of Mining Engineering Charter all large scale producing mining locations are supposed to be inspected at least three times, medium scale mines two times and small scale mines at least once in each calendar year;

A.Q.2 (b) Does the MMMD have adequate inspectors to monitor OHS issues?

A.C.2 (b) According to the Department of Mining Engineering Charter, each mining province should have its own inspectors. The mining standards ratio of inspector to mines is supposed to be 1:50, which means that one inspector is supposed to inspect 50 mines per year according to the Results Based Management documents 2012-15.

A.Q.3 (a) Are mining operators complying with occupational health and sanitation regulations?

A.C.3 (a) According to Section 4 of Mining (Health and Sanitation) Regulations, Statutory Instrument 182 of 1995, health officials may, at all reasonable times, enter any mine or mine premises for the purpose of ensuring compliance with these Regulations. Section 11(1) stipulates that, every mine shall be provided, at each level, with either buckets or aqua-privies or septic-tank latrines for the collection of urine and night-soil, with a minimum of one such convenience for every fifty persons employed on each level. Furthermore, Section 17(1) highlights that, there shall be kept and maintain at every mine a supply of drugs, dressings and appliances for the immediate treatment of all accidents, burns and other injuries likely to occur on such mine. According to Section 22 and 23 Pneumoconiosis Act [*Chapter 15:08*] provides for prohibition of workers suffering from pneumoconiosis to work under dusty conditions and prohibition of workers who do not hold pneumoconiosis certificates. Certificates shall be renewed regularly taking into consideration the stage of the disease.

A.Q.3 (b) Are mine workers being provided with adequate personal protective equipment?

A.C.3 (b) According to Section 47 (1) and 48 (1) of Statutory Instrument 109 of 1990 Mining (Management and Safety) Regulations, 1990 no person shall enter or remain in or be caused or permitted to enter or remain in the workings of a mine or at any place at a mine where there is danger from falling objects unless one wears a hard hat in good condition or of an approved type. Also Section 48 (1) stipulates that every person shall wear footwear designed to provide adequate protection for the type of work or activity being performed. The footwear shall be provided by the manager

A.Q.3 (c) Are explosives kept according to the explosives regulations?

A.C.3 (c) According to Section 73 of Statutory Instrument 72 of 1989 Explosives, stipulates that application to store explosives, shall be made in writing and shall be lodged with an inspector of the mining district where the explosives are to be kept or stored. Section 75 (a-f) stipulates that an immovable magazine shall be constructed of reinforced concrete, no iron or steel shall be exposed internally, the floor shall consist of reinforced concrete, the roof shall be covered with a roof of reinforced concrete and the height from the floor shall not be less than 2 metres and there shall be no windows. Section 76 stipulates for the construction of movable magazine, that is, the sides, top, bottom and door shall consist of mild steel plate, all joints shall be welded. Section 77 (1) (2) deals with the validity of both the licenses to store explosives and immovable license shall expire after 5 years and a movable magazine shall expire on the 30th June every year.

A.Q.3 (d) Are mine managers appointed according to mining regulations?

A.C.3 (d) According to Section 3 (1) of Statutory Instrument 109 of 1990 Mining (Management and Safety) Regulations every mine shall be under the management, control and direction of a manager. According to Section 5 (1) a certificate of appointment of a manager shall, within seven days of the appointment be forwarded by the person making such appointment to an inspector of the mining district in which the mine concerned is situated.

1.5 Sampling

Out of the 8 mining provinces, 6 provinces (Mashonaland East, Central and West, Midlands, Matabeleland North and South) were visited. Midlands, Matabeleland North and South provinces were chosen due to high mining concentration as highlighted in **Table 2**. For Mashonaland East, Central and West provinces audit considered proximity to Harare due to resource challenges. The selection of the mines also put into consideration the size (large, medium and small) and method of mining (shaft mining and opencast etc.). I selected 14 large scale mines and 37 small to medium scale mines. The selection helped the team to have a better analysis of how OHS issues were being done on these various mining activities.

Table 2: Number of mines per Province

Province	Large Scale	Large scale sampled	Small to Medium Scale	Small to Medium Scale sampled
Mashonaland East	2	1	1 382	2
Mashonaland West	4	2	1 640	6
Mashonaland Central	4	3	659	8
Matabeleland North	4	3	3 772	4
Matabeleland South	3	2	3 538	7
Midlands	3	3	11 382	10
Manicaland	4		2 552	
Masvingo	3		2 020	
Total	27	14	26 945	37

Source: MMMD registration cards

1.6 Audit Methodology

The audit was conducted in accordance with International Standards of Supreme Audit Institutions (ISSAI's). These standards require that a performance audit should be planned in a manner which ensures that an audit of high quality is carried out in an economic, efficient and effective way and in a timely manner. Interviews, questionnaires, documentary reviews and inspections were used as data collection methods.

1.6.1 Documentary review

Documentary review was done to gather information on the applicable laws and regulations, the annual plans, plans for inspections, inspection reports, budgets and statistics for accidents/incidences reports. **Refer to Annexure B** for documents reviewed.

1.6.2 Interviews

Interviews were carried out with PMDs and inspectors in the Provinces visited as well as mine managers. The purpose of interviews was to corroborate audit evidence with other sources. Refer to **Table 3** for details

Table 3: Interviews conducted.

Designation	Work station
Principal Director Technical Services	Harare
Chief Government Mining Engineer	Harare
Finance and Administration Director	Harare
Human Resources Director	Harare
PMD Mashonaland East	Marondera
PMD Mashonaland Central	Bindura
PMD Mashonaland West	Kadoma
PMD Matabeleland North	Bulawayo
PMD Matabeleland South	Gwanda
PMD Midlands	Gweru
Stakeholders	
Occupational Health Director NSSA	Harare
Director General EMA	Harare
Occupational Health Director Ministry of Health and Child Care	Harare
Mine managers	In mines visited during audit

1.6.3 Inspections of mine premises

Inspections were carried out at mine premises in the selected provinces in order to check safe keeping of magazine, medical examination cards (pneumoconiosis certificates), supply of drugs, provision of clean water, toilets, and Personal Protective Equipment which includes protective clothing and other safety gadgets. Refer to **Annexure C** for details.

1.6.4 Questionnaires

650 questionnaires were administered to mine employees to confirm whether they were provided with adequate PPE, medical examinations were being regularly done, safety issues raised by workers in the complains register were addressed before they start working and to establish whether the employees have knowledge about safety issues.

CHAPTER 2

2. SYSTEMS DESCRIPTION

This chapter describes the roles and responsibilities of the Ministry, Department of Mining Engineering and of the key players (Environmental Management Agency, National Social Security Authority and Zimbabwe Occupational Safety and Health Council) on the monitoring of OHS issues in mining operations. The chapter also details the process description on the monitoring of OHS issues in mining operations.

2.1 Roles and responsibilities of key players

2.1.1 Ministry of Mines and Mining Development

According to the Ministry's Strategic plan 2014 to 2018, the Ministry's roles or functions, include the following:

- Formulate, monitor and evaluate implementation of mining development policies,
- Design mechanisms geared at effective accounting for the country's mineral resources,
- Administer and review mining and explosive laws,
- Develop and maintain an up to date data bank on present/future mineral deposits and,
- Supervise and coordinate mining activities.

2.1.2 Department of Mining Engineering

The major roles of the Department of Mining Engineering are enshrined in SI 109 of 1990 Mining (Management and Safety) Regulations; SI 72 of 1989 Explosives Regulations and SI 182 of 1995 Mining (Health and Sanitation) Regulations. The major undertakings from these statutory instruments are summarised in the 2014-2018 strategic plan and departmental charter as follows:

- Enforce mining and explosives regulations
- Provide the following service to the mining sector; Mechanical and Electrical engineering

(b) Ventilation and environmental control

(c) Mine survey, and

(d) Mine Engineering

- Mine Inspection (checking on PPE, safe keeping on explosives, and medical examinations etc.)
- Mine Emergency/Accident Investigation
- Provision of Explosives Permit and Licence Services
- Statutory Examination Services
- Advisory Mine Visit Requests;

2.1.3 Environmental Management Agency

According to the interview held with the Director-General of EMA, the role of EMA in OHS in mining operations stems from SI 12 of 2007 which places the onus on the employer to provide personal protective clothing and equipment to the workers who handle hazardous substances.

Major roles by EMA on OHS are as follows

- Routine inspections at mining institutions where inspectors check on whether employees are provided with protective clothing.
- Issue an order for the provision of such protective clothing.

- Provides for the sampling of emissions from point sources that may affect ambient air quality which the worker is exposed to,
- Monitors the emission of pollutants that may affect air quality to ensure compliance with the set standards.
- Conducts risk assessment for exposures due to fugitive dust, concentrator and smelter operations.

2.1.4 National Social Security Authority (NSSA)

NSSA has an Occupational Safety and Health Division whose roles in OHS are:

- To promote occupational safety and health in Zimbabwe through the establishment and maintenance of an effective occupational safety and health culture at all workplaces.
- Prohibition of employment of workers suffering from pneumoconiosis and those who do not hold certificates to work in dusty occupations respectively. Provides mobile clinic for testing workers for pneumoconiosis.
- NSSA gives incentives to organisations for Establishing Functional Occupational Safety and Health Management Systems (OSHMS).
- Occupational Safety and Health promotions and training
- Research and Development on OHS issues
- Conduct workplace (including mines) inspections

2.1.5 Zimbabwe Occupational Safety and Health Council (ZOSHC)

The council comprises of an equal number of members from relevant government ministries (Mines and Mining Development; Labour, Public Service and Social Welfare; Health and Child Care; Agriculture, Mechanisation and Irrigation Development and Transport and Infrastructural Development) linked to OSH, the employers' organisation and labour unions, Zimbabwe Congress of Trade Union (ZCTU), Zimbabwe Federation of Trade Union (ZFTU) and public servants' union (APEX).

The major roles of the Council are as follows:

- Ensure that there is national consensus on occupational safety and health issues in the country.
- Provides a platform upon which occupational safety and health management plans, policies, programmes and projects in the mining sector are deliberated.

2.2 Process Description

In the mining sector, it is the responsibility of the Ministry of Mines and Mining Development to ensure mining operators adhere to Occupational Safety and Health regulations. This include elimination of accidents and incidents, monitoring and control of noise, vibration and radiation

and also monitoring land, air and water quality. The legislative instruments that regulate health and safety issues in mining operations are Section 403 (h-q) of the Mines and Minerals Act [*Chapter 21:05*]; Statutory Instrument 72 of 1989-Explosives Regulations, 1989; Statutory Instrument 109 of 1990-Mining (Management and Safety) Regulations, 1990; Mining (Health and Sanitation) Regulations, 1995 and the Zimbabwe National Occupational Health and Safety policy. According to SI 109 of 1990 Mining (Management and Safety) Regulations, the following processes are key to enable compliance to Occupational Health and Safety regulations: Registration of all mining operators, enforcement of health and safety regulations, carrying out of mining inspections, record keeping and penalizing offenders.

2.2.1 Register for Mining operators

Section 14 (1) of Mines and Mineral Act [*Chapter 21:05*] stipulates that, the Secretary shall establish and maintain at the Head Office of the Ministry of Mines and Mining Development a register to be known as a Register of Approved Prospectors.

The purpose of registration of mining claims is to enable the Ministry to have a database. The database is the foundation for planning and monitoring of OHS issues. Upon registering, the prospective miner is acquainted with all regulations pertaining to mining operations and these will also include Occupational Health and Safety policies.

2.2.2 Appointment and Role of a mine manager

According to Section 3 (1) of Statutory Instrument 109 of 1990 Mining (Management and Safety) Regulations every mine shall be under the management, control and direction of a manager. Section 3 (2) states that no mining or allied operations shall be carried out at any mine for a period exceeding seven days unless a mine manager has been appointed for that mine.

The manager shall take all reasonable measures to provide for the safety and proper discipline of persons employed at the mine. According to Section 9 (1) (a-m) the manager of a mine among his/her responsibilities shall be to ensure compliance and enforcement of regulations and any lawful order given by an inspector in the interests of safety, health and discipline. According to Section 5(1) a certificate of appointment of a manager shall, within seven days of the appointment be forwarded by the person making such appointment to an inspector of the mining district in which the mine concerned is situated. According to Section 10 (1), if the manager of a mine believes special rules for safety regulations are not consistent with any health and safety regulations, made by him for the maintenance of order and discipline and the prevention of accidents at such mine, the manager shall send such rules through an inspector to the Chief Government Mining Engineer who shall submit to the Minister for his approval.

2.2.3 Safety Regulations

Personal Protective Equipment

According to Section 47 (1) and 48 (1) of Statutory Instrument 109 of 1990 Mining (Management and Safety) Regulations, 1990 no person shall enter or remain in or be caused or permitted to enter or remain in the workings of a mine or at any place at a mine where there is danger from falling objects unless one wears a hard hat in good condition or of an approved type. Furthermore, Section 48 (1) stipulates that every person shall wear footwear designed to provide adequate protection for

the type of work or activity being performed. The footwear shall be provided by the manager. Section 33 (1) of the same Act stipulates that no loose timber, rocks, tools or other article shall be placed or allowed to remain where they can accidentally fall or be caused to fall or roll down thereby endangering the safety of persons.

Section 34 (1) stipulates that in the working of any mine or part of a mine where, in the opinion of an inspector, the roof hanging or side walls are of a nature requiring systematic support, he/she may give notice to that effect to the manager who, in consultation with the inspector, shall specify the support to be provided and the system according to which it shall be placed. Section 66 (1)(2) stipulates that as far as practicable, the ventilation air entering a mine shall be free of dust, smoke or other impurity, the ventilation air shall be such that it will dilute and render harmless any inflammable or noxious gases and dust in the ambient air.

Explosives

SI 72 of 1989 Explosives regulations, provides for the safe handling of explosives. The same Act, stipulate that application to store explosives shall be made in writing. Section 75 (a-f) stipulates that an immovable magazine shall be constructed of reinforced concrete. No iron or steel shall be exposed internally. The floor shall consist of reinforced concrete, the roof shall be covered with a roof of reinforced concrete and the height from the floor shall not be less than 2 metres and there shall be no windows. Section 76 stipulates that, for the construction of movable magazine, that is, the sides, top, bottom and door shall consist of mild steel plate, all joints shall be welded. Section 77 (1) (2) deals with the validity of both the licenses to store explosives, an immovable license shall expire after 5 years and a movable magazine shall expire on the 30th June every year.

2.2.4 Inspections

There are two categories of inspections carried out by the inspectors from the Ministry of Mines and Mining Development in order to enhance occupational safety in mining operations, which are;

Routine Inspections

According to the Department of Mining Engineering Charter and interviews carried out with the Principal Director Technical Services and Chief Government Mining Engineer, all large scale producing mining locations shall be inspected by the Ministry's inspectors at least three times, medium scale mines two times and small scale mines at least once in each calendar year.

The following is a process for routine inspections by the Ministry's inspectors:

- Schedule mines to be inspected and nature of inspection and budget resources (plan)
- Establish ownership and management structure
- Conduct mine and plant process visit
- Note down compliance and non-compliance issues
- Produce inspection report detailing the above procedures

Accident Investigation

According to the Department of Mining Engineering Charter, the inspectors are supposed to attend to all mining related emergencies immediately and investigate all fatal, serious and non-casualty accidents within 24 hours. Section 269 (1) of the Mining (Management and safety) Regulations, Statutory Instrument 109 of 1990, states that, where any person involved in an accident at any mine subsequently dies as a result thereof, the death shall, without delay, be reported to an inspector and the police.

Resources for conducting inspections

According to the 2014 -2018 Departmental Integrated Performance Agreement for the Mining Engineering Department 24 inspectors (3 per province) shall be availed with adequate resources for them to conduct mining visits and inspections. From interviews held with CGME, inspectors are to be provided annually with protective clothing for the purposes of conducting inspections. In addition, they shall also be provided with equipment for testing aspects like gases, lighting, and should also have cameras.

2.2.5 Mining Health Regulations.

According to Section 4 of the Mining (Health and Sanitation) Regulations Statutory Instrument 182 of 1995, Health officials may, at all reasonable times enter any mine or mine premises for the purpose of ensuring compliance with these regulations. Also Section 9 (1) stipulates that, at every mine there shall be provided one water closet latrine for each family dwelling and where single men are employed one latrine for fifteen men shall be provided. Section 17 (1), states that there shall be kept at every mine a supply of drugs, dressings and appliances as specified in the second schedule for the immediate treatment of all accidents, burns and other injuries likely to occur on such a mine. Section 17 (3) states that at all times where 50 persons or more are employed, a suitable qualified First Aid trained worker shall be available to render immediate first aid. Section 19 (1), stipulates that provision shall be made for the medical supervision of hospital by a medical practitioner. Section 22 (1), stipulates that every mine shall have safe water delivered by a piped system on the basis of one tap per family for family dwellings and one tap per two rooms for single quarters. Section 22 (2), highlights that no polluted water shall be used for domestic purposes.

According to Sections 22 and 23 of Pneumoconiosis Act [*Chapter 15:08*], workers suffering from pneumoconiosis are prohibited from working under dusty conditions as well as workers who do not hold pneumoconiosis certificates. Certificates shall be renewed regularly depending on one's stage of the disease. The certificates are provided by NSSA after medical examinations of the employees.

2.2.6 Record keeping

According to the Zimbabwe National Occupational and Health Policy of 2014, all employers shall maintain a current accident register in which accurate lost time for every reportable injury, illness or fatality is entered and shall be made available to the inspector of mines. Also Section 40 (1) of Statutory Instrument 109 of Mining (Management and Safety) Regulations, 1990 stipulate that a book or books shall be kept at or near each or in some other appropriate place, in which any person shall record in ink any complainant with regard to the safe working of the mine. Furthermore, Section 40 (2) of the same regulation highlight that every safety complains book shall be inspected

and initialed in ink daily by the official in charge and at least once a month by the manager and shall be available at any time for inspection by an inspector.

2.2.7 Penalties for offenders

Penalties are levied in accordance to Section 403 (4-5) of Mines and Minerals Act [*Chapter 21:05*] and Section 301 (1) and (2) of SI 109 of 1990 Mining (Management and Safety) Regulations, 1990. Any person who contravenes any provisions of these regulations or fails to comply with any provisions of these regulations with which it is his/her duty to comply shall be guilty of an offence. Any such person who is guilty of an offence shall be liable to a fine not exceeding two thousand United States dollars or to imprisonment for a period not exceeding two years or to both such fine and such imprisonment. These regulations further state that, the mine manager should take appropriate disciplinary measures that may also include levying penalties on employees who fail to abide by health and safety regulations. All penalties levied against employees shall be remitted to the Ministry of Mines.

CHAPTER 3

3. FINDINGS

In this Chapter, I start by presenting my findings on the Monitoring of Occupational Health and Safety Issues in Mining Operations (paragraph 3.1). This is followed by a presentation of the shortcomings I had identified in the main operations of the Department of Mining Engineering. The following operations are covered:

- Routine inspections (paragraph 3.2);
 - Improper storage and handling of explosives
 - Non-compliance to mine regulations that require workers in the mining environment to put on personal protective clothing
 - Important records such as accident and complaints registers not being kept.
 - Non-compliance to mine regulations that require medical examinations to be done on mine workers.
- Appointment of Mine Manager (paragraph 3.3)
- Testing and disaster recovery equipment (paragraph 3.4);

3.1 Monitoring of Occupational Health and Safety Issues in Mining Operations.

According to Section 104 (2) (m) of the Mines and Minerals Act [*Chapter 21:05*], the MMMD should institute measures to ensure safety and health of persons employed in mining operations. The MMMD should have a budget allocation for monitoring of OHS issues in mining operations. Also according to the RBM for the year 2012-2017 and the Department of Mining Engineering charter, the Department is supposed to have scheduled mine visits.

From documentary review of MMMD Strategic Plan 2014-2018, the Ministry had no goals and budget allocation directly linked to OHS issues in order to monitor and reduce occurrence of accidents or incidences. At the time of audit (December 2017), there were no departmental work plans or inspection schedules in the provinces visited (Mashonaland East, Mashonaland Central, Mashonaland West, Matabeleland North and Midlands). From interviews held with the provincial officers in the areas visited, it was revealed that they were only focusing on requested inspections and accident investigations. Matabeleland South was the only province which had departmental work plans and inspection schedules. The work plans provide guidance in the operations and schedules of inspectors.

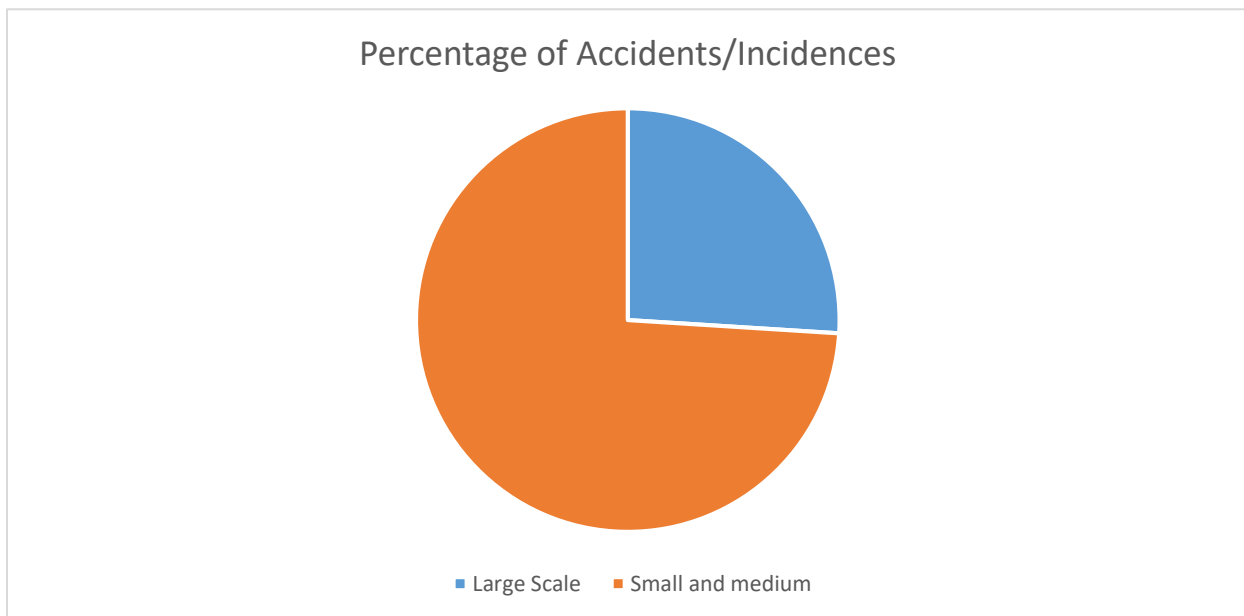
Inadequate monitoring of OHS issues in mining operations was attributed to non-prioritisation by MMMD. This was evidenced by absence of strategic goals and inspection schedules by the Ministry and absence of a specific budget allocation for monitoring. Interviews with the Ministry officials also revealed that the Ministry of Mines and Mining Development had no database of mines in the country, therefore, it was difficult for the Ministry to come up with inspection schedules. It was also revealed that the Ministry had been planning to have a computerised

database since 2012 but this had not been achieved at the time of audit in December 2017. However, in place of a database, the Ministry was relying on mining registration cards and monthly revenue returns submitted by the Ministry Provincial Offices as reference for database of mines.

According to the mining registration cards as at November 2017, the number of mines for all provinces were 57 998. However, monthly revenue returns reflected 36 876 mines. The absence of the database of mining claims makes it difficult for the Ministry inspectors to plan and monitor revenue collection as they would not know the sites of some of the mines.

Inadequate monitoring of OHS issues also had a risk of increasing accidents and incidents in mining operations as such compromising health and safety of the employees as some of the mines were not being inspected at all according to interviews held with MMMD officials and also absence of complete records. The risk is that accidents may continue to occur endangering lives of people. **Chart 1** refers.

Chart 1: Number of accidents/incidences (2012-2017)



Source: Accident Reports

If mining operators are not inspected they may use risk methods of mining without considering health and safety issues of workers. For instance, in Mashonaland East Province, at Arcturus mine in Goromonzi it was being inspected monthly throughout the period from the year 2012 to 2017 whilst at Umbrella 27 mine in Mutoko district under the same province it was never inspected during the same period. Non-inspection of mines had a risk that harmful methods of mining were being employed in other cases which included use of human driven pulling system which exposed employees to risk of falling. **Pictures A and B** show a comparison of methods being used by employees to move in and out the shaft mines at Arcturus Mine (medium scale) and Umbrella 27 (small mine)

Picture (A): Arcturus Gold Mine (Large Picture (B): Umbrella 27 Mine (Small)



Source: Pictured by auditors

On the other hand, Government might lose potential revenue as a result of inadequate monitoring of OHS issues in mining operations. All mines are supposed to pay inspection fees, licensing of explosives and penalties in cases of non-compliance with OHS regulations.

3.2 Routine inspections.

According to the Department of Mining Engineering Charter, large scale producing mining operations shall be inspected at least three times, medium scale mines two times and small scale mines at least once in each calendar year.

Documentary review of inspection reports and analysis of statistics in 6 mining provinces visited indicated that routine inspections were not adequately done. **Refer to Table 4³** for a general analysis of routine inspections in mining operations. The statistics indicated that inspections conducted averaged 0.51 % for the 6 provinces. The inspection reports availed highlighted that generally small and medium scale mines were not complying with the mining regulations. From the interviews held with the MMMD officials, routine inspections were not being adequately carried out as per the requirement of the Department of Mining Engineering Charter. The Provinces were concentrating mostly on invitations by miners for licensing and attending to reported fatal accidents and incidences. However, poor record keeping from the provinces impacted on the statistics analysed as some Provinces could not locate documentation and also there was no standard way of reporting the activities undertaken.

³Statistics of registered large, medium and small scale mines were combined making it impossible to analyse inspections done per category.

Table 4: Analysis of routine inspections done by MMMD in 6 provinces

Province	Total Number of Mines (large, medium and small)	Total number of Routine Inspections done (2012-2017 November)	Inspections done as a percentage
Mashonaland East	1 384	34	2.46
Mashonaland Central	1 640	33	2.01
Mashonaland West	663	35	5.28
Matabeleland South	3 541	37	1.04
Matabeleland North	3 776	97	2.57
Midlands	11 382	59	0.52
Total	22 386	295	1.32

Source: inspection reports and mines databases 2012 -2017 November.

Documentary review and interviews in the 6 Provinces visited revealed that inadequate inspections were attributed to non-prioritisation in the budgets and absence of plans to carry out the inspections. My analysis of vehicle registers and interviews with MMMD Officials further highlighted weaknesses in the distribution of vehicles which impacted negatively on inspections. According to the 2012-2015 Departmental Integrated Performance Agreement plan for the MMMD, each provincial inspectorate department under Mining Engineering should have a minimum of four vehicles.

From review of vehicle registers, audit established that each province visited had at most two vehicles. Of the two vehicles, one was allocated to the Provincial Mining Director and was not available for other duties. The other vehicle was available for both administrative functions and for use by other departments that is geology, metallurgy, and the inspectorate department for conducting inspections. At the time of audit, December 2017, it was however noted that Matabeleland South and Midlands provinces had gone for more than a month without vehicles, as the vehicles were being used by the Gold Mobilisation team. Audit noted that these provinces had the highest number of mines and their workload was considerably high compared to other mining provinces.

Audit gathered that the Ministry in 2015 acquired a combined total of 26 BT 50 and Ford Ranger Double Cab vehicles to be used by the inspectorate department. However due to non-prioritization of operations of the department, it was noted that 12 vehicles were instead re-allocated to other departments as shown in **Table 5**.

Table 5: Re-allocation of vehicles meant for the inspectorate department.

Number of vehicles	Allocated to	Purpose
6	Directors at head office	Personal issue
14	Provincial mining offices	Conducting inspections

4	Head Office. Pool Vehicles	Administrative duties
1	Internal Audit	Departmental duties
1	N/A	Accident damaged

Source: Vehicle Register 2017

Furthermore, audit established that some of the vehicles allocated to Provincial Mining Offices were being used as personal issues by Provincial Mining Directors as they had not been issued with condition of service vehicles. Apart from this, the internal audit report dated October 2016, indicated that of the 90 pool vehicles for the Ministry, 87 were allocated to members of staff to take home during weekends and after working hours without authority and at the expense of the Ministry's work. According to the report, some of the members had personalized the vehicles even during working hours. As a result, the personalised vehicles were not available for conducting inspections.

In the event of an accident or incident occurring in a mine, the inspectors had to rely on the vehicle provided by the mine operator. This consequentially compromised the accident investigating processes and decisions. Whilst large and medium scale mining operators could afford to provide a vehicle to the inspector in the event of an accident or incident, the small scale mining operators could not afford. This had resulted in either delays or non-investigation of accidents in small scale mines. For instance, at Paper Mose 21 mine in Midlands Province, an employee was found dead in a cyanide pond on August 21, 2017 and the inspector did not visit the site to establish the causes of the accident. The inspector only managed to start investigating the issue on December 6, 2017 after being assisted by my officers who were carrying out audit inspections.

Inadequate inspections may give room for illegal mining activities in the country. For instance, in the Midlands Province, some local individuals formed syndicate⁴ named Shurugwi District-ZIM-ASSET to coordinate activities done by small scale chrome (2100 claims) and gold (1700 claims) miners. The syndicate was not registered with the Ministry. **Picture C** shows the premises from which the Shurugwi District Syndicate Issuing Committee was operating from. Interviews with Shurugwi District-ZIM-ASSET management and review of their documents during my visit revealed that the syndicate members contributed funds annually to the organization, the funds which government was supposed to get if these parallel operations were not in existence.

In 2017 the syndicate received \$152 000 (3800 claims*\$40) from annual registration fees, money which government could have receipted. Interviews with Shurugwi District-ZIM-ASSET management indicated that they were paying training fees to MMMD inspectors (\$50 per trainee) who were conducting trainings on OHS issues. Officials at the MMMD provincial offices professed ignorance of such trainings being conducted and the \$50 fee per trainee was not receipted by the MMMD. It was only after providing evidence of the signed Certificates of OHS Training by officials that the PMD acknowledged that it was an illegal operation which was being done by the officers. These officers were taking advantage as inadequate inspections were being carried out by the MMMD.

⁴ A group of people who come together in partnership to do mining activities and these groups are required to be registered by the ministry

Picture (C): The Shurugwi District Syndicate Issuing Committee.



Source: Pictured by auditors

Audit could not move in to assess whether these mines were following the mining procedures as the area was declared a no go area by the small scale miners. Interviews as of November 2017 with MMMD officials in the province revealed that they were also unable to access the area fearing for their safety.

Due to inadequate inspections being carried out by MMMD, I noted that in the Midlands Province mining operators were constructing and operating ore processing plants before approval of siting⁵ of work plans and commissioning by MMMD. This could have been addressed if routine inspections were being done. At Ivan Hoe mine in Midlands Province, I noted that they had set up additional plants and were already operating them. At Gwende custom mill they had already started assembling the additional plant before approval of the site of works plan at the time of audit November 22, 2017. Ivan Hoe and Gwende Mine and Mill had submitted their siting work plans in November 2016 and March 2017 respectively and the MMMD had not done anything to approve the plans citing shortage of vehicles to visit the places.

Inadequate inspections may result in miners not complying with OHS regulations which require them to create and maintain a safe working environment. Some mines (mainly small to medium scale) used methods of mining that might be harmful to workers resulting in fatal accidents and contraction of diseases. **Picture D** shows miners whose lives were exposed to danger of falling into the mining shafts.

Pictures D: Employees exposed to unsafe working environment.

⁵ The location or site of mining operations.



Source: Pictured by auditors



Source: Pictured by auditors

Furthermore, the inadequate inspections that were being done may also result in the following issues happening:

- Improper storage and handling of explosives
- Non-compliance to mine regulations that require workers in the mining environment to put on personal protective clothing
- Important records such as accident and complaints registers not being kept.
- Non-compliance to mine regulations that require medical examinations to be done on mine workers.

3.2.1 Storage and handling of explosives

Section 77 (1) (2) of Statutory Instrument 72 of 1989 deals with the validity of the movable and immovable magazine licenses and storage of explosives. An immovable magazine license expires after 5 years and a movable magazine license expires on the 30th of June every year. From inspections carried out in 28 small scale mines in the 6 provinces, audit noted that all of them were not properly handling explosives. Small scale miners had no licenses to store explosives among other handling issues. 23 medium and large scale mines were properly handling storage of explosives and had the necessary licenses.

Section 76 of Statutory Instrument 72 of 1989 Explosives Regulations stipulates that for the construction of movable magazine that is the sides, top, bottom and door shall consist of mild steel plate, all joints shall be welded. Audit observed that at M&M mine in Mashonaland East a box of explosives was kept in the office with furniture and workers. At Medic syndicate mine in Mashonaland Central, a magazine was kept in the bedroom of the mine owner with 129 mx30 and

88 fuses. Also in the same Province at Intecome quarry a magazine was noted with 17kgs of gun powder and in Mashonaland West at Haggis 18 Mine the magazine was at the workshop with 277 fuses, 2 roles igniter codes, 4 boxes of fraters and 26 manganite sticks. This was in contravention of the explosives handling regulations.

Section 75 (a-f) of Statutory Instrument 72 of 1989 Explosives Regulations stipulates that an immovable magazine shall be constructed of reinforced concrete, no iron or steel shall be exposed internally, the floor shall consist of reinforced concrete, the roof shall be covered with a roof of reinforced concrete and the height from the floor shall not be less than 2 metres and there shall be no windows. The following was noted;

- Sarah South 1 mine in Matabeleland North did not have a standard immovable storage magazine and had no licence.
- At Nevada 15 in Matabeleland South explosives were stored in an improper small warehouse surrounded by water outside.
- Skyrocket mine was yet to construct a magazine and were storing explosives in a trunk which was illegal.
- At Mimosa Mine, a large mine in the Midlands province a premature detonation of explosives occurred in 2012 and 3 workers sustained minor injuries. Furthermore, I observed that large scale mines had properly constructed immovable magazines such as Hwange Colliery, How Mine, Cam and Motor Mine, Turk Mine and Golden Valley Mine to mention a few.

The prevalence of unlicensed explosives in small scale mines was caused by inadequate routine inspections to enforce explosive regulations, lack of education campaigns on the dangers of keeping explosives in such unsafe places.

Improper handling and safe keeping of explosive can and has led to lives being lost in mining operations. For instance, a worker was crushed to death on October 2, 2015 at CRG Mutoko Gold Mine in Mashonaland East. According to the report the worker was on duty carrying out blasting work while another worker set the explosives for blasting and blew a warning whistle to alert others to go to safe places. The worker blew the whistle before a roll call was done to identify whether all workers who were in the mine shaft were out according to blasting procedures resulting in the fatality. After the blasting a body of the deceased was found in the rubbles with multiple injuries from the explosion. **Table 6** shows the trend of workers who died due to unsafe handling and usage of explosives for the period between 2012 to November 2015. The trend indicated that generally an average of 3.4% of mine accidents deaths were as a result of improper handling of explosives. However, at the time of Audit in December 2017, there were no recorded deaths as a result of improper handling of explosives for the years 2016 and 2017.

Table 6: Accidents caused by improper handling and usage of explosives (2012-2015)

Year	Total number of fatalities (deaths) recorded per year	Number of deaths due to unsafe handling and usage of explosives	% contribution
2012	43	1	2.3

2013	36	2	5.6
2014	45	0	0
2015	24	2	8.3
2016	33	0	0
2017	34	0	0
Total	148	5	3.4

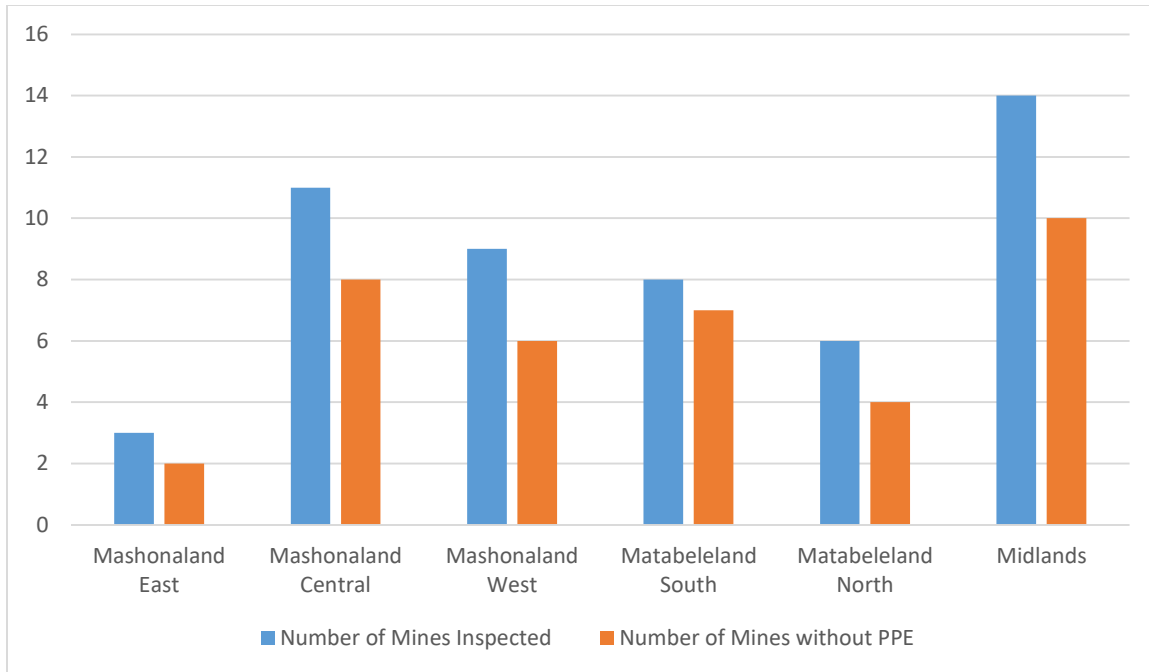
Source: Annual accidents report by MMMD Inspectors

3.2.2 Provision of Personal Protective Equipment

According to the 2012 -2014 Departmental Integrated Performance Agreement for the Mining Engineering Department and interviews held with CGME, inspectors are supposed to be provided annually with protective clothing for the purposes of conducting inspections. The mandatory personal protective clothing includes hard hat, safety shoes, dust mask, ear plugs, work suit to mention a few. According to Sections 47 (1) and 48 (1) of Statutory Instrument 109 of 1990 Mining (Management and Safety) Regulations, no person shall enter or remain in or be caused or permitted to enter or remain in the workings of a mine or at any place at a mine where there is danger from falling objects unless one wears a hard hat in good condition and of an approved type and footwear designed to provide adequate protection for the type of work or activity being performed.

From the inspections done at mines that were visited, the statistics indicated that 37 out of 51 mines (73%) had workers provided with inadequate PPE. **Refer to Chart 2** for detailed analysis and **Annexure D** for explanation on the condition at every mine visited in the 6 provinces. Interviews with mine officials also pointed to negligence to abide by health and safety regulations at work by employees.

Chart 2: Analysis of inspections for PPE done during the audit per province



Source: *Inspections by Audit team*

For instance, **Picture E** shows small scale mine workers in Midlands Province who were working in a shaft without protective clothing.

Picture E: Small scale mine workers without PPE.



Source: *Pictured by auditors*

From documentary review and interviews conducted with the CGME and PMDs of the 6 provinces visited, it was revealed that protective clothing for inspectors like work suits, safety shoes and helmets were last provided in 2012 and then provided in June 2017. The helmets which were provided to inspectors did not have cap lamp holders and cap lamp belts, cap lamps and safety belts were not issued. Inspectors were relying on protective clothing provided by the mining

operators during inspections of underground mining activities. Audit observed during inspections that, whereas large scale operators provided PPE to inspectors in order to conduct inspections, small and medium scale operators were not able. While inspectors were penalising mining employees in small scale mines who did not have adequate PPE, the inspectors themselves were also exposed to the same dangers.

Documentary review and interviews revealed that inadequate protective clothing for MMMD inspectors was attributed to poor budgeting processes by the Ministry where no provision was made for PPE. Among other reasons, interviews at mining operations revealed that workers were not provided with adequate PPE as employers took advantage of the irregular visits by inspectors to enforce the same.

However, some large mines like Mimosa, Unki, Freda Rebecca, Hwange Colliery, Turk Mine, and How mine were encouraging safety at work and had safety policy documents. At Mimosa mine, they had gone further by introducing incentives to workers who could have excelled in observing safety regulations at work. **Picture F** shows workers who had scooped safe worker of the month awards for the year 2017 at Mimosa Mining Company.

Picture (F): Safe Worker of the Month



Source: Pictured by auditors from a Notice Board at the mine.

3.2.3 Complaints and accident registers

Section 40 (1) of Statutory Instrument 109 of Mining (Management and Safety) Regulations, 1990, a book or books shall be kept at or near each or in some other appropriate place, in which any person shall record in ink any danger with regard to safety at workplace. Furthermore, Section 40(2) of the same highlights that every Safety Complaints Book shall be inspected and initialed in ink daily by the official in charge and at least once a month by the manager and shall be available

at any time for inspection by an inspector. The complaints and accident registers help the Ministry to assess OHS issues at the mines.

From 51 mines visited, it was gathered that only 29% and 35% of mining companies kept accident and employee complaints registers respectively. Refer to **Table 7** and for detailed information refer to **Annexure E**

Table 7: Summary on availability of accident and complaints registers in Mines visited in December 2017.

Category of Mine	Total number of Mines	Accident Registers	%	Complaints Book	%
Small	28	0	0	0	0
Medium	9	1	11	3	33
Large	14	14	100	14	100
TOTAL	51	15	29	17	35

Source: Inspections by Audit team

Analysis of the table 8 revealed that all large mines kept accident and complaints registers. Only 11% and 33% of medium scale mines kept accident and complaints registers respectively. None of the small scale mining companies kept accident and complaints registers. Despite the unsafe working environment in small mines visited, interviews with management at the small mines astonishingly highlighted that they had never experienced an accident that warranted recording in the accident registers. For example, management at Sarah South One and Morven mines in Matabeleland North indicated that they had not experienced any serious accidents nor had employees raised any material complaints that merited recording. Management professed that they had not experienced any serious accidents because their working conditions were satisfactory. Consequentially management claimed that employees were satisfied with the working conditions and had no material issues to complain about.

Contrary to assertions by management in small scale mines that they did not experience any accidents, review of annual reports at MMMD Head Office indicated that 74% of accidents took place in small scale mines. However, audit noted that senior management in large mines regularly reviewed complaints registers and designed appropriate measures to address the complaints. This contributed to reduction in accidents in large mines as compared to accidents that took place in small mines.

The Ministry would not be able to get details of accidents or incidences if the associated risk is not documented in the registers.

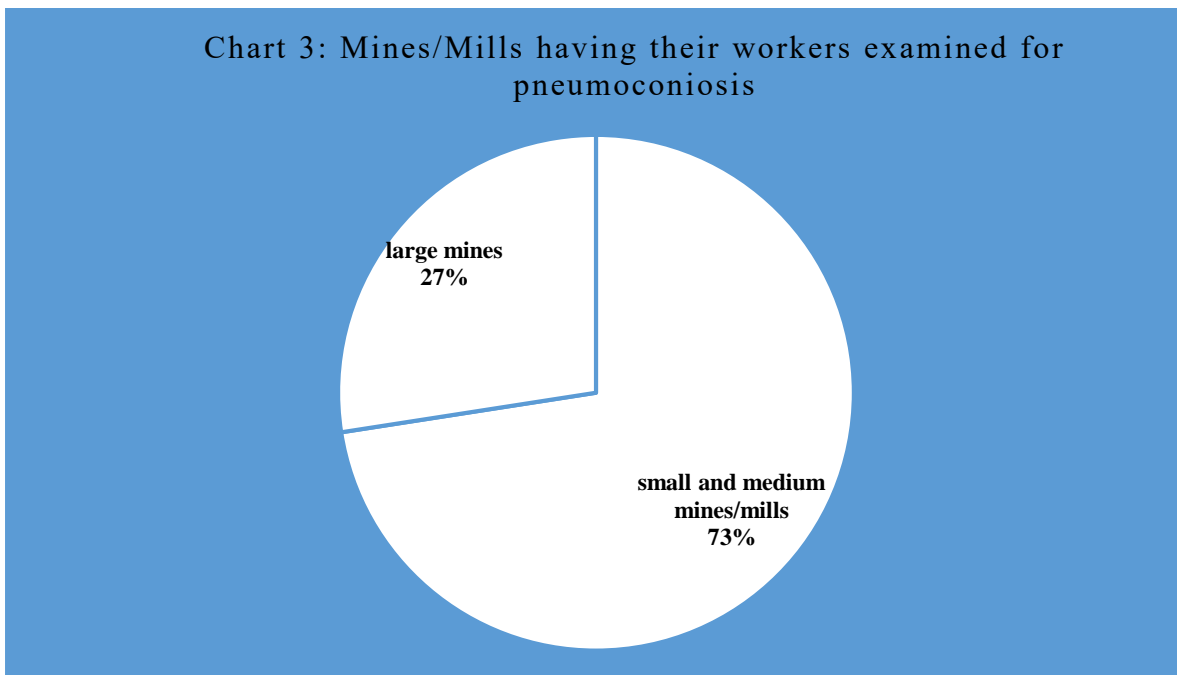
3.2.4 Medical examinations of workers in mining operations

Sections 22 and 23 of the Pneumoconiosis Act [Chapter 15:08] deal with the prohibition of employment of workers suffering from pneumoconiosis and those who do not hold certificates to work in dusty occupations respectively. The Ministry is supposed to monitor whether mining operators subject their employees to regular medical examinations.

The purpose of having workers being subjected to initial and regular medical examination is to prevent workers suffering from pneumoconiosis to dusty occupations. From documentary review

of medical examination cards (pneumoconiosis certificates) and interviews held with mine managers, it was revealed that large scale mines were having their workers examined for pneumoconiosis at engagement and the workers were re-tested after every 2 years. 451 of the 620 questionnaires administered to workers revealed that workers at small to medium scale mines were not being subjected to medical examinations for pneumoconiosis. Furthermore, audit noted that 37 (28 small scale and 9 medium scale) out of 51 mines visited did not have their workers examined for pneumoconiosis whilst 14 large mines did. **Chart 3 refers.**

Furthermore, audit noted that large mines such as Makomo Resources, Indarama and Jena were in the process of having their employees examined for pneumoconiosis and they were doing in phases because of financial constraints. From interviews held with workers of small scale mines it was revealed that lack of OHS knowledge by small scale miners was also a contributing factor to noncompliance to Sections 22 and 23 of the Pneumoconiosis Act [Chapter 15:08].



Sources: *Pneumoconiosis certificates and interviews with mine managers*

Failure by the Ministry to monitor whether mining operators subject their employees to regular medical examinations might result in mining workers contracting the pneumoconiosis disease which may develop into tuberculosis (TB) according to interviews with medical doctors at large scale mines. From interviews with mine medical doctors it was revealed that mine workers were also at high risk of constant exposure to silica dust which causes a degenerative lung disease called silicosis especially in gold mines.

3.3 Appointment of Mine Manager.

According to Section 3 (1) of Statutory Instrument 109 of 1990 Mining (Management and Safety) Regulations, every mine shall be under the management, control and direction of a mine manager. According to Section 9 (1) (a-m) the manager of a mine among his/her responsibilities shall be to

ensure compliance and enforcement of regulations and any lawful order given by an inspector in the interests of safety, health and discipline. According to Section 5 (1) a certificate of appointment of a manager shall, within seven days of the appointment be forwarded by the person making such appointment to an inspector of the mining district in which the mine concerned is situated.

Analysis of the **Table 8** indicate that 84% of the mines visited in the six provinces during the audit had a mine manager duly appointed by the Ministry of Mines and Mining Development. Only 8 small mines did not have a mine manager. Further analysis of **Table 8** also reveals that all large mines had health and risk assessment policies and programs in place. Apart from engaging a mine manager, large scale mining operators had employed qualified Safety, Health and Environment (SHE) representative to manage safety and health issues by putting in place risk assessment policies and programs. Only 14 of the visited mines had safety, health policies. In contrast none of the small scale mines visited had such risk assessment programs. Interviews with mine managers of small scale mines revealed that they were not fully cognisant of health and safety regulations. MMMD Technical Services Report also indicated that there was a challenge with small scale mines who, due to non-familiarity with the law were in most cases non-compliant with OHS regulations.

Table 8: Summary on availability of accident and complaints registers in Mines visited in December 2017

Category of Mine	Total	Mine Manager	%	Risk Assessment	%
Small	28	20	71	0	0
Medium	9	9	100	1	11
Large	14	14	100	14	100
TOTAL	51	43	84	15	29

Source: Interviews and documentary reviews at mines visited

Assessment of health and safety concerns at mines, indicated that mines that had a SHE officer, had managed to put in place mechanisms aimed at reducing occupational health hazards. These mechanisms include Safety and health talks to educate employees, maintaining risk assessment matrix to identify all health and safety hazards and ranked them according to the risk they posed to the employees and regular training of employees on safety and health concerns. Also, the mechanisms included forming of safety and health committees to spearhead implementation of safety and health policies and mandatory alcohol testing to all employees and visitors. In contrast, audit established that although some small mines had mine managers, safety and health regulations were not being adhered to. None of the 28 small mines visited had designed safety and health policies and employees were not being educated or trained on issues concerning the same.

Interviews with MMMD officials and documentary review revealed that, absence of mine managers at some mines was caused by lack of enforcement of mining regulations by the MMMD which require that under such circumstances, the mine should cease to operate. Furthermore, MMMD was not training and educating miners on the importance of having mine managers and safety and health issues.

From inspections carried out at mines visited, audit also gathered that absence of risk assessment policies and programs in small scale mines had contributed to non-compliance to safety and health regulations. For instance, whilst all large mines visited examined alcohol content present in all employees and visitors on entering the mine premises, audit established that none of the small and medium mines conducted the same. Further to that audit noted that Sky Rocket and Gwende mines, employees had easy access to alcohol during working hours. The mines had tuck shops within their mining premises which sold alcohol to employees and other persons on the premises. Given that they had no breathalyzers, testing of alcohol content was not being done. Some employees were seen drinking alcohol within the mine premises. More so, a review of accident reports by mine manager at Gwende Mine revealed that an employee had died after he side stepped on the ladder in the mine shaft and lost control resulting in falling. The mine manger said this could have been caused by influence of alcohol. **Picture F** shows one of the employees selling beer in an unlicensed tuck shop at Sky Rocket Mill in Midlands province.

Picture F: Alcohol being sold at Sky Rocket mill



Source: Picture by audit showing alcohol being sold at Sky Rocket mill in Midlands Province

Failure by the Ministry to monitor adherence to the appointment of mine managers may result in most accidents occurring as there will be no one on sight providing education on safety regulations.

3.4 Testing and disaster recovery equipment.

According to the 2012 -2014 Departmental Integrated Performance Agreement for the Mining Engineering Department and interviews held with MMMD Officials, it was revealed that Ministry inspectors should have equipment for testing aspects like gases, lighting, ventilation and cameras for them to conduct tests. The tests are done to gain assurance that workstations are safe to employees.

In the 6 provinces visited, interviews and documentary review indicated that Ministry inspectors were relying on tests done by miners specifically in large mines. From interviews conducted at the MMMD Head Office, audit noted that the Ministry inspectors were not able to conduct tests on critical aspects like gas content, lighting and ventilation in mining working environment because they did not have the equipment. This had a risk that mining operators at times could manipulate the test results for fear of losing mining license. Also I noted that medium and small scale mines did not have testing equipment even though they were carrying out operations that require tests to be performed regularly. MMMD inspectors could not as well perform tests at these mines as they did not have the equipment to test leaving mine employees prone to hazardous working environment. The MMMD did not have any disaster recovery strategy or equipment to use during disasters at mining operations. Lack of equipment had caused the inspectors of mines to use professional judgement instead of technical verifications. For instance, in Matabeleland North, inspectors resorted to borrowing from Turk mine equipment which assisted them during mine accidents that would have occurred in the province.

If the Ministry does not have testing and disaster recovery equipment and plan, there is high risk that in the event of a disaster they could not help. The MMMD may certify defected material and using a naked eye to make conclusions on the state of equipment may compromise the results.

The Midlands Province used to operate a ventilation control centre. The ventilation control centre was used to provide knowledge to miners in the country on the best methods and equipment to use to test gases and ventilation in mining operations. Interviews indicated that the ventilation control centre had stopped operations in 2012, the equipment was not functional and was outdated.

Documentary review of provincial equipment requests to the Ministry and interviews highlighted that lack of equipment was caused by inadequate funding to purchase the requirements. However, a review of the MMMD strategic plans and budget showed that they did not prioritise provision of these tools to the Ministry inspectors rather than the issue of lack of funding. My analysis of provincial equipment requests to Head Office, for example by Midlands province generally indicated a cost of about \$2 077 per inspector. Audit was of the opinion that the Ministry with proper planning can provide this equipment. More revenue would actually be generated that would outweigh the cost given that the sector is a high revenue earner.

CHAPTER 4

4. CONCLUSIONS

General Conclusion

The Ministry was not adequately monitoring OHS issues in mining operations. Some mines visited in the 6 provinces are using methods of mining that are harmful/dangerous to workers exposing them to high risk of fatal accidents and contraction of diseases. Most accidents or incidences were in small and medium mines with some isolated cases in large mines. 90% of mines visited in the 6 provinces had not subjected its workers to examination of pneumoconiosis and had inadequate personal protective clothing. This could have been addressed if monitoring of mines was being done regularly to enforce compliance with OHS regulations.

Specific Conclusions

4.1 Monitoring of OHS in Mining Operations.

MMMD was not adequately monitoring OHS issues in mining operations thereby contributing to increase in accidents and incidences of Operational Health and Safety issues in mining operations. Apart from increase in accidents/incidences, government was also losing revenue as a result of inadequate monitoring of OHS issues in mining operations. Revenue was being lost from inspection fees, licensing of explosives and penalties for non-compliance with OHS regulations.

MMMD did not have a database of mining claims in the country. The absence of a database of mining claims impacts negatively on inspection schedules/plans. The existence of the database would help MMMD to come up with plans to monitor compliance to OHS regulations by mining operators.

4.2 Routine Inspections.

Routine inspections (preventive inspections) are not being adequately conducted and there is a high risk that miners would not comply with OHS regulations which require miners to create and maintain a safe working environment. Some mines would use methods of mining that are harmful/dangerous to workers resulting in fatal accidents and contraction of diseases.

Non availability of vehicles for the inspectorate department has been identified as one of the reasons why accidents have remained high especially in small and medium scale mines. Without vehicles, inspectors are unable to regularly visit mines to check adherence on a number of issues including OHS. Also the method used to allocate vehicles was not in tandem with workload and fulfilling objectives of the department.

There was improper handling and storage of explosives. This was more prevalent in small and medium scale miners as compared to large-scale miners. Mostly small scale miners had no licenses to store explosives among other handling issues. The improper handling and safe keeping of explosive led to lives being lost.

Employees in small scale mines are exposed to unsafe working environment and have nowhere to raise their complaints due to non-availability of registers.

Workers in small to medium scale mining operations were not being provided with adequate PPE. Ministry inspectors were also not being provided with adequate PPE and relied on PPE given by mining operators. PPE is mandatory for all mining operations to prevent the workers and visitors from being injured or harmed by objects, gases or dust.

Workers in most mines visited were examined for pneumoconiosis. Failure to have medical examinations for workers might result in them contracting the pneumoconiosis disease or tuberculosis (TB). Mine workers are at high risk due to constant exposure to silica dust which causes a degenerative lung disease called silicosis especially in gold mining operations.

4.3 Appointment of Mine Manager

Most mines visited had a mine manager duly appointed by MMMD. Although most mines have mine managers, safety and health regulations are not being adhered to. None of the small mines had designed safety and health policies and mine managers are not educating or training employees on issues concerning safety and health. Mine managers are not effectively executing their functions.

4.4 Testing and disaster recovery equipment.

The inspectors of mines were not able to conduct tests on critical aspects like gas content, lighting and ventilation in a mining working environment since they had no equipment. Inspectors of mines were relying on tests done by miners specifically in large mines to make decisions without their own independent assessments.

CHAPTER 5

5. RECOMMENDATIONS

The Ministry can improve the OHS situations in mining operations by implementing the following:

5.1 MMMD should monitor and enforce compliance of OHS issues in mining operations in order to reduce accidents or incidences that can harm people's lives. The MMMD should enforce the provisions of the Mines and Minerals Act [*Chapter 21.05*] by making sure that all mines not complying with OHS regulations cease operation where need be and only resume operations after the anomalies have been attended to and levying applicable fines. Whilst levying fines may be done, these can be paid by mining operators but lives of workers may still be in danger, hence intensive follow ups on compliance are necessary. The Ministry should prioritise OHS issues in the budget allocations and strategic goals.

The Ministry should maintain a national database of all mining claims to enable monitoring, supervision and accountability of mining operators. A database enables the Ministry to effectively monitor production levels, employment trends, accidents and ensure that all operating mines are licensed annually as well as complying with OHS regulations among other things.

5.2 Plans are an integral part of many processes, the Ministry should therefore, always have these in place for use by the mining inspectors in carrying out routine (preventive) inspections. Furthermore, the Ministry should have a vehicle distribution policy that ensures that the Ministry mandate is executed by carrying out regular visits to mines. Regular mine visits by inspectors will improve compliance with OHS regulations by mining operators and thereby promoting a safe working environment for employees and management.

The MMMD should make sure that mining operators build standard magazines for storage of explosives as stipulated in Sections 73 to 77 of the SI 72 of 1989. Proper handling and safe keeping of explosives will minimise accidents or incidents which might lead to loss of life.

MMMD should enforce occupational health and safety regulations which require mining operators to provide adequate PPE (hard hats, ear plugs, work suit, dusty masks and safety shoes etc.) to staff in order to prevent injuries during execution of their duties. In addition, the Ministry should provide the inspectors with adequate PPE to enable them to carry out inspections of underground mining operations.

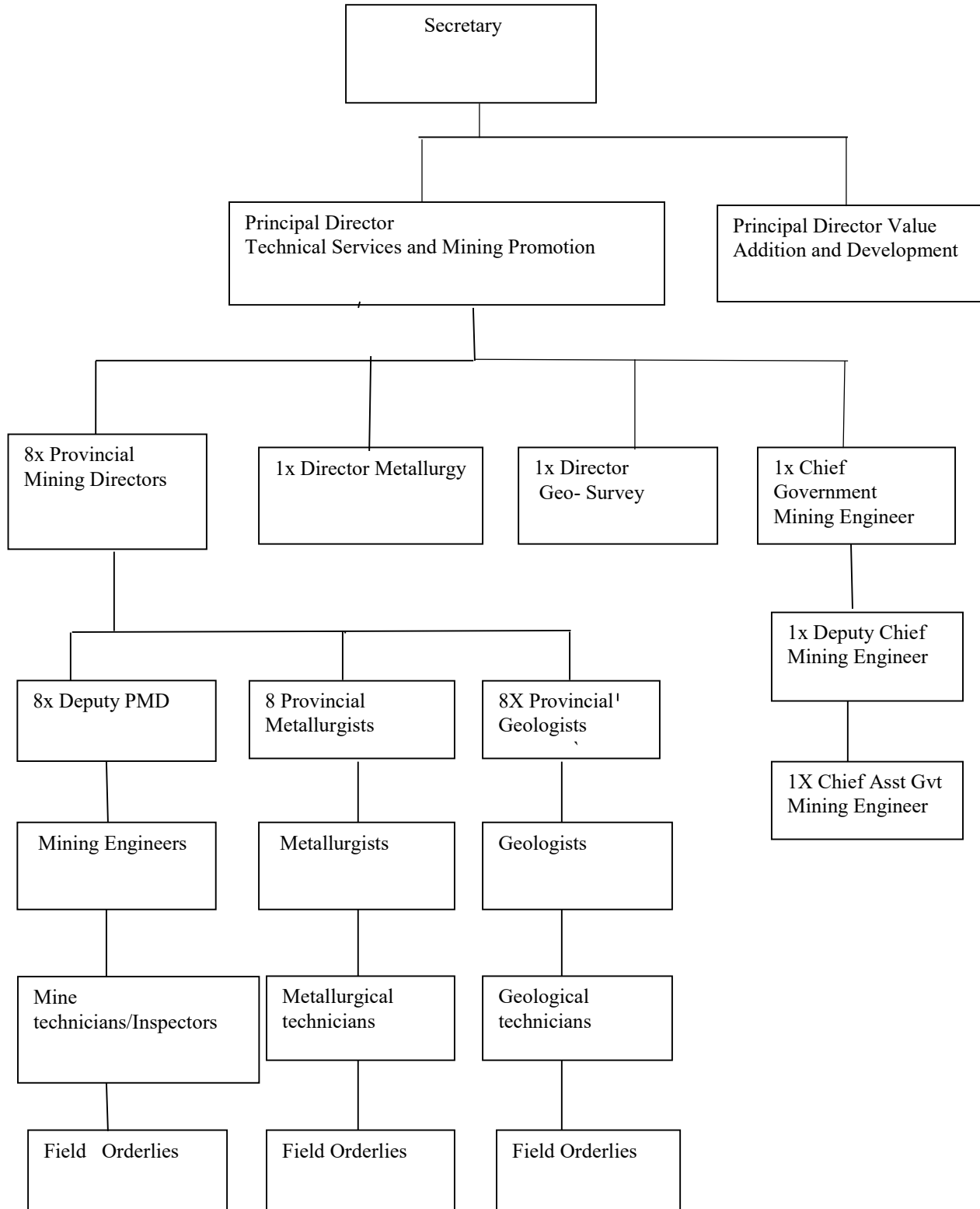
The MMMD should have joint awareness campaign with Pneumoconiosis Board in educating the mining operators on the importance of having regular medical examinations of employees working in dusty conditions This will reduce the risk of mine workers contracting pneumoconiosis and diseases such as TB and silicosis.

5.3 The MMMD should ensure that mine managers undergo comprehensive OHS training especially in small to medium mines where SHE officers might not be appointed. This will enable the mine managers to promote compliance with OHS regulations by enforcing Section 3 (1) of Statutory Instrument 109 of 1990 Mining (Management and Safety) Regulations which require that every mine shall be under the management, control and direction of a manager. At small and medium mines, the Ministry should come up with specific guidelines taking into consideration their size as the current regulations tend to be more applicable in large mining operations.

Furthermore, MMMD should facilitate training and education of employees at small and medium scale mines on issues concerning safety and health.

5.4 MMMD should prioritise acquisition of testing and disaster management equipment for the ministry inspectors to be able to prevent disasters by conducting tests on critical aspects like gas content, lighting and ventilation in a mining working environment. This will enable the Ministry to assist in the event of disaster occurring.

ANNEXURE A: ORGANISATIONAL STRUCTURE OF MMMD



ANNEXURE B: DOCUMENTS REVIEWED

- Mines and Minerals Act [*Chapter 21:05*] and Statutory Instruments
- Statutory Instrument 72 of 1989-Explosives Regulations, 1989
- Statutory Instrument 109 of 1990-Mining [Management and Safety] Regulations, 1990
- Health and Sanitation Regulations Statutory Instrument 182 of 1995
- Mining (General)Regulations, 1977
- Pneumoconiosis Act [*Chapter 15:08*]
- Zimbabwe National Occupational Safety and Health Policy
- Organisational Structure
- Strategic plans
- Operating Procedures Manuals, circulars and policies
- Annual Reports, Financial Statements and budgets
- Mines Register
- Applications and reports on health and safety issues
- Minutes of management meetings
- NSSA Act [*Chapter 17:04*]
- EMA Act [*Chapter 20:27*]
- Reports on inspections of registered mines
- Applications for registration of mines
- ZIM-ASSET

ANNEXURE C: MINES VISITED

Mine/Mills	Size
Trojan Nickel mine	Large
Turk Mine	Large
Afro Chin mill	Large
Unki mine	Large
Cam and Motor mine	Large
Golden Valley mine	Large
Elvington mine	Large
How mine	Large
Hwange Colliery Company Limited	Large
Indarama Gold mine	Large
Makomo Resources	Large
Mimosa mine	Large
Yakutsi Marketing Mill	Medium
Antelope 17 Mill	Medium
Arcturus mine	Medium
Brompton mine	Medium
Drunkard mine and mill	Medium
Drunkard mill	Medium
Duive mine	Medium
Duive (Nugget) Mine	Medium
Golden Quarry mine	Medium
Gwende Mine Milling Centre	Medium
Ivanhoe mine	Medium
Kadoma Magnesite mine	Medium
Morven Mine	Medium
Navada 13	Medium
Matthias and Mildred mine	Medium
Stellah City South	Medium
Time site mill	Medium
Antelope 12 Mill	Small

Bechanis 30 mine	Small
Glasgow mine	Small
Haggis 18 mine	Small
Kudu Tang mine	Small
Intercom Quarry	Small
Medic syndicate mine	Small
Rolly 11, mine	Small
Rolly 12 mine	Small
Rolly 13 mine	Small
Unki mine	Large
Umbrella 27 mine	Small
Vast Raft mill	Small
White rate 31 mill	Small
Rolly 89 mill	Small
Ruia Gold mine	Small
Sarah South 1	Small
Sino non-Ferrous metals Zimbabwe	Small
Sky Rocket mill	Small
Sky Rocket mill	Small
Ticks mine	Small
Tix Mine	Small

ANNEXURE D: PERSONAL PROTECTIVE EQUIPMENT

	Name of Mine/ Mill	Location	Size	No of Empl oyees	Comment
1	How mine	Esigodini	Large	900	The employees were being given the PPE in line with their duties and in addition the mine had a breathalyser to test the level of alcohol in order to deter those who come to work intoxicated. The mine has got a Rescue Team which assists other mines and everyone is a first aider
2	Golden Valley mine	Kadoma	Large	800	From a sample of 18 employees interviewed 3 out of 18 had no adequate protective equipment.
3	Trojan Nickel mine	Bindura	Large	800	Workers were provided with adequate PPE.
4	Unki mine	Shurugwi	Large	2 000	The employees were being given the PPE. The mine has a breathalyser to test the level of alcohol in order to deter those who report to work intoxicated.
5	Indarama Gold mine	Kwekwe	Large	106	The employees were being given the PPE. The mine had a breathalyser to test the level of alcohol.
6	Jena mines	Silobela	Large	525	The employees were being given the PPE in line with their duties. The mine had breathalyser.
7	Hwange Colliery Company Limited	Hwange	Large	2 2000	The employees were being given the PPE. However, during inspections of the open cast mining audit noted high levels of dust. There were 3 water bowsers used to water the dusty areas. Five bowsers were considered to be ideal. Also audit noted that 10 employees at Crashing and Screening Plant C were not putting on dusty mask.

8	Makomo Resources	Hwange	Large	600	The employees were being given the PPE. The mine had a breathalyser. However, audit noted that 15 employees at the Crash and Washing Plant were not putting on dusty mask.
9	Freda Rebecca mine	Bindura	Large	1000	Workers had adequate PPE and were given twice a year
10	Shamva Gold mine	Shamva	Large	1005	Workers had adequate PPE and were given twice a year except 1 worker who had a light off whilst working underground level 9.
11	Cam and Motor Mine	Kadoma	Large	205	Workers were provided with adequate PPE.
12	Elvington gold mine	Chegutu	Large	131	Workers were not provided with adequate PPE.
13	Mimosa	Shurugwi	Large	3 000	The employees were being given the PPE according to the PPE matrix
14	Drunkard mine and mill	Gweru	Medium	50	Employees were not being given PPE as is required. The 40 syndicates of Drunkard tasked with the extraction of gold ore were not following safe mining methods and their employees had no PPE.
15	Arcturus mine	Arcturus	Medium	More than 1000 including contractors	Workers had worn out safety shoes, hard hats and overalls.
16	Golden Quarry mine	Gweru	Medium	400	The employees were being given the PPE according to the PPE matrix
17	Ivanhoe mine	Kwekwe	Medium		The employees were being given the PPE. However, the mine had no breathalyser to test the level of alcohol. The Crash Plant was not commissioned

					by MMMD and as result aspects like the high levels of dust were not checked.
18	Gwende Mine Milling Centre	Kwekwe	Medium	223	Employees were not being given PPE as is required
19	Matthias and Mildred mine	Mutoko	Medium	More than 57 employees	The workers had no adequate protective clothing
20	Afro- Chine mill	Norton	Medium	400	Workers were not provided with adequate PPE.
21	Brompton mine	Kadoma	Medium	260	From a sample of 9 workers 6 had adequate PPE while 3 had no adequate PPE.
22	Ticks mine	Kadoma	Small	60	It was observed that all workers who were on duty had no adequate PPE
23	Kadoma Magnesite	Kadoma	Small	36	2 out of 6 workers who were interviewed confirmed that they had inadequate PPE.
24	Haggis 18 mine	Kadoma	Small	50	Workers were not provided with adequate PPE.
25	Glasgow mine	Kadoma	Small	10	All the workers had no PPE
26	Ruia Gold mine	Mt Darwin	Small	22	Workers had inadequate PPE for instance the area had a lot of dust 10 of the workers interviewed had no dust mask
27	Medic syndicate mine	Mt Darwin	Small	20	All the 20 workers had no adequate PPE to the extent that some of them were bare footed.
28	Intercom Quarry	Bindura	Small	24	11 employees interviewed had inadequate PPE e.g. 3 had no recommended hard hats and safety shoes.
29	Time site mill	Bindura	Small	160	Workers had no adequate PPE
30	White rate 31 mill	Bindura	Small	10	4 employees were interviewed they had no adequate protective clothing such as eye protection and hard hats
31	Bechanis 30 mine	Mt Darwin	Small	15	All the workers had no protective clothing to the extent that some were bare footed.
32	Ruia Gold mine	Mt Darwin	Small	22	Workers had inadequate PPE for instance the area had a lot of dust and

					10 of the workers interviewed had no dust mask
33	Medic syndicate mine	Mt Darwin	Small	20	All the 20 workers had no adequate PPE to the extent that some of them were bare footed.
34	Umbrella mine	Mutoko	Small	5 employees	No protective clothing some of them were even bare footed
35	Rosa mine	Shurugwi	Small	7 employees	No protective clothing some of them were even bare footed
36	Vast Raft mill	Gweru	Small	27	Employees were not provided with adequate PPE
37	Sky Rocket mill	Gweru	Small	54	Employees were not being given PPE as is required
38	Sino non-Ferrous metals Zimbabwe(Pvt) Limited mill	Shurugwi	Small	38	Employees were not being given PPE as is required
39	Rolly 89 mine	Gweru	Small	43	Employees were not being given PPE as is required
40	Rolly 11, 12 and 13 mine	Gweru	Small	76	PPE was not being provided to employees
41	Paper Moss 2 mine	Kwekwe	Small	12 full time employees and 40 contractors	Employees were not being given PPE as is required
42	Paper Moss 21 mine	Kwekwe	Small	6	The mine had suspended operations and the 6 employees were not being given PPE as is required
43	Fordmill mine	Kwekwe	Small	13	Employees were not being given PPE as is required
44	Dore Green Custom mill	Kwekwe	Small	17	Employees were not being given PPE as is required
45	Morven Mine	Umzingwane	Small	12	Employees were not being given PPE as is required.
46	Sarah South 1	Matobo		10	Employees were not being given PPE as is required
47	Duive Mine	Matobo	Small	14	

					Employees were not being given adequate PPE as is required
48	Stellah City South	Matobo	Small	31	Employees were not being given PPE as is required.
49	Antelope 17 mill	Matobo	small	26	Employees were not being given PPE as is required.
50	Navada 13	Matobo	Small	14	Employees were not being given adequate PPE as is required.
51	Antelope 12 mill	Matobo	Small	41	Employees were not being given adequate PPE required.

ANNEXURE E: AVAILABILITY STATUS OF ACCIDENT AND COMPLAINTS REGISTERS

Name of Mine/ Mill	Size	Accident Registers	Complaints Book	Mine Manager	Risk Assessment
Cam and Motor Mine	Large	Y	Y	Y	Y
Ticks mine	Small	N	N	N	N
Brompton mine	Medium	Y	Y	Y	Y
Kadoma Magnesite	Small	N	N	Y	N
Haggis 18 mine	Small	N	N	Y	N
Glasgow mine	Small	N	N	Y	N
Elvington gold mine	Large	Y	Y	Y	N
Afro- Chine mill	Medium	N	N	Y	N
Golden Valley mine	Large	Y	Y	Y	Y
Trojan Nickel mine	Large	Y	Y	Y	Y
Freda Rebecca mine	Large	Y	Y	Y	Y
Shamva Gold mine	Large	Y	Y	Y	Y
Ruia Gold mine	Small	N	N	Y	N
Medic syndicate mine	Small	N	N	Y	N
Intercom Quarry	Small	N	N	Y	N
Time site mill	Small	N	N	Y	N
White rate 31 mill	Small	N	N	Y	N
Bechanis 30 mine	Small	N	N	N	N
Arcturus mine	Large	Y	Y	Y	Y
Matthias and Mildred mine	Medium	N	Y	Y	N
Umbrella mine	Small	N	N	N	N
Rosa mine	Small	N	N	N	N
Turk Mine	Large	Y	Y	Y	N
Morven Mine	Medium	N	Y	Y	N
Sarah South Mine	Small	N	N	Y	N

Hwange Colliery Company Limited	Large	Y	Y	Y	Y
Makomo Resources	Large	Y	Y	Y	Y
Antelope 17 Mill	Small	N	N	Y	N
Yakutsi Marketing	Small	N	N	Y	N
Duive (Nugget) Mine	Small	N	N	Y	N
How Mine	Large	Y	Y	Y	Y
Navada 13	Small	N	N	N	N
Stella City South	Small	N	N	N	N
Antelope 12 Mill	Small	N	N	Y	N
Golden Quarry Mine	Medium	N	Y	Y	N
Sino nonferrous metals	Small	N	N	N	N
Sky Rocket mill	Small	N	N	Y	N
Unki Mine	Large	Y	Y	Y	Y
Rolly 89 mill	Small	N	N	Y	N
Rolly 11,12,& 13 mine	Small	N	N	Y	N
Vast Raft mill	Small	N	N	Y	N
Drunkard mine & mill	Medium	N	N	Y	N
Mimosa	Large	Y	Y	Y	Y
Ivan hole mine	Medium	N	Y	Y	N
Gwende mine	Medium	N	N	Y	N
Indarama Gold mine	Large	N	Y	Y	N
Skeleton 4 mine	Medium	N	Y	Y	N
Paper Moss 2 mine	Small	N	N	Y	N
Paper Moss 21 mine	Small	N	N	N	N
Fordmill mine	Small	N	N	Y	N
Dore Green mill	Small	N	N	Y	N
Jena mines	Large	Y	Y	Y	Y

Key

Y- Yes The mine had accidents registers, complaints book, mine manager or risk assessment policy

N- No The mine had no accidents registers, complaints book, mine manager nor risk assessment policy