



REPUBLIC OF NAMIBIA



PERFORMANCE AUDIT REPORT OF THE AUDITOR-GENERAL

**MONITORING OF POLLUTION AND ENVIRONMENTAL
REHABILITATION OF MINING SITES
WITHIN THE MINISTRY OF MINES AND
ENERGY AND MINISTRY OF ENVIRONMENT AND
TOURISM**

FOR THE FINANCIAL YEAR 2011/2012, 2012/2013, 2013/2014, 2014/2015

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REPUBLIC OF NAMIBIA



TO THE HONOURABLE SPEAKER OF THE NATIONAL ASSEMBLY

I have the honour to submit herewith my performance audit report on Monitoring of pollution and Environmental Rehabilitation of Mining sites – Ministry of Mines and Energy and Ministry of Environment and Tourism for the financial years 2011/2012, 2012/2013, 2013/2014, 2014/2015 in terms of Article 127(2) of the Namibian Constitution. The report is transmitted to the Honourable Minister of Finance in terms of Section 27(1) of the State Finance Act, 1991, (Act 31 of 1991) to be laid upon the Table of the National Assembly in terms of Section 27(4) of the Act.

A handwritten signature in black ink, appearing to read 'Junias Etuna Kandjeke'.

**JUNIAS ETUNA KANDJEKE
AUDITOR-GENERAL**

WINDHOEK, November 2016

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LIST OF ACRONYMS

ABBREVIATION	DEFINITION
COM	Chamber of Mines
DEA	Department of Environmental Affairs
DOM	Directorate of Mines
DWA	Directorate of Water Affairs
EMP	Environmental Management Plan
MAWF	The Ministry of Agriculture, Water & Forestry
MCP	Mine Closure Plan
MET	The Ministry of Environment & Tourism
MME	The Ministry of Mines and Energy
MRH	Mineral Rights Holders
OAG	Office of the Auditor-General Namibia

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GLOSSARY OF TERMS

Environmental Clearance Certificate: means an environmental clearance certificate issued in terms of section 34 or 37 of the Environmental Management Act, No.7 of 2007, authorizing a listed activity to be undertaken which includes mining.

Claim Holder: means a claim holder registered under section 36 of the Minerals (Prospecting and Mining) Act, No. 33 of 1992 and includes the renewal of the registration any such claim.

Environmental Management Plan: means an environmental plan referred to in section 24 of the Environmental Management Act, No.7 of 2007.

Effluent: liquid waste or sewage discharged into a river or the sea.

Environmental rehabilitation: the process of returning land in a given area to some degree of its former state, after some process (mining) has resulted in damage.

Government: means Government of the Republic of Namibia.

Illegal mining: a miner operating in contravention of the Minerals (Prospecting and Mining) Act Number 33 of 1992 and the Environmental Management Act No.7 of 2007.

Mineral right holder: a miner who has property rights to exploit an area for the minerals it harbors.

Pollution control: any of a variety of means employed by mineral rights holders within Namibia to limit damage done to the environment (i.e. air, water, soil) by the discharge of harmful substances (i.e. hydrocarbons, chemically polluted dust, tailings effluents, carbon monoxide) through their mining operations.

Progressive environmental rehabilitation: the process of regularly returning land in a given area to some degree of its former state, after some process (mining) has resulted in damage.

Water table: means the level at which the ground beneath the surface is wet with water.

EXECUTIVE SUMMARY

The Office of the Auditor-General is authorized to carry out performance audits in terms of Section 26(1)(b)(iv) of the State Finance Act, 1991 (Act 31 of 1991) which reads as follows: (The Auditor-General) *“may investigate whether any moneys in question have been expended in an efficient, effective and economic manner”*.

Furthermore, Section 26(3) of the State Finance Act authorised the Office of the Auditor-General to carry out special audits of which environmental audit is one.

The purpose of the audit report is to assess whether the Ministry of Mines and Energy (MME) and the Ministry of Environment and Tourism (MET) are effective in monitoring pollutions and environmental rehabilitation in terms of mining activities in Namibia.

The Directorates of Geological Survey (DGS) and Mines (DM) within the MME together with the Department of Environmental Affairs (DEA), at the MET are responsible for monitoring pollutions and environmental rehabilitation at mining sites.

The major findings, conclusions and recommendations identified during the audit are as follows:

Major Findings:

Pollution Control

The Department Environmental Affairs (DEA) under the MET did not conduct any inspections at the mining sites apart from familiarization visits whereas the Directorate of Mines (DM) under the MME conducted inspections. However, the audit could not establish the extent to which the DM conducted these inspections due to incomplete information provided.

There is inadequate environmental monitoring by the Directorate of Geological Survey (DGS) because only one active mining site was inspected during the period under review.

The MME did not adequately communicate the findings of inspections on environmental impacts to the MET and other stakeholders. The findings of the inspections reported by the Directorate of Geological Survey (GS) on Otjihase and Oamites mines and of which the audit found similar indications during physical observations, were not formally communicated to the MET and were not acted upon by both the MET and MAWF. These findings are indicated below:

- Contaminated seepage from Otjihase Copper Mine tailings dams were released into the Kuruma river system; and
- The surface water in the Oamites River is polluted with sewage due to discharge from the waste water treatment plant at Oamites abandoned mine.

The Department of Water Affairs under the MAWF did not adequately ensure that Mineral Rights Holders operate with valid Waste Water Effluent Disposal Exemption Permits.

The MET did not identify the MME as an organ of State mandated to regulate mining and quarry operations which might have an impact on the environment neither were MME published in the Government Gazette in accordance with Subsection 1 of Section 24 of the Environmental Management Act, 2007 (Act 7 of 2007).

The Environmental Management Plans were not published in the Government Gazette by the MME in accordance with Subsection 3 of Section 25 of the Environmental Management Act, 2007 (Act 7 of 2007).

The DEA under the MET does not adequately ensure that Mineral Right Holders complies with their environmental management plans because inspections were not conducted at the mining sites.

There is lack of monitoring by the MET and the MAWF because the Sand Miners were operating without Environmental Clearance Certificates (ECC) which is one of the requirements of the permit conditions issued by the MAWF which have to be acquired from the MET. This is due to a lack of enforcement of the provisions of the Environmental Management Act, 2007 (Act 7 of 2007) and the permit conditions.

The Directorate of Mines under the MME did not establish financial mechanisms for environmental rehabilitation and aftercare and issues Mining Licences to Mineral Right Holders without them providing Final Mine Closure Plans together with funding mechanisms.

Conclusions

The MME have not amended the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) as stated in the Minerals policy of 2002.

The DEA did not plan and conduct inspections at the mining sites for the financial period under review.

- ❖ The audit could also not establish the extent to which the DM conducted inspections at mining sites due to incomplete information provided.
- ❖ The Directorate of Geological Survey (GS) also did not adequately conduct environmental monitoring at active mining sites in Namibia.
- ❖ The MME also did not adequately communicate findings of inspections on environmental impacts to the MET and other stakeholders.

The DM under the MME does not adequately monitor the mining sites to ensure that the Mineral Rights Holders report and remedy oil spills.

The DWA under the MAWF did not adequately ensure that Mineral Rights Holders have valid Waste Water Effluent Disposal Exemption Permits (WWEDEP).

The MET did not identify MME as an organ of State mandated to regulate mining and quarry activities which might have an impact on the environment neither was MME listed in the Government Gazette.

The DEA under the MET does not adequately ensure that Mineral Right Holders complies with their environmental management plans.

The MET did not provide assurance that Small-scale miners operate with valid Environmental Clearance Certificates during the period under review.

The DEA and the DWA under the MET and the MAWF respectively did not ensure that Sand Miners who received permits from MAWF obtained Environmental Clearance Certificates from the MET.

- ❖ The DWA also did not ensure that Sand Miners comply with the permit conditions.

The MME granted Mining Licences without Mineral Right Holders providing Final Mine Closure Plans.

The MME did not analyze the financial statements of Mineral Rights Holders to monitor mine closure.

Mineral Right Holders are not formally notified by the MME to demolish their buildings, structures and to remove debris and any other objects from the mining sites at mine closure.

The MME did not develop contingency measures that should deal with environmental rehabilitation where Mineral Right Holders cannot be traced.

Recommendations

The Ministry of Mines and Energy (MME) should ensure that all relevant laws and regulations are reviewed and updated to be in line with International Best Practices as stipulated in the Minerals Policy of 2002.

The MET should effectively plan and inspect mining sites as required by the Environmental Management Act, 2007 (Act 7 of 2007) Subsection 3 of Section 26.

- ❖ The MME should ensure that the DM keep complete information of mine inspections conducted.
- ❖ The MME should also put measures in place to ensure that the Directorate of Geological Survey adequately conduct environmental monitoring at active mining sites in Namibia.
- ❖ The MME should also put measures in place to enable the Ministry to effectively communicate findings of inspections on environmental impacts to the MET and other stakeholders as stipulated in the Minerals Policy of 2002.

The MME should put measures in place to ensure adequate monitoring at mining sites thereby ensuring Mineral Rights Holders report and remedy oil spills.

The MAWF should also adequately ensure that all Mineral Rights Holders operates with valid Waste Water Effluent Disposal Exemption Permits.

The MET should implement the provisions of Subsection 1 of Section 24 of the Environmental Management Act, 2007 (Act 7 of 2007) to identify MME as an organ of State mandated to regulate mining and quarry operations which might have an impact on the environment and list MME in the Government Gazette.

The MET should put measures in place to ensure Mineral Rights Holders comply with environmental management plans.

The MET should put measures in place to ensure that Small-Scale miners operate with valid Environmental Clearance Certificates.

The MET and MAWF should put measures in place to ensure Sand Miners obtain Environmental Clearance Certificates from the MET prior to the issuance of permits by the MAWF for the abstraction of sand from rivers.

- ❖ The MAWF should also put measures in place to ensure Sand Miners adheres to the permit conditions.

The MME should put measures in place to ensure that mining licenses are not granted before a Mineral Rights Holder provides Final Mine Closure Plans together with funding mechanisms.

The MME should put measures in place to ensure that the financial statements of Mineral Rights Holders are analyzed on a timely basis, thereby ensuring that mining sites are rehabilitated at mine closure.

The MME should ensure that Mineral Right Holders are formally notified in accordance with Subsection 1 of Section 128 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) to demolish their buildings, structures and to remove debris and any other objects from the mining sites at mine closure.

The MME should put measures in place that will ensure that contingency measures are developed to deal with environmental rehabilitation in the event a mine owner cannot be traced.

Comments received by the Ministry of Mines and Energy

The Ministry of Mines and Energy provided comments on the report which were incorporated in chapter four of this report. The Ministry of Environment and Tourism as well as the Ministry of Agriculture and Water Affairs did not provide any comments despite several invitations, reminders and telephonic conversations.

1.3 THE MANDATE, VISION AND MISSION STATEMENT

1.3.1 The Ministry of Mines and Energy

Mandate

“To promote, facilitate, regulate and monitor responsible development and sustainable utilization of Namibia’s mineral, geological and energy resources so that they benefit all Namibians.”

Vision

“To be a vibrant, performance driven Ministry that ensures that Namibia’s mineral, energy and geological resources contribute to the socio- economic development of the country.”

Mission

“To promote, facilitate, regulate and monitor the responsible development and sustainable utilization of Namibia’s mineral, geological and energy resources; through competent staff, innovation, research and stakeholder collaboration in a conducive environment for the benefit of all Namibians.”

1.3.1 The Ministry of Environment and Tourism

Mandate

“The mandate of the Ministry is derived from a constitutional provision, Chapter 11 of the Principles of State Policy, Article 95: Promotion of the Welfare of the People. The State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at the following:

Maintenance of the ecosystem, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future; in particular, the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory.”

Vision

“To be a leader in the conservation and tourism development through innovation and partnership.”

Mission Statement

“To promote biodiversity conservation in the Namibian environment through the sustainable utilization of natural resources and tourism development for the maximum social and economic benefits of the citizens.”

CHAPTER ONE

1.1 INTRODUCTION

The Namibian mining industry continues growing which is optimal for the country's economic growth. The Chamber of Mines statistics shows that the mining industry's fixed investment into the Namibian economy doubled from N\$ 8.5 billion in 2013 to N\$ 17.26 billion in 2014, therefore significantly contributing to the Gross Domestic Product.

Additionally, according to the Chamber of Mines of Namibia Annual Review Report of the year 2014, the industry made a direct contribution of 12% to the country's GDP of which N\$ 3.39 billion was paid out in taxes and royalties by the Mineral Rights Holders to Government.

At the end of 2014, the Chamber members directly employed 7 903 permanent employees, 947 temporary employees and 8 920 contractors. Chamber members spent some N\$ 93.8 million on skills development in 2014 which is an increase of 60% from N\$ 58.5 million spent in 2013.

However, it is very important for the Government to harmonize the demand for rapid economic growth with the need to conserve natural resources and protect the environment on which its citizens depend.

Therefore, the Ministry of Mines and Energy (MME) as a custodian of mines within Namibia and the Ministry of Environment and Tourism (MET) should ensure that Mineral Rights Holders complies with laws and regulations that relates to pollution control and environmental rehabilitation.

1.2 MOTIVATION

The audit was motivated by problem indicators identified during the pre-study in terms of the following:

- Mineral Right Holders in Namibia are not fully complying to laws and regulations relating to environmental protection and rehabilitation as:
 - Tailing dams at mining sites were leaking harmful substances into the ground; and
 - Accessory works were not removed from mining sites by Mineral Right Holders at mine closure;
- The Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) is outdated; and shortage of qualified mine inspectors within the Ministry of Mines and Energy and the Ministry of Environment and Tourism.

1.4 ORGANIZATIONAL STRUCTURE

1.4.1 The Ministry of Mines and Energy

The Ministry is headed by the Minister. The Permanent Secretary reports to the Minister and there are six Directorates headed by Directors (inclusive Mining and Diamond Commissioners) who reports directly to the Permanent Secretary. Furthermore, under the Directorates there are 24 Deputy Directors heading the divisions and reports to the Directors.

The six Directorates are as follows: Energy, Mines, Geological Survey, Administration & Finance, Diamond Affairs and Petroleum Affairs. *(See attached appendix I).*

The audit focused on two Directorates namely: Mines and Geological Survey, specifically the divisions Mine Safety and Services and Engineering and Environment respectively. The main responsibilities of the divisions under the directorates are as follows:

1.4.1.1 Division Mine Safety and Services

- “Conduct inspections in or at mining operations in Namibia in respect of the safety of employees in the mining industry, recommend remedial actions, provision of advices to Mine Managers and advice the Minister of Mines and Energy on matters related to Safe Working Conditions in the Mining Industry in Namibia; and
- Issues authority for Blasting Certificates for both Open Cast and Underground Mines in Namibia. The same Division is the custodian of Mine Survey Maps and assesses the applications for Accessory Work Permits.”

1.4.1.2 Division Engineering and Environment

- “Independent environmental monitoring and inspection of active mines;
- Monitoring and assessment of risk potential of abandoned mines; and
- Steering the Strategic Environmental Assessment (SEA) for the Uranium; Rush and Strategic Environmental Management Plan (SEMP) office.”

1.4.2 The Ministry of Environment and Tourism

The Ministry is headed by the Minister. The Permanent Secretary reports to the Minister and there are three Departments which are headed by a Commissioner and two Deputy Permanent Secretaries who reports directly to the Permanent Secretary. Furthermore, under the Departments there are five Directors who reports to the Deputy Permanent Secretaries and 16 Deputy Directors who report directly to Directors. Three Deputy Directors reports to the Deputy Commissioner who reports to the Commissioner.

The three Departments are as follows: Environmental Affairs, Natural Resources, Parks and Regional Services; and Tourism Planning and Administration. *(See attached appendix II).*

The audit focused on the Division of Environmental Assessment, Waste Management, Pollution Control and Inspection under the Department of Environmental Affairs. The main responsibilities of the division are as follows:

- “To receive and review Environmental Assessments and provide recommendations on the issuing of environment clearance certificates;
- To promote the management of waste, hazardous substances and pollution in an environmentally sound manner; and
- To monitor and enforce Environmental Management Plans and general measures for environmental protection.”

1.5 FINANCING

1.5.1 The Ministry of Mines and Energy

Below are the authorized and actual expenditure of the two Directorates: Mines and Geological Survey.

Table 1: Budget allocation for Directorate of Mines:

Financial years	Authorized expenditure	Actual expenditure	Variance
	N\$	N\$	N\$
2011/2012	24 061 000	21 250 741	2 810 259
2012/2013	38 009 000	29 277 121	8 731 879
2013/2014	39 924 200	38 253 569	1 670 631
2014/2015	34 658 000	30 918 706	3 739 294

Source: Report of the Auditor-General on the accounts of the MME for the financial years ending 2011/2012-2015

Table 2: Budget allocation for Directorate of Geological Survey:

Financial years	Authorized expenditure	Actual expenditure	Variance
	N\$	N\$	N\$
2011/2012	36 995 000	36 222 368	772 632
2012/2013	29 067 345	27 717 767	1 349 578
2013/2014	38 792 199	38 304 162	488 037
2014/2015	51 593 450	47 150 077	4 443 373

Source: Report of the Auditor-General on the accounts of the MME for the financial years 2011/2012-2015

1.5.2 The Ministry of Environment and Tourism

Below are the authorized and actual expenditure of the Department of Environmental Affairs:

Table 3: Budget allocation for the Department of Environmental Affairs:

Financial year	Authorized expenditure	Actual expenditure	Variance
	N\$	N\$	N\$
2011/12	40 805 692	37 885 634	2 920 058
2012/13	42 021 000	38 687 957	3 333 043
2013/14	83 853 000	79 602 180	4 250 820
2014/15	47 141 525	46 300 975	840 550

Source: Report of the Auditor-General on the accounts of the MET for the financial years ending 2011/12-2015

1.6 STAFFING

1.6.1 The Ministry of Mines and Energy

The staff establishment for the period 2011/12-2015 for the two Directorates: Mines and Geological Survey.

Table 4: Directorate of Mines

Financial Year	Staff Establishment	Filled Positions	Vacant Positions	% Post Vacant
2011/12	44	28	16	36
2012/13	44	22	22	50
2013/14	44	22	22	50
2014/15	64	40	24	38

Source: Staffing figures were extracted from the budget book 2011/12-2015.

Table 5: Directorate of Geological Survey

Financial Year	Staff Establishment	Filled Positions	Vacant Positions	% Post Vacant
2011/12	94	41	53	56
2012/13	94	41	53	56
2013/14	94	41	53	56
2014/15	119	67	52	44

Source: Staffing figures were extracted from the budget book 2011/12-2015.

1.6.2 The Ministry of Environment and Tourism

The staff establishment for the period 2011/12-2015 for the Department of Environmental Affairs is as follows:

Table 6: Department of Environmental Affairs

Financial Year	Staff Establishment	Filled Positions	Vacant Positions	% Post Vacant
2011/12	19	14	5	26
2012/13	19	14	5	26
2013/14	38	9	29	76
2014/15	38	9	29	76

Source: Staffing figures were extracted from the budget book 2011/12-15.

CHAPTER TWO: AUDIT DESIGN

2.1 AUDIT SCOPE

The audit focused on the effectiveness of monitoring pollutions and environmental rehabilitation in terms of mining activities by the Ministry of Mines and Energy (MME) and the Ministry of Environment and Tourism (MET). The Ministry of Agriculture, Water and Forestry (MAWF) was also engaged as a stakeholder because they are issuing effluent disposal and abstraction exemption water permits to protect water resources from pollution.

2.2 AREAS OF COVERAGE

2.2.1 Audit Objective

To assess whether the MME and MET are effective in monitoring pollutions and environmental rehabilitation in terms of mining activities in Namibia.

2.2.2 Geographical Limitation

Six regions namely Khomas, Otjozondjupa, Oshikoto, Erongo, //Karas and Hardap were visited during the main study. Four financial years were covered which are 2011/12-2015 in order to establish the trends as well as for comparison purposes.

2.2.3 Audit Limitation

The audit experienced limitation to access information with regard to water quality reports of selected mines, requested from the MAWF for the financial periods 2011/12-2015.

The audit also experienced limitation in conducting physical observations at selected Small-Scale Mines and offshore mines due to difficult access to the locations of these mines and lack of financial resources. In addition, the sampling for the selection of these mines for physical observation was affected due to the late submission of data on registered mines.

2.2.4 Assessment criteria; audit questions and methodology

See attached Appendix No. III

2.3 SAMPLING

The judgmental sampling method was applied to select 19 mines during the audit to conduct physical observations. The criteria involve mining sites that were not inspected and reported on by the MME and MET. (*See attached appendix VI*).

CHAPTER THREE: DESCRIPTION OF THE AUDIT AREA

3.1 SYSTEM DESCRIPTION

The mandates of the Ministries are derived from the following Acts:

3.1.1 Ministry of Mines and Energy (MME)

The Ministry is mandated by the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) "... to provide for the reconnaissance, prospecting and mining for, and disposal of, and the exercise of control over, minerals in Namibia; and to provide for matters incidental thereto".

Furthermore, paragraph 8.3 of the Minerals Policy of 2002 states that, "... the Government will also expedite the amendment of the current legal framework to be in line with this Minerals Policy".

3.1.2 Ministry of Environment and Tourism (MET)

The Ministry is mandated by the Environmental Management Act, 2007 (Act 7 of 2007) "... to promote the sustainable management of the environment and the use of natural resources by establishing principles for decision making on matters affecting the environment; to establish the Sustainable Development Advisory Council; to provide for the appointment of the Environmental Commissioner and environmental officers; to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters".

3.1.3 Roles and responsibilities of key players

3.1.3.1 Ministry of Mines and Energy

3.1.3.1.1 The Minister

Subsection 2 of Section 10 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) states that, "... where the Minister is required to exercise or perform any power, duty or function or take any decision under or for the purposes of this Act, the Minister may, before doing so, request the board¹ to advise him or her in relation to the exercise or performance of such power, duty or function or the taking of such decision".

3.1.3.1.2 The Mining Commissioner

Subsection 1 of Section 5 of the Minerals (Prospecting & Mining) Act, 1992 (Act 33 of 1992) states that, "... the Commissioner or any officer who is engaged in carrying out the provisions of this Act and who has been authorized thereto by the Commissioner may, in order to exercise any power or perform any duty or function conferred or imposed by this Act".

¹ The Mineral (Prospecting and Mining) rights advisory committee (MPMRAC), the Minerals Board of Namibia as stipulated within the section 9 of the Minerals (Prospecting and Mining) Number 33 of 1992 was never constituted.

3.1.3.1.3 The Chief Mine Inspector

Subsection 1 of Section 5 of the Mines, Works and Minerals Ordinance, 1968 states that, "... the Chief Inspector or any inspector of mines, machinery or explosives may enter upon any mine or works and inspect or examine the same or any part thereof or any machinery thereon at any hour of the day or night, provided that he does not unnecessarily impede, slow up or stop the workings of the mine or the carrying on of the works".

3.1.3.2 Ministry of Environment and Tourism

3.1.3.2.1 The Minister

According to Section 4 of the Environmental Management Act, 2007 (Act 7 of 2007), "... the functions of the Minister are to:

- (a) Determine policies for the management, protection and use of the environment;
- (b) Prepare and publish policies, strategies, objectives and standards for the management and protection of the environment;
- (c) Co-ordinate environmental management at national level; and
- (d) Monitor and ensure compliance with this Act".

3.1.3.2.2 Advisory Council

According to Section 7 of the Environmental Management Act, 2007 (Act 7 of 2007), "... the functions of the Advisory Council are to:

- (a) Promote co-operation and co-ordination between organs of state, non-governmental organisations, community based organisations, the private sector and funding agencies, on environmental issues relating to sustainable development;
- (b) Advise the Minister:
 - (i) on the development of a policy and strategy for the management, protection and use of the environment;
 - (ii) on the conservation of biological diversity, access to genetic resources in Namibia and the use of components of the environment in a way and at a rate that does not lead to the long-term decline of the environment, thereby maintaining its potential to meet the needs and aspirations of present and future generations;
 - (iii) on appropriate methods of monitoring compliance with the principles set out in section 3;
 - (iv) on the need for, and initiation or amendment of legislation, on matters relating to the environment; and
- (c) Perform other functions assigned to it by the Minister".

3.1.3.2.3 The Environmental Commissioner

The functions of the Environmental Commissioner in terms of Subsection 1 of Section 17 of the Environmental Management Act, 2007 (Act 7 of 2007) is to:

- (a) “To advise organs of State on the preparation of environmental plans;
- (b) To receive and record applications for environmental clearance certificates;
- (c) To determine whether a listed activity requires an assessment;
- (d) To determine the scope, procedure and methods of an assessment;
- (e) To review the assessment report;
- (f) To issue environmental clearance certificates;
- (g) To maintain a register of environmental assessments undertaken;
- (h) To maintain a register of environmental clearance certificates issued and environmental plans approved; and
- (i) To conduct inspections for monitoring compliance with this Act”.

3.2 PROCESS DESCRIPTION

3.2.1 Monitoring of Mining Sites

The MME, the MET and their stakeholder the MAWF are responsible for monitoring environmental pollutions and rehabilitation at the mining sites and their roles and responsibilities are discussed as follows:

3.2.1.1 Pollution Control

The monitoring tools used by the MME, MET and key stakeholder the MAWF to monitor environmental pollutions and rehabilitation at mining sites are explained as follows:

3.2.1.1.1 Mine Inspections

Subsection 1 of Section 5 of the Minerals (Prospecting & Mining) Act, 1992 (Act 33 of 1992) states that, “... the Commissioner or any officer who is engaged in carrying out the provisions of this Act and who has been authorized thereto by the Commissioner may, in order to exercise any power or perform any duty or function conferred or imposed by this Act

- (a) at all reasonable times enter any land or place where any reconnaissance operations, prospecting operations or mining operations have been, or are to be carried on, including any accessory works, or land to which any such operations or accessory works relate;
- (b) Take or remove, for purposes of mineralogical examination, assaying, test work or marketability surveys from:
 - (i) any land, place or accessory works referred to in paragraph (a), any sample of any mineral or group of minerals; or
 - (ii) any such land, place or accessory works, a sample taken of any sample, or taken of any mineral or group of minerals won or mined, in the course of any operations referred to in paragraph (a);

(c) seize any sample referred to in paragraph (b) or any book, record or document which may in his or her opinion be used in evidence in connection with any offence in terms of this Act;

(d) Inspect, make extracts from, and make copies of any book, record or document in relation to any operations or accessory works referred to in paragraph (a);

(e) May make such investigations and inquiries as may be necessary to determine whether the provisions of this Act or any term and condition, direction or order determined, given or made under this Act is being complied with”.

According to the Environmental Management Act 2007 (Act 7 of 2007), Subsection 2 (i) of Section 17, “... the functions of the Environmental Commissioner are to conduct inspections for monitoring compliance of activities (*refer to section 3.2.1.1.6, paragraphs 5 & 6*) which may have significant effects on the environment terms with this Act”.

3.2.1.1.2 Coordination between MME, MET and Key Stakeholders

Paragraph 5.2 of the Minerals Policy of 2002 states that, “... the MME will also cooperate and coordinate its endeavors more effectively with MET and other stakeholders in implementing environmental policy”.

3.2.1.1.3 Pollution on the environment by Mineral Rights Holders

Subsection (1) of Section 130 of the Minerals (Prospecting & Mining) Act, 1992 (Act 33 of 1992) states that, “... when in the course of any reconnaissance operations, prospecting operations or mining operations carried on under any non-exclusive prospecting licence, a mining claim or a mineral licence, any mineral or group of minerals is spilled in the sea or on land or in any water on or under the surface of any land or the sea or such land or water is otherwise polluted or any plant or animal life, whether in the sea, or other water in, on or under land, is endangered or destroyed or any damage or loss is caused to any person, including the State, by such spilling or pollution, the holder of such licence or mining claim shall forthwith:-

(a) Report such spilling, pollution, loss or damage to the Minister;

(b) Take at his or her own costs all such steps as may be necessary in accordance with good reconnaissance practices, good prospecting practices or good mining practices or otherwise as may be necessary to remedy such spilling, pollution, loss or damage.

3.2.1.1.4 Monitoring of Water Pollution

Furthermore, Subsection 5 (a) of Section 21 of the Water Act, 1956 (Act 54 of 1956) states that, “ ...any person or user referred to in subsection (1) or (2) (*see appendix VII*) may apply to the Minister² for a permit exempting him from compliance with the provisions of either of those subsections, and the Minister may, after such investigation as he may consider necessary, if he is satisfied that compliance with the said provisions is impracticable in the particular circumstances, grant a permit subject to such conditions as he may deem fit to impose, exempting such person or user from compliance therewith to such extent as the Minister may determine or authorizing such person or user discharge any waste water, effluent, or waste referred to in Subsection (1) in an unpurified state or in such state of semi purification as the Minister may determine, into any public stream or, as the case may be, into the sea at a point to be fixed by the Minister: Provided that, in the case of an application for

² The Ministry of Agriculture, Water and Forestry (MAWF)

exemption from compliance with the provisions of subsection (1), the Minister shall in considering such application have due regard to the regulations made under section 10 (1) (d) of the Sea-shore Act, 1935 (Act 21 of 1935), and section 13 (1) (g) of the Sea Fisheries Act, 1973 (Act 58 of 1973), shall not issue a permit unless he is satisfied that-

(i) the conditions to be imposed in connection with any such permit will be at least as effective for the purpose of preventing the pollution of public or other water, including sea water, as any conditions or requirements which may have been recommended by the South African Bureau of Standards; and

(ii) any point so fixed by him is in such proximity to the sea that is unlikely that any person will be prejudicially affected and that the dilution of such waste water, effluent or waste by sea water or other water will be such that neither aquatic nor marine fauna or flora in the public stream or the sea will be detrimentally affected.”

Furthermore, Subsection 6 of Section 21 states that,

“(a) the Minister may, in prescribing any requirements under subsection (1) or imposing any conditions under subsection (5), also specify steps to be taken by any person carrying on any mining or other industrial operations, in order to prevent the pollution of public or private water, including underground water or the sea, by seepage or drainage from any area on which those operations are carried on, both while such operations are in progress and after the abandonment thereof.

(b) Any such person who fails to take the steps so specified within a period determined by the Minister and made known by notice in the Gazette or by notice in writing addressed to such person, shall be guilty of an offence.”

The following are additional monitoring tools to the above and are explained as follows:

3.2.1.1.5 Environmental Management Plans

According to the Namibian Mine Closure Framework 2010, “Section 48 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) relates to the powers of the Minister in respect of applications, stipulates that the Minister may enter into an agreement with the applicant which is consistent with the provisions of this Act, and contains the terms and conditions on which such mineral licence will be issued. The submission of an environmental management plan is one of the conditions of the licence and, as such, the commitments made in this document become binding. Thus licence holders will be regulated against their Environmental Management Plans (EMP)”.

Subsection 3 of Section 26 of the Environmental Management Act, 2007 (Act 7 of 2007) states that, the Environmental Commissioner monitors compliance with environmental plans and may

- (a) take any steps or make any inquiries the Commissioner considers necessary in order to determine if environmental plans are complied with by organs of the state; and
- (b) if, as a result of any steps taken or inquiry made under (a), the Commissioner is satisfied that an environmental implementation plan is not substantially being complied with, serve a written notice on the organ of State concerned, calling on it to take such specified steps as the Commissioner considers necessary to remedy the non-compliance.

Subsection 4, states that, "... a copy of every environmental plan must be made available for public inspection, without charge, at the office of the Environmental Commissioner during office hours".

3.2.1.1.6 Environmental Clearance Certificates

Subsection 1 of Section 27 of the Environmental Management Act, 2007 (Act 7 of 2007) states that, "... the Minister after the consultative process referred to in section 44, (*See appendix VIII*) may list, by notice in the Gazette, activities which may not be undertaken without an Environmental Clearance Certificate".

Subsection 3 of Section 27 states that, "... despite any other law to the contrary, a person may not undertake a listed activity, unless the person is a holder of an Environmental Clearance Certificate in relation to that activity".

Subsection 4 states that, "... any person who contravenes subsection (3) commits an offence and is on conviction liable to a fine not exceeding N\$500,000.00 or to an imprisonment for a period not exceeding 25 years or both such fine and such imprisonment".

Subsection 1 of Section 27 of the Environmental Management Act, 2007 (Act 7 of 2007) relates to Mining and Quarrying Activities as a listed activity and is further explained clearer within the Government Gazette No.4878 which is as follows:

Subsection 3.1 states that, "... the construction of facilities for any process or activities which requires a licence, right or other form of authorization, and the renewal of a licence or right in terms of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992)".

Subsection 3.2 states that "... other forms of mining or extraction of any natural resources whether regulated by law or not"³.

Subsection 1 of Section 31 of the Environmental Management Act, 2007 (Act 7 of 2007) states that "... despite any other law to the contrary, a competent authority may not issue an authorization unless the proponent has obtained an Environmental Clearance Certificate".

Subsection 2 of Section 31 of the Environmental Management Act, 2007 (Act 7 of 2007) states that "... an authorization issued contrary to subsection 1 of Section 32 is invalid".

Section 26 of the Water Act, 1956 (Act 54 of 1956) states that, "... the Minister⁴ may make regulations relating to –

- (a) the form of application for permits under Section 12 and particulars to be furnished in connection with any such application or under paragraph (a) of sub-section 1 of Section 12; (*See appendix IX*).
- (b) the form of any application under Sub-section 5 of Section 21, and the particulars to be furnished in connection with any such application;

³ Sand mining is one of the other forms of mining as stipulated in Section 3.2 of the Government Gazette No. 4878. Sand mining in rivers is regulated by both the Department of Water Affairs under MAWF and the Department of Environmental Affairs under MET.

⁴ The Ministry of Agriculture, Water and Forestry.

- (c) the prevention of wastage or pollution of public or private water, including underground water, and the powers and duties of persons appointed to exercise control in respect thereof;
- (d) generally, any other matter which he considers it necessary or expedient to describe in order that the objects of Sections 21-24, inclusive, may be achieved: Provided that the Minister may, subject to such conditions as he may deem fit to impose, grant to any person exemption from compliance with the provisions of any regulation made in terms of this section if he is of the opinion that such compliance will be unduly onerous.”

3.2.2 Environmental Rehabilitation

3.2.2.1 Mine Closure Requirements

Paragraph 2.2.5 of the Minerals Policy of 2002 states that, “... before a mining licence is granted, there should be a final Mine Closure Plan together with a funding mechanism that describes how the company will deal with matters like groundwater pollution, soil degradation, wind pollution and infrastructure. Furthermore, Government will monitor mine closures to ensure that the mining industry has mechanisms to rehabilitate closed mines for the purpose of sustained land use”.

Paragraph 5.3 of the Minerals Policy of 2002 states that, “... Government, with relevant stakeholders, will investigate the establishment of financial mechanisms for environmental rehabilitation and aftercare. These will be achieved through the development and implementation of internationally benchmarked Environmental Trust Fund or Bonds, which should be driven by the MME, the Chamber of Mines (COM) and other stakeholders”.

3.2.2.1.1 Monitoring of Mine Closure

Subsection 1 (c) of Section 101 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) states that, “... the holder of a mining licence shall prepare, in respect of each year of assessment, as defined in section 1 of the Income Tax Act 1981 (Act 24 of 1981), of such holder during the currency of such mining licence, a statement of income and expenditure derived or incurred in connection with such mining operations, including a balance sheet and profit and loss account, and such other financial statements as the Commissioner may require in such form as the Commissioner may determine”.

Subsection 1 (e) “... shall submit within 60 days after 31 December in each year to the Commissioner”.

3.2.2.2 Rehabilitation of Mining Sites at Mine Closure

“Subsection 1 of Section 128 of the Minerals (Prospecting and Mining) Act 1992 (Act No 33 of 1992) states that, “... if a non-exclusive prospecting licence or mineral licence or the registration of a mining claim has been cancelled or has expired or, if any area to which such licence or mining claim relates has been abandoned or has for any reason ceased to be part of the area to which such non-exclusive prospecting licence relates or of the prospecting area, mining area or claim area, as the case may be, the Minister may by notice in writing addressed and delivered to the person who was the holder of such licence or mining claim direct such person:-

(a) to demolish any buildings, structures or any other thing erected or constructed by such person in such area and to remove from such area all debris and any other object brought into such area, except in so far as the owner of the land which is situated in such area retains such buildings, structures or other thing on such conditions as may mutually be agreed upon between such owner and person;

(b) to take all such steps as may be necessary to remedy to the satisfaction of the Minister any damage caused by any prospecting operation and mining operations carried on by such holder to the surface of, and the environment in, such area;

(c) to take such other steps as may be specified in such notice as the Minister may deem necessary or expedient to give effect to any direction referred to in paragraph (a).”

Paragraph 2.2.5 of the Minerals Policy of 2002, states that, “... in instances where mine owners could not be traced, Government is expected to provide contingencies to deal with the environmental costs linked with closure”.

CHAPTER FOUR: FINDINGS

This chapter presents the findings on the effectiveness of the MME and MET in monitoring pollution and environmental rehabilitation in terms of mining activities in Namibia.

4.1 FINDINGS

4.1.1 Laws and Regulations

The audit found that the MME have not amended the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) as stated in the Minerals policy of 2002. As a result the MME may not effectively regulate some mining activities such as sand mining and small-scale miners.

Comments by the Ministry of Mines and Energy

“The amendment process of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) is an ongoing exercise which is at an advanced stage and should not be rushed as we are gaining insightful information during the process.”

4.1.2 Pollution Control

4.1.2.1 Mine Inspections

Subsection 1 (c) of Section 5 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) and Subsection 2 (i) of Section 17 of the Environmental Management Act, 2007 (Act 7 of 2007) stipulates that the MME and MET must ensure compliance with their respective Acts of which mine inspections is one method for ensuring compliance.

The Directorates Mines (DM) and Geological Survey (GS) under MME are required to conduct inspections and environmental monitoring at the mining sites whereas both functions should also be conducted by the Department of Environmental Affairs (DEA) under the MET.

The audit found that DEA did not plan and conduct inspections at the mining sites for all the financial periods under review, whilst the audit could also not establish the extent to which the DM conducted the inspections at the mining sites due to incomplete evidence provided.

As a result, the extent of pollution at the mining sites not visited will not be assessed through inspections by the directorate.

Comments by the Ministry of Mines and Energy

“The Geological Survey of Namibia (GSN) has no legal mandate to carry out environment compliance inspections. Monitoring done by GSN refers mainly to monitoring of geo-environmental status, i.e. contamination status in the environment and its possible migration patterns.”

The GSN is not mandated by the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) nor the Environmental Management Act, No. 7 of 2007 to conduct such inspections,

therefore geo-environmental investigation (monitoring) conducted by the Geological Survey is not that referred to in this two Acts.

The Geological Survey conducts geological research, and therefore mine pollution monitoring/investigation is done for the purpose of geological research, and is valuable in informing compliance monitoring which is the responsibility of the Ministry of Environment and Tourism, and to a certain extent the Department of Mines (MME).

Challenges facing the GSN in terms of conducting more geo-environmental investigations, that are not mentioned in the Audit report relates to an underfunded and under resourced departmental structure, and to funds for conducting field work (Mine monitoring) and laboratory analysis.

The auditors are provided with annual costed inspection plans by the DM and Inspection reports, a mechanism to synergize the sharing of the inspection reports between MME and the relevant stakeholders should be established.”

4.1.2.1.1 Coordination between MME, MET and Key Stakeholders on Inspections Conducted

Section 5.2 of the Minerals Policy of 2002 states that, “... the MME will also cooperate and coordinate its endeavors more effectively with MET and other stakeholders in implementing environmental policy”.

The MME coordinate with the MET and other stakeholders because they are also members of the Minerals (Prospecting and Mining) Rights Advisory Committee (MPMRAC) which discuss matters relating to the protection of the environment before a mining licence is issued.

However, it was found that the MME do not adequately communicate findings of inspections on significant environmental impacts to the MET and other stakeholders. The findings of the inspections reported by the Directorate of Geological Survey on Otjihase and Oamites mines, of which the audit found similar indications during physical observations were not communicated to the MET and were not acted upon by both the MET and MAWF. These findings are indicated below:

- Contaminated seepage from Otjihase Copper Mine tailings dams was released into the Kuruma river system; and
- The surface water in the Oamites River is polluted by sewage due to discharge from the waste water treatment plant at Oamites abandoned mine.

Comments by the Ministry of Mines and Energy

“Communication of GSN geo-environmental findings related to mine pollution/contamination investigation is currently on a voluntary basis, and is not obligatory in any of the laws that deal with the environment)Environmental Management Act, No. 7 of 2007, and Minerals (Prospecting and Mining) Act, 1992, Act 33 of 1992), however we believe that can be streamlined.

Monitoring results were communicated to stakeholders in various ways which includes; Powerpoint presentations to stakeholders, letters and reports, verbal communications through meetings with stakeholders etc. It is therefore not possible to have proof for

communications made, given the nature of how GSN has been communicating its findings, however we believe there is a need to improve the institution's filing system."

4.1.2.2 Pollution on the environment by Mineral Rights Holders

Subsection 1 of Section 130 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) states that, "... when in the course of any reconnaissance operations, prospecting operations or mining operations carried on under any non-exclusive prospecting licence, a mining claim or a mineral licence, any mineral or group of minerals is spilled in the sea or on land or in any water on or under the surface of any land or the sea or such land or water is otherwise polluted or any plant or animal life, whether in the sea, or other water in, on or under land, is endangered or destroyed or any damage or loss is caused to any person, including the State, by such spilling or pollution, the holder of such licence or mining claim shall forthwith:-

- (a) report such spilling, pollution, loss or damage to the Minister;
- (b) take at his or her own costs all such steps as may be necessary in accordance with good reconnaissance practices, good prospecting practices or good mining practices or otherwise as may be necessary to remedy such spilling, pollution, loss or damage.

The audit found that the Directorate of Mines does not adequately monitor the mining sites of Mineral Rights Holders, because at the time of the audit Matchless and Otjihase Copper Mine, Otjozondju Manganese Mine, Stone Africa Granite Mine and Ysterpitz Blue Lace Mine within the Khomas, Otjozondjupa, Erongo and //Karas Regions respectively did not report oil spills as well as remedied such oil spills on the environment. As a result, oil spills may cause long-term irreparable damage to the environment. Refer to the pictures below.

Picture 1: Oil spill



Otjozondju Manganese Mine

Picture 2: A truck spilling oil on to the soil



Otjihase Copper Mine

Comments by the Ministry of Mines and Energy

"It should be noted that the GSN Act was just recently passed, and regulations of this Act (still to be drafted) will clearly indicate the geological research responsibilities of GSN with regard to the environment."

4.1.2.3 Monitoring of Water Pollution

Subsection 6 of Section 21 states that, "... (a) the Minister may, in prescribing any requirements under subsection 1 or imposing any conditions under subsection 5, also specify steps to be taken by any person carrying on any mining or other industrial operations, in order to prevent the pollution of public or private water, including underground water or the sea, by seepage or drainage from any area on which those operations are carried on, both while such operations are in progress and after the abandonment thereof.

(b) any such person who fails to take the steps so specified within a period determined by the Minister and made known by notice in the Gazette or by notice in writing addressed to such person, shall be guilty of an offence."

The Department of Water Affairs at the MAWF issues 5 year Waste Water Effluent Disposal Exemption Permits and the renewal should be done within three months before expiry.

At the time of the audit it was found that the DWA did not adequately ensure that Mineral Rights Holders have valid Waste Water Effluent Disposal Exemption Permits (WWEDEP) as indicated below:

Table 7: Status of WVEDEP

Mineral Rights Holder	Region	Mineral	Number of Waste Water Disposal Exemption Permits	Permit Status
NAMDEB	!Karas	Diamonds	3	Expired
Skorpion Zinc	!Karas	Zinc	1	Valid
Rosh-Pinah Zinc Corporation	!Karas	Zinc	1	Valid
Elizabeth Bay Diamond Mine	!Karas	Diamonds	1	Expired
Walvisbay Salt Refinery/Salt & Chemicals	Erongo	Salt	1	Valid
Langer Heinrich Uranium Mine	Erongo	Uranium	1	Valid
Rossing Uranium Mine	Erongo	Uranium	2	1 Expired & 1 Valid
Swakop Uranium	Erongo	Uranium	1	Expired
Valencia Uranium Mine	Erongo	Uranium	2	Expired
Otjihase	Khomas	Copper	0	No Permit
Matchless	Khomas	Copper	0	No Permit
Total			13	

Source: Waste Water Effluent Disposal Exemption Permit Status Sheets of the Department of Water Affairs, MAWF.

The table above indicates that 62% (8 out of 13) of the permits issued to Mineral Rights Holders operating in the Karas and Erongo regions expired. As a result the non-renewal of permits could increase the rate of non-compliance which could lead to contamination of water resources because the water quality is not tested to ensure compliance to Namibian Water Quality Standards.

Furthermore, it was found that Matchless and Otjihase Copper mines in the Khomas Region were operating without WVEDEP and were disposing effluent into the environment. As a result the rivers in the vicinity of the mines are polluted as confirmed by the report of the Directorate of Geological Survey in the MME. This is due to a lack of monitoring by the Department of Water Affairs. Refer to the pictures below:

Picture 3: Effluents disposed on to the environment.



Matchless Copper Mine

Otjihase Copper Mine

4.1.2.4 Environmental Management Plans

Subsection 1 of Section 24 of the Environmental Management Act, 2007 (Act 7 of 2007) states that, "... for the purpose of this Part, the Minister may identify and list by notice in the Gazette or regulations organs of State which are exercising functions that may affect the environment."

Furthermore, Subsection 1 of Section 25 of the Environmental Management Act, 2007 (Act 7 of 2007) states that, "... every organ of State is required to submit an environmental plan to the Environmental Commissioner within the prescribed period".

The audit found that the MET did not identify the MME as an organ of State mandated to regulate mining and quarry operations which might have an impact on the environment neither were MME published in the Government Gazette in accordance with Subsection 1 of Section 24 of the Environmental Management Act, 2007 (Act 7 of 2007). As a result, the MET cannot hold the MME liable for environmental damage caused by Mineral Rights Holders.

Furthermore, Subsection 3 of Section 25 of the Environmental Management Act, 2007 (Act 7 of 2007) states that, "... where the environmental plan is approved by the Minister, the relevant organ of State must adopt and publish its plan in the Gazette within 90 days of the approval and the plan becomes effective from the date of publication".

It was found that the EMPs were not published in the Government Gazette by the MME in accordance with Subsection 3 of Section 25 of the Environmental Management Act, 2007 (Act 7 of 2007). As a result, the environment is not legally protected from significant environmental impacts caused by mining operations.

Subsection 3 of Section 26 of the Environmental Management Act, 2007 (Act 7 of 2007) stipulates that the Environmental Commissioner will monitor compliance with EMPs and will therefore serve a written notice on an organ of state concerned, calling on it to take such specified steps necessary as the Commissioner considers necessary to remedy the non-compliance. The audit found that the DEA under the MET does not adequately ensure that Mineral Right Holders complies with their EMPs because inspections were not conducted.

Physical observations conducted indicated non-compliance to the provisions of their EMPs except Ohorongo Cement & Factory, B2Gold and Namdeb Orange River Mines. In addition, written notices were also not served to MME to remedy the non-compliance such as general waste mixed with hazardous waste, oil containers not safely stored, fuel spill at fuel bays and

oil drums leaking into the environment. As a result Mineral Rights Holders continue to pollute the environment.

The non-compliances are displayed in pictures four to seven below:

Picture 4: Mixture of Hazardous & General Waste



Stone Africa Granite Mine

Picture 5: Oil container not safely stored



Otjozundu Managanese Mine

Picture 6: Fuel spill at fuel bay



Rosh-Pinah Zinc Corporation

Picture 7: Oil drum leaking



Husab Uranium Mine

4.1.2.5 Environmental Clearance Certificates

According to Subsection 3 of Section 27 of the Environmental Management Act, 2007 (Act 7 of 2007), "... despite any other law to the contrary, a person may not undertake a listed activity, unless the person is a holder of an Environmental Clearance Certificate".

4.1.2.5.1 Small-scale Miners

At the time of the audit, the MET could not provide assurance that Small-scale miners operated with valid Environmental Clearance Certificates during the period under review. As a result, Small-scale miners could be mining illegally without Environmental Clearance Certificates.

Comments by the Ministry of Mines and Energy

“The challenge being – costs related to ECC are high and small scale miners may not afford to pay for such services but the law does not discriminate. It applies to everyone in business irrespective of size.”

4.1.2.5.2 Sand Mining

At the time of the audit, it was found that all Sand Miners who received permits from the MAWF were operating without Environmental Clearance Certificates, due to lack of enforcement of the provisions of the Environmental Management Act, 2007 (Act 7 of 2007) and the permit conditions.

As a result, the river beds were polluted and mining pits were not rehabilitated when operations ceased which encourages dumping of waste into the river beds. This is illustrated in the pictures below:

Picture 8: Exposed underground water and oil spills on river bed



Sand mining at the Usib River, Khomas region

4.1.3 Environmental Rehabilitation

4.1.3.1 Mine Closure Requirements

Paragraph 2.2.5 of the Minerals Policy of 2002 states that, “... before a mining licence is granted, there should be a final Mine Closure Plan together with a funding mechanism”.

The audit found that the MME did not investigate the establishment of financial mechanisms for environmental rehabilitation and aftercare. As a result, mining licences are issued without Mineral Right Holders providing Final Mine Closure Plans together with funding mechanisms. In addition, the data analyzed revealed that all the active mines visited except Rossing Uranium Mine and Ohorongo Cement and Factory did not submit Final Mine Closure Plans together with a funding mechanism to the MME. As a result, Mineral Rights

Holder leaves mining sites un-rehabilitated i.e. approximately 157 mines were left abandoned at mine closure, which further risks Government covering the cost of rehabilitating these abandoned mining sites.

Comments by the Ministry of Mines and Energy

“The challenge is that the Environmental Management Act took over all the functions related to environmental monitoring and mine closure from the line ministry – MME, therefore these functions will have to be streamlined/coordinated.”

4.1.3.1.1 Monitoring of Mine Closure

Subsection 1(c) of Section 101 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) states that, “... the holder of a mining licence shall prepare, in respect of each year of assessment, as defined in section 1 of the Income Tax Act, 1981 (Act 24 of 1981), of such holder during the currency of such mining licence, a statement of income and expenditure derived or incurred in connection with such mining operations, including a balance sheet and profit and loss account, and such other financial statements as the Commissioner may require in such form as the Commissioner may determine”.

(e) “Shall submit within 60 days after 31 December in each year to the Commissioner”.

Interviews and documentary reviews revealed that staff of the Directorate of Mines should review the financial statements of mines to provide assurance that the Mineral Rights Holders are able to rehabilitate the environment at mine closure.

However, the audit found that the financial statements are not analyzed. As a result, the MME is not in a position to monitor mines that might be closing down.

4.1.3.2 Rehabilitation of Mining Sites at Mine closure

Subsection 1 of Section 128 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) states that, “... if a non-exclusive prospecting licence or mineral licence or the registration of a mining claim has been cancelled or has expired or, if any area to which such licence or mining claim relates has been abandoned or has for any reason ceased to be part of the area to which such non-exclusive prospecting licence relates or of the prospecting area, mining area or claim area, as the case may be, the Minister may by notice in writing addressed and delivered to the person who was the holder of such licence or mining claim direct such person:

(a) to demolish any buildings, structures or any other thing erected or constructed by such person in such area and to remove from such area all debris and any other object brought into such area, except in so far as the owner of the land which is situated in such area retains such buildings, structures or other thing on such conditions as may mutually be agreed upon between such owner and person;

(b) to take all such steps as may be necessary to remedy to the satisfaction of the Minister any damage caused by any prospecting operation and mining operations carried on by such holder to the surface of, and the environment in such area;

(c) to take such other steps as may be specified in such notice as the Minister may deem necessary or expedient to give effect to any direction referred to in paragraph (a).”

The audit found that Mineral Right Holders are not formally notified by the MME to demolish their buildings, structures and to remove debris and any other objects from the mining sites at mine closure. As a result, Mineral Right Holders are abandoning their mining sites un-rehabilitated. This is illustrated in the pictures below:

Picture 9: Building not demolished



Source: Picture taken by OAG on small scale miner’s mining sites in Dorob National Park, Erongo region

Picture 10: Building not demolished completely



Source: Picture taken by OAG on Golden valley abandoned mine, Hardap region

Furthermore, according to the Minerals Policy of 2002, “... in instances where mine owners could not be traced, Government⁵ is expected to provide contingencies to deal with the environmental costs linked with closure”.

The audit found that MME did not develop contingency measures that should deal with the environmental rehabilitation where Mineral Right Holders cannot be traced.

Additionally, data analyzed revealed that 31 of the 157 abandoned mining sites were identified by the Directorate of Geological Survey because they posed environmental risks i.e. erosion of tailings and air pollution. However, 6 of the 31 abandoned mines were recommended for rehabilitation to the Mining Commissioner but none of the recommended abandoned mining sites were rehabilitated at the time of the audit. This is illustrated by the pictures below:

⁵ Ministry of Mines and Energy (MME)

Pictures 11: The tailing storage facility



Source: Picture taken by OAG on Abandoned Oamites mine, Khomas region

Picture 12: An old mining pit not rehabilitated



Source: Picture taken by OAG on Golden valley abandoned mine, Hardap region

Comments by the Ministry of Mines and Energy

“The audit report pointed out that MME does not notify License holders to destroy mine infrastructure; this is however an issue of Environmental Management Act, that is addressed in the EIA-EMP of the mine project proponent, and management of this is ensured through the EMA. It must be considered that when a demolition of any infrastructure is contemplated mutual consultation between the stakeholders should be engaged because some of the construction material might still be used for construction purposes.

The photos on which the recommendation (demolishing of mine infrastructure) is based, shows that these are old abandoned mines that predates the Acts dealing with the environment. These mines operated way before Independence (1990), before any environmental Acts of Namibia came into existence, therefore the report should ensure clarity between issues relating to Active mines and those relating to old abandoned mines.

The challenge is that mineral right holders at times simply abandon the Mine sites without informing the MME when the economic situation is no longer favorable to them.

Contingency measures that should deal with environmental rehabilitation where Mineral Right Holders cannot be traced is part of the themes in the minerals bill.”

CHAPTER FIVE: CONCLUSIONS

1. The MME have not amended the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) as stated in the Minerals policy of 2002.
2. The DEA did not plan and conduct inspections at the mining sites for the financial period under review.
 - ❖ The audit could also not establish the extent to which the DM conducted inspections at mining sites due to incomplete information provided.
 - ❖ The Directorate of Geological Survey (GS) also did not adequately conduct environmental monitoring at active mining sites in Namibia.
 - ❖ The MME also did not adequately communicate findings of inspections on environmental impacts to the MET and other stakeholders.
3. The DM under the MME does not adequately monitor the mining sites to ensure that the Mineral Rights Holders report and remedy oil spills.
4. The DWA under the MAWF did not adequately ensure that Mineral Rights Holders have valid Waste Water Effluent Disposal Exemption Permits (WWEDEP).
5. The MET did not identify MME as an organ of State mandated to regulate mining and quarry activities which might have an impact on the environment neither was MME listed in the Government Gazette.
6. The DEA under the MET does not adequately ensure that Mineral Right Holders complies with their environmental management plans.
7. The MET did not provide assurance that Small-scale miners operate with valid Environmental Clearance Certificates during the period under review.
8. The DEA and the DWA under the MET and the MAWF respectively did not ensure that Sand Miners who received permits from MAWF obtained Environmental Clearance Certificates from the MET.
 - ❖ The DWA also did not ensure that Sand Miners comply with the permit conditions.
9. The MME granted Mining Licences without Mineral Right Holders providing Final Mine Closure Plans.
10. The MME did not analyze the financial statements of Mineral Rights Holders to monitor mine closure.
11. Mineral Right Holders are not formally notified by the MME to demolish their buildings, structures and to remove debris and any other objects from the mining sites at mine closure.
12. The MME did not develop contingency measures that should deal with environmental rehabilitation where Mineral Right Holders cannot be traced.

CHAPTER SIX: RECOMMENDATIONS

1. The Ministry of Mines and Energy (MME) should ensure that all relevant laws and regulations are reviewed and updated to be in line with International Best Practices as stipulated in the Minerals Policy of 2002.

Comment by the Ministry of Mines and Energy

“Unfortunately a policy is a guiding document that precedes the promulgation of the relevant Acts. Therefore efforts are being done to address such in the Minerals Bill.”

2. The MET should effectively plan and inspect mining sites as required by the Environmental Management Act, 2007 (Act 7 of 2007) Subsection 3 of Section 26.
- ❖ The MME should ensure that the DM keep complete information of mine inspections conducted.

Comment by the Ministry of Mines and Energy

“There is a sufficient filing system in place for inspection reports, although it may not be 100% foolproof.”

- ❖ The MME should also put measures in place to ensure that the Directorate of Geological Survey adequately conduct environmental monitoring at active mining sites in Namibia.

Comment by the Ministry of Mines and Energy

“It could be done provided that there are adequate resources allocated to MME for such, as we all appreciate at times our planned budgetary provisions can be reduced to cover for some other priorities of the nation.”

- ❖ The MME should also put measures in place to enable the Ministry to effectively communicate findings of inspections on environmental impacts to the MET and other stakeholders as stipulated in the Minerals Policy of 2002.
3. The MME should put measures in place to ensure adequate monitoring at mining sites thereby ensuring Mineral Rights Holders report and remedy oil spills.
 4. The MAWF should also adequately ensure that all Mineral Rights Holders operates with valid Waste Water Effluent Disposal Exemption Permits.
 5. The MET should implement the provisions of Subsection 1 of Section 24 of the Environmental Management Act, 2007 (Act 7 of 2007) to identify MME as an organ of State mandated to regulate mining and quarry operations which might have an impact on the environment and list MME in the Government Gazette.
 6. The MET should put measures in place to ensure Mineral Rights Holders comply with environmental management plans.

7. The MET should put measures in place to ensure that Small-Scale miners operate with valid Environmental Clearance Certificates.
8. The MET and MAWF should put measures in place to ensure Sand Miners obtain Environmental Clearance Certificates from the MET prior to the issuance of permits by the MAWF for the abstraction of sand from rivers.
 - ❖ The MAWF should also put measures in place to ensure Sand Miners adheres to the permit conditions.
9. The MME should put measures in place to ensure that mining licenses are not granted before a Mineral Rights Holder provides Final Mine Closure Plans together with funding mechanisms.

Comments by the Ministry of Mines and Energy

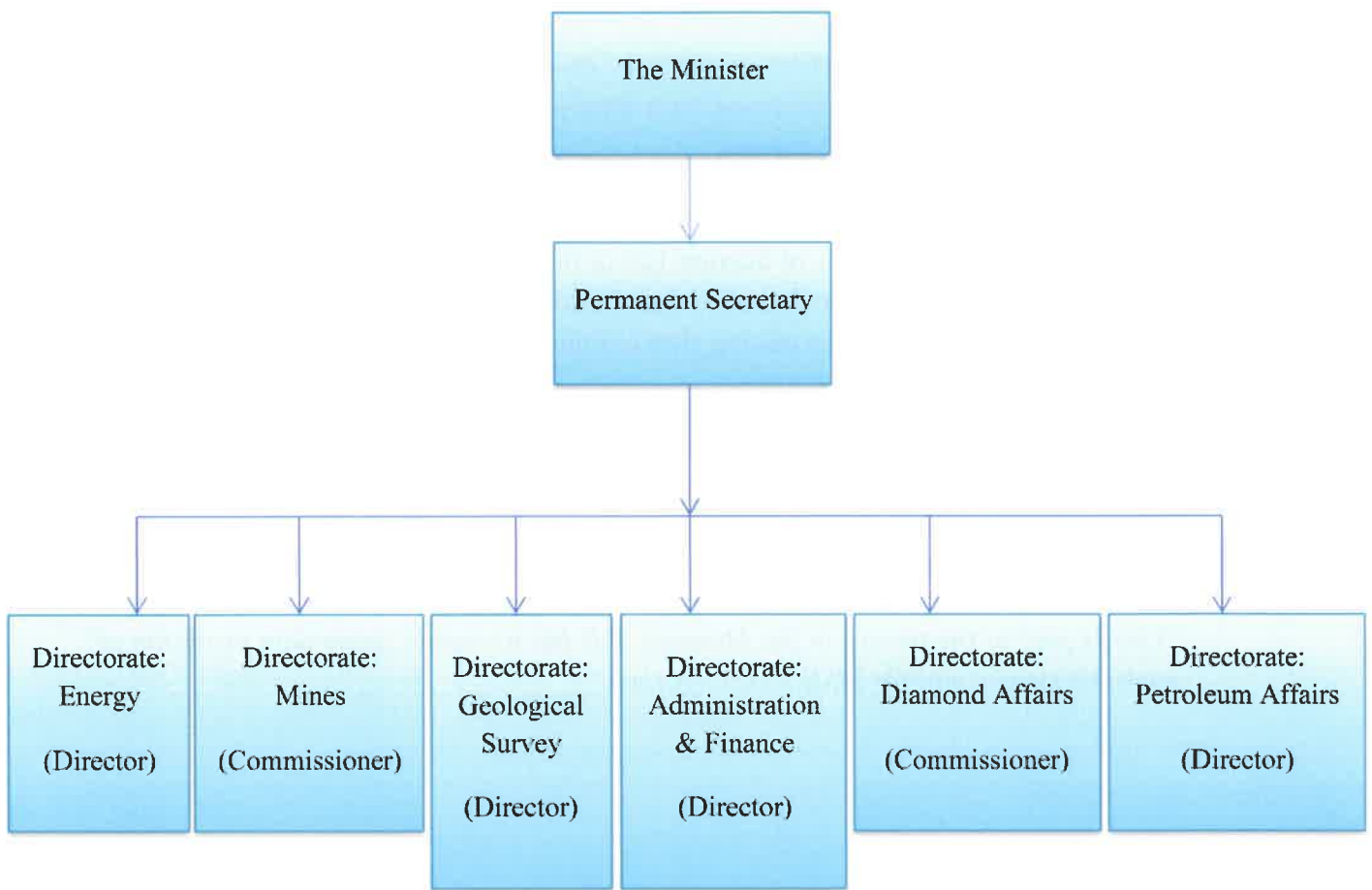
“This is part of the themes in the minerals bill.”

10. The MME should put measures in place to ensure that the financial statements of Mineral Rights Holders are analyzed on a timely basis, thereby ensuring that mining sites are rehabilitated at mine closure.
11. The MME should ensure that Mineral Right Holders are formally notified in accordance with Subsection 1 of Section 128 of the Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) to demolish their buildings, structures and to remove debris and any other objects from the mining sites at mine closure.
12. The MME should put measures in place that will ensure that contingency measures are developed to deal with environmental rehabilitation in the event a mine owner cannot be traced.

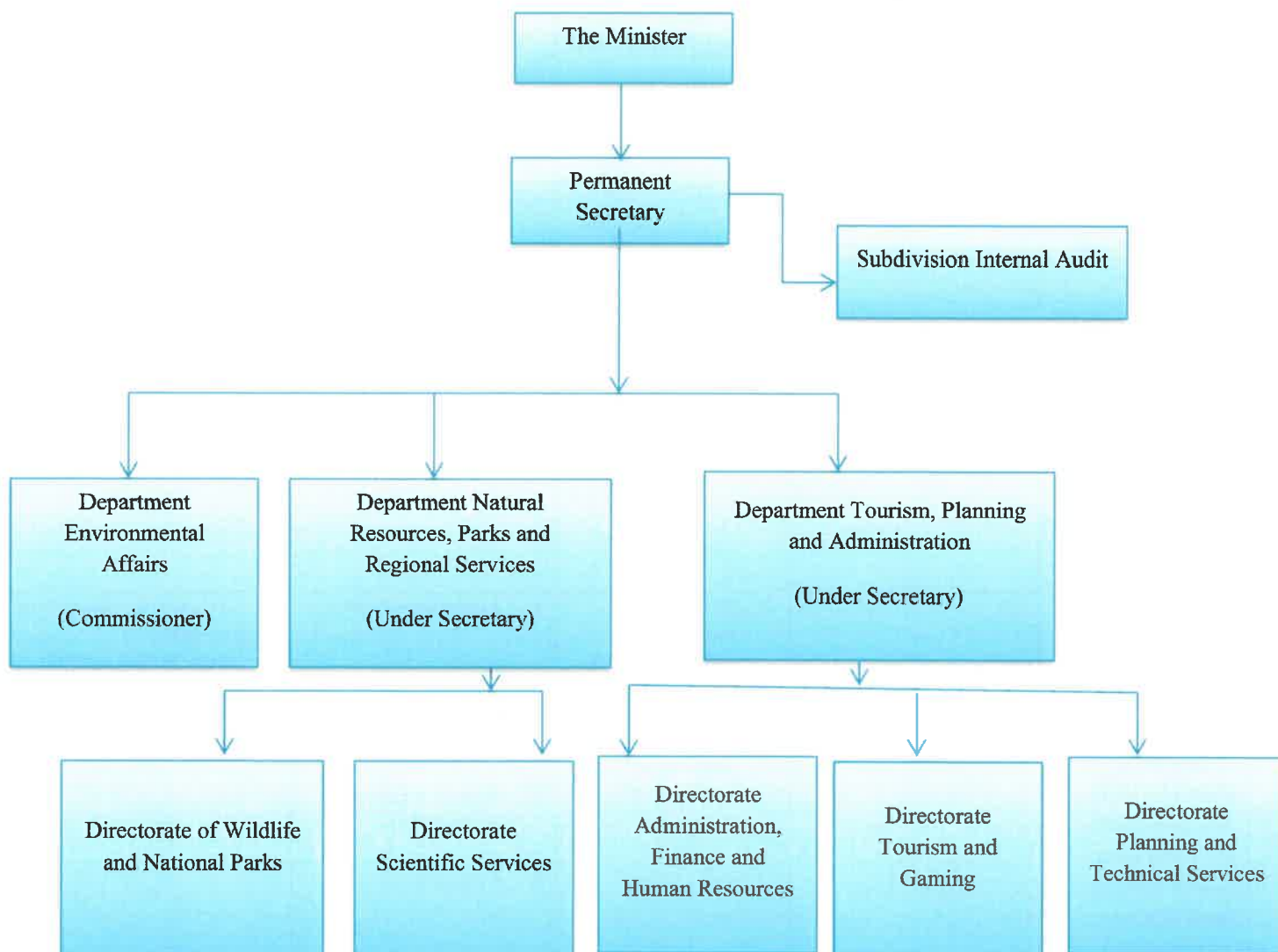
Comments by the Ministry of Mines and Energy

“This is part of the themes in the Minerals Bill but we would appreciate provision of workable suggestions for MME consideration.”

APPENDIX I: ORGANIZATIONAL STRUCTURE OF THE MME



APPENDIX II: ORGANIZATIONAL STRUCTURE OF THE MET



APPENDIX III: ASSESSMENT CRITERIA, AUDIT QUESTIONS AND METHODOLOGY

Assessment Criteria	Audit Question	Sub-questions	Sources of data collection	Objective
<p>Subsection 1(c) of section 5 of the Minerals (Prospecting and Mining) Act, No. 33 of 1992 and Subsection 2 (i) of Section 17 of the Environmental Management Act, No. 7 of 2007 states “that the MME and MET must ensure compliance with their respective Acts of which mine inspections is one method to ensuring compliance.”</p>	<p>Audit Question 1: To what extent does the MME and MET conduct inspections at mining sites of Mineral Rights Holders?</p>	<p>How often/regularly should inspections be conducted at mining sites by the MME and MET?</p>	<p>Annual operational plans (2011/12-2014/15); Inspection reports; Follow-Up inspection reports; Job descriptions; Interviews; and Physical observations</p>	<p>To find out if the MME and MET are conducting adequate inspections at mining sites to ensure compliance; and To establish if the Ministries are achieving their strategic goals relating to inspections.</p>
<p>Section 5.2 of the Minerals Policy of 2002 states that, “the MME will also cooperate and coordinate its endeavors more effectively with MET and other stakeholders in implementing environmental policy.”</p>		<p>➤ Do the MME coordinate effectively with the MET and key stakeholders regarding mine inspections conducted?</p>	<p>➤ Inspections reports; ➤ Minutes of meetings; ➤ Annual ministerial reports; and ➤ Interviews.</p>	<p>➤ To establish the extent the MME is coordinating with the MME and other key stakeholders on mine inspections conducted.</p>
<p>According to the Namibian Mine Closure Framework 2010 Section 48 of the Minerals (Prospecting and Mining) Act, 1992 “the Minister may enter into an agreement with the applicant which is consistent with the provisions of this</p>		<p>➤ Do the MME and MET regulate mineral licence holders against their environmental management plans?</p>	<p>➤ Inspection Reports; ➤ Follow-Up inspection reports; ➤ Environmental management plans; ➤ Environmental impact assessments; ➤ Interviews; and</p>	<p>➤ To determine if the Ministries are ensuring that the mineral licence holders are operating according to their environmental management plans; and ➤ To determine the impact on the environment when mineral rights holders are not complying with their environmental management plans.</p>

<p>Act, and contains the terms and conditions on which such mineral licence will be issued. The submission of an Environmental Management Plan (EMP) is one of the conditions of the licence and, as such, the commitments made in this document become binding. Thus licence holders will be regulated against their EMP.”</p> <p>Subsection 3 of Section 26 states that, “The Environmental Commissioner monitors compliance with environmental plans”</p>			<ul style="list-style-type: none"> ➤ Physical observations. 	
<p>Subsection 1 of Section 27 of the Environmental Management Act, No. 7 of 2007 states that, “the Minister after the consultative process referred to in section 44 may list, by notice in the Gazette, list activities which may not be undertaken without an Environmental Clearance Certificate”.</p> <p>Furthermore, Subsection 3 of Section 27 of the Environmental</p>		<ul style="list-style-type: none"> ➤ Do the MME and MET effectively ensure that Mineral Rights Holders are operating with Environmental Clearance Certificates? 	<ul style="list-style-type: none"> ➤ Inspection reports; ➤ Compliance orders; ➤ Statistics of environmental clearance certificates issued; ➤ Interviews; and ➤ Physical observations. 	<ul style="list-style-type: none"> ➤ To determine whether illegal mining activities is taking place?

<p>Management Act, No.7 of 2007 states that, “despite any other law to the contrary, a person may not undertake a listed activity, unless the person is a holder of an Environmental Clearance Certificate in relation to that activity”.</p>				
<p>According to Section 2.2.5 of the Minerals Policy 2002 “Mine closures can be planned for and should form part of an integrated land use strategy that involves communities. In instances where mine owners could not be traced, Government is expected to provide contingencies to deal with the environmental costs associated with closure.”</p> <p>According to paragraph 2.2.5 of the Minerals Policy of 2002, before a mining licence is granted, there should be a final Mine Closure Plan together with a funding mechanism.</p>	<p>Audit Question 2</p> <p>Does the MME ensure that mining sites are rehabilitated at mine closure?</p>	<ul style="list-style-type: none"> ➤ Do the MME and MET ensure that buildings and structures are demolished; and debris and objects are removed occurs before mine closures? ➤ Does the MME notify minerals right holders whose licenses have been cancelled or expired to remove debris, demolish buildings and structures and remedy damages to the surface and the environment? ➤ Did the MME develop contingencies to deal with environmental costs linked with closure, where mine owners cannot be traced? ➤ Does the MME effectively ensure that Mineral Rights Holders provide mine closure plans together with funding mechanisms? 	<ul style="list-style-type: none"> ➤ Inspection reports; ➤ Compliance orders; ➤ Follow-up inspection reports; ➤ Interviews; and ➤ Physical observations. 	<ul style="list-style-type: none"> ➤ To determine whether the Ministries ensure that accessory works are removed from mining sites at mine closure; and ➤ To determine the extent MME have responded to the risks that mining sites might left abandoned at mine closure.

APPENDIX IV: INTERVIEWS CONDUCTED

Number	Position	Region
The Ministry of Mines and Energy (MME)		
1	Inspector: Occupational Health & Safety	Khomas
2	Chief Petroleum Inspector	Khomas
3	Director of Geological Survey	Khomas
4	Chief Controller Mineral Rights	Khomas
5	Senior Geoscientist	Khomas
6	Deputy Director: Mineral Economics	Khomas
7	Chief Account: Mineral Economics	Khomas
The Ministry of Environment and Tourism (MET)		
8	Conservation Scientist (Focus) Group	Khomas
9	Conservation Scientist	Khomas
10	Chief Conservation Scientist	Khomas
11	Deputy Director	Khomas
12	Environmental Commissioner	Khomas

APPENDIX V: STAKEHOLDERS

Stakeholders		
The Ministry of Agriculture, Water & Forestry (MAWF)		
13	Deputy Director, Law Administration	Khomas
14	Deputy Director, Law Administration	Khomas
Private Mines		
15	Environmental Manager, Matchless & Otjihase Mine	Khomas
16	Environmental Manager, Tscudi Copper Mine	Khomas
17	Environmental Manager, Ohorongo, Cement & Factory	Otjozondjupa
18	Environmental Manager, B2Gold Mine	Otjozondjupa
19	Environmental Manager, Namdeb Orange River Mines	!Karas
20	Mine Manager, Ysterpitz Mine	!Karas
21	Environmental Manager, Rosh-Pinah Zinc Corporation	!Karas
22	Principal Advisor Land Use Management, Rossing Uranium Mine	Erongo
23	Environmental Manager, Swakopmund Uranium (Husab) Mine	Erongo
24	Managing Director, The Salt Company	Erongo
25	Environmental Manager, Salt & Chemicals Mine	Erongo

APPENDIX VI: DOCUMENTS ANALYZED

Number	Document Analysed	Information Obtained
1	Minerals (Prospecting & Mining) Act. No 33 of 1992	Criteria
2	The Environmental Management Act. No7 of 2007	Criteria
3	The Minerals Policy of 2002	Criteria
4	Mine Closure Framework of 2010	Criteria
5	Petroleum Products Regulations: Petroleum Products and Energy Act, 1990	Criteria
6	Performance Management System for the Public Service of Namibia	Criteria
7	The Water Act, 54 of 1956	Criteria
8	Mines, Works and Minerals Ordinance, 1968	Criteria
9	International Organisation for Standard {ISO} 9001	Criteria
10	Audited Financial Statements of Mines	To determine if mines have made financial provisions for environmental rehabilitations
11	Water Permit Conditions of Sand Miners	To determine if the conditions attached to permit are adequate to protect the environment from pollutions and whether a small-scale sand miner is obligated to rehabilitate the environment.
12	Environmental Clearance Certificate conditions made out to claim holders	To determine if conditions are adequate to protect the environment from pollutions and whether claim holders are obligated to rehabilitate the environment.

13	Mine Inspection Reports (MME)	To determine if MME looked at pollution control and environmental issues and the amount of inspections conducted within a year.
14	Mine Inspection Reports (MET)	To determine if MET looked at pollution control and environmental issues and the amount of inspections conducted.
15	Budget Book 2011/12-2015	Staff establishment
16	Staff Establishment	No of filled and vacant positions
17	Audited Reports of the Auditor-General 2011/12-2015	Budget allocations
18	Annual Strategic Plans (MME & MET)	To determine if the MME & MET developed divisional plans from Strategic Plan
19	Mining Licenses	To determine if the mining licenses have conditions that obligates mineral right holder to obtain an environmental clearance certificate.
20	Job descriptions of MME & MET	To determine if staff of the MME & MET roles and responsibilities fits the audit objective.
21	Environmental Management Plans (EMP)	To check if visited mines complied with their EMP's
22	Bi Annual Environmental Management Reports	To determine the extent to which the MET have up to date information about a mine or claim holders operations and whether the MET actually inspect to identify if a Mineral Rights Holder give factual information.
23	External Audits Conducted by third parties at mines	To determine if mines are highlighting significant environmental non-

		conformances in their bi-annual environmental reports as sent to the MET
24	Water Abstraction & Exemption Disposal Permits	To determine if mines are adhering to their water permits conditions.
25	Water Quality Reports	To determine if the MAWF is reviewing water quality reports

APPENDIX VII: PHYSICAL OBSERVATIONS CONDUCTED

Nuclear Fuel Minerals			
No	Mine	Mineral	Region
1.	Swakop Uranium (Husab)	Uranium	Erongo
2.	Rossing Uranium	Uranium	Erongo
3.	Langer Heinrich Uranium	Uranium	Erongo
Base and Rare Metals			
No	Mine	Mineral	Region
4.	Navachab	Gold	Erongo
5.	Otjozonde	Manganese	Otjozondjupa
6.	Rosh- Pinah Zinc Corporation	Zinc & Lead concentrate	!Karas
7.	Matchless	Copper	Khomas
8.	Otjihase	Copper	Khomas
9.	Tscudi	Copper	Oshikoto
10.	B2Gold	Gold	Otjozondjupa
Precious Stones			
No	Mine	Mineral	Region
11.	Namdeb Orange River Mines	Diamonds	!Karas

Dimension Stones			
No	Mine	Mineral	Region
12.	Stone Africa	Granite	Erongo
Industrial Minerals			
No	Mine	Mineral	Region
13.	Salt Company	Common, table, fine & rock salt	Erongo
14.	Salt & Chemicals	Common salt	Erongo
15.	Ohorongo Cement & Factory	Limestone	Otjozondjupa
Semi-Precious Stones			
No	Mine	Mineral	Region
16.	Ysterpitz	Blue lace agate	!Karas
Abandoned Mines			
17.	Oamites	Bornite, Chalcopyrite (Cu)	Khomas
18.	Golden Valley	Gold hosted in Hematite, Limonite, Pyrite, Malachite (Au)	Hardap
Sand Mining			
19.	Usib river	Not recognized as a mineral in Namibia	Khomas

APPENDIX VIII: SUB-SECTION 1 & 2 OF SECTION 21 OF THE WATER ACT, NO. 54 OF 1956

Purification and disposal of industrial water and effluent

“(1)(a) The purification of any waste water or any effluent or waste produced by or resulting from the use of water for industrial purposes shall form in integral part of the process of such use and, subject to the provision of Subsection (5), any person using water, including sea water, for industrial purposes, shall purify such water, effluent or waste so as to conform to such requirement as the Minister may from time to time, after the consultation with the South African Bureau of Standards, prescribe by notice in the gazette either generally or in relation to water derived from any specified public stream or the sea, or in relation to water used in any prescribed area.

(b) Any requirements prescribed under paragraph (a) shall be such as to ensure that the waste water, effluent or waste to which such requirements relate will, after purification in accordance with requirements, be at least as free of impurities as would have been the case if the purification thereof had been effected in accordance with the recommendation of the said Bureau.

(2) Water which has been used for industrial purposes and any effluent produced by or resulting from such use, other than water or effluent referred sub-section (3), shall, subject to the provision of section 11, after purification in accordance with subsection (1), be returned by the user at the nearest convenient point to bed of the public stream from which the said water was abstracted or, if it was abstracted from the sea, to the sea: Provided that where water has been so used at any place outside the natural watershed of the catchment area of the public stream from it was abstracted and in the opinion of the water court it is for physical or economic reasons impracticable to return such water or any such effluent to the said stream, such water or effluent may be returned by the user to the bed of some other public stream at a point determined by the water court.”

APPENDIX IX: SECTION 44 OF THE ENVIRONMENTAL MANAGEMENT ACT, NO. 7 OF 2007

When in terms of this Act the Minister or the Environmental Commissioner is required to consult, the Minister or the Environmental Commissioner, as the case may be –

(a) must consult the organ of state whose area of responsibility may be affected by the performance of the function or duty or the exercise of the power; and

(c) may, where appropriate, consult any other interested or affected person.

(2) When in terms of this Act the Minister or the Environmental Commissioner is required to consult any person or organ of state, such consultation is regarded as having been satisfied if a written notification of intention to act has been made to that person or organ of state and no response has been received within a reasonable time.”

**APPENDIX X: SUBSECTION (1) (A) OF SECTION 12 OF THE WATER ACT,
NO. 54 OF 1956**

“Any person who desires to establish an industrial undertaking in respect of which any quantity of water, including sea water, is required to be used for industrial purposes or who desires to expand an industrial undertaking in respect of which any quantity of water, including sea water, is used or is required to be used for such purposes shall, before initiating or establishing or expanding such undertaking-

(a) advise the Secretary of the nature and the method of purification of the waste water, effluent or waste, if any, which will be occasioned by the operation of such undertaking.”

