



**REPUBLIC OF NAMIBIA**



**PERFORMANCE AUDIT REPORT OF THE AUDITOR-GENERAL  
ON AIR QUALITY MONITORING IN NAMIBIA  
WITHIN THE MINISTRY OF ENVIRONMENT AND TOURISM  
For the financial years 2014/15, 2015/16 and 2016/17**

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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 Air Quality Monitoring in Namibia within the Ministry of Environment and Tourism and key stakeholders for the financial years ended 2014/15, 2015/16 and 2016/17 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.

**WINDHOEK, NOVEMBER 2020**

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

**JUNIAS ETUNA KANDJEKE  
AUDITOR-GENERAL**

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## **GLOSSARY OF TERMS**

**Air quality:** means the degree to which the air in a particular place is pollution free.

**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.

**Environmental Management Plan:** is a tool used to ensure that undue or reasonably avoidable adverse impacts of construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced.

**Government:** means Government of the Republic of Namibia.

**Locomotive:** is a rail transport vehicle that provides the motive power for a train.

**Ozone depleting substance:** means man made gasses that destroy the ozone once they reach the ozone layer.

**Listed Activities:** means Operations of Organizations having a significant impact on the environment. They are TransNamib, Local Authorities, Roads Authority, Factories, Importers of Ozone Depleting Substances, Hospitals, etc.

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## **COMMENTS RECEIVED FROM AUDITEES**

*Comments on findings have been received from the Roads Authority, Ministry of Industrialisation, Trade and SME Development, Namibia Civil Aviation Authority, Ondangwa Town Council, Ministry of Mines and Energy and Ministry of Finance. These comments have been incorporated at applicable sections of this report.*

## 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 authorises the Office of the Auditor-General to carry out special audits of which environmental audit is one.

### **The purpose of the audit report:**

- To assess whether the Ministry of Environment and Tourism (MET) and key stakeholders<sup>1</sup> put effective measures in place to ensure that the general public and workers are not exposed to unregulated excessive greenhouse gas emissions into the atmosphere.
- To assess whether the Radiation Protection Authority have put effective measures in place that ensure the general public and workers are not exposed to unregulated excessive radionuclide/electromagnetic air pollution.
- To assess whether Ministry of Health and Social Services (MoHSS) and key stakeholders have put measures in place to effectively regulate imports, sales and public smoking of tobacco products in Namibia to ensure that the general public is not exposed to second hand tobacco smoke and prohibited tobacco products which is a health risk and contributes to environmental pollution.

The financial period covered by the audit was the 2014/15, 2015/16 and 2016/17 financial years for secondary data reviews, whilst primary data reviews such as interviews and physical observation was conducted up to 5 April 2019.

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

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<sup>1</sup>Ministry of Finance (MOF), Ministry of Labour, Employment Creation and Industrial Relations, MOHSS, Ministry of Trade, Industrialization, and Small and Medium Sized Entities (SME) Development, Ministry of Mines and Energy, Ministry of Agriculture, Water and Forestry, Namibia Airports Company, TransNamib, Roads Authority and selected Local Authorities

## **MAJOR FINDINGS**

### **A. Laws, Regulations and International Standards in terms of Emissions**

#### **A.1 Sector Specific Sources of Air Pollution**

The MET and key stakeholders are not proactive in implementing public international laws and agreements binding upon Namibia in terms of sector specific sources of air pollution when there are shortcomings in laws and regulations as outlined below:

### **B. Monitoring Air Quality Compliance: Green House Gas Emission**

#### **B.1 Environmental Management Plans**

##### **B.1.1 Ministry of Environment and Tourism**

Documentary reviews revealed that the DEA conducted 52 inspections during the calendar years 2014-2017 of which 26 covered air pollution sector specific sources. The audit found that the 26 inspections that covered air pollution specific sources were not complete, because detailed air quality exposure tests was not conducted by them.

There is a risk that the Department of Environmental Affairs (DEA) under the MET is wasting money on inspections intended to ensure compliance to Environmental Management Plans for air quality.

Documentary reviews revealed that the DEA established a 57% baseline target in the National Development Plans for compliance to EMP's by industries in the 2014/15 financial year, without having a breakdown percentage on the different sources of pollution such as air<sup>2</sup> among others<sup>3</sup>. The extent of compliance to EMP's was not done in the 2015/16 and 2016/17 financial years. This is because the DEA did not develop measurable criteria to measure the extent industries comply with EMP's. This risks industries not reducing air pollution in the environment, which is a health risk for the general public and industry workers.

#### **B.2. Emissions Tax**

##### **B.2.1 Ministry of Finance**

The DCE did not provide evidence that effectively enforce government gazette regulation No: 6019 of the Customs and Excise Act, 1998 (Act No.20 of 1998) in terms of collecting outstanding carbon

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<sup>2</sup> Motor vehicles, locomotives, aircrafts, hospital incinerators, vessels/ships, factories, landfill/dump sites, waste water treatment plants, mining operations, households and ambient air pollution.

<sup>3</sup> Waste Management, Treatment, Handling and Disposal, Infrastructure, Hazardous Substance Treatment, Handling and Storage, Water Resource Developments, Agriculture and Aquaculture, Tourism Development, Land Use and Development, Forestry, Mining and Quarrying and Energy Generation, Transmission and Storage.

emissions/environmental taxes. The data analysed revealed that outstanding emissions tax to be collected by the Directorate of Customs and Excise (DCE) under the Ministry of Finance increased by 267%<sup>4</sup> from N\$ 265 225 to N\$ 974 045 for 114 and 372 emissions taxable items<sup>5</sup> during the 2016 to 2017 calendar years respectively. The DCE at the time of the audit could not provide evidence whether the outstanding emissions tax was paid or not because the statistics provided by DCE did not have SAD 500 entry numbers referring to the specific entry number for each of the entries indicated as outstanding on the spreadsheets provided to the audit.

This poses a risk that the outstanding carbon emissions tax might increase to an estimated N\$ 2.4 Billion by 2023 at a trend of 267% increase per year on outstanding emissions tax. This is because DCE did not effectively enforce government gazette regulation No: 6019 of the Customs and Excise Act, 1998 (Act No.20 of 1998). If the outstanding emission tax is effectively collected, Government will have more money available to fund operations. Also, this will reduce the risk that the general public is exposed to motor vehicles emitting excessively whilst not paying carbon emissions tax.

Furthermore, the audit found that there is a risk for DCE to charge more environmental duties on new motor vehicles in comparison to 2<sup>nd</sup> hand imported motor vehicles, which are not required to produce a manufacturer certificate on the amount of Co2 emissions based on the carbon emissions tax formula applied by DCE. This risks that the Ministry of Finance would collect lower environmental duties from 2<sup>nd</sup> hand imported motor vehicles which emits more emissions than newly imported motor vehicles. CO2 emissions from motor vehicles are the main gas responsible for global warming.

### **B.3. Motor Vehicle Emissions**

The audit observed that the Roads Authority (RA) ) conducts visual inspections as a method of air quality inspections are complying with the current laws and regulations in Namibia for motor vehicle air quality inspections as developed by the Directorate of Transport under the Ministry of Works and Transport where visual inspections are used by RA as a method of air quality inspections because it is the most cost effective method not requiring additional equipment and fitments at NATIS testing stations.

However, the audit found that the visual air quality inspections as allowed by the current laws and regulations have tests limitations and does not determine the amount of gases such as oxygen (O2), carbon monoxide (CO), carbon dioxide (CO2) and hydrocarbons (HC) produced by a motor vehicles engine. These gases have negative consequences for climate change and the health of people as the number of motor vehicles increases and become older on the Namibian Roads in the long-run.

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<sup>4</sup>  $(N\$974\ 045 - 265\ 225) = N\$ 708\ 820 / 265\ 225 \times 100 = N\$ 267\%$

<sup>5</sup> Vehicles with spark-ignition engines, goods vehicle with diesel or semi diesel engines, new pneumatic tyres, retreaded tyres for aircraft, construction/industrial cars & machines among others

The audit acknowledge that RA and the Directorate of Transport under the Ministry of Works and Transport wants to safe on costs in the short-run in terms of not upgrading NATIS testing stations and acquiring additional equipment to test gaseous emissions of motor vehicles. However, the negative cost of gaseous emissions on the environment and health of people should also be considered as a risk in the long-run.

#### **B.4. Occupational Health and Safety Inspections**

Department Occupational Safety and Health (DOSH) under the Ministry of Labour, Employment Creation and Industrial Relations issued Temporary and Permanent Registration Certificates to a sampled 58 factories between the 2011-2017 calendar years in various regions<sup>6</sup>, without conducting occupational health and safety inspections at all the factories to certify them fit in terms of emissions such as taking a sample of the atmosphere in accordance with Subsection 2 (a) (iv) & v of Section 125 of the Labour Act, 2007 (Act No.11 of 2007).

#### **B.5 Locomotive Emissions**

##### **B.5.1 TransNamib**

TransNamib operated 12<sup>7</sup> of a sampled 18 active locomotives without conducting 685 (63%) of 1080 planned locomotive examinations such as replacing oil filters among others that will prevent excessive emissions which is harmful to the environment and the general public in the vicinity of locomotives.

#### **B.6 Charcoal Operations**

##### **B.6.1 Ministry of Agriculture, Water and Forestry**

Physical observations at all 12 visited Commercial Charcoal Producing Farms (CCPF)<sup>8</sup> revealed that the Directorate of Forestry (DOF) under the Ministry of Agriculture, Water and Forestry (MAWF) did not conduct regular inspections as planned to ensure workers are protected from excessive smoke emissions at charcoal operations. Therefore DOF did not enforce harvesting licence conditions in accordance with the regulations stipulated in the Forest Act, 2001 (Act No.12 of 2001), Section 48.

#### **B.7 Aviation CO<sub>2</sub> Emissions**

##### **B.7.1 Namibia Civil Aviation Authority (NCAA)**

NCAA did not conduct safety inspections on the engines of aircrafts and helicopters to certify them fit in terms of engine emissions in terms of the quality of Smoke; Gaseous emissions; Unburned hydrocarbons (HC); Carbon monoxide (CO); and Oxides of nitrogen (NO<sub>x</sub>). No evidence was provided during the time of the audit on whether NCAA tested whether the aforementioned parameters emission limits was exceeded or not for aircrafts exceeding 5700 kg after 18 February 1982. Therefore, all the aircrafts and helicopters are operating without engine emission certificates. This was because NCAA did not prioritize emissions as part of their planning during the period under review.

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<sup>6</sup> Difficult to track regions in files due to insufficient information in factory files.

<sup>7</sup> 36% of 18 locomotives planned examinations conducted =6 Locomotives. 64% of 18 planned examinations not conducted=12 Locomotives.

<sup>8</sup> Commercial Charcoal Producing farms within the Oshikoto, Otjozondjupa, Omaheke and Khomas regions.

As a result aircrafts and helicopters might emit excessive emissions which pose a health risk to employees and passengers. Excessive emissions also cause air pollution.

### **C. National Radiation Protection Authority (NRPA)**

Documents analysed indicated that NRPA did not implement 95%, 82% and 90% of their planned inspections for the 2014, 2015 and 2016 calendar years at the facilities using radiation sources. This could pose the risk of lifetime health hazards to workers and the public exposed to radiation sources at the facilities without inspections.

### **D. Regulation of Tobacco Products**

#### **D.1 Ministry of Health and Social and Services**

The Directorate of Primary Health Care (DPHC) under the Ministry of Health and Social Services (MOHSS) did not fully ensure that bars/shebeens issued with fitness certificates complies with the General Health Regulations (GRN 121 dated 14 October 1969).

*The detailed findings are in chapter 4 of this report.*

## **MAJOR CONCLUSIONS**

Based on the shortcomings as highlighted in the major findings in the executive summary and other findings in chapter four of this report, the audit conclude on the major objectives of this report as follows:

The Ministry of Environment and Tourism (MET) and key stakeholders<sup>9</sup> did not provide sufficient evidence that they put effective measures in place to ensure that the general public and workers are not exposed to unregulated excessive greenhouse gas emissions into the atmosphere.

The Radiation Protection Authority did not provide sufficient evidence that effective measures are in place to ensure the general public and workers are not exposed to unregulated excessive radionuclide/electromagnetic air pollution.

The Ministry of Health and Social Services (MoHSS) and key stakeholders did not provide sufficient evidence that they put effective measures in place to effectively regulate imports, sales and public smoking of tobacco products in Namibia to ensure that the general public is not exposed to second hand tobacco smoke and prohibited tobacco products which is a health risk and contributes to environmental pollution.

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<sup>9</sup> Ministry of Finance (MOF), Ministry of Labour, Employment Creation and Industrial Relations, MOHSS, Ministry of Trade, Industrialization, and Small and Medium Sized Entities (SME) Development, Ministry of Mines and Energy, Ministry of Agriculture, Water and Forestry, Namibia Airports Company, TransNamib, Roads Authority and selected Local Authorities.

## **MAJOR RECOMMENDATIONS**

### **A. Laws, Regulations and International Standards in terms of Emissions**

#### **A.1 Sector Specific Sources of Air Pollution**

The MET and key stakeholders should be proactive in implementing public international laws and agreements binding upon Namibia in terms of sector specific sources of air pollution when there are shortcomings in laws and regulations.

### **B. Monitoring Air Quality Compliance: Green House Gas Emissions**

#### **B.1 Environmental Management Plans**

##### **B.1.1 Ministry of Environment and Tourism**

Department of Environment Affairs (DEA) should develop measurable criteria for the extent industries comply with Environment Management Plans (EMP's) per inspections conducted on different sources of air pollution such as air quality among others. This will enable DEA to know the extent industries comply with EMP's for air pollution and therefore not waste money on inspections.

##### **B.2. Emissions Tax**

DCE should revise the environmental duties formula to ensure that secondhand imported motor vehicles which are older and causes more air pollution pays more emissions tax.

##### **B.3 Motor Vehicle Emissions**

Roads Authority in consultation with the Directorate of Transport under the Ministry of Works and Transport should put measures in place that will ensure that motor vehicle gaseous emissions testing are performed at NATIS motor vehicle testing stations to ensure that apart from saving on costs the environment and the health of people are also protected.

##### **B.4 Employee Safety from Hazardous Substance Emissions at Factories**

Department Occupational Safety and Health (DOSH) should effectively plan the amount of work hours to be spent in the office in relation to the amount of work hours that must be spend on inspections based on the manpower available. This will enable DOSH to issue factory registration certificates after conducting inspections and will be aware of the extent factories expose employees to excessive emissions.

##### **B.5 Locomotive Emissions**

###### **B.5.1 TransNamib**

TransNamib should ensure that they conduct Locomotive examinations before operating a Locomotive on the railroad. This will ensure Locomotives operates with key engine parts that prevent excessive emissions.



## **B.6 Charcoal Operations**

### **B.6.1 Ministry of Agriculture, Water and Forestry**

Directorate of Forestry (DOF) should enforce the harvesting licence conditions of commercial charcoal producing farms in accordance with Section 29 of the regulations of the Forest Act, 2001 (Act No.12 of 2001) to ensure workers are protected from excessive smoke emissions. DOF should also put measures in place to ensure the execution of planned inspections.

## **B.7 Aviation CO<sub>2</sub> Emissions**

### **B.7.1 Namibia Civil Aviation Authority (NCAA)**

NCAA should conduct safety inspections on engines of aircrafts and helicopters to certify them fit in terms of emissions for Smoke; Gaseous emissions; Unburned hydrocarbons (HC); Carbon monoxide (CO); and Oxides of nitrogen (NO<sub>x</sub>).

## **C Regulation of Radionuclide**

### **C.1 National Radiation Protection Authority (NRPA)**

NRPA should put measures in place to ensure the effective execution of planned inspections that are inclusive of all types of radiation risk sources to avoid exposure of the public and workers to unregulated excessive radionuclide.

## **D. Regulation regarding the Selling of Tobacco Products**

### **D.1 Ministry of Health and Social and Services**

- The Directorate of Primary Health Care (DPHC) under the Ministry of Health and Social Services (MOHSS) should fully ensure that bars/shebeens issued with fitness certificates complies with the General Health Regulations (GRN 121 dated 14 October 1969).

*The detailed conclusions and recommendations are in chapter 5 and 6 of this report.*

## CHAPTER ONE

### 1. INTRODUCTION

#### 1.1 Background of the Audit

According to British Columbia (BC), "... the term "air quality" means the state of the air around us. Good air quality refers to clean, clear, unpolluted air. Clean air is essential to maintaining the delicate balance of life on this planet - not just for humans, but wildlife, vegetation, water and soil. Poor air quality is a result of a number of factors, including emissions from various sources, both natural and "human-caused".

Research conducted by the United Nations Environmental Programme in 2015 on Namibia, revealed that air pollution in Namibia from industrial installations such as meat processing, fish processing, dairy products, pasta, uncontrolled waste burning and vehicle emissions are a major source of particulate matter, nitric oxide and carbon monoxide and therefore contributes to deterioration of air quality in both urban and rural areas in Namibia.

Paragraph 2 of the pre-ample of the Tobacco Products Control Act, 2010 (Act No.1 of 2010), states that, "...scientific evidence has unequivocally established that exposure to tobacco smoke causes death, disease and disability and negatively impacts on the economy and the environment."

No research has been done on the readiness by the Namibian Government to respond to air quality issues.

Namibia therefore through the Ministry of Environment and Tourism and key stakeholders<sup>10</sup> should put monitoring and enforcement processes in place to achieve the United Nations Sustainable Development Goal indicator 11.6, which states that, "...by 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention *to air quality*."

#### 1.2 Audit Motivation

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

- Ministry of Environment and Tourism (MET) did not develop laws and regulations for air pollutions specific sources in Namibia;

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<sup>10</sup> Ministry of Mines and Energy, Ministry of Industrialization, Trade and SME Development, Ministry of Health and Social Services, Ministry of Labour, Industrial Relations and Employment Creation, Ministry of Works and Transport, Ministry of Finance, Ministry of Agriculture, Water and Forestry, Local Authorities, Namibia Radiation Protection Authority, Namibia Civil Aviation Authority, TransNamib and Roads Authority.

- MET did not conduct detailed air quality tests during inspections and therefore do not ensure compliance to Environmental Management Plans;
- MET did not ensure compliance to the United Nations Framework Convention on Climate recommendations to reduce greenhouse gas emissions;
- Local Authorities burns waste at Waste Disposal Sites;
- Local Authorities did not prevent workers at Waste Water Treatment plants from exposure to excessive emissions;
- Namibia Civil Aviation Authority did not test air quality emissions of aircrafts and helicopters;
- Ministry of Mines and Energy conducted inadequate mine machinery inspections;
- Roads Authority did not conduct atmospheric pollutions tests during motor vehicle roadworthy tests;
- Ministry of Finance did not collect outstanding emission taxes;
- Ministry of Finance inappropriately stored ozone depleting substances at customs warehouses;
- Ministry of Labour, Employment Creations and Industrial Relations issued factory registration certificates without conducting inspections to certify factories fit in terms of emissions;
- TransNamib conducted inadequate Locomotive examinations which risks Locomotives to emit hazardous substances excessively;
- Radiation Protection Authority did not conduct inspections as planned;
- Ministry of Health and Social Services (MoHSS) did not conduct air quality tests at hospital incinerators; and
- MoHSS do not control the illegal selling and import of tobacco products.

The abovementioned problem indicators was included in the main audit report as findings due to the significance of the audit findings and supported by sufficient and appropriate audit evidence gathered on them during the Pre-Study stage.

The main study audit phase included Co2 emissions from the aviation industry and charcoal operations.

## **CHAPTER TWO**

### **2. AUDIT DESIGN**

This audit was conducted in accordance with the International Standards for Supreme Audit Institutions (ISSAIs) issued by the International Organization for Supreme Audit Institutions (INTOSAI). The audit was also conducted in terms of the Auditor-General of Namibia policies and procedures.

#### **2.1 AUDIT OBJECTIVES**

##### **2.1.1 Regulation of Greenhouse Gas Emissions**

To assess whether the Ministry of Environment and Tourism (MET) and key stakeholders have put effective measures in place to ensure that the general public and workers are not exposed to unregulated excessive greenhouse gas emissions in the atmosphere.

##### **2.1.2 Regulation of Tobacco Products**

To assess whether the Ministry of Health and Social Services (MoHSS) and key stakeholders have put measures in place to effectively regulate imports, sales and public smoking of tobacco products in Namibia to ensure that the general public is not exposed to second hand tobacco smoke.

##### **2.1.3 Regulation of Radionuclide**

To assess whether the Radiation Protection Authority have put effective measures in place that ensure the general public and workers are not exposed to unregulated excessive radionuclide/electromagnetic air pollution.

### **2.2 AUDIT SCOPE**

#### **2.2.1 Audit Object**

The audit focused on the effectiveness of programmes, activities and processes in terms of monitoring air quality in Namibia by the Ministry of Environment and Tourism and the key stakeholders<sup>11</sup>.

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<sup>11</sup> Ministry of Mines and Energy, Ministry of Industrialization, Trade and SME Development, Ministry of Health and Social Services, Ministry of Labour, Industrial Relations and Employment Creation, Ministry of Works and Transport, Ministry of Finance, Ministry of Agriculture, Water and Forestry, Namibian Radiation Protection Authority, Namibia Civil Aviation Authority, Roads Authority and selected Local Authorities.

### **2.2.2 Geographical Limitation**

The audit visited six regions namely Khomas, Otjozondjupa, Oshikoto, Oshana, Erongo and Omaheke during the audit. These regions were selected because main industrial activities that are a risk to air pollution are located here.

### **2.2.3 Time Coverage**

Three financial years were covered which are 2014/15-2016/17 for secondary data in order to establish the trends as well as for comparison purposes. The primary data collected for the audit through interviews and physical observations to corroborate secondary data ended 5 April 2019.

The audit applied calendar years for the period 2014-2017 where the audit could not use financial years. Whilst, for the Ministry of Labour, Employment Creations and Industrial Relations, the audit used calendar years for the period 2011-2017 because factory registration certificates are issued only once in a lifetime of a factory. This was done to avoid bias in only selecting the most recent factories that received registration certificates.

## **2.3 ASSESSMENT CRITERIA; AUDIT QUESTIONS AND METHODOLOGY**

See attached APPENDIX II.

## **2.4 SAMPLING**

The audit applied the clustered and stratified random sampling technique to sample regions, interviews, physical observations and documentary reviews, because the audit dealt with heterogeneous groups, regions and data. Clustered and Stratified random sampling allowed the audit to ensure that each region, group and data have an equal chance to be selected to avoid bias. This is explained below:

### **2.4.1 Regions**

The audit applied the clustered sampling method to select the regions for audit. The Khomas region was selected because the Head Offices of the MET and key stakeholders are located in the region. The Erongo, Otjozondjupa, Oshana, Oshikoto and Omaheke regions were selected because uranium mining, fishing, locomotive operations, asbestos roofing, hospital incineration, motor vehicle testing, waste disposal sites, waste water treatment plants, indoor air pollution at informal and formal settlements, aviation and charcoal activities took place in these regions that impact air quality.

### **2.4.2 Interviews**

The purpose was to gather information and use as evidence and to get clarification on how the MET and other stakeholders regulate and monitor air pollution sources. Furthermore, to obtain opinions and

to corroborate the information obtained from other sources such as physical observations and document reviews. (See attached APPENDIX III).

#### **2.4.3 Physical Observations**

The purpose was to validate if air pollution source's processes were undertaken in accordance with the prescribed laws and regulations and whether information obtained through interviews is correct. Stratified random sampling was applied to conduct physical observations. (See attached APPENDIX IV).

#### **2.4.4 Documentary Reviews**

The purpose was to find evidence in support of the findings. Various documents were reviewed. A detailed list of all documents is attached in APPENDIX V.

### **2.5 AUDIT LIMITATION**

- The audit experienced limitation in collection of documentations from the Ministry of Agriculture, Water and Forestry on inspections conducted at commercial charcoal farms. However, the auditors conducted physical observations at the sampled farms, to assess whether there is compliance to laws and regulations during charcoal production.
- The Gobabis Municipality did not provide management reports for the Waste Water Treatment Plant and Waste Disposal sites to the audit. However, the auditors conducted physical observations at the Waste Water Treatment Plant and Waste Disposal site to assess whether the facilities are managed in an environmentally friendly manner.

## **CHAPTER THREE**

### **3. DESCRIPTION OF THE AUDIT AREA**

#### **3.1 SYSTEM DESCRIPTION**

##### **Ministry of Environment and Tourism**

##### **3.1.1 Legal Framework**

According to Chapter 21, Article 144 of the Namibian Constitution, “Unless otherwise provided this Constitution or Act of Parliament, the general rules of public international law and international agreements binding upon Namibia under this Constitution shall form part of the law of Namibia.”

The Ministry is mandated by the Environmental Management Act, 2007 (Act No.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”.

##### **3.1.2 The Vision and Mission statements**

###### **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 utilisation of natural resources and tourism development for the maximum social and economic benefit of its citizens. As the custodian of our natural environment, the Ministry of Environment and Tourism will lead the sustainable development process towards the achievement of the goals of Vision 2030.

##### **3.1.3 Roles and responsibilities**

###### **3.1.3.1 The Minister**

According to Section 4 of the Environmental Management Act, 2007(No. 33 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 Advisory Council**

According to Section 7 of the Environmental Management Act, 2007 (No. 33 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 on:
  - (i) the development of a policy and strategy for the management, protection and use of the environment;
  - (ii) 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) appropriate methods of monitoring compliance with the principles set out in section 3;
  - (iv) the need for, and initiation or amendment of legislation, on matters relating to the environment; and
  - (v) Perform other functions assigned to it by the Minister.”

### **3.1.3.3 The Environmental Commissioner**

The functions of the Environmental Commissioner in terms of Subsection 1 of Section 17 of the Environmental Management Act, 2007 (No.7 of 2007) are to:

- (a) “advise organs of State on the preparation of environmental plans;
- (b) receive and record applications for environmental clearance certificates;
- (c) determine whether a listed activity requires an assessment;
- (d) determine the scope, procedure and methods of an assessment;



- (e) review the assessment report;
- (f) issue environmental clearance certificates;
- (g) maintain a register of environmental assessments undertaken;
- (h) maintain a register of environmental clearance certificates issued and environmental plans approved; and
- (i) conduct inspections for monitoring compliance with this Act.”

### 3.1.4 Organizational Structure

The Minister of Environment and Tourism has three Departments headed by a Commissioner and two Deputy Executive Directors who reports directly to the Executive Director. Furthermore, three Deputy Directors report 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 I).

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 of Environmental Assessment, Waste Management, Pollution Control and Inspection 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.”

### 3.1.5 Financing

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

**Table 1: Budget allocation for the Department of Environmental Affairs:**

Financial year	Authorized expenditure	Actual expenditure	Variance
	N\$	N\$	N\$
2014/15	47 141 525	46 300 975	840 550
2015/16	37 982 337	36 733 032	1 249 305
2016/17	37 828 206	38 018 942	(190 737)

*Source: Report of the Auditor-General on the accounts of the MET for the financial years ending 2013/14-2017*

### 3.1.6 Staffing

The staff establishment for the period 2013/14-2016 for the Department of Environmental Affairs and Parks is as follows:

**Table 2: Department of Environmental Affairs and Parks**

Financial Year	Staff Establishment	Filled Positions	Vacant Positions	Post Vacant %
2014/15	38	9	29	76
2015/16	37	21	16	43
2016/17	37	21	16	43

*Source: Staffing figures were extracted from the budget book 2013/14-2016 and 2016/17-2019*

## 3.2 ROLE OF KEY STAKEHOLDERS

### 3.2.1 Ministry of Finance

The Ministry is mandated by the Customs and Excise Act, 1998 (Act No.20 of 1998)...“ to provide for the levying, imposition, payment and collection of customs and excise duties, of a surcharge and of a fuel levy; to prohibit and control the import, export or manufacture of certain goods; and to provide for matters incidental thereto.”

### 3.2.2 Roads Authority

The Authority is mandated by the Roads Authority Act, 1999 (Act No.17 of 1999) “.....to establish a Roads Authority to manage the national road network of Namibia; and to provide for matters incidental thereto.”

Subsection (1) (b) of Section 15 of the Roads Authority Act, 1999 (Act No.17 of 1999) states that, “..... Subject to this Act, the functions of the authority are to-make recommendations to the Minister regarding the application of this Act, amendments to it and the making of regulations.”

### 3.2.3 Ministry of Mines and Energy

The Ministry is mandated by the Minerals (Prospecting and Mining) Act, 1992 (Act No.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.”

### **3.2.4 Ministry of Labour, Employment Creations and Industrial Relations**

The Ministry is mandated by the Labour Act, 2007 (Act No.11 of 2007) ...“to ensure the health, safety and welfare of employees; and to provide for incidental matters among others”.

### **3.2.5 Ministry of Health and Social Services**

The Ministry is mandated by the Atmospheric Pollution Prevention Ordinance, 1976 (No.11 of 1976) ...“to provide for the prevention of the pollution of the atmosphere, and for matters incidental thereto.”

### **3.2.6 Ministry of Industrialization, Trade and SME Development**

The Ministry is mandated by the amendment of the prohibition of import into Namibia of ozone depleting substances of the Import and Export Control Act, 1994 (Act No.30 of 1994), which states ... “(a) prohibit, except under the authority of and in accordance with the conditions contained in a permit issued by the Ministry of Trade and Industry, the import into Namibia of the ozone depleting substances set out in the Schedule below; (b) authorize the National Ozone Officer to direct any person who imports into Namibia any substances, set out in Annexure I of the Schedule below, to furnish myself within a period specified in that direction with any information at his or her disposal in relation to that import of substances.

### **3.2.7 TransNamib**

TransNamib is mandated by the National Transport Service Holding Company Act, 1998 (Act No.28 of 1998), ...“to provide for the incorporation of a holding company to undertake, either by itself or through any subsidiary company, transport services in Namibia or elsewhere; and to provide for matters incidental thereto.” TransNamib must also adhere to the Labour Act, 2007 (Act No.11 of 2007) ...“to ensure the health, safety and welfare of employees; and to provide for incidental matters among others”.

### **3.2.8 Local Authorities**

Local Authorities is mandated by the Local Authorities Act, 1992 (Act No.23 of 1992) ...“to provide for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters.” Local Authorities must also adhere to the Labour Act, 2007 (Act No.11 of 2007) ...“to ensure the health, safety and welfare of employees; and to provide for incidental matters among others”.

### **3.2.9 Ministry of Agriculture, Water and Forestry**

The Ministry is mandated by the Forest Act, 2001 (Act No.12 of 2001), ...“ to provide for the establishment of a Forestry Council and the appointment of certain officials; to consolidate the laws relating to the management and use of forests and forest produce; to provide for the protection of the environment and the control and management of forest fires; Preservation of Trees and Forests Ordinance, 1952 (Ordinance No. 37 of 1952) and the Forest Act, 1968 (Act No. 72 of 1968); and to deal with incidental matters.

### **3.2.10 Namibian Civil Aviation Authority**

The Namibian Civil Aviation Authority is mandated by the Civil Aviation Act, 2016 (Act No.6 of 2016) ...“enhancing and promoting the safety and security of civil aviation for ensuring the implementation of international aviation agreements; and to provide for incidental matters.

### **3.2.11 The National Radiation Protection Authority**

The National Radiation Protection Authority is mandated by the Atomic Energy and Radiation Protection Act, 2005 (Act No. 5 of 2005), ...“ to provide for adequate protection of the environment and of people in current and future generations against the harmful effects of radiation by controlling and regulating the production, processing, handling, use, holding, storage, transport and disposal of radiation sources and radioactive materials, and controlling and regulating prescribed non-ionising radiation sources; to establish an Atomic Energy Board and to provide for its composition and functions; to establish a National Radiation Protection Authority; to amend the Hazardous Substances Ordinance, 1974 (Ordinance No. 14 of 1974); and to provide for related matters”.

## **3.3 AIR QUALITY PROCESS DESCRIPTION**

### **3.3.1 Laws, Regulations and International Standards in terms of Emissions**

Article 144 of the Namibian Constitution states that “unless otherwise provided by this Constitution or Act of Parliament, the general rules of public international law agreements binding upon Namibia under this Constitution shall form part of the law of Namibia”.

### **Sector Specific Sources of Air Pollution**

#### **A. Ministry of Environment and Tourism**

It is a best practice that the Ministry of Environment and Tourism (MET) and the key stakeholders develop laws and regulations for sector specific sources of air pollution to adhere to the related United Nations 2030 Sustainable Development Goals as stated below:

Paragraph 16.3 of the United States (UN) 2030 Sustainable Development Goals states that "... promote the rule of law at the national and international levels and ensure equal access to justice for all." Laws and regulations for air quality monitoring thus need to be developed.

Paragraph 3.9 of the UN 2030 Sustainable Development Goals states that, ..."by 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air among others".

The Division Multilateral Environmental Agreements (MEA) under the Department of Environmental Affairs at the MET should ensure Namibia's reporting requirements to the United Nations Framework Convention on Climate Change (UNFCCC) on Namibia's Intended Nationally Determined Contributions (INDC) agreed in 2015 in terms of reducing greenhouse gas emissions through the following strategies:

- Commission of a mass transport system in the City of Windhoek to reduce number of cars (taxis and private) by about 40%;
- Implement a car pooling system to reduce fossil fuel consumption;
- Improve freight transportation through bulking to reduce the number of light load vehicles by about 20%;
- Increasing the number of livestock heads in feedlots to reduce enteric fermentation by some 4%;
- Reducing N<sub>2</sub>O emissions by about 10% through production of biogas from the feedlot manure;
- Reducing chemical fertilizers by 20% through conservation and climate smart agricultural practices, use of organic manure and composts;
- Reducing deforestation rate by 75% in 2030;
- Reducing wood removal in forests by 50%; and
- Combating forest and grassland fires."

## **B. Ministry of Health and Social Services**

It is a best practice that the Ministry of Health and Social Services develop laws and regulations for sector specific sources of air pollution to adhere to the related United Nations 2030 Sustainable Development Goals as stated below:

Paragraph 16.3 of the United States (UN) 2030 Sustainable Development Goals states that "... promote the rule of law at the national and international levels and ensure equal access to justice for all."

### **C. Roads Authority**

Paragraph 16.3 of the United States (UN) 2030 Sustainable Development Goals states that "... promote the rule of law at the national and international levels and ensure equal access to justice for all."

It is a best practice for the Roads Authority of Namibia to use the South African Bureau of Standards (SABS) (SANS 10047:2009) when testing motor vehicles for roadworthiness.

Paragraph 4.2.6.5 of the SABS standards states that, "...testing stations that are in possession of a Hartridge smoke meter should use it to apply the atmospheric pollution limits in order to judge whether the smoke emission is excessive."

### **D. Ministry of Finance**

Paragraph 16.3 of the United States 2030 Sustainable Development Goals states that "... promote the rule of law at the national and international levels and ensure equal access to justice for all.

It is a best practice for the Ministry of Finance to charge interest and penalties on outstanding taxes as was done for late payment taxes in the Income Tax Act, 1981 (Act No.24 of 1981). Therefore interest and penalties for the late payment of emissions tax should also be in place.

### **E. Local Authorities**

Paragraph 16.3 of the United States (UN) 2030 Sustainable Development Goals states that "... promote the rule of law at the national and international levels and ensure equal access to justice for all."

According to paragraph e and f of the amended Otjiwarongo local authority street and traffic regulations, " no person shall create a public nuisance on any street, in a public place or residential premises by: burning of rubble, refuse or any other objectionable substance and causing of unpleasant or offensive smells".

## **3.3.2 Monitoring Air Quality Compliance: Green House Gas Emissions**

### **3.3.2.1 The Ministry of Environment and Tourism**

#### **A. Environmental Management Plans**

Subsection 2 (f) of Section 3 of the Environmental Management Act, 2007 (Act No.7 of 2007) states that, "...sustainable development must be promoted in all aspects relating to the environment".



This is further detailed by paragraph 12.4 of the goals and targets of the 2030 United Nations (UN) Sustainable Development Goals which states that "...by 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment".

Furthermore, Subsection 3 (a) of Section 26 of the Environmental Management Act, 2007 (Act No.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 implementation plans are being complied with by organs of state; and (b) if, as a result of any steps taken or inquiry made under paragraph (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".

To implement paragraph 12.4 of the goals and targets of the 2030 UN Sustainable Development Goals, the Department of Environmental Affairs under the Ministry of Environment and Tourism (MET) is mandated by Subsection (2) (i) of Section 17 of the Environmental Management Act, 2007

(Act No.7 of 2007) which states that, "...one of the functions of the Environmental Commissioner are to conduct inspections for monitoring compliance with this Act".

## **B. Environmental Clearance Certificates**

Subsection 3 of Section 27 of the Environmental Management Act, 2007 (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".

Annexure 9.2 of the Government Gazette regulations of the Environmental Management Act, 2007 (Act No.7 of 2007) states that, "... any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste".

Subsection 1 of Section 31 of the Environmental Management Act, 2007 (Act No.7 of 2007) states that, "...despite any other law to the contrary, a competent authority may not issue an authorisation unless the proponent has obtained an environmental clearance certificate in terms of this Act. Subsection 2 of Section 31 of the Environmental Management Act, 2007 (Act No.7 of 2007) further states that, "... an authorisation issued contrary to subsection (1) is invalid".

Subsection 1 of Section 57 of the Environmental Management Act, 2007 (Act No.7 of 2007) states that, "...A person who, on the date of commencement of this Act, undertakes a listed activity under an

authorisation may continue to undertake such activity for a period not exceeding one year, or such longer period as the Minister may on application approve”.

### **C. Public Awareness on Air Pollution**

According to the 2016/17 Strategic Plan for the Department of Environmental Affairs (DEA) under the MET, one of its strategic objectives is “...to implement activities on communication, education, public awareness (CEPA) for environmental and tourism issues”.

### **D. Statistics on Air Pollution Sources in Namibia**

According to Statistics South Africa, a report on the statistical development in Africa in the context of the global statistical system, “...the aim should be to entrench statistical culture and evidence based policy making. When we succeed in that regard, then we will know that statistical practice in Africa has been consolidated and can exist as a useful contributor in perpetuity”.

#### **3.3.2.2 Ministry of Finance**

##### **A. Emissions Tax**

Government Gazette Regulation No 6019 relating to imposing of duties on certain disposable goods and vehicle emissions and the amended schedule 1 to the Customs and Excise Act, 1998 (Act No. 20 of 1998) highlights specific environmental duties and an environmental duty on carbon dioxide (CO<sub>2</sub>) emissions of specified vehicles that must be taxed on the import of such taxable items.

Furthermore, according to Namibia Tax Bulletin 6/2016, “...if an importer has a credit facility at the Directorate of Customs and Excise, the environmental tax liability must be settled by the end of the month following the month of import”.

According to the amendment schedule No.1 to the Customs and Excise Act, 1998 (Act No.20 of 1998) “...the CO<sub>2</sub> emissions liable to the environmental levy must be calculated:

- (a) Using the CO<sub>2</sub> emissions stated in the CO<sub>2</sub> certificate obtained from the manufacturer of motor vehicle concerned. The tax is N\$ 40 per g/km Co<sub>2</sub> emissions exceeding 120g/km; and
- (b) If such report has not been obtained or is not submitted upon request to the Commissioner, by application of the following methods:
  - (i) Motor vehicles specified in item 151.01:  
Co<sub>2</sub> emissions (g/km) = 120 + (0.05 x engine capacity in cm<sup>3</sup>)
  - (ii) Motor vehicles specified in item 151.02:  
Co<sub>2</sub> emissions (g/km) = 140 + (0.05 x engine capacity in cm<sup>3</sup>).



## **B. Storage of Hazardous Substances at Customs and Excise Warehouses**

According to the following Subsections of Section 182 of the Labour Act 1992 (Act No.6 of 1992) as amended in 2007: Regulations relating to the Health and Safety of Employees at work subsection 1 states that, "...hazardous substances shall at any time be stored in such a manner that they do not create a risk to the health and safety of employees or other persons, nor any risk of contamination of the environment, due to seeping, leaking, fire or accidental release".

Subsection 2 states that, "...areas designated for storage of hazardous substances shall be isolated from other activities and be clearly marked with appropriate warning signs".

Subsection 4 states that, "...substances which by means of a reacting with each other on contact can create a dangerous situation such as an explosion, a fire or the formation of a third hazardous substance, shall be stored and handled separately in such a manner that no unintentional contact can occur.

Subsection 9 states that, "...inflammable and explosive substances shall be labelled, stored and handled taking into account the risks associated with such substances".

Subsection 3 of Section 43 of the Labour Act, 1992 (Act No.6 of 1992) as amended in 2007 regulations relating to the health and safety of employees at work states that, "... an inspector may, having regard to the structure and situation of the premises and the nature of the activities conducted in or on the premises, require the provision of suitable fire-extinguishing appliances which shall be maintained in good working order and positioned in accessible places as instructed by the inspector".

According to Subsection 2 of Section 11 of the Model Fire Brigade Services Regulations made under the Local Authorities Fire Brigade Services Act, 2006 (Act No.5 of 2006), "...a person who is in occupation or control of any premises may not allow grass, weeds or any hedge or tree to grow, or rubbish to accumulate on such premises in such a manner or such quantities as to cause or create a danger of fire to any building or premises".

### **3.3.2.3 Roads Authority**

#### **A. Motor Vehicle Emissions**

Subsection (1) (b) of Section 15 of the Roads Authority Act, 1999 (Act No.17 of 1999) states that, "..... Subject to this Act, the functions of the authority are to-make recommendations to the Minister regarding the application of this Act, amendments to it and the making of regulations."

Section 26 (a) of the Roads Authority Act, 1999 (Act No.17 of 1999) also states that, "... The Minister may, after consultation with the Authority, make regulations in relation to any matter in terms of this Act is required or permitted to be prescribed."

The Roads Authority adopted the South African Bureau of Standards (SABS) as a Standard Operating Procedure to test vehicle emissions.

According to Section 228 (c) of the Road Traffic and Transport Regulations, 2001, "...a person may not operate a motor vehicle on a public road if the exhaust gas or smoke from the engine is so dense as to cause a nuisance to, or obstruct the vision of other road users".

According to paragraph 4.2.6.2 of the South African Bureau of Standards (SABS) Division, Recommended Practice Guide related to March 2011 for examiners of motor vehicles, "...a reasonable approach towards enforcement of smoke emissions standards is to stand at the side of the road and to monitor those vehicles that emit too much smoke under load, according to the observer's experience". This applies to black smoke from diesel engines and to blue smoke from petrol engines. In most cases the operator should only be given a warning that the vehicle produces too much smoke".

According to paragraph 4.2.6.3 of the SABS Division, Recommended Practice Guide dated March 2011 for examiners of motor vehicles, "...monitor the smoke emission when the vehicle accelerates or pulls under load. Ignore puffs of smoke during changing of gears."

**Table 3: Atmospheric Pollution Limits that must not be exceeded by motor vehicles**

1	2	3
Geographic Region	Limits in terms of the Hartridge smoke meter scale	Limit in terms of metric units
Highveld	70	2;18
Coast	60	2;13

Usually a Hartridge smoke meter is used, while the engine is revved repeatedly from idle speed to a maximum governed speed under no load".

According to paragraph 4.2.6.5 of the SABS Division Recommended Practice Guide for examiners of motor vehicle, "...those testing stations that are in possession of Hartridge smoke meter should use it to apply the atmospheric pollution limits in order to judge whether smoke emission is excessive.

The examiner should also apply the method given in paragraph 4.2.6.2 as an additional or alternative judgement."

### 3.3.2.4 Emissions from Mine Machinery

#### A. Ministry of Mines and Energy

Subsection 1(d) of Section 5 of the Minerals (Prospecting and Mining) Act, 1992 (Act No.33 of 1992) states that, the general powers of the Mining Commissioner are to (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); and

(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".

### **3.3.2.5.1. Employee Safety from Hazardous Substance Emissions at Factories**

#### **A. Ministry of Labour, Employment Creation and Industrial Relations**

##### **(i) Occupational Health and Safety Inspections**

Subsection 1 of Section 19 of the Labour Act, 2007 (Act No.11 of 2007) as amended: Regulations Relating to the Health and Safety of Employees states that, "...no person shall operate a factory which is not registered under these regulations." Subsection 2 further states that, "...an application for the registration of any premises as a factory shall be lodged with an inspector in the form of Form F.2, duly completed, together with the prescribed plans and particulars".

Moreover, Form F2 states that a factory must submit among others a Health and Safety Policy and that an inspection must be conducted by an Occupational Health and Safety inspector before issuing either a permanent or provisional factory registration certificate to ensure that the concentration of airborne contaminants in the breathing zone of an employee is below the occupational exposure limits as specified E in the Labour Act, 1992 (Act No.6 of 1992) as amended in 2007: Regulations Relating to the Health and Safety of Employees at work.

According to Subsections 2 (a)(iv) & (v) of Section 125 of the Labour Act, 2007 (Act No.11 of 2007) states that, "...a labour inspector should at any reasonable time enter any premises and take a sample of the atmosphere or of any object found; and measurements, readings, recordings or photographs".

##### **(ii) Coordination and Collaboration of Stakeholders on issues relating to Occupational Health and Safety**

According to paragraph 4.3 of the National Occupational Health Policy, "...at all levels, especially the national level requires close cooperation and collaboration among the concerned parties on issues relating to Occupational Health and Safety (OH&S). Each relevant party plays a pivotal role in the implementation of Occupational Health programmes within its areas of jurisdiction".

### **3.3.2.6 Measurement of Air Quality by the Ministry of Health and Social Services**

#### **A. Occupational Exposure Limits**

According to Section 185, Subsection 1 of the Regulations Relating to the Health and Safety of Employees at Work of 1997 dated (31 July 1997) states that, ".....the concentration of airborne contaminants in the breathing zone of an employee shall be below the 'Occupational Exposure Limits' specified in Annexure E".

Subsection 2 states that, ".....the concentration of biological determinants, when applicable, as a means of controlling exposure to hazardous substances in the work environment, shall be below the 'Adopted Biological Exposure Determinants' as specified in Annexure E".

Furthermore, Section 187, Subsection 3 states that, “.....in the event of biological monitoring disclosing contamination levels in the work environment in excess of the exposure limits referred to in regulation 186, the employer shall notify the Chief Medical Officer of Occupational Health and inform employees of the causes of the excess and action to be taken: Provided that the necessary technical, administrative or organizational remedial action to prevent further exposure shall be taken without delay”.

According to the Integrated Health Care Waste Management Plan of 2012 - 2017, “....a medical waste incinerator releases into the air a wide variety of pollutants including highly toxic dioxins and furans, metals (such as lead, mercury, and cadmium), particulate matter, acid-forming gases, and carbon monoxide”.

Paragraph 4 of the Integrated Health Care Waste Management Plan of 2012 2017 further states that, “.....before an incinerator is permitted to operate, it must demonstrate that it can meet the emission limit values (daily average) based on EU standards”.

Furthermore, “...records must be maintained and made available during inspections by regulatory authorities. The regulatory authority will halt the operation of the plant if any of the emissions limits specified are exceeded. Test of heavy metals, dioxins, and furans should be conducted by an independent third party using a laboratory that is certified for dioxin / furan testing”.

According to the Stockholm Convention on Persistent Organic Pollutants (POPs) of 2009 Article 5, paragraph 1 of states that, “....each party shall at a minimum take the following measures to reduce the total releases derived from anthropogenic sources of each of the chemicals listed in Annex C, with the goal of their continuing minimization and, where feasible, ultimate elimination:

- (a) Develop an action plan or, where appropriate, a regional or sub regional action plan within two years of the date of entry into force of this Convention for it, and subsequently implement it as part of its implementation plan specified in Article 7, designed to identify, characterize and address the release of the chemicals listed in Annex C; and to facilitate implementation of subparagraphs (b) to (e).”

#### **(B) Pre-employment and Periodic Medical Examinations**

Section 220 of the Labour Act, 1992 (Act No.6 of 1992) as amended in 2007: Regulations relating to the health and safety of employees at work states that, “....without derogating from the responsibility of each employer for the health and safety of his or her employees, and with due regard to the obligation of the employees to co-operate with their employer on matters of occupational health and safety, ‘occupational health services’ comprise the function of-

- (c) the examining of the health of the employee prior to the commencement of his or her employment in order to ensure that he or she is healthy and fit for the work to be performed (pre-employment medical examinations);
- (d) the examining of the health of an employee, periodically after the commencement of employment, if the employee is exposed to occupational health hazards; and
- (f) the record keeping on employees’ health, compilation and periodic review of statistics concerning health conditions in the undertaking”.

### **3.3.2.7 Ozone Depleting Substances**

#### **A. Ministry of Industrialization, Trade and SME Development**

##### **(i) Penalties**

Subsection 1 of Section 94 of the Customs and Excise Act, 1998 (Act No.20 of 1998) states that, "...any person who makes a false statement in connection with any matter dealt with in or by this Act, or who, for the purposes of this Act, makes use of a declaration or document containing any false statement, knowing such statement to be false, shall be guilty of an offence and on conviction be liable to a fine not exceeding N\$40 000 or to an amount equal to three times the value of the goods to which such statement, declaration or document relates, whichever is the greater, or to imprisonment for a period not exceeding ten years or to both such fine and such imprisonment, and the goods in respect of which such false statement was made or such false declaration or document was used or issued, shall be liable to forfeiture to the State."

The independent verification report of Hydro Chlorofluoro Carbons (HCFC) import quota and licensing system in Namibia 2015-2016 prepared by the National Ozone Unit (NOU) under the Ministry of Trade and Industry states that, "...in cases where illegal Ozone Depleting Substances (ODS) have been detected and detained, the perpetrators are issued a spot fine of 25% of their consignment value".

### **3.3.2.8 Locomotive Emissions**

According to TransNamib, their standard operating procedure for the maintenance of Locomotives is as follows:

- Monthly Locomotive Examination: Conducted every 45 days;
- 3 Monthly Locomotive Examination: Conducted every 90 days;
- 6 Monthly Locomotive Examination: Conducted every 180 days; and
- Annual Locomotive Examination: Conducted every 360 days.

##### **(i) Lifespan of Locomotives in Namibia**

According to the European Environmental Agency emission inventory guidebook 2013, "...the working life of most locomotives is around 30 years".

##### **(ii) Repairs of TransNamib Locomotive Garages**

According to the integrated annual report 2016/2017 of TransNamib, "...the Board of Directors of TransNamib has committed to a process of risk management that is aligned with the National Transportation Service Holding Company Act, 1998 (Act No. 28 of 1998), ISO 31000:2009 and the principles of the NamCode which among others states that:

- the management of risk enables the organization to comply with relevant legal and regulatory requirements and international norms; and
- enhance health and safety performance, as well as environmental protection".

Furthermore, the integrated annual report 2016/2017 of TransNamib states, "...one of the missions of TransNamib is to create a safe working environment for all stakeholders".

According to Section 2 of the Labour Act, 1992 (Act No.6 of 1992) as amended in 2007: regulations relating to the health and safety of employees at work, the Employer's general duties are as follows:

. "... (1) An employer shall

(a) investigate and identify the hazards attached to any work that is performed or may be performed by any of his or her employees, including the risks or potential risks to the health and safety of employees associated with such work, or to the health and safety of any other person who may be affected by such work;

(b) assess the hazards and risks identified in terms of paragraph (a);

(c) subject to paragraph (d), eliminate the hazards by employing appropriate measures, including the removal of the hazards, or the changing of the organization or schedules of the work performed; or

(d) If it is not reasonably practicable to eliminate the hazards, do all that is reasonably practicable to minimize the hazards, or to reduce the risks caused by the hazards by means of the minimizing-

(i) the effects of the hazard at its source;

(ii) the effects of the hazards on employees; and

(iii) the level and period of exposure of employees to the hazard by means of the arrangement and organization of work.

(2) In complying with paragraph (d) of subregulation (1), an employer shall rely upon the use of personal protective equipment by employees-

(a) only if it is not reasonably practicable to reduce the risks by any other means; or

(b) as a temporary measure while other steps are being taken to eliminate or minimize the hazard concerned".

#### **(iii) Locomotive Spare Parts Store Room**

According to the Integrated Annual Report 2016/2017 of TransNamib, ... "...one of TransNamib's key focus areas is to upgrade Systems Applications and Products in Data Processing Systems (SAPS)."

The above is a standard operating procedure that TransNamib use to track the stock-outs of key spare on the SAPS system for timely re-order. This will ensure that a Locomotive is fitted with the parts during repairs and maintenance prior departure.

#### **(iv) Fire-Fighting Equipment at Locomotive Depots**

Subsection 3 of Section 43 of the Labour Act, 1992 (Act No.6 of 1992) as amended in 2007: regulations relating to the health and safety of employees at work states that, "... an inspector may,

having regard to the structure and situation of the premises and the nature of the activities conducted in or on the premises, require the provision of suitable fire-extinguishing appliances which shall be maintained in good working order and positioned in accessible places as instructed by the inspector”.

Also, refer to criteria in paragraph 3.3.2.8 (ii), page 20-21 of this report.

### **3.3.2.9 Measurement of Air Quality by Local Authorities**

#### **(i) Strategic Planning for Air Quality Monitoring**

According to the Planning Institute of Australia policy dated, 2012, “...all councils should undertake local strategic planning based on the Resource Guides and use relevant information to underpin, firstly, the holistic Community Strategic Plans (Local Government Act) and secondly, to inform and incorporate in the statutory Local Environmental Plans or Development Control Plans.”

#### **(ii) Measuring Air Quality at Waste Water Treatment Plants**

The Local Authorities should manage Waste Water Treatment Plants according to Section 2 of Labour Act, 1992 (Act No.6 of 1992) as amended in 2007: regulations relating to the health and safety of employees at work as stated in paragraph 3.3.2.8 (ii) of this report.

Subsection 1 of Section 186 of the Labour Act, 1992 (Act No.6 of 1992) as amended in 2007: Regulations Relating to the Health and Safety of Employees at work states that, “...the employer shall ensure adequate measurements of exposure to hazardous substances are performed in-order to determine the compliance with the prescribed exposure limits to hazardous substances”.

#### **(iii) Measuring Air Quality at Waste Disposal Sites**

According to paragraph 2.2.2 (b) of the National Waste Management Policy, “Burning is not advisable method of waste treatment, but if practiced should be under strict supervision”.

According to Subsection 1 (b) of Section 23 of the Walvisbay Municipality, Solid and Hazardous Waste Management Regulations, “ ...the Council is responsible for the effective design, construction, operation, management and monitoring of waste disposal facilities in accordance with the provisions of applicable environmental laws, by among others, enforcing the control and monitoring of environmental pollution due to illegal burning of waste, ground water pollution, leachate, windblown waste, dust emission and other parameters as may emanate from the operation of such facility.”

Furthermore, paragraph 5.2.5 of the Walvisbay Waste Disposal Site Management Contract states that, “...the contractor shall take note of the fact that the general burning of refuse is not permitted.”

According to the Swakopmund, landfill site operational guidelines to which the private contractor must adhere. ...“hazardous waste is to be transported to the hazardous site in Walvisbay where it will be handed over for disposal.”

According to the landfill management contract between Swakopmund Municipality and the private contractor, the private contractor should.... “undertake to manage the landfill site in accordance with labour regulations.”

### **3.3.2.10 Charcoal Operations**

#### **A. Emissions from Kilns**

##### **A.1 Ministry of Agriculture, Water and Forestry**

According to Section 5 of the Generic Environmental Management Plan outlined in the Forestry and Environmental Authorisations Process for Bush Harvesting Projects booklet dated 2016, one of the mitigation measures to prevent air pollution at charcoal production operations is to ensure that retort kilns are operated efficiently to almost produce no smoke.

According to the regulations made in terms of the Forest Act, 2001 (Act No. 12 of 2001), Section 48, the licence conditions for charcoal production are as follows;

“1. Trees with stem diameter of more than 18 cm at ground level may not be removed unless special approval is granted;  
2. An area of at least 15 m around the kiln for charcoal production must be cleared of any flammable material; and

4. All employees/contractors must be treated according to all applicable laws in Namibia.” Conducted According to Section 2 of the Labour Act, 1992 (Act No.6 of 1992) as amended in 2007: regulations relating to the health and safety of employees at work as stated in paragraph 3.3.2.8 (ii), page 20-21 of this report.

Section 220 of the Labour Act 1992 (Act No.6 of 1992) as amended in 2007: Regulations relating to the health and safety of employees at work Government Gazette dated 1 August 1997 states that, “...without derogating from the responsibility of each employer for the health and safety of his or her employees, and with due regard to the obligation of the employees to co-operate with their employer on matters of occupational health and safety, ‘occupational health services’ comprise the function of-

(c) the examining of the health of the employee prior to the commencement of his or her employment in order to ensure that he or she is healthy and fit for the work to be performed (pre-employment medical examinations);

(d) the examining of the health of an employee, periodically after the commencement of employment, if the employee exposed to occupational health hazards; and

(f) the record keeping on employees’ health, compilation and periodic review of statistics concerning health conditions in the undertaking.”

5. Permit owner must explain permit contents and conditions to all workers and contractors;

6. Permit owner must execute proper supervision over the operations;



7. Fire-fighting equipment must be on site at all times;
8. All kilns must be guarded at all times;
9. Burning of charcoal may not be done within 1 km to the nearest house or dwelling.”

## **B. Emissions from Charcoal Factories**

### **B.1 Ministry of Labour, Employment Creations and Industrial Relations**

According to Subsections 2 (a)(iv) & (v) of Section 125 of the Labour Act, 2007 (Act No.11 of 2007) states that, “...a labour inspector should at any reasonable time enter any premises and take a sample of the atmosphere or of any object found; and measurements, readings, recordings or photographs”.

Subsection 1 of Section 185 of the Labour Act, 1992 (Act No.6 of 1992) as amended in 2007: Regulations Relating to the Health and Safety of Employees at work states that, “...the concentration of airborne contaminants in the breathing zone of an employee shall be below the “Occupational Exposure Limits “specified in Annexure E.”

Subsection 1 of Section 186 of the Labour Act, 1992 (Act No.6 of 1992) as amended in 2007: Regulations Relating to the Health and Safety of Employees states that, ...“the employer shall ensure adequate measurements of exposure to hazardous substances are performed in-order to determine the compliance with the prescribed exposure limits to hazardous substances”.

#### **3.3.2.11 Aviation CO2 Emissions**

It is a standard operating procedure of the Namibian Civil Aviation Authority to conduct their operations as per the following criteria:

The Namibian State as a signatory to the Chicago Convention is obligated to implement the standards as contained in the Annex 16 Volumes 1 to 4 on the Environmental Protection. The **current Namibian Civil Aviation Authority (NAMCARS)** requires that an Emission Certificate be issued to each Aircraft over 5700 Kg manufactured after 18 February 1982 that conducts operation in international air navigation. Aircraft emissions that can be monitored on the basis of such an Emission Certificate are restricted to **Smoke; Gaseous emissions; Unburned hydrocarbons (HC); Carbon monoxide (CO); and Oxides of nitrogen (NOx).**

Paragraph 34.01.2 of the Namibia Aviation Regulations of 2001 states that, “an applicant for the issuing of an engine emission certificate in terms of the regulations in this Part, shall permit an authorized officer, inspector or authorized person to carry out such safety inspections and flight and ground tests which may be necessary to verify of any application made in terms of this Part.” (2) ...“the holder of an engine emission certificate issued under this Part, shall permit an authorized officer, inspector or authorized person to carry out such safety inspections and audits, including safety inspections and audits of its partners or subcontractors, which may be necessary to determine compliance with the appropriate requirements prescribed in this Part”.

### **3.4 Regulation of Radionuclide**

#### **A. Inspection of Facilities**

According to the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005), the National Radiation Protection Authority (NRPA) is mandated "...to provide for adequate protection of the environment and of people in current and future generations against the harmful effects of radiation by controlling and regulating the production, processing, handling, use, holding, storage, transport and disposal of radiation sources and radioactive materials, and controlling and regulating prescribed non-ionizing radiation sources".

Furthermore, Subsection 2 (a-b) of Section 35 states that, ".....a radiation protection officer may-

- (a) take samples of any material in order to test for the presence of radiation; and
- (b) make such inspections and inquiries as may be necessary to ascertain that this Act and any conditions of a licence or authorization are being complied with".

Section 16, Subsection 1 of the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005) states that, "except when such activity is explicitly authorized by a licence, no person may-

- (a) possess any radiation source or nuclear material; (b) import into or export from Namibia any radiation source or nuclear material or transport any radiation source or nuclear material or instruct, require or permit any person employed by him or her, or acting on his or her behalf so to import, export or transport a radiation source or nuclear material."

Furthermore, Section 16, Subsection 2 of the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005) states that, ".....no person may without a licence-

- (a) possess any nuclear material, except for the purpose of transporting such material as the agent for a licence holder;
- (b) operate or use any radiation source or instructor permit any person in his or her employ or acting in any manner on his or her behalf or promoting his or her interests to operate or use any radiation source; and
- (c) store or keep a radiation source for a period exceeding a prescribed period".

Section 25, Subsection 1 and 2 of the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005) states that, "subject to this Act, a registration or a licence remains in force for the period prescribed for a particular class of registration or licence."

- (2) a registrant or a licence holder may within 90 days before the expiry of a registration or a licence, apply to the Director-General for a renewal of the registration or the licence."

Section 40, Subsection 1 of the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005) states that, “.....a person who-

- (a) Contravenes section 16;
- (b) Intentionally or negligently operates, stores, transport, disposes of or abandons any radiation source in such a manner that any human being may be subject to a dangerous amount of radiation or that a substantial amount of radiation or radioactive material may be released into the environment;
- (d) does anything that causes the uncontrolled or unregulated emission of radiation which is likely to cause loss of life, significant bodily harm or serious damage to the environment or the property of any person, is guilty of an offence and is liable on conviction to a fine not exceeding N\$200 000 or to imprisonment for a period not exceeding 10 years or both such fine and such imprisonment.”

Furthermore, Subsection 3 states that, “.....A person who without any reasonable excuse –

- (c) operates, stores, transports, decommissions or disposes of a radiation source while contravening or failing to comply with any requirement, condition or duty imposed by or under this Act, is guilty of an offence and is liable on conviction to a fine not exceeding N\$ 8 000 or to imprisonment for a period not exceeding two years, or to both such fine and such imprisonment.”

### **3.5 Regulating the selling of Tobacco Products**

Subsection 1 of Section 75 of the General Health Regulations (GRN 121 dated 14 October 1969) states that, “...no person shall on any premises, for which a licence is required in accordance with the First Schedule, Part I, of the Licences Consolidation Ordinance, 1935 (Ordinance 13 of 1935) as amended, sell any article or food, unless he has had such premises registered in advance for this purpose with the local authority. The local authority shall issue to the applicant the certificate of registration applied for only if such application is accompanied by a certificate of fitness issued in accordance with regulations 76 and 77.”

According to Subsection 1 of Section 16 of the Tobacco Products Control Act, 2010 (Act No.1 of 2010), “Where a person sells or imports for sale any tobacco product and the tobacco product is contained in a package -

- (a) the package must be labelled in the prescribed manner and must bear the prescribed warning concerning the health hazards incidental to the smoking of tobacco products and other relevant information.”

Subsection 3 of Section 43 of the Labour Act, 1992 (Act No.6 of 1992) as amended in 2007: regulations relating to the health and safety of employees at work states that, “... an inspector may, having regard to the structure and situation of the premises and the nature of the activities conducted in

or on the premises, require the provision of suitable fire-extinguishing appliances which shall be maintained in good working order and positioned in accessible places as instructed by the inspector.”

According to Section 17, Subsection 1 of the Tobacco Product Control Act, 2010 (No. 1 of 2010) states that, “.....no person may sell or import for sale any tobacco product, unless the package bears the statement ‘Sales only allowed in Namibia’ or any other effective marking indicating the origin thereof and the final destination for sale.”

Section 18, Subsection 1 of the Tobacco Product Control Act, 2010 (No. 1 of 2010) states that, “.....no person may-

- (a) sell or supply any tobacco product to any person under the age of 18 years, whether for his or her personal use or not; or according to Section 22, Subsection 1 of the Tobacco Product Control Act, 2010 (No. 1 of 2010) states that, “.....the smoking of tobacco products in-
- (a) a public place;
- (b) any area within a prescribed distance from a window of, ventilation inlet of, doorway to or entrance into a public place; or
- (c) any place contemplated in subsection (3), is prohibited.”

Subsection 2 states that, “.....the owner of or person in charge of a place or an area contemplated in subsection (1) must ensure that no person smokes in that place or area.”

Subsection 3 states that, “.....the Minister may prohibit the smoking of any tobacco product in any prescribed outdoor public place, or such portion of an outdoor public place as may be prescribed, if persons are likely to congregate within close proximity of one another or where smoking may pose a fire or other hazard.”

Subsection 4 states that, “.....the owner of or person in charge of a place or area contemplated in subsection (1) must display the prescribed signs and must make the prescribed public announcement in order to inform any person who enters or who is in or on such place or area of any prohibition on smoking.

### **3.5.1 Decentralization of functions to Regional and Local Authorities**

According to Section 2, Subsection 1 of the Decentralisation Enabling Act, 2000 (Act No. 33 of 2000) states that, “...the Minister may decentralise, by notice in the Gazette and subject to the other provisions of this section, to any regional council or local authority council, as the case may be, any function determined by him or her.”

Section 3 further states that, “...a notice under subsection (1) shall –

- (a) define the function decentralised under that subsection;
- (b) identify –
  - (i) the Line Ministry from which; and

(ii) the regional council or local authority council, as the case may be, to which, the function defined in the notice is decentralised under that subsection;

- (c) describe the portion of the area of the regional council or local authority council, as the case may be, in respect of which the function defined in the notice is decentralised, if the decentralisation of the function shall apply only in respect of a certain portion of the area, and not in respect of the entire area, of the regional council or local authority council concerned, as the case may be;
- (d) state whether the decentralisation of the function defined in the notice is a delegation or a devolution, as the case may be, of the function;
- (e) specify the terms and conditions subject whereunto the function defined in the notice is decentralised; and
- (f) determine the date on which the decentralisation of the function defined in the notice shall become of force and effect.”

## **CHAPTER FOUR: FINDINGS**

### **4.1 Laws, Regulations and International Standards in terms of Emissions**

#### **4.1.1 Sector Specific Sources of Air Pollution**

The Ministry of Environment and Tourism (MET) and key stakeholders are not proactive in implementing public international laws and agreements binding upon Namibia in terms of sector specific sources of air pollution when there are shortcomings in laws and regulations as outlined below:

##### **A. The Ministry of Environment and Tourism**

The audit found that The Department of Environmental Affairs under MET did not develop sector specific regulations for air pollution. As a result the MET cannot effectively enforce the Environmental Management Act, 2007 (Act No.7 of 2007) because the Ministry does not know the extent of air pollutants in the atmosphere. This further risks negative impacts on the general public health that are exposed to excessive emissions.

The Ministry could not provide evidence that the Division Multilateral Environmental Agreements (MEA) ensured the implementation of the following strategies during the period under review:

- commission mass transport system in the City of Windhoek to reduce the number of cars;
- implement a car pooling system to reduce fossil fuel consumption;
- increasing the number of livestock heads in feedlots to reduce enteric fermentation;
- reducing N<sub>2</sub>O emissions by about 10% through production of biogas from the feedlot manure;
- reducing chemical fertilizers by 20% through conservation and climate smart agricultural practices, use of organic manure and composts;
- reducing deforestation rate by 75% in 2030; and
- reducing wood removal in forests by 50%.

Furthermore, all the visited Local Authorities (LA's) in the Khomas, Erongo, Oshana, Otjozondjupa, Oshikoto and Omaheke regions did not provide evidence of greenhouse gas emissions reduction strategies implemented or acknowledge that MEA under the MET formally made them aware to reduce greenhouse gas emissions as per the reporting requirements of UNFCCC.

This is because the MEA under the MET did not prioritize to create awareness on the implementation of the green-house gas emissions reduction strategies for all the financial years under review. This risks that all LA's might not prioritize the implementation of the green-house gas emissions reduction strategies. As greenhouse gas emissions risks floods and extreme heat, it could pose a health risks to humans and animals.

There is a risk that Namibia through the MET might not meet its green-house gas emissions reduction strategies as per the reporting requirements to the United Nations Framework Convention on Climate Change (UNFCCC).

#### **B. Ministry of Health and Social Services**

The Ministry of Health and Social Services (MOHSS) is guided by the Atmospheric Pollution Prevention Ordinance No.11 of 1976 (OG 3555) which is the only law in Namibia on atmospheric pollution. However, the ordinance does not detail sector specific standards of air pollution sources in Namibia and only show the colour of smoke as measure of compliance. MOHSS therefore, is limited or challenged to determine the extent air pollution is harmful to the environment and health of people which could be used to protect the health of people.

#### **C. Ministry of Finance**

The Directorate of Customs and Excise Duties (DCED) under the Ministry of Finance (MOF) did not provide evidence regarding charging interest and penalties in the regulations for late payment of emissions taxes. As a result, tax payers are not timely paying outstanding emissions taxes which could be used by government to fund operational expenditures. There is also the risk that the motor vehicle tax do not commensurate the motor vehicle emissions on the environment which is a health risk to the general public.

#### **COMMENTS BY THE MINISTRY OF FINANCE**

*“There was no late payment of emissions taxes during the year under review and excise act makes provision for charging of interest in Section 115 and penalties in section 101 and 104 of the aforesaid Act should there be any late payment.”*

#### **OFFICE OF THE AUDITOR-GENERAL RESPONSE ON THE COMMENT**

*“ Based on the audit evidence obtained there was outstanding transaction amounts for environmental levies amounting to N\$ 974 045 and N\$ 265 225 respectively for which no evidence could be provided at the time of the audit on whether the amounts were paid or not. (See attached appendix VII)*

*The outstanding transaction amounts for the environmental levies provided by the Ministry of Finance did not indicate SAD 500 entry numbers referring to the specific entry number for each of the entries. It is not the Office of the Auditor-Generals duty to provide SAD 500 entry numbers for the outstanding amounts indicated on the Ministry of Finance spreadsheets. No evidence was provided that outstanding emissions taxes was paid and whether interest was charge on the outstanding emissions tax”*

#### **D. Local Authorities**

All the visited Local Authorities (LA's) did not develop bylaws to regulate air pollution sector specific sources. As a result, the aforementioned Local Authorities did not plan and budget for the control and regulation of air pollution sector specific sources. The lack of regulation of air pollution sector specific sources hampers Local Authorities effectiveness to protect the health of workers and general public in their jurisdictions.

Failure to develop specific sector standards in the laws and regulations by the MET resulted in a lack of guidance for key stakeholders to adequately monitor and enforce air quality compliance as discussed below:

## **4.2 Monitoring Air Quality Compliance: Green House Gas Emissions**

### **4.2.1 The Ministry of Environment and Tourism**

#### **A. Environmental Management Plans**

Documentary reviews revealed that the DEA conducted 52 inspections during the calendar years 2014-2017 of which 26/52=50% covered air pollution sector specific sources. The audit found that these 26 air pollution specific sources inspections were not complete, because detailed air quality exposure tests were not conducted..

Documentary reviews revealed that the DEA established a 57% baseline target in the National Development Plans for compliance to EMP's by industries in the 2014/15 financial year, without having a breakdown percentage on the different sources of pollution such as for air<sup>12</sup> among others<sup>13</sup>. The extent of compliance to EMP's was not done in the 2015/16 and 2016/17 financial years. This is because the DEA did not develop measurable criteria to measure the extent industries comply with EMP's and this poses a health risk for the general public and industry workers. risks as industries are unable to reduce air pollution in the environment.

#### **B. Environmental Clearance Certificates**

The DEA did not ensure that emissions from the listed activities below are regulated which poses a risk to the environment, health of employees and the general public. The listed activities were operating without Environmental Clearance Certificates (ECC's) in all 14 regions where applicable. The statistics provided by the DEA does not indicate the following listed activities during the period under review:

- Burning of Waste at Dump Sites in all regions;
- Bad odour of Waste Water Treatment Plants of LA's;
- Trans Namib Locomotive Operations;
- 143 851 motor vehicles issued with a certificate of roadworthy;
- Roads Authority motor vehicle testing stations;
- 61 Factories exposing employees to occupational health and safety exposure limits;
- Operations of Namibia's Airports Company concerning air quality;
- 156.33 Metric Tons of Ozone Depleting Substances Imported; and
- Sources of radiation such as X-ray units, transportation of radioactive materials, nuclear gauging, etc.

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<sup>12</sup> Motor vehicles, locomotives, aircrafts, hospital incinerators, vessels/ships, factories, landfill/dump sites, waste water treatment plants, mining operations, households and ambient air pollution.

<sup>13</sup> Waste Management, Treatment, Handling and Disposal, Infrastructure, Hazardous Substance Treatment, Handling and Storage, Water Resource Developments, Agriculture and Aquaculture, Tourism Development, Land Use and Development, Forestry, Mining and Quarrying and Energy Generation, Transmission and Storage.



Furthermore, the audit found that the following Organs of States issued authorizations to Proponents and other Organs of States without them first obtaining an ECC from MET during the period of review:

- The Directorate Occupational Safety and Health under the Ministry of Labour, Employment Creation and Industrial Relations issued provisional and permanent factory certificates to factories which must ensure workers are not exposed to emissions of hazardous exposure limits;
- NATIS as a sub-division of the Roads Authority issued certification of roadworthy to motor vehicles;
- The National Ozone Unit under the Ministry of Trade and Industry issued permits to importers of ozone depleting substances; and
- Trans Namib conducted monthly, three monthly, six monthly and annual Locomotive examinations and cleared Locomotives fit to operate.

### **C. Public Awareness on Air Pollution Sources**

The DEA within the MET did not raise awareness on the harmful impact of air pollution sources in Namibia. As a result, the public may be unable to assist the DEA by timely reporting sector specific sources of air pollution that emit excessive emissions into the environment. Furthermore, only the Otjiwarongo Municipality from the Otjozondjupa region that constitute one out of six visited LA's conducted public awareness on air pollution.

This was because the DEA and the LA's did not prioritize air pollution awareness in their strategic plans.

### **D. Statistics on Air Pollution Sources**

At the time of the audit, the DEA under MET and all the visited LA's in the, respective regions did not provide evidence regarding the collection of data and the development of a database for statistics on air pollution sources. This hampers the MET and LA's ability to make informed decisions when conducting inspections and developing air quality policies.

## **4.2.2 Ministry of Finance**

### **A. Emissions Tax**

The DCE did not provide evidence that effectively enforce government gazette regulation No: 6019 of the Customs and Excise Act, 1998 (Act No.20 of 1998) in terms of collecting outstanding carbon emissions/environmental taxes. The data analysed revealed that outstanding emissions tax to be collected by the Directorate of Customs and Excise (DCE) under the Ministry of Finance increased by 267%<sup>14</sup> from N\$ 265 225 to N\$ 974 045 for 114 and 372 emissions taxable items<sup>15</sup> during the 2016

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<sup>14</sup>  $(N\$974\ 045 - 265\ 225) = N\$ 708\ 820 / 265\ 225 \times 100 = N\$ 267\%$

to 2017 calendar years respectively. The DCE at the time of the audit could not provide evidence whether the outstanding emissions tax was paid or not because the statistics provided by DCE did not have SAD 500 entry numbers referring to the specific entry number for each of the entries indicated as outstanding on the spreadsheets provided to the audit.

This poses a risk that the outstanding carbon emissions tax might increase to an estimated N\$ 2.4 Billion by 2023 at a trend of 267% increase per year on outstanding emissions tax. This is because DCE did not effectively enforce government gazette regulation No: 6019 of the Customs and Excise Act, 1998 (Act No.20 of 1998). If the outstanding emission tax is effectively collected, Government will have more money available to fund operations. Also, this will reduce the risk that the general public is exposed to motor vehicles emitting excessively whilst not paying carbon emissions tax.

Furthermore, the audit found that there is a risk for DCE to charge more environmental duties on new motor vehicles in comparison to 2<sup>nd</sup> hand imported motor vehicles, which are not required to produce a manufacturer certificate on the amount of Co2 emissions based on the carbon emissions tax formula applied by DCE. This risks that the Ministry of Finance would collect lower environmental duties from 2<sup>nd</sup> hand imported motor vehicles which emits more emissions than newly imported motor vehicles. CO2 emissions from motor vehicles are the main gas responsible for global warming.

For example, a newly purchased Ford Sedan vehicle with a manufacturer's certificate not exceeding 1600 kg with an engine capacity of 1596 cm<sup>3</sup>, attracts N\$ 2 440.00 environmental duties, whilst an old Ford Sedan 1600 kg with the same engine size capacity duties attracts N\$ 219.80 and hence is collecting N\$2 220.20 less environmental duties. This means that new imported motor vehicles pay 1010%<sup>16</sup> more environmental duties than an older 2<sup>nd</sup> hand motor vehicle.

This results that that the Ministry of Finance to collect fewer duties from older imported motor vehicles that causes more excessive emissions than newly imported motor vehicles if an importer of motor vehicle do not produce a manufacturers certificate.

#### **COMMENTS PROVIDED BY THE MINISTRY OF FINANCE**

*"The Ministry refers to Table 1 attached of your correspondence depicting that environmental levies were not collected at various offices for 2017. The information provided is not sufficient to enable the Ministry to extract documentary proof of payment, may you please provide supporting documentation which has a Customs Document SAD 500 entry number referring to the specific entry number for each of the entries purported to be unpaid for each of the offices specified therein. The information requested will enable the Ministry to provide your office with the corresponding payment for each entry."*

#### **OFFICE OF THE AUDITOR-GENERAL RESPONSE ON THE COMMENT**

*"The outstanding transaction amounts for the environmental levies provided by the Ministry of Finance to the audit did not indicate SAD 500 entry numbers referring to the specific entry number*

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<sup>15</sup> Vehicles with spark-ignition engines, goods vehicle with diesel or semi diesel engines, new pneumatic tyres, retreaded tyres for aircraft, construction/industrial cars & machines among others

<sup>16</sup>  $(N\$ 2440.00 - N\$ 219.80) = N\$ 2220.20 / 219.80 \times 100 = 1010\%$

*for each of the entries. It is not the Office of the Auditor-Generals duty to provide SAD 500 entry numbers for the outstanding amounts indicated on the Ministry of Finance spreadsheets.”*

## **B. Storage of Hazardous Substances at Customs and Excise Warehouses**

The DCE did not store hazardous substances appropriately in warehouses at the Windhoek, Walvisbay, Oshakati and Buitepos border post Customs and Excise Warehouses<sup>17</sup> in accordance with the requirements of Subsection 1, 2, 4 and 9 of Section 182 of the Labour Act 1992(see page 15) as amended: Regulations relating to the Health and Safety of employees at work. This is because the DCE did not develop a guideline that covers Occupational Health and Safety issues that will ensure employees receive training on how to handle and store hazardous substances at customs warehouses in Namibia.

As a result, warehouses were unprepared to deter fire breakouts.

The following were found at the Warehouses visited:

- Ozone depleting gases were not isolated from other seized items such as motor vehicles, office equipment and oils which may cause a fire outbreak or explosion;
- Fire-fighting equipment was not installed at warehouses where seized motor vehicles were parked;
- Ozone depleting substances and other inflammable items were not marked with appropriate warning signs;
- Large quantities of garden refuse and solid waste was stored on premises stored which pose fire risk;
- The fire-fighting equipment expired and was not serviced on time; and
- Designated storage signage of hazardous substances is not indicated.

The above findings are indicated in the pictures below:

**Picture 1: Ozone depleting gases not isolated from motor vehicles**



<sup>17</sup> Located in the Khomas, Erongo, Oshana and Omaheke regions respectively.

**Picture 2: Expired Fire-fighting equipment**



**Picture 3: Designated storage of hazardous substances not indicated**



**Picture 4: Firefighting equipment not installed at seized motor vehicles**





**Picture 5: Mixture of garden refuse and solid waste pose a danger to fire**



**Picture 6: Ozone depleting gases were not isolated from office equipment and oils**



#### **COMMENTS FROM THE MINISTRY OF FINANCE**

*“ No hazardous materials were stored in a Customs and Excise Warehouse during the period under review, the pictures in the audit report depicting the storage of hazardous substances in warehouse were actually Ozone depleting substances which were detained from traders who exceeded their permissible ratio of imports. Upon detention of the substances, the information received from the latter institution was that the materials were not hazardous and were not flammable at all thus they were found to be safe for storage in a Customs and Excise warehouse. Penalties were issued for the illegal importation of the aforesaid ozone depleting substances.”*

*Please find attached letter from the Ministry of Industrialisation and Trade (MIT) pertaining to the storage of R22 (Ozone Depleting Substances) which were found at Customs and Excise offices in Walvisbay, on the basis of the information from the MIT: National Ozone Unit, it was determined that the material was not flammable and hazardous therefore the Ministry deemed it fit to store them where they were found.”*

## **OFFICE OF THE AUDITOR-GENERAL RESPONSE ON THE COMMENT**

*“With reference to the above, the finding is not changed because hazardous substances such as oil spills and stored motor vehicles, office equipment pose a significant fire hazard when stored together with Ozone depleting gases.*

*Furthermore, equipment in the warehouses are not stored appropriately in accordance with the regulations of Health and Safety of Employees at work, in particular Subsection 1,2,4 and 9 of Section 182 of the Labour Act 1992 (Act No.6 of 1992) and as amended in 2007:*

*Also at the time of the audit, the Ministry and the National Ozone Unit under the Ministry of Industrialization, Trade and SME development did not provide evidence that ozone-depleting gases are not a fire risk.*

*Fire-fighting equipment was either not replaced on expiry or not installed at designated places during the time of the audit. This raise a serious doubt on the level of preparedness, readiness and response to mitigate fire outbreaks to avert damage to seized items stored in warehouses.”*

### **4.2.3 Motor Vehicle Emissions**

#### **4.2.3.1 Roads Authority**

The audit observed that the Roads Authority (RA) conducts visual inspections as a method of air quality inspections.

However, the audit found that the visual air quality inspections as allowed by the current laws and regulations have tests limitations and does not determine the amount of gases such as oxygen (O<sub>2</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and hydrocarbons (HC) produced by a motor vehicles engine. These gases have negative consequences for climate change and the health of people as the number of motor vehicles increases and become older on the Namibian Roads in the long-run.

The audit acknowledge that RA and the Directorate of Transport under the Ministry of Works and Transport wants to safe on costs in the short-run in terms of not upgrading NATIS testing stations and acquiring additional equipment to test gaseous emissions of motor vehicles. However, the negative cost of gaseous emissions on the environment and health of people should also be considered as a risk in the long-run.

## **COMMENTS FROM THE ROADS AUTHORITY**

*“The matter of introducing smoke testers has been discussed with officials of the Ministry of Works and Transport. It was decided not to introduce smoke testers at this stage for financial reasons. Cabinet decision 13<sup>th</sup> /24.06.02/004 provides for the Ministry to provide funding for the infrastructure of Vehicle Testing Stations through its development budget whereas the Roads Authority funds the operational expenses through the fees that the users are paying. This infrastructure includes both the buildings and the testing equipment. In the past five years the allocation for the development of Vehicle Testing Stations and Driving Testing Centres has*

*essentially dried up, even though there are some towns that do not even have a building for vehicle testing. It would be nonsensical to provide expensive testing equipment such as a smoke tester when the basics of a building have not even been provided for, nor the more important testing equipment in terms of road safety such as brake rollers, scuff gauges and others. The agreement with the Ministry officials is that smoke testers will be introduced when funding allows and certain higher priorities have been met first.”*

#### **4.2.4 Emissions from Mine Machinery**

##### **4.2.4.1 Ministry of Mines and Energy**

The data analysed revealed that during the period under review the Directorate of Mines (DM) did not conduct 36 (80%) of 45 planned mine machinery inspections. Whilst the 9 (20%) mine machinery inspection records were incomplete because no extracts or copies of any book, record or document were made on the maintenance of mine machinery by the mine companies in order to verify whether physical observations conducted was accurate. This was because the DM did not have a detailed inspection guideline stipulating how mine machinery inspections are to be conducted such as verifying mine machinery supplier specifications on whether machinery maintenance is up to date.

#### **COMMENTS FROM THE MINISTRY OF MINES AND ENERGY**

*“Your submissions that the Directorate of Mines did not conduct up to 80% of planned mine machinery inspections is as the result of varying challenges. In particular the challenges relate to resources, being unable to recruit and fill positions with qualified and experienced Inspectors of Mines coupled with budget limitations. Given the state of the national budget, we expect the status to remain fairly the same for the foreseeable future”.*

*We appreciate your understanding and findings that there is no qualified audit statement with regards to wastage of state resources related to mine inspections in whatever form. This is because we used the minimum resources at our disposal to achieve what we can achieve, without significantly compromising the environment as the result of mine machinery emissions into the environment.”*

*We further appreciate your recommendations that we should conduct mine machinery inspections as per supplier specifications. However, we wish to draw your attention to the fact that Namibia does not for now have explicit legal instruments and Maximum Allowable Limits for Mine Machinery Emissions. In that respect, we shall investigate the modalities to develop the inspection guidelines in line with international best practice. Resources will however still be a challenge in the short to medium term.”*

## **4.2.5 Employee Safety from Hazardous Substances Emissions at Factories**

### **4.2.5.1 Ministry of Labour, Employment Creation and Industrial Relations**

#### **A. Occupational Health and Safety Inspections**

Department Occupational Safety and Health (DOSH) issued Temporary and Permanent Registration Certificates to a sampled 58 factories during the 2011-2017 calendar years in various regions<sup>18</sup> without conducting occupational health and safety inspections at all the factories to certify them fit in terms of emissions such as taking a sample of the atmosphere in accordance with Subsection 2 (a) (iv) & v of Section 125 of the Labour Act, 2007 (Act No.11 of 2007).

Documents reviewed revealed that DOSH issued 32 Permanent Factory Registration Certificates, but only conducted 18 (56%) factory inspections whereas 26 provisional factory Registration Certificates was issued, but conducted only 2 (8%) inspections.

This was because DOSH did not plan the amount of work hours to be spent in the office in relation to the amount of work hours that must be spend on inspections based on the manpower available. This information could not be provided during the time of the audit. Factories not certified fit in terms of Occupational Health and Safety for excessive emissions risk ill health to employees exposed to excessive emissions.

#### ***COMMENTS FROM THE MINISTRY OF LABOUR, INDUSTRIAL RELATIONS AND EMPLOYMENT CREATIONS***

*The Ministry has verified with the audited files, hence hereby confirms that the information contained in in the Draft Audit Report is correct. However, the Ministry would like to provide more clarity with respect to why both the Provisional and Permanent Certificates were issued without an inspection been conducted.*

*The Presidential Proclamation (No.10 of 1997) has assigned the monitoring of hazardous Substances Emission under Chapter 5 of OSH Regulation to the Ministry of Health and Social Services.*

*Nevertheless, issuing a Permanent Factory Registration Certificate without inspection being conducted as set Requirement, was an oversight thus the Ministry had failed to thoroughly scrutinize files before issuance of the Certificates; and*

*In the view of the above, the Ministry is fully aware of the possible implications that could emanate from the findings of the OAG's Report, henceforth the Directorate Head will closely monitor the process to ensure fully compliance to the set requirements of factory registration."*

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<sup>18</sup> Difficult to track regions in files due to insufficient information in factory files.



## **B. Coordination and collaboration on Occupational Health and Safety**

The DOSH under the Ministry of Labour, Industrial Relations and Employment Creations (MOLIEC) and the Directorate of Primary Health Care under the Ministry of Health and Social Services (MOHSS) did not provide sufficient evidence that they coordinate and collaborate on issues related to hazardous substance emissions in terms of Occupational Health and Safety of workers, neither was there testing and measurements of hazardous substances at workplaces. This was because the aforementioned Ministries did not highlight in their plans how they intent to coordinate. This oversight may lead to employers not conducting emission measurements and therefore may not detect harmful emissions that negatively affect the workers.

Furthermore, the DOSH and the Local Authorities (LA's) could not provide evidence that they share information on business entities operating within the jurisdiction of the LA's visited in respective regions to enable DOSH to effectively issue factory registration certificates. This risk factories operating without factory registration certificates and without approved Occupational Health and Safety Plans which is a health risk to employees.

### **COMMENTS FROM THE MINISTRY OF LABOUR, INDUSTRIAL RELATIONS AND EMPLOYMENT CREATIONS**

*“On the statement in the first paragraph pertaining to the absence of coordination and collaboration efforts between DOSH (MLIREC) and the Directorate of Primary Health Care (MHSS), although no testing and measurements of hazardous substances has not been conducted at workplaces during the period under review, the two Ministries, in line with the Presidential Proclamation No.10 of 1997 have been collaborating. One of the example is jointly conducting an Awareness Workshop for Local Authorities on the Safe Demolition and Transportation of Asbestos containing building material in the Erongo Region. This Workshop was conducted at Swakopmund on 18 November 2015.*

*In terms of the OSH legislative framework, this Ministry as the overall custodian of Occupational Safety and Health is responsible for administering the application and enforcement of Chapter 4 of the Labour Act 2007 (Act 11 of 2007) and the Regulations relating to the Health and Safety at Work. This is done through conducting workplace compliance inspections, registration of factories and dangerous machineries, investigation of workplace accidents and hosting of OSH stakeholder consultations. As part of creating workplace OSH awareness during the aforementioned consultations, these platforms are used to sensitize employers to register their workplaces as factories with the Ministry. The registration depends on whether the activities of a workplace can be classified as a factory activities as defined in the Regulation or not. Therefore, unlike the statement in the second paragraph of this clause, there is no legal duty upon this Ministry to share information with Local Authorities regarding factories operating within their areas of jurisdiction.”*

### **OFFICE OF THE AUDITOR-GENERAL RESPONSE ON THE COMMENT**

*According to paragraph 4.3 of the National Occupational Health Policy, “...at all levels, especially the national level requires close cooperation and collaboration among the concerned parties on*

*issues relating to Occupational Health and Safety (OH&S). Each relevant party plays a pivotal role in the implementation of Occupational Health programmes within its areas of jurisdiction”.*

*The evidence provided in terms of all levels as per the above criteria is not sufficient.*

*The audit is not assured that all the factories operating at Local Authorities jurisdiction operates with factory registration certificates. The database information of business factories on Local Authorities could not be compared with the database of business factories on the Ministry of Labour, Industrial Relations and Employment Creations.*

#### **4.2.6 Measurement of Air Quality by the Ministry of Health and Social Service**

##### **4.2.6.1 Occupational Exposure Limits**

The Directorate of Primary Health Care Services (DPHCS) did not have statistics/data on contamination levels in the work environment at all five visited district hospitals<sup>19</sup>. This was because the DPHCS did not measure occupational exposure limits. No documentary evidence was provided that shows that staff members were trained.

This expose workers to excessive contamination levels in the work place.

##### **4.2.6.2 Pre-Employment and Periodic Medical Examinations**

The DPHCS under MOHSS did not do pre-employment and periodic medical examinations on incinerator operators at all visited hospitals in accordance with Section 220 (c) and (d) of the Labour Act as amended: Regulations relating to the health and safety of employees at work 1992 (156 of 1992) (see page 19).

This risks employees contracting occupational illnesses from emissions at hospital incinerators unknowingly. This also risks the MOHSS to costly lawsuits by workers who might sue government in the court of law.

##### **4.2.6.3 Fire-Fighting Equipment at Hospital Incinerators**

The DPHCS did not install fire-fighting equipment with the exception of Katutura and Oshakati Intermediate hospital incinerators. Furthermore, firefighting equipment at the Walvis Bay hospital incinerator is not functional with no-service date indicated. Whilst, the firefighting equipment at Gobabis and Tsumeb district hospitals' incinerators was last serviced in January and September 2015 respectively. These are displayed in picture 7 and 8 below:

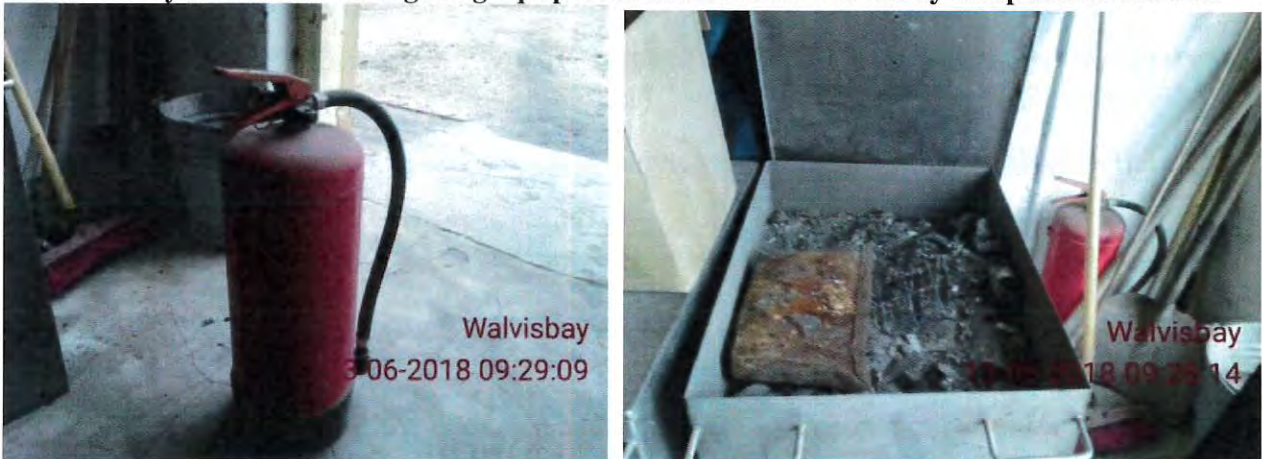
#### **Picture 7: Firefighting equipment not serviced at Gobabis and Tsumeb Hospital Incinerators**

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<sup>19</sup> Swakopmund, Walvisbay, Otjiwarongo, Gobabis, Windhoek and Tsumeb.



**Picture 8: Dysfunctional firefighting equipment observed at Walvisbay Hospital Incinerator**



Lack of firefighting equipment at Hospital Incinerators may cause the hospitals not to be proactive in response to mitigate fire outbreaks. This was also because DPHC did not conduct Occupational Health and Safety risk assessments that identifies the installation of firefighting equipment to mitigate fires. Fires may cause costly destruction to properties and air pollution which may further result in a health risk to employees and communities living near the hospital incinerators.

#### **4.2.7 Ozone Depleting Substances**

##### **4.2.7.1 Ministry of Industrialization, Trade and SME Development**

###### **A. Penalties**

The National Ozone Unit (NOU) under the Ministry of Industrialization, Trade and SME Development and Directorate of Customs and Excise (DCE) under the Ministry of Finance did not put timely measures in place legally for all substances controlled by the Montreal Protocol during the time of the audit to ensure that the DCE consistently impose penalties on companies who illegally import

ozone depleting substances during the period under review (ODS)<sup>20</sup> into Namibia for similar illegal import offences for ozone depleting substances. NOU plays a facilitating role for the DCE.

Document analysis revealed 11 incidences of illegal import of ODS by nine companies valued at N\$ 915 507 during the calendar years 2015-2017 at Noordoewer, Ariamsvlei and Oshikango border posts in the Karas and Ohangwena regions respectively. DCE imposed penalties of N\$ 7000 on two of the 9 companies and no penalties were charged on seven companies for the same non-compliance.

The N\$ 7000 penalty is 97% below the NOU formula requirement of penalties which was supposed to be N\$ 222 598.

The under collection of penalties by DCE risks NOU not to achieve its target by 2021 of phasing out the usage of ozone depleting substances in Namibia which is harmful to the ozone layer and human health. Importers of Ozone depleting substances will continuously attempt to illegally import ozone depleting substances, because not all illegal imports can be detected by DCE.

#### **COMMENTS PROVIDED BY THE MINISTRY OF INDUSTRIALIZATION, TRADE AND SME DEVELOPMENT**

*“3.2.6 We confirm that this statement is correct.*

*3.3.2.7 We confirm that this statement is correct, however the spot fine is determined by the severity of the offence according to the provisions of Customs and Excise Act No.20 of 1998, Chapter XI, in conjunction with the Provision of the Import and Export Control Act No.30 of 1994, Section 94 of Customs & Excise Act, 20 of 1998 on false declaration, Section 123 on prohibited and restricted goods, and in consultation with the legal department of Ministry of Finance;*

*4.2.7.1 The NOU does not have a mandate to impose penalties on illegal importers of Ozone Depleting Substances (ODS). The mandate lays with Department of Customs and Excise (DCE) according to the provisions of Customs and Excise Act No.20 of 1998, Chapter XI, in conjunction with the Provision of the Import and Export Control Act No.30 of 1994.*

*6.2.7.1 The Government notice No.4636 has just recently been amended to impose penalties on Illegal importation of all substances controlled under the Montreal Protocol and is in the process of gazetting, whereby:*

*An importer who contravenes any provisions of this notice commits an offence and on conviction is liable to a fine not exceeding N\$ 20 000 or imprisonment for a period not exceeding two years, or to both such fine and such imprisonment and to a further fine not exceeding three times the commercial value of goods, if any, in respect of which the offence was committed.”*

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<sup>20</sup> R22 freezer gas tanks, compressors for R22, air conditioners.

#### **4.2.8 Locomotive Emissions**

TransNamib operated 12<sup>21</sup> of a sampled 18 active locomotives without conducting Locomotive examinations such as replacing oil filters and other key parts that will prevent excessive emissions which is harmful to the environment and the general public in the vicinity of locomotives.

The data analysed revealed that TransNamib did not conduct 685 (63%) of 1080 planned locomotive examinations during the calendar years 2014- 2017. (See attached APPENDIX VI). At the time of the audit TransNamib could not provide evidence as to how it planned to efficiently allocate worktime of employees to conduct locomotive examinations or ensuring that a locomotive do not operate without an examination.

##### **4.2.8.1 Locomotive Spare Parts Store Room**

TransNamib did not ensure timely re-ordering of key spare parts such as oil filters among others that prevent excessive emissions from Locomotives.

A physical reconciliation of oil filters at the TransNamib head office indicated on the Systems Applications and Products in Data Processing Systems (SAP) system and the actual quantities in the store room revealed a maximum of 200 oil filters was not in stock. This affects the restocking levels of locomotives spare parts in other regions when there is a need to order. Physical observations at the visited TransNamib spare and maintenance garages in the Erongo, Otjozondjupa and Oshana regions revealed a lack of key spare parts such as oil filters that is required for minor repairs.

The abovementioned was because TransNamib did not conduct timely assessment to determine the re-order level of key Locomotive spare parts to ensure that spare parts are available when a Locomotive needs to be repaired. This results in Locomotives operating unrepaired risking unwanted accidents causing burning of locomotives, leading to air pollution when harmful chemicals is transported. Air pollution is harmful to the health of people in the vicinity.

##### **4.2.8.2 Lifespan of Locomotives in Namibia**

TransNamib is using Locomotives that are older than 30 years working life. Data analysis of 40 active locomotives for the period under review revealed that the average age of an active locomotive in Namibia is 42 years.

The analysis indicated that only 6 (15%) of the 40 locomotives are newly refurbished at the age of 1 year whereas 34 of the locomotives are between 48-53 years old. This risk pollutants from diesel engines (used in Namibia) such as carbon dioxide (CO<sub>2</sub>), particulate matter (PM), nitrogen oxides (Nox), etc. which is harmful to the health of people. TransNamib did not provide evidence that a replacement plan is in place for new locomotives.

##### **4.2.8.3 Oil and Diesel Spills at Locomotive Maintenance Garages**

During the time of the audit it was observed that TransNamib did not prevent excessive oil and diesel spills at visited depots<sup>22</sup>. The data analysed revealed that oil and diesel spills risk an estimated wastage

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<sup>21</sup> 36% of 18 locomotives planned examinations conducted =6 Locomotives. 64% of 18 planned examinations not conducted=12 Locomotives.



of N\$ 200 million<sup>23</sup> by 2024 based on daily projection since 2014 calendar year, which is approximately N\$ 12 400 per day as indicated by TransNamib own analysis in meeting reports.

At the time of the audit it was observed that TransNamib did not protect the workers and the environment from the oil and diesel spills at the respective depots does not pose a fire risk and therefore unwanted air pollution which is a health risk to workers who did not wear Personal Protective Equipment and the general public in the vicinity of the visited depots. This was because TransNamib did not train staff to handle oil and diesel pipes in a manner that do not lead to costly spills on the environment and does not pose a risk to the health of workers.

Furthermore, TransNamib did not develop an Occupational Health and Safety Policy that recognizes risks to the health and safety of employees and the public. Physical observations of oil and diesel spills are shown in the pictures below:

**Picture 9: Used oil not covered and diesel spills at Walvisbay, Otjiwarongo and Ondangwa TransNamib depots respectively**



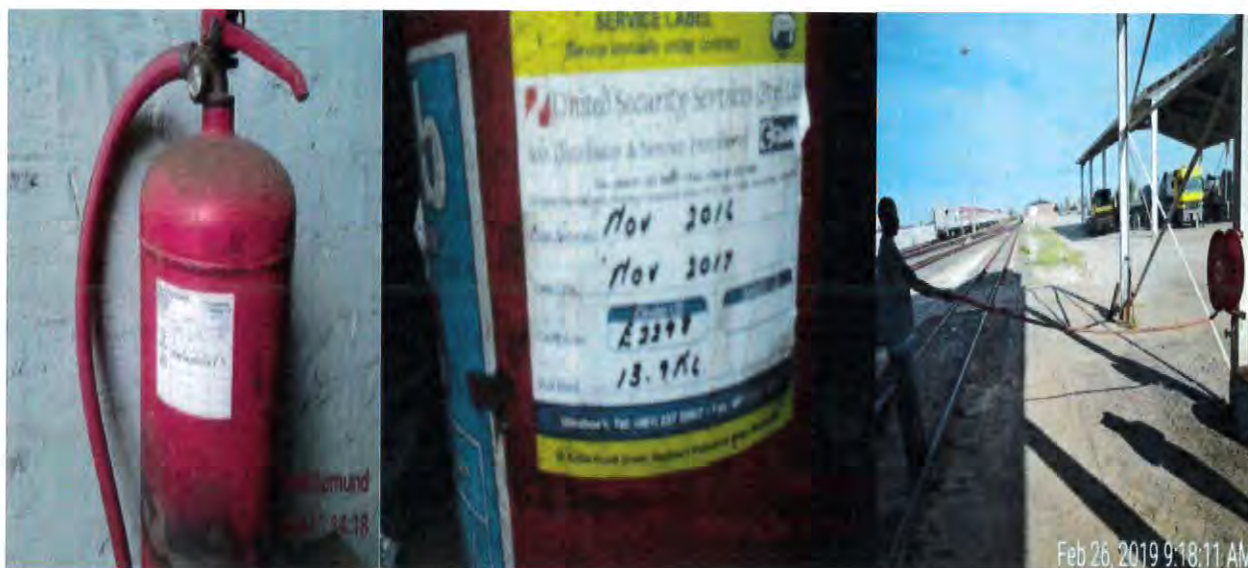
#### 4.2.8.4 Fire-Fighting Equipment at Locomotive Depots

At the time of the audit, TransNamib did not maintain firefighting equipment such as hose pipes of fire hydrants at the Windhoek, Walvisbay and Ondangwa depots, except the Otjiwarongo depots. As a result, TransNamib is not fully prepared to mitigate potential fire outbreaks which may cause great damage to infrastructure and risk the life of workers. TransNamib could also not provide evidence to proof that fire-fighting equipment was maintained as per supplier specifications nor were outdated fire-fighting equipment reported or replaced as per supplier specifications to head office. See picture 10 below.

**Picture 10: Fire hydrants at Walvisbay TransNamib depot not serviced & Water pipe cut at Ondangwa TransNamib depot respectively**

<sup>22</sup> Locomotive Repair and Maintenance Garages at depots in Windhoek, Walvisbay, Otjiwarongo and Ondangwa in the Khomas, Erongo, Otjozondjupa and Oshana regions

<sup>23</sup> TransNamib Projection in 2014 that diesel and oil spills costs N\$ 12 400.00 per day which is equivalent to (N\$ 12 400.00x 12)=N\$ 4 526 000 per year from 2014 to 2024=(N\$ 4 526 000x11 years)=N\$ 49 786 000.00 rounded to N\$ 50 million x 4 depots oil spills found=N\$ 200 million.



## **4.2.8 Measurement of Air Quality by Local Authorities**

### **4.2.9.1 Strategic Planning for Air Quality Monitoring**

All the visited local authorities (LA's) in the Khomas, Erongo, Otjozondjupa, Oshikoto, Oshana and Omaheke regions did not test air quality neither was it a strategic theme in their current Strategic Plans. This resulted in them not to develop effective response strategies for air pollution. This poses a risk to the health and safety of workers and the general public when exposed to air pollution.

Failure to develop effective and proactive response strategies by LA's cause inappropriate management of air quality at Waste Water Treatment Plants and Waste Disposal Sites. This is further explained in the sections below:

#### **4.2.9.1.1 Measuring Air Quality at Waste Water Treatment Plants**

All visited Local Authorities (LA's) except Swakopmund Municipality did not provide Occupational Health and Safety Plans (OHSP) for the waste water treatment plants (WWTP) to identify and employ appropriate measures for all hazards related to the release of methane gas and other obnoxious smells. These hazards pose a health risk to the workers and the general public in the vicinity of treatment plants.

Furthermore, physical observations revealed that all visited LA's except Swakopmund Municipality did not ensure that workers wear personal protective equipment (PPE) such as respirators at waste water treatment plants. LA's did not provide evidence that they coordinate—with the Ministry of Labour, Employment Creation and Industrial Relations to sensitize them on Occupational Health and Safety hazards in terms of emissions and smells at WWTP.



#### **4.2.9.1.2 Measuring Air Quality at Waste Disposal Sites**

All visited Local Authorities (LA's) except Windhoek Municipality burned waste at waste disposal sites without strict supervision. This is a health risk to illegal waste reclaimer's, workers and the general public disposing waste at these disposal sites.

Also, all visited LA's did not conduct any air quality measurements at the waste disposal sites to determine the extent emissions are harmful to workers and the general public. This is because the LA's did not provide evidence that they coordinate with the Ministry of Labour, Employment Creation and Industrial Relations to sensitize them on Occupational Health and Safety related to emissions and smells at waste disposal sites.

**The detailed findings of visited Local Authority Waste Disposal Sites are explained as follows:**

##### **A. Erongo Region**

The Swakopmund and Walvisbay Municipalities did not ensure that Private contractors consistently adhered to the contractual provisions for environmental protection at the waste disposal sites. Documentary review indicated that contractual provisions did not make provision for monetary penalties in cases of non-compliance. This is further explained below:

The following were found at waste disposal sites managed by private contractors in the Erongo region:

- Swakopmund Municipality dumped oils, asbestos and tyres at a general disposal site instead of at the hazardous waste disposal site at Walvisbay. Asbestos particle emissions and oils & tyres when burned are harmful to the health of people if inhaled;
- Swakopmund and Walvisbay Municipalities employees did not wear PPE such as respirators when waste is burned on site which is a health risk; and
- Illegal Burning of waste took place at the Walvisbay Municipality hazardous waste landfill site, despite municipal regulations and private contractor contract provisions prohibiting the burning which causes harmful emissions into the air.

The above observations are indicated in pictures below:



**Picture 11: An Employee not wearing a respirator, presence of asbestos and tyres landfilled at Swakopmund Landfill site**



### **B. Otjozondjupa, Oshikoto, Omaheke and Oshana Regions**

Burning of waste took place at the Otjiwarongo Municipality waste disposal site which is in contravention with the Municipal regulations. Whilst Tsumeb and Gobabis Municipalities as well as Ondangwa Town Council did not have waste regulations, but also burned waste at disposal sites. (See picture 12 below). There is a risk of fire outbreaks at waste disposal sites, because there is a lot of dry grassland in the vicinity. This will cause air pollution and it is a health risk to the site workers and the general public who lives nearby. The audit observed the following:

- Tsumeb and Otjiwarongo Municipalities did not prioritize the improvement of waste disposal sites on their budgets, despite making a combined annual average surplus of N\$ 4 486 614 per year from waste/sanitation related operations. The Gobabis Municipality and Ondangwa Town Council did not provide evidence to the audit to assess how they spend revenue generated from waste.
- There is a delay in the compacting of waste, prompting waste reclaimers to burn waste uncontrollably; and
- The Tsumeb, Otjiwarongo and Gobabis Municipalities except Ondangwa Town Council did not fence off waste disposal sites and ensured that they are guarded to prevent illegal access by waste reclaimers.

**Picture 12: Burning of waste at waste disposal sites in Otjiwarongo, Tsumeb, Gobabis and Ondangwa**



## COMMENTS PROVIDED BY ONDANGWA TOWN COUNCIL

*“Council do not have any objections to most of the findings/recommendations contained in the report as it has given a representation of the situation on the ground by that time.*

*Since the last audit, council has acted upon a number of recommendations and notable improvements can be observed.*

*Council is no more burning waste on site but we do compaction on a weekly basis, however one may find unplanned fires that are sometimes started by unauthorized scavengers.”*

### 4.2.10 Charcoal Operations

#### 4.2.10.1 Emissions from Kilns

Physical observations at all 12 visited Commercial Charcoal Producing Farms (CCPF)<sup>24</sup> revealed that the Directorate of Forestry (DOF) under the Ministry of Agriculture, Water and Forestry (MAWF) did not conduct regular inspections as planned to ensure workers are protected from excessive smoke emissions at charcoal operations. Therefore DOF did not enforce harvesting licence conditions in accordance with the regulations stipulated in the Forest Act, 2001 (Act No.12 of 2001), Section 48.

As a result the CCPFs unsustainably harvested trees to produce the charcoal. This is discussed as follows:

- All the visited CCPFs removed trees with a stem diameter of more than 18 cm at ground level without special approval granted which may cause deforestation and excessive smoke;
- 92%<sup>25</sup> of visited CCPFs did not clear an area of at least 15 m around the kiln of any flammable material such as wood which pose a serious risk of fire to grazing on farmland;

<sup>24</sup> Commercial Charcoal Producing farms within the Oshikoto, Otjozondjupa, Omaheke and Khomas regions.

<sup>25</sup> 11 of 12 farms, whilst one farm did place kilns at work area at the time of the audit.



- All the visited CCPFs did not remove all hazards for employees such as providing personal protective equipment, i.e. respiratory masks to protect against smoke inhalation, safety goggles to protect worker eyes, gloves to protect workers against burning;.
- All the visited CCPFs did not provide evidence that pre and post medical examinations was conducted yearly to determine the health status of workers i.e. respiratory at work inhaling smoke at kilns burning charcoal.;
- All visited CCPFs did not adequately supervise charcoal operations which was mainly left in the care of the workers;
- The charcoal workers at the visited CCPFs revealed that the permit owners did not explain permit conditions to them as a result they burned charcoal close to grazing areas which poses fire risks; and
- All visited CCPFs did not ensure that fire-fighting equipment was on site at all times.

Pictures 13-16 below indicate non-compliances to permit conditions found:

**Picture 13: Trees with stem diameter more than 18 cm removed at the visited CCPFs in Tsumeb and Otjiwarongo Areas respectively**



**Picture 14: Bush not cleared 15m around the kiln at the visited CCPFs in Oshikoto, Omaheke, Khomas, Otjozondjupa regions respectively**





**Picture 15: Workers not wearing Personal Protective Equipment at visited CCPFs in the Oshikoto and Otjozondpua regions**



**Picture 16: Unsupervised kilns at the CCPFs in Oshikoto and Otjozondjupa regions**



#### **4.2.10.2 Emissions from Charcoal Factories**

At the time of the audit, the DOSH did not provide documentary evidence that shows that Occupational Health and Safety inspectors were trained on the testing of hazardous substance



exposure limits at factories in accordance with Subsection 2 (a) (iv) & v of Section 125 of the Labour Act, 2007 (Act No.11 of 2007). Also, no evidence of testing was provided during the time of the audit to advise employers at factories of excessive dust exposure. As a result the employees at the charcoal factories did not wear personal protective equipment (PPE) such as respirators and safety goggles for eye protection, whilst working in areas emitting excessive charcoal dust.

Physical observations further revealed that DOSH did not:

- Take a sample of the atmosphere or any object to determine whether the exposure levels of dust at factories is not a health risk to workers;
- Take measurements, readings, recordings or photographs taken to ascertain the audit that inspections was conducted at the factories and to ensure workers have PPE to protect them from dust if measurements indicate excessive; and
- Ensure that the charcoal factory owners took adequate measurements of employee exposure to hazardous substances in order to determine the compliance with the prescribed exposure limits in order to proactively identify risks to the health of workers. (See picture 17 below)

**Picture 17: Employees exposed to dust at charcoal factories at charcoal factories in the Otjozondjupa, Oshikoto and Erongo regions respectively.**



#### 4.2.11 Aviation CO2 Emissions

NCAA did not conduct safety inspections on the engines of aircrafts and helicopters to certify them fit in terms of engine emissions in terms of the quality of smoke for Smoke; Gaseous emissions; Unburned hydrocarbons (HC); Carbon monoxide (CO); and Oxides of nitrogen (NOx). No evidence was provided during the time of the audit on whether NCAA tested whether the aforementioned parameters emission limits was exceeded or not for aircrafts exceeding 5700 kg after 18 February 1982. Therefore, all the aircrafts and helicopters are operating without engine emission certificates. This was because NCAA did not prioritize emissions as part of their planning during the period under

review. As a result aircrafts and helicopters might emit excessive emissions which pose a health risk to employees and passengers. Excessive emissions also cause air pollution.

#### **COMMENTS PROVIDED BY THE CIVIL AVIATION AUTHORITY (NCAA)**

*The Namibian State as a signatory to the Chicago Convention is obligated to implement the standards as contained in the Annex 16 Volumes 1 to 4 on the Environmental Protection. The current Namibian Civil Aviation Authority (NAMCARS) requires that an Emission Certificate be issued to each Aircraft over 5700 Kg manufactured after 18 February 1982 that conducts operation in international air navigation. Aircraft emissions that can be monitored on the basis of such an Emission Certificate are restricted to Smoke; Gaseous emissions; Unburned hydrocarbons (HC); Carbon monoxide (CO); and Oxides of nitrogen (NOx).*

*For each Aircraft registered on the Namibian National Aircraft Register; the NCAA conducts annual conformity inspections to verify that the concerned aircraft including the aircraft engines has been maintained by an NCAA approved Aircraft Maintenance Organisation (AMO) in accordance to the Aircraft Manufacturer s recommendation. The Validity of the Certificate of Airworthiness is restricted to a year and will only be renewed after the Annual Conformity Inspection has determined that the Aircraft conforms to all appropriate regulatory Airworthiness requirements and is in a serviceable status.*

*The ICAO has since 2017 introduced the Annexes 16 Volumes 3 and 4 for the purpose of monitoring and reducing the CO2 emissions. Although ICAO expects its members States to implement Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) as from 2023; the Namibian State volunteered to participate using Air Namibia as an operator which submits CO2 emission reports for all its fleets. The CO2 Emission reported per Aircraft are based on ICAO methods that derives estimated CO2 emissions based on fuel consumption.*

*In future the Namibia Civil Aviation Authority will through the implementation of the CORSIA receive CO2 emission reports for each qualifying Aircraft. The regulatory basis as contained in the current and amended NAMCAR Part 34; will only require Air Operators of Aircraft with the Maximum Take-off Mass of 5700 kg to submit CO2 emission report based on an used fuel method and NCAA approved Emission Management Plan. Requirements to monitor CO2 Emissions that are beyond qualifying criteria as set by ICAO in Annex 16, Volume 4 will result in additional oversight obligations that will require additional resources.”*

### **4.3 Regulation of Radionuclide**

#### **4.3.6 Inspection of Facilities**

Documents analysed indicated that NRPA did not conduct 95%, 82%, and 90% of their planned inspections for the 2014, 2015 and 2016 calendar years respectively at the facilities using radiation

sources. This could pose the risk of lifetime health hazards to workers and the public exposed to radiation sources that are excessive and not detected through the non-execution of planned inspections.

The data analysed revealed the following non-compliances by facilities which uses radiation sources:

- 117 (94%) of 125 facilities were not conforming to the requirements stipulated in Section 16, Subsection (1) (a) and (2) of the Atomic Energy and Radiation Protection Act of 2005;
- 72 (58%) of 125 facilities operated with expired licenses because they did not renew the licenses within 90 days in accordance with Section 25, Subsection (2) of the Atomic Energy and Radiation Protection Act. Furthermore, at the time of the audit the NRPA did not receive any new applications for licence renewals from the facilities whose licenses expired. The NRPA did not provide evidence that they effectively followed-up whether the facilities still operated or not; and
- NRPA did not enforce Section 40, Subsection (1) of the Atomic Energy and Radiation Protection Act of 2005 by issuing fines to the 117 facilities contravening Section 16, Subsection 2(a), (b) and (c)<sup>26</sup> of the Atomic Energy and Radiation Protection Act of 2005 during the reviewed period.

#### **4.4 Regulation regarding the selling of Tobacco Products**

The Directorate of Primary Health Care (DPHC) under the Ministry of Health and Social Services (MOHSS) did not fully ensure that bars/shebeens issued with fitness certificates complies with the General Health Regulations (GRN 121 dated 14 October 1969).

The DPHC did not provide evidence that the health of workers and the general public is protected in towns and settlements in the visited regions from the harmful impacts of tobacco smoking. The MoHSS did not decentralise the functions to the Local Authorities (LA's). As a result, at the time of the audit the following were found:

- The LA's did not adequately inspect vendors selling tobacco products in the informal settlements in all the regions visited because they did not comply with the Section 16, Subsection 1 (a) of the Tobacco Product Control Act of year 2010. The cigarette packages were not having health hazards warning signs;
- It was found that twenty six (26) of the forty two (42) bars/shebeens visited in Oshana, Erongo, Omaheke and Khomas regions did not install fire-extinguishers on their business premises, whereas 8 expired and 8 complied. This risk fire outbreaks because people smoke in the shebeens;

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<sup>26</sup> No person may without a licence –

(a) possess any nuclear material, except for the purpose of transporting such material as the agent for a licence holder;  
(b) operate or use any radiation source or instruct or permit any person in his or her employ or acting in any manner on his or her behalf or promoting his or her interests to operate or use any radiation source; and  
(c) store or keep a radiation source for a period exceeding a prescribed period.

- MOHSS did not fully ensure that formal and informal vendors comply with Section 17, Subsection 1 and Section 18, Subsection 1 (a) of the Tobacco Product Control Act of year 2010. Physical observations conducted at most formal and informal markets, bars and shebeens in all visited regions did not display warning signs prohibiting the sale of tobacco products to a person under the age of 18 years. Additionally, it was also revealed that sales persons in all visited regions never ask for identification documents from customers when they buy tobacco products. This risk tobacco products to be sold to persons younger than 18 years.; and
- The MoHS<sup>27</sup> did not fully ensure that bars and shebeens comply with Section 22 (1) (a), (b) and (2) of the Tobacco Products Control Act of 2010. It was revealed that 23 (55%) of the 42 shebeens visited in Oshana, Erongo, Omaheke and Khomas regions did not have adequate ventilation neither displayed the tobacco prohibition smoking warning signs at the entrance door of the shebeens.

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<sup>27</sup> MoHSS (Ministry of Health and Social Services)



## **CHAPTER FIVE: CONCLUSIONS**

### **5.1. Laws, Regulations and International Standards in terms of Emissions**

#### **5.1.1 Sector Specific Sources of Air pollution**

The Ministry of Environment and Tourism (MET) and key stakeholders appear to be not proactive in implementing public international laws and agreements binding upon Namibia in terms of sector specific sources of air pollution when there are shortcomings in laws and regulations as outlined below:

As a result the audit could not ascertain whether the MET and key stakeholders implemented effective measures to ensure the public and workers are not exposed to unregulated excessive greenhouse gas emissions. This is further validated by the conclusions indicating weakness in controls related to the Monitoring of Air Quality Compliance: Greenhouse Gas Emissions explained in paragraph 5.2 below:

### **5.2 Monitoring Air Quality Compliance: Greenhouse Gas Emissions**

#### **5.2.1 Ministry of Environment and Tourism**

- Department of Environmental Affairs (DEA) does not ensure effective compliance to EMP's, because they conduct incomplete inspections. Detailed air quality exposure tests is lacking and can therefore not ascertain the environment, workers and the public are protected from air pollution particles that cannot be seen with the naked eye.
- DEA did not develop a measurable criterion to determine the extent industries whose operations have an impact on air quality comply with EMP's. As a result DEA does not know the extent industries in Namibia comply with EMP's and therefore the Environmental Management Act, 2007 (Act No.7 of 2007).
- DEA did not enforce paragraph 9.2 of the regulations of the Environmental Management Act, 2007 (Act No.7 of 2007) to ensure listed activities mentioned in paragraph 4.2.1.2 in page 26 of this report operate with valid Environmental Clearance Certificates (ECC). Therefore all the operations of the listed activities mentioned in paragraph 4.2.1.2 are operating illegal in terms of the Environmental Management Act.
- DEA did not make Organs of State aware to first obtain an Environmental Clearance Certificate before the issuance of an authorization. As a result all authorizations issued by the Organs of State are illegal in terms of the Environmental Management Act.
- DEA and visited Local Authorities (LA's) did not prioritize air pollution awareness to the public in their strategic plans. Therefore, the general public is uninformed on air pollution issues and cannot timely report sources of air pollution to the DEA and LA's when the need arises.
- DEA and visited LA's did not collect data and develop a database of statistics on air pollution sources which hampers their planning and monitoring of air pollution matters

## **5.2.2. Ministry of Finance**

### **A. Emissions Tax**

- The Directorate of Customs and Excise Duties (DCE) did not effectively enforce government gazette regulation No: 6019 of the Customs and Excise Act, 1998 (Act No.20 of 1998). This risks outstanding emissions tax to increase.
- DCE charged more environmental duties on new motor vehicles in comparison to 2<sup>nd</sup> hand imported motor vehicles which are older and causes more air pollution.

### **B. Storage of Hazardous Substance at Customs and Excise Warehouses**

- DCE did not develop guidelines that cover Occupational Health and Safety issues to ensure employees receive training on how to handle and store hazardous substances at customs warehouses in Namibia.

## **5.2.3 Motor Vehicle Emissions**

### **5.2.3.1 Roads Authority**

- Roads Authority (RA) and the Directorate of Transport under the Ministry of Works and Transport did not put measures in place that ensures that gaseous emissions of motor vehicles are tested NATIS motor vehicle testing stations.

## **5.2.4 Emissions from Mine Machinery**

### **5.2.4.1 Ministry of Mines and Energy**

- Directorate of Mines (DM) did not develop inspection guidelines which will direct inspectors how to conduct mine machinery inspections, such as checking machinery maintenance according to supplier specifications.

## **5.2.5 Employee Safety from Hazardous Substance Emissions at Factories**

### **5.2.5.1 Ministry of Labour, Employment Creations and Industrial Relations**

- Department Occupational Safety and Health (DOSHS) did not effectively plan the amount of work hours to be spent in the office in relation to the amount of work hours that must be spend on inspections based on the manpower available As a result, DOSHS issued factory registration certificates without conducting inspections and is therefore unaware of the extent factories expose employees to excessive emissions.
- DOSHS and the Directorate of Primary Health Care Services under the Ministry of Health and Social Services did not highlight in their plans how they intent to coordinate on issues relating to hazardous substance emissions in terms of the Occupational Health and Safety at workplaces. As a result, employers at workplaces do not conduct emission tests to detect workers exposure to harmful emissions.

- DOSH and Local Authorities (LAs) do not share information on business to ensure reconciliation of factories on their respective databases to determine that all factories are operating with Occupational Health and Safety Certificates.

### **5.2.6 Measurement of Air Quality by the Ministry of Health and Social Services**

- Directorate of Primary Health Care Services (DPHCS) did not prioritize measuring occupational exposure limits. This resulted in a lack of training to staff members on how to measure occupational exposure limits at hospital incinerators and pest fumigation. As a result, DPHC does not know the extent of contamination levels in excess of exposure limits in the work environment at all district hospitals.
- DPHCS did not conduct Occupational Health and Safety risk assessments to ensure that workers undergo pre-employment and periodic medical examinations for employees at hospital incinerators.
- The lack of DPHCS to conduct Occupational Health and Safety risk assessments also caused them not to install fire-fighting equipment at hospital incinerators deterring them not to be effective in response to firebreaks.

### **5.2.7 Ozone Depleting Substances**

#### **5.2.7.1 Ministry of Industrialization, Trade and SME Development and DCE**

- National Ozone Unit (NOU) and DCE did not ensure DCE apply the correct penalty formula imposed on companies who illegally import ozone depleting substances. This will ensure penalties related to the illegal import of ozone depleting substances is not under collected and will deter the illegal import of ozone depleting substances.

### **5.2.8 Locomotive Emissions**

#### **5.2.8.1 TransNamib**

- TransNamib operated Locomotives without conducting Locomotive examinations to ensure Locomotives operates with oil filters and other key parts that prevent excessive emissions.
- TransNamib did not conduct timely assessments to determine the re-order level of key Locomotive spare parts such as oil filters that prevent excessive emissions at Locomotives.
- TransNamib do not have a replacement plan on the use and replacement of Locomotives. As a result, TransNamib operated Locomotives that are older than 30 years which emits harmful hazardous substances into the air risking the health of people and workers.
- TransNamib does not have an Occupational Health and Safety Policy that recognizes risks to the health and safety of employees and the public. This resulted in employees to spill diesel and oils at Locomotive depots which is costly to TransNamib.

- TransNamib did not consistently maintain fire-fighting equipment at Locomotive depots and is therefore not prepared to mitigate potential fire-breakouts.

### **5.2.9 Measurement of Air Quality by Local Authorities**

All visited Local Authorities (LA's) did not prioritize as a strategic theme in their current Strategic Plans. This resulted in the LA's to inappropriately manage Waste Water Treatment Plants (WWTP) and Waste Disposal sites in a manner that polluted the air.

### **5.2.10 Charcoal Operations**

#### **A. Emissions from Kilns**

##### **A.1 Ministry of Agriculture, Water and Forestry**

- Directorate of Forestry (DOF) did not enforce the harvesting licence conditions of commercial charcoal producing farms in accordance with Section 29 of the regulations of the Forest Act, 2001 (Act No.12 of 2001) to ensure workers are protected from excessive smoke emissions. DOF did not conduct inspections as planned.

#### **B. Emissions from Charcoal Factories**

DOSH did not provide training to Occupational Health and Safety inspectors on the testing of hazardous substance exposure limits at factories in accordance with Subsection 2 (a) (iv) & v of Section 125 of the Labour Act, 2007 (Act No.11 of 2007).

### **5.2.11 Aviation Co2 Emissions**

#### **5.2.11.1 Namibia Civil Aviation Authority (NCAA)**

- NCAA does not conduct safety inspections on engines of aircrafts and helicopters to certify them fit in terms of emissions.

### **5.2.12 Regulation of Radionuclide**

#### **5.2.12.1 National Radiation Protection Authority (NRPA)**

- NRPA did not put effective measures in place that ascertained the audit that the public and workers are not exposed to unregulated excessive radionuclide. This is due to the following:
- NRPA did not implement 95%, 82% and 90% of planned inspections the period under review at facilities using radiation sources.

### **5.2.13 Regulation regarding the Selling of Tobacco Products**

#### **5.2.13.1 Ministry of Health and Social Services**

The Directorate of Primary Health Care (DPHC) under the Ministry of Health and Social Services (MOHSS) did not fully ensure that bars/shebeens issued with fitness certificates complies with the General Health Regulations (GRN 121 dated 14 October 1969).

Directorate of Primary Health Care Services (DPHCS) did not legally assign the decentralization of functions in the Tobacco Products Control Act, 2010 (Act No.1 of 2010) to Local Authorities (LA's).

## **CHAPTER SIX: RECOMMENDATIONS**

### **6.1 Laws, Regulations and International Standards in terms of Emissions**

#### **6.1.1 Sector Specific Sources of Air Pollution**

Overall the Ministry of Environment and Tourism (MET) and key stakeholders should be proactive in implementing public international laws and agreements binding upon Namibia in terms of sector specific sources of air pollution when there are shortcomings in laws and regulations.

### **6.2 Monitoring Air Quality Compliance: Green House Gas Emissions**

#### **6.2.1 Ministry of Environment and Tourism:**

- DEA should conduct complete inspections that include detailed air quality exposure tests that will ascertain that proponents and organs of the state comply with Environmental Management Plans (EMP's). This will ascertain the environment, workers and the public are protected from air pollution particles that cannot be seen with the naked eye.
- Department of Environment Affairs (DEA) should develop measurable criteria for the extent industries comply with Environment Management Plans (EMP's) per inspections conducted on different sources of air pollution such as air quality among others. This will enable DEA to know the extent industries comply with EMP's for air pollution and therefore not waste money on inspections.
- DEA should develop a measurable criterion to determine the extent industries whose operations have an impact on air quality comply with EMP's. This will enable DEA to spent financial resources and work hours on operations that are most risk of air pollution.
- DEA should enforce paragraph 9.2 of the regulations of the Environmental Management Act, 2007 (Act No.7 of 2007) to ensure listed activities mentioned in paragraph 4.2.1.2 in page 26 of this report operate with Environmental Clearance Certificates. The listed activities will be cleared operating in an environmentally safe manner.
- DEA should make Organs of State aware to first obtain an Environmental Clearance Certificate before the issuance of an authorization. This will ensure authorizations issued by the organs of state are legal.
- DEA and visited Local Authorities (LA's) should prioritize air pollution awareness to the public in their strategic plans. This will ensure the general public is informed on air pollution issues and will timely report sources of air pollution to the DEA and LA's when the need arises.
- DEA and visited LA's should put measures in place that will ensure they collect data and develop a database of statistics on air pollution sources that will assist their planning and monitoring of air pollution matters.

## **6.2.2 Ministry of Finance**

### **A. Emissions Tax**

- The Directorate of Customs and Excise Duties (DCE) should effectively enforce government gazette regulation No: 6019 of the Customs and Excise Act, 1998 (Act No.20 of 1998). This will reduce the risk that outstanding emissions tax will increase.
- DCE should revise the environmental duties formula to ensure that 2nd hand imported motor vehicles which are older and causes more air pollution pays more emissions tax.

### **B. Storage of Hazardous Substances at Customs and Excise Warehouse**

- DCE should develop guidelines that cover Occupational Health and Safety issues to ensure employees receive training on how to handle and store hazardous substances such as ozone depleting substances at customs warehouses in Namibia to avoid and be able to respond to fire risks that cause air pollution.

## **6.2.3 Motor Vehicle Emissions**

### **6.2.3.1 Roads Authority should:**

- Roads Authority in consultation with the Directorate of Transport under the Ministry of Works and Transport should put measures in place that will ensure that motor vehicle gaseous emissions testing are performed at NATIS motor vehicle testing stations to ensure that apart from saving on costs the environment and the health of people are also protected.

## **6.2.4 Emissions from Mine Machinery**

### **6.2.4.1 Ministry of Mines and Energy**

- Directorate of Mines (DM) should develop inspection guidelines which direct inspectors how to conduct mine machinery inspections, such checking the maintenance of machinery according to supplier specifications.

## **6.2.5 Employee Safety from Hazardous Substance Emissions at Factories**

### **6.2.5.1 Ministry of Labour, Employment Creations and Industrial Relations**

- Department Occupational Safety and Health (DOSHS) should effectively plan the amount of work hours to be spent in the office in relation to the amount of work hours that must be spend on inspections based on the manpower available. This will enable DOSHS to issue factory registration certificates after conducting inspections and will be aware the extent factories expose employees to excessive emissions.

- DOSH and the Directorate of Primary Health Care Services under the Ministry of Health and Social Services should highlight in their annual plans how they intent to coordinate on issues relating to hazardous substance emissions in terms of the Occupational Health and Safety at workplaces and implement the plans accordingly economically.
- DOSH and Local Authorities should share information on businesses to ensure reconciliation of factories on their respective databases to ensure that all factories are operating with Occupational Health and Safety Certificates.

#### **6.2.6 Measurement of Air Quality by the Ministry of Health and Social Services**

- Directorate of Primary Health Care Services (DPHCS) should prioritize measuring occupational exposure limits in their strategic planning documents. This will ensure training to staff members on how to measure occupational exposure limits at hospital incinerators and pest fumigation. DPHCS will also know the extent contamination levels in the work environment at all district hospitals are in excess of exposure limits.
- DPHCS should conduct Occupational Health and Safety risk assessments to ensure that workers undergo pre-employment and periodic medical examinations for employees at hospital incinerators.
- DPHCS should install fire-fighting equipment at hospital incinerators to ensure hospitals are responsive to potential fire outbreaks.

#### **6.2.7 Ozone Depleting Substances**

##### **6.2.7.1 Ministry of Industrialization, Trade and SME Development and DCE**

- National Ozone Unit (NOU) and DCE should put measures in place to ensure the correct penalty formula imposed on companies consistently for similar offences in terms of illegally importing ozone depleting substances. This will ensure penalties related to the illegal import of ozone depleting substances is not under collected and will deter the illegal import of ozone depleting substances.

#### **6.2.8 Locomotive Emissions**

##### **6.2.8.1 TransNamib should:**

- Ensure that they conduct Locomotive examinations before operating a Locomotive on the railroad. This will ensure Locomotives operates with key mechanical parts that prevent excessive emissions.
- Timely conduct assessments that determine the re-order level of key Locomotive spare parts such as oil filters that prevent excessive emissions. This will ensure the re-stocking levels of Locomotive spare parts are adequate in other regions where there is a need to order.



- Prepare a replacement plan for Locomotives that indicates it budget effectively for new Locomotives.
- Develop an Occupational Health and Safety Policy that recognizes risks to the health and safety of employees and the public. This will enable the training to employees to not spill diesel and oils at Locomotive depots which is costly to TransNamib and the environment through potential fire risks.
- Train workers at depots in the regions to timely report outdated fire-fighting equipment as per the supplier specifications to the head office to enable them to effectively respond to potential fire outbreaks that causes air pollution.

#### **6.2.9 Measurement of Air Quality by Local Authorities**

- The LAs should prioritize air pollution as a strategic theme in their current strategic plans for Waste Water Treatment Plants and Waste Disposal Sites as a risk in their operations to avert the risk of harm to the health of workers and general public in the vicinities of Treatment Plants and Waste Disposal Sites.

#### **6.2.10 Charcoal Operations**

##### **A Emissions from Kilns**

##### **A.1 Ministry of Agriculture, Water and Forestry**

- Directorate of Forestry (DOF) should enforce the harvesting licence conditions of commercial charcoal producing farms in accordance with Section 29 of the regulations of the Forest Act, 2001 (Act No.12 of 2001) to ensure workers are protected from excessive smoke emissions. DOF should also put measures in place to conduct inspections as planned.

##### **B Emissions from Charcoal Factories**

##### **B.1 Ministry of Labour, Employment Creations and Industrial Relations**

- DOSH should training to Occupational Health and Safety inspectors on the testing of hazardous substance exposure limits at factories in accordance with Subsection 2 (a) (iv) & v of Section 125 of the Labour Act, 2007 (Act No.11 of 2007) to effectively execute duties.

#### **6.2.11 Aviation Co2 Emissions**

##### **6.2.11.1 Namibia Civil Aviation Authority (NCAA)**

- NCAA should conduct safety inspections on engines of aircrafts and helicopters to certify them fit in terms of emissions for Smoke; Gaseous emissions; Unburned hydrocarbons (HC); Carbon monoxide (CO); and Oxides of nitrogen (NOx).

## **6.2.12 Regulation of Radionuclide**

### **6.2.12.1 National Radiation Protection Authority (NRPA)**

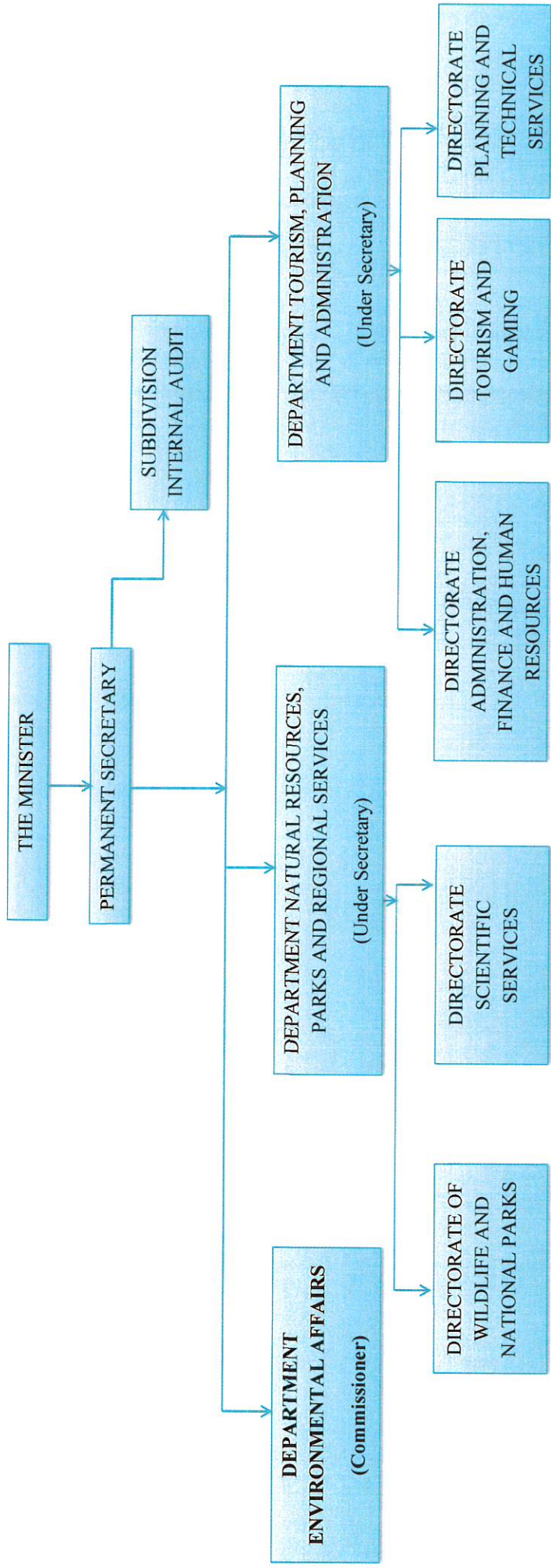
- NRPA should put measures in place to ensure the effective execution of planned inspections that are inclusive of all types of radiation sources to avoid the exposure of the public and workers to unregulated excessive radionuclide.

## **6.2.13 Regulation regarding the Selling of Tobacco Products**

### **A. Ministry of Health and Social Services**

- The Directorate of Primary Health Care (DPHC) under the Ministry of Health and Social Services (MOHSS) should fully ensure that bars/shebeens issued with fitness certificates complies with the General Health Regulations (GRN 121 dated 14 October 1969).
- The DPHCS should legally assign the decentralization of functions in the Tobacco Products Control Act, 2010 (Act No.1 of 2010) to Local Authorities (LA's). This will ensure LA's consistently implement the Tobacco Products Control Act to ensure the workers and the general public is protected from the harmful impacts of tobacco smoking.

**APPENDIX I: ORGANIZATIONAL STRUCTURE OF THE MET**





APPENDIX II: ASSESSMENT CRITERIA AND AUDIT QUESTIONS

Sources of Audit/Assessment	Audit Question	Sub-Question
<p><b>A. The Ministry of Environment and Tourism</b>                      Subsection 3 of Section 27 of the Environmental Management Act, 2007 (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." The listed activity relating to air quality is explained as per annexure 9.2 below.</p> <p>Annexure 9.2 of the Government Gazette regulations of the Environmental Management Act, 2007 (Act No.7 of 2007) states that, "... any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste."</p> <p>Furthermore, the operations of charcoal operations in terms of Environmental Clearance Certificates are explained below:</p> <p>According to the Forestry and Environmental Authorisations Process for Bush Harvesting Projects 2016 guideline, medium sized bush harvesting operations, covering an area between 150-5000 hectares, need to obtain an Environmental Clearance Certificate from DEA based on a generic Environmental Management Plan (EMP) and thereafter apply to DOF for a harvesting permit. Whilst large bush harvesting operations, covering an area greater than 5000 hectares, need to obtain an Environmental Clearance Certificate from DEA based on a full Environmental Impact Assessment (EIA) and must also include a thorough EMP. The EIA must cover all the specific details of the source areas, and individual farms that contribute harvested wood to a large project will all be bound by the conditions described in the EMP.</p>	<p><b>Regulation of Greenhouse Emissions:</b></p> <ul style="list-style-type: none"> <li>To what extent did MET and key stakeholders put measures in place that ensure the general public and workers are not exposed to unregulated excessive greenhouse gas emissions in the atmosphere?</li> </ul>	<p>A.1 How does the Department of Environmental Affairs (DEA) under MET ensure that Proponents and Organs of State that undertake air pollution source operations have valid Environmental Clearance Certificates (ECC) and whether there is adherence to Environmental Management Plans approved for the ECC?</p>
<p><b>B. Ministry of Agriculture, Water and Forestry</b>                      According to Section 5 of the Generic Environmental Management Plan indicated in the Forestry and Environmental Authorisations Process for Bush Harvesting Projects 2016 guideline, one of the mitigation measures to prevent air pollution at charcoal production operations is to ensure that retort kilns are operated efficiently to almost produce no smoke.</p>		<p>B.1 How does the Directorate of Forestry (DOF) under the Ministry of Agriculture, Water and Forestry (MAWF) ensure that retort kilns of charcoal production operations are operated efficiently to almost produce no smoke as indicated by pictures in the Forestry and Environmental Authorisations Process for Bush Harvesting Projects 2016 guideline?</p> <p>B.2 To what extent did the DOF under MAWF ensure that commercial charcoal operators comply with their harvesting license conditions related to charcoal production in terms of Air Quality Monitoring?</p>
<p><b>According to the harvesting licence conditions for charcoal production:</b></p> <ol style="list-style-type: none"> <li>1. Trees with stem diameter for more than 18 cm at ground level may not be removed unless special approval is granted;</li> <li>2. An area of at least 15 cm around the kiln for charcoal production must be cleared of any flammable material;</li> <li>3. All employees/contractors must be treated according to all applicable laws in Namibia;</li> <li>4. Permit owner must explain permit contents and conditions to all workers and contractors;</li> <li>5. Permit owner must execute proper supervision over the operations;</li> <li>6. Fire-fighting equipment must be on site at all times;</li> <li>7. All kilns must be guarded at all times;</li> <li>8. Burning of charcoal may not be done within 1 km to the nearest house or dwelling."</li> </ol> <p><b>C. Ministry of Mines and Energy</b>                      Subsection 1(d)(e) of Section 5 of the Minerals (Prospecting and Mining) Act, 1992 (Act No.33 of 1992) states that, the general powers of the Mining Commissioner are to "... (d) inspect, make extracts</p>		<p>C.1 To what an extent did the Directorate of Mines under the Ministry of Mines and Energy effectively conducts mine machinery inspections to reduce the</p>



Sources of Audit/Assessment	Audit Question	Sub- Question
<p>from, and make copies of any book, record or document in relation to any operations or accessory works referred to in paragraph (a);</p> <p>(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.” This is clarified below.</p> <p>Furthermore, Subsection 1 of Section 161 of the regulations of the Minerals (Prospecting and Mining) Act, 1992 (Act No.33 of 1992 states that, “... the persons who, in terms of regulation 38 are in general charge of machinery shall at all times ensure that all safety appliances, devices and guards are maintained in good working condition and properly used, and shall stop the working of any apparatus or machine, the using of which, due to any defect, is in any way dangerous to persons: Provided that such persons need continuously upon the premises while machinery is being worked if they have satisfied themselves before leaving the premises, that danger to persons is not likely to develop during their absence and if in respect of the periods during which they are not so present their duties under this sub regulation are deputied by them to specified competent persons or shifts men.”</p>	<p>emission of greenhouse gas?</p>	
<p><b>D. Ministry of Industrialization, Trade and SME Development and Ministry of Finance</b></p> <p>According to paragraph 11 of the conditions of the Government Gazette No.4636: Amendment of the Prohibition of Import into Namibia of Ozone Depleting Substances (ODS), “... the base level of the overall quantity to be imported during the validity period of all issued import permits for ODS must be in accordance with the reduction targets as stated below and must be controlled by the MTI and MOF:</p> <p>Annexure I Class E Group I and II kg (Equal to average of annual imports during 2009-2010)</p> <p>The freeze or minimum reduction levels of ODS import quantities will be for:</p> <p>Annexure I Class E Group I and II</p> <ol style="list-style-type: none"> <li>i. Baseline: Average 2009 - 2010 consumption</li> <li>ii. Freeze on 01 January 2012</li> <li>iii. 30% reduction on 01 January 2015</li> <li>iv. 70% reduction on 01 January 2018</li> <li>v. 97,5% reduction on 01 January 2020 and 2.5% servicing :2020-2030” <p>Paragraph 16.3 of the United States 2030 Sustainable Development Goals states that “... promote the rule of law at the national and international levels and ensure equal access to justice for all. The DCE under MOF must implement penalties for late/non-payment of motor vehicle emissions taxes.</p> </li></ol>	<p>D.1 To what an extent did the Directorate of Customs and Excise (DCE) and National Ozone Unit (NOU) under the Ministry of Finance (MOF) and the Ministry of Trade and Industrialization and SME Development (MTI) respectively put measures in place to reduce the import of ozone depleting substances?</p>	<p>D.2 To what extent did the DCE under MOF implement interest and penalties for late/non-payment of motor vehicle emissions tax by motor vehicle importers?</p>



Sources of Audit/Assessment	Audit Question	Sub-Question
<p>According to Subsection 1 of Section 182 of the Labour Act 1992 and as amended: Regulations relating to the Health and Safety of Employees at work, "...hazardous substances shall at any time be stored in such a manner that they do not create a risk to the health and safety of employees or other persons, nor any risk of contamination of the environment, due to seeping, leaking, fire or accidental release."</p> <p>Subsection 2 of Section 182 of the Labour Act 1992 and as amended: Regulations relating to the Health and Safety of Employees at Work states that, "...areas designated for storage of hazardous substances shall be isolated from other activities and be clearly marked with appropriate warning signs."</p> <p>Subsection 4 of Section 182 of the Labour Act 1992 and as amended: Regulations relating to the Health and Safety of Employees at Work states that, "...substances which by means of a reacting with each other on contact can create a dangerous situation such as an explosion, a fire or the formation of a third hazardous substance, shall be stored and handled separately in such a manner that no unintentional contact can occur."</p> <p>Subsection 9 of Section 182 of the Labour Act 1992 and as amended: Regulations relating to the Health and Safety of Employees at Work states that, "...inflammable and explosive substances shall be labelled, stored and handled taking into account the risks associated with such substances."</p>		<p>D.3 To what an extent did DCE under MOF put measures in place that prevent unwanted fire outbreaks at customs and excise warehouses where ozone depleting substances are stored?</p>
<p><b>E. Ministry of Labour, Industrial Relations and Employment Creation</b></p> <p>Subsection 1 of Section 19 the Labour Act, 1992 (Act No.6 of 1992): Regulations Relating to the Health and Safety of Employees states that, "...no person shall operate a factory which is not registered under these regulations."</p> <p>Subsection 2 further states that, "...an application for the registration of any premises as a factory shall be lodged with an inspector in the form of Form F.2 which shall be accompanied by form, F.1 duly completed, together with the prescribed plans and particulars."</p> <p>Form F.2 states that a factory must submit among others a health and safety policy and that an inspection must be conducted by an Occupational Health and Safety inspector before issuing either a permanent or provisional factory registration certificates to ensure that the concentration of airborne contaminants in the breathing zone of an employee is below the occupational exposure limits specified E in the Labour Act, 1992 (Act No.6 of 1992): Regulations Relating to the Health and Safety of Employees at work. A permanent factory permit is issued to a factory for its entire lifetime by DOSH when a factory is certified fit in terms of compliance with Labour Act, 1992 (Act No.6 of 1992): Regulations Relating to the Health and Safety of Employees and a provisional factory permit is issued to factories for six months because a factory have shortcomings that needs to be rectified before a permanent factory permit is issued."</p> <p>Subsections 2 (a)(iv) &amp; (v) of Section 125 of the Labour Act, 2007 (Act No.11 of 2007) states that, "...a labour inspector should:</p> <p>(a) at any reasonable time enter any premises and -</p> <p>(iv) take a sample of the atmosphere or of any object found; and</p> <p>(i) take measurements, readings, recordings or photographs."</p> <p>Subsection 1 of Section 185 of the Labour Act, 1992 (Act No.6 of 1992): Regulations Relating to the Health and Safety of Employees at work states that, "...the concentration of airborne contaminants in</p>		<p>E.1 To what extent have the Department Occupational Safety and Health (DOSH) under the Ministry of Labour, Industrial Relations and Employment Creation (MOLIEC) put measures in place that ensure that hazardous substance emissions of factories do not exceed exposure limits?</p>



Sources of Audit/Assessment	Audit Question	Sub- Question
<p>the breathing zone of an employee shall be below the breathing "Occupational Exposure Limits" Specified in Annexure E."</p> <p>Subsection 1 of Section 186 of the Labour Act, 1992 (Act No.6 of 1992): Regulations as amended in 2007 Relating to the Health and Safety of Employees states that, "the employer shall ensure adequate measurements of exposure to hazardous substances are performed in-order to determine the compliance with the prescribed exposure limits to hazardous substances." This above clause should be enforced by DOSH under MOLIEC.</p>		
<p><b>F. Ministry of Health and Social Services</b></p> <p>Paragraph 4 of the Integrated Health Care Waste Management Plan of 2012 further states that, "...before an incinerator is permitted to operate, it must demonstrate that it can meet the emission limit values (daily average) based on European Union standards."</p> <p>Furthermore, "...test of heavy metals, dioxins, and furans should be conducted by an independent third party using a laboratory that is certified for dioxin / furan testing."</p>		<p>F.1 To what an extent have the Directorate of Primary Health Care Services under MOHSS put measures in place to ensure proper management of hospital incinerator emissions?</p>
<p>According to Section 184, Subsection 1 of the Regulations Relating to the Health and Safety of Employees at Work dated 1997 (31 July 1997) states that, "...no substance listed in Annexure E as a hazardous or carcinogenic substance, or any product containing such substance, shall be imported, mixed, produced, used or otherwise handled, without the written permission of the Chief Medical Officer for Occupational Health, who shall, in the form of Form F.H.S.I. be notified of such intended importing, mixing, production, use or handling."</p> <p>Furthermore, Subsection 2 states that, "...the Chief Medical Officer of Occupational Health may, upon receipt of a notification in terms of subregulation (1) and subject to any other law, in writing authorize the importing, mixing, production, use or handling of such substance, if he or she is satisfied that all prescribed and other preventive measures have or will be taken."</p>		<p>F.2 To what an extent have the DPHC under MOHSS put measures in place that ensure employees of the suppliers of hazardous substances are not exposed to emissions?</p>
<p><b>G. Roads Authority</b></p> <p>According to Section 228 (c) of the Road Traffic and Transport Regulations, 2001, "...a person may not operate a motor vehicle on a public road if the exhaust gas or smoke from the engine is so dense as to cause a nuisance to, or obstruct the vision of other road users."</p> <p>According to paragraph 4.2.6.3 of the South African Bureau of Standards (SABS) Division Recommended Practice Guide for examiners of a motor vehicle, "...a reasonable approach towards enforcement of smoke emissions standards is to stand at the side of the road and to monitor those vehicles that emit too much smoke under load, according to the observer's experience.</p> <p>This applies to black smoke from diesel engines and to blue smoke from petrol engines. In most cases, the operator should only be given a warning that the vehicle produces too much smoke."</p> <p>According to paragraph 4.2.6.3 of the South African Bureau of Standards (SABS) Division Recommended Practice Guide for examiners of motor vehicle, "...monitor the smoke emission when the vehicle accelerates or pulls under load. Ignore puffs of smoke during changing of gears."</p>		<p>G.1 To what an extent have the Roads Authority (RA) put in place measures to ensure motor vehicles that operate on public roads do not emit harmful carbon monoxide beyond the required standards?</p>



Sources of Audit/Assessment	Audit Question	Sub-Question									
<table border="1" data-bbox="199 280 319 448"> <tr> <td>Geographic Region</td> <td>Limits in terms of the Hartridge smoke meter scale</td> <td>Limit in terms of metric units</td> </tr> <tr> <td>Highveld</td> <td>70</td> <td>2;18</td> </tr> <tr> <td>Coast</td> <td>60</td> <td>2;13</td> </tr> </table> <p data-bbox="319 280 576 667"><i>Source: SABS Standards</i> Usually a Hartridge smoke meter is used, while the engine is revved repeatedly from idle speed to a maximum governed speed under no load.” According to paragraph 4.2.6.5 of the South African Bureau of Standards (SABS) Division Recommended Practice Guide for examiners of motor vehicles, “...those testing stations that are in possession of Hartridge smoke meter should use it to apply the atmospheric pollution limits in order to judge whether smoke emission is excessive.” The examiner should also apply the method given in paragraph 4.2.6.2 of the South African Bureau of Standards (SABS) Division Recommended Practice Guide for examiners of motor vehicles as an additional or alternative judgement.”</p>	Geographic Region	Limits in terms of the Hartridge smoke meter scale	Limit in terms of metric units	Highveld	70	2;18	Coast	60	2;13		
Geographic Region	Limits in terms of the Hartridge smoke meter scale	Limit in terms of metric units									
Highveld	70	2;18									
Coast	60	2;13									
<p data-bbox="576 280 1061 667"><b>H. Namibia Civil Aviation Authority</b> Section 10, Subsection 1 of the Civil Aviation Act, 2016 (No. 6 of 2016) states that, “...the functions of the Authority are to conduct oversight of the safety and security of civil aviation in Namibia by-  <ul data-bbox="576 667 1061 1489" style="list-style-type: none"> <li>• Developing and promoting appropriate, clear and concise regulatory requirements, and technical aviation safety and security standards;</li> <li>• Developing effective enforcement strategies to ensure compliance with aviation safety and security standards;</li> <li>• Issuing aviation documents in terms of this Act;</li> <li>• Conducting comprehensive aviation industry surveillance, including assessment of safety and security related decisions taken by industry management at all levels for their impact on aviation safety and security;</li> <li>• Overseeing and regulating the provision and operation of navigational aids to aviation;</li> <li>• Conducting regular reviews of the systems of civil aviation safety and security to-</li> <li>• Monitor the safety performance of the aviation industry;</li> <li>• Identify safety and security related trends and risk factors; and</li> <li>• Promote the development and improvement of such systems;</li> <li>• Conducting regular and timely assessment of international safety and security developments; and</li> <li>• Implementing, monitor and enforcing the NCASP.”</li> </ul> </p>		<p data-bbox="576 1167 1061 2033">H.1 To what an extent have the Namibia Civil Aviation Authority (NCAA) put measures in place that prevent aircrafts and helicopters emit harmful carbon monoxide into the atmosphere?</p>									
<p data-bbox="1061 280 1342 667"><b>I. TransNamib Holdings Limited</b> According to TransNamib Holdings Limited, their standard operating procedure for the maintenance of Locomotives to avoid obnoxious gas emissions is as follows:</p> <ul data-bbox="1061 667 1342 1489" style="list-style-type: none"> <li>➢ Monthly Locomotive Examination: Conducted every 45 days, only in Windhoek.</li> <li>➢ 3 Monthly Locomotive Examination: Conducted every 90 days, only in Windhoek.</li> <li>➢ 6 Monthly Locomotive Examination: Conducted every 180 days, only in Windhoek.</li> <li>➢ Annual Locomotive Examination: Conducted every 360 days, only in Windhoek.</li> </ul>		<p data-bbox="1061 1167 1342 2033">I.1 To what an extent have Trans Namib Holdings Limited put measures in place to avoid obnoxious gas emission by locomotives?</p>									
<p data-bbox="1342 280 1449 667"><b>J. Local Authorities</b> According to Subsection 1 (b) of Section 23 of the Walvisbay Municipality, Solid and Hazardous Waste Management Regulations, “...the Council is responsible for the effective design, construction, operation, management and monitoring of waste disposal facilities in accordance with the provisions</p>	<p data-bbox="1342 667 1449 1167">I.</p>	<p data-bbox="1342 1167 1449 2033">J.1 Have Local Authorities (L/A's) put measures in place to ensure waste is not burned at waste disposal sites?</p>									



Sources of Audit/Assessment	Audit Question	Sub-Question
<p>of applicable environmental laws, by among others, enforcing the control and monitoring of environmental pollution due to illegal burning of waste, ground water pollution, leachate, windblown waste, dust emission and other parameters as may emanate from the operation of such facility.”</p> <p>Furthermore, paragraph 5.2.5 of the Walvisbay Waste Disposal Site Management Contract states that, “... the contractor shall take note of the fact that the general burning of refuse is not permitted.”</p> <p>According to the Swakopmund landfill operational guidelines which the private contractor must follow, “...hazardous waste is to be transported to the hazardous site in Walvisbay where it will be handed over for disposal.”</p> <p>According to the contract of Swakopmund Municipality, the private contractor should, “... undertake to manage the landfill site in accordance with labour regulations.”</p> <p>According to the paragraph (e) of the Ojjiwarongo Municipality Street and Traffic Regulations, “... no person shall create a public nuisance on any street, in a public place or residential premises by “... burning of rubble, refuse or any other objectionable substance.”</p>		
<p>Subsection 1 of Section 186 of the Labour Act, 1992 (Act No.6 of 1992): Regulations Relating to the Health and Safety of Employees states that, “...the employer shall ensure adequate measurements of exposure to hazardous substances are performed in-order to determine the compliance with the prescribed exposure limits to hazardous substances.”</p> <p><b>2. Ministry of Health and Social Services</b></p> <p>Subsection 1 of Section 16 of the Tobacco Products Control Act, 2010 (Act No.1 of 2010), ... “ where a person sells or imports for sale any tobacco product and the tobacco product is contained in a package -</p> <p>(a) the package must be labelled in the prescribed manner and must bear the prescribed warning concerning the health hazards incidental to the smoking of tobacco products and other relevant information; and</p> <p>(b) the quantities of the constituents present in the tobacco product concerned must be stated on the package.”</p> <p>Subsection 1 of Section 17 of the Tobacco Products Control Act, 2010 (Act No.1 of 2010), states that, “... no person may sell or import for sale any tobacco product, unless the package bears the statement “Sales only allowed in Namibia” or any other effective marking indicating the origin thereof and the final destination for sale.”</p>	<p>2.1 Are the Ministry of Health and Social Services (MoHSS) and key stakeholders ensuring that the public is not exposed to involuntary smoke of tobacco products?</p> <p><b>Regulating Tobacco Products</b></p>	<p>J.2 Have LA’s put measures in place to ensure that workers at waste water treatment plants are not exposed to harmful emissions?</p> <p>(a)(i) Is the Directorate of Primary Health Care (DPHC) under the MoHSS and Local Authorities (LA’s) ensure that tobacco products sold in Namibia are labelled and bear the prescribed hazardous warning signs?</p>
<p><b>National Radiation Protection Authority</b></p> <p>According to the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005) the National Radiation Protection Authority (NRPA) is mandated “...to provide for adequate protection of the environment and of people in current and future generations against the harmful effects of radiation by controlling and regulating the production, processing, handling, use, holding, storage, transport and disposal of radiation sources and radioactive materials, and controlling and regulating prescribed non-ionizing radiation sources.”</p>	<p>3.1 Regulating Radionuclide and Electromagnetic Air Pollution</p> <p>To what an extent did the National Radiation Protection Authority (NRPA) put measures in place that ensure workers and general public are not exposed to harmful radionuclide?</p>	<p>3.1.1 Did the NRPA ensure radiation source facilities conform to the requirements stipulated in the Atomic Energy and Radiation Protection Act, 2005 (Act No.5 of 2005)?</p>



Sources of Audit/Assessment	Audit Question	Sub-Question
<p>Furthermore, Subsection 2 (a-b) of Section 35, of the NRPA Act, 2005 (No. 5 of 2005) states that, “.....a radiation protection officer may-</p> <p>(a) take samples of any material in order to test for the presence of radiation ; and</p> <p>(b) make such inspections and inquiries as may be necessary to ascertain that this Act and any conditions of a licence or authorization are being complied with.”</p>		
<p>Subsection 1(a-b) of Section 40, of the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005) states that, “.....a person who-</p> <p>(d) Contravenes section 16;</p> <p>Intentionally or negligently operates, stores, transport, disposes of or abandons any radiation source in such a manner that any human being may be subject to a dangerous amount of radiation or that a substantial amount of radiation or radioactive material may be released into the environment is guilty of an offence and is liable on conviction to a fine not exceeding N\$200 000 or to imprisonment for a period not exceeding 10 years or both such fine and such imprisonment.”</p>		<p>3.1.2 Did NRPA issue fines to facilities contravening the Atomic Energy and Radiation Protection Act, 2005 (Act No.5 of 2005)?</p>
<p>Section 16, Subsection 1 of the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005) states that, “.....except when such activity is explicitly authorized by a licence, no person may-</p> <ul style="list-style-type: none"> <li>possess any radiation source or nuclear material; import into or from Namibia any radiation source or nuclear material or transport any radiation source or nuclear material or instruct, require or permit any person employed by him or her, or acting on his or her behalf so to import, export or transport a radiation source or nuclear material.”</li> </ul> <p>Furthermore, Section 16, Subsection 2 of the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005) states that, “.....no person may without a licence-</p> <ul style="list-style-type: none"> <li>possess any nuclear material, except for the purpose of transporting such material as the agent for a licence holder;</li> <li>operate or use any radiation source or instructor permit any person in his or her employ or acting in any manner on his or her behalf or promoting his or her interests to operate or use any radiation source; and</li> <li>store or keep a radiation source for a period exceeding a prescribed period.”</li> </ul>		<p>3.1.3 Is the NRPA ensuring that radiation source facilities operate with valid licenses?</p>
<p>Furthermore, Section 25, Subsection 1 of the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005) states that, “.....subject to this Act, a registration or a licence remains in force for the period prescribed for a particular class of registration or licence.”</p> <p>Furthermore, Subsection 2 of the Atomic Energy and Radiation Protection Act, 2005 (No. 5 of 2005) states that, “.....a registrant or a licence holder may within 90 days before the expiry of a registration or a licence, apply to the Director-General for a renewal of the registration or the licence.”</p>		
<p><b>The Ministry of Environment and Tourism</b></p> <p>Paragraph 16.3 of the United States 2030 Sustainable Development Goals states that “... promote the rule of law at the national and international levels and ensure equal access to justice for all. Therefore, DEA under MET should develop national laws and regulations for air quality monitoring and enforcement in Namibia to allow other relevant government authorities whose operations are a listed activity in terms of Subsection 3 of Section 27 of the Environmental Management Act, 2007 (Act No.7 of 2007) affecting air quality in Namibia.</p>		<p>4 (A) To what extent did the MET and key stakeholders put laws and regulations in place to effectively regulate Air Quality?</p>



APPENDIX III: INTERVIEWS CONDUCTED

Number	Position	Region
<b>Ministry of Environment and Tourism (MET)</b>		
1.	Focus group: 4x Chief Conservation Scientist	Khomas
<b>Stakeholders</b>		
<b>Ministry of Finance:</b>		
<b>Walvis Bay: Customs</b>		
2.	Focus group: 1x Deputy Director 2x Chief Customs Officers 1x Chief Clearance Officer 2x Senior Customs Officers	Erongo
<b>Oshakati: Customs</b>		
3.	Focus group: 3x Chief Customs Officers	Oshana
<b>Gobabis: Customs</b>		
4.	1x Control Customs and Exercise Officers	Omaheke
<b>Ministry of Labour, Industrial Relations and Employment Creation</b>		
<b>Walvis Bay</b>		
5.	1x Senior Labour Inspector 1x Industrial Inspector	Erongo
<b>Oshakati and Ondangwa</b>		
6.	2x Senior Industrial Inspector	Oshana
<b>Walvis Bay</b>		
7.	1x Senior Industrial Inspector	Erongo
<b>Ministry of Urban and Rural Development</b>		
<b>City of Windhoek</b>		
8.	Focus group: 2x Pollution Control 2x Occupational health officer	Khomas
<b>Gobabis Municipality</b>		
9.	Focus group: 1x Manager: Technical Services 1x Sewerage Foreman	Omaheke
<b>Ondangwa Town Council</b>		
10.	Focus group: 1x Manager: Health department 1x Environmental Health Practitioner 1x Technical Foreman	Oshana
<b>Swakopmund Municipality</b>		
11.	Focus group: 1x Acting CEO 1x General Manager: Engineering Services 1x General Manager: Finance 1x Manager: Finance 1x General Manager: CDS 1x Supt: Airfield / ES 1x Chief fire officer 1x Health officer	Erongo
<b>Walvis Bay Municipality</b>		
12.	Focus group: 1x Manager: Solid waste 1x Manager: Environmental management 1x Environmental Coordinator	Erongo
<b>Otjiwarongo Municipality</b>		
13.	Focus group: 1x Deputy Town Engineer 1x Manager: Finance 1x Manager: Community Services 2x Solid waste supervisor 1x SE: Community 1 Health Inspector 1x Environmental Health Officer 1x Sewer Foreman	Otjozondjupa
<b>Tsumeb Municipality</b>		



Number	Position	Region
14.	Focus group: 1x Health manager 1x Chief fire officer 1x Sewer supervisor 1x Cleansing supervisor 1x Manager: Health and Parks	Oshikoto
<b>Ministry of Health and Social Services</b>		
15.	1x Chief medical officer 1x Deputy Director: Public and Environmental Health Care 1x Acting Deputy Director: Public and Environmental Health Care 1x Control Environmental Officer	Khomas
<b>Swakopmund District Hospital</b>		
16.	1x Chief Environmental Health Practitioner	Erongo
<b>Walvis Bay District Hospital</b>		
17.	1x Environmental Health Practitioner	Erongo
<b>Otjiwarongo District Hospital</b>		
18.	1x Acting Director 1x Chief Environmental Health Practitioner	Otjozondjupa
<b>Tsumeb District Hospital</b>		
19.	1x Environmental Health Practitioner	Oshikoto
<b>Oshakati Intermediate Hospital</b>		
20.	1x Registered Nurse: Infection Control 2x Environmental Health Practitioners	Oshana
<b>Gobabis District Hospital</b>		
21.	Focus group: 1x Chief Environmental Health Practitioner 1x Chief Health Inspector	Omaheke
<b>TransNamib</b>		
<b>Walvis Bay</b>		
22.	1x Technical Superintend: Locomotive depot	Erongo
<b>Otjiwarongo</b>		
23.	1x Technical Supervisor	Otjozondjupa
<b>Ondangwa</b>		
24.	1x Trade Hand: Locomotives	Oshana
<b>Ministry of Works and Transport</b>		
<b>Khomas</b>		
25.	1x Director: Infrastructure	Khomas
<b>Road Authority</b>		
<b>NATIS: Oshakati</b>		
26.	Focus group: 1x Principal Examiner 4x Examiners	Oshana
<b>NATIS: Gobabis</b>		
27.	1x Chief Section Leader	Omaheke
<b>Namibian Airports Company</b>		
<b>Hosea Kutako Airport</b>		
28.	Focus group: 1x Acting Executive Officer 1x Safety Officer	Khomas
<b>Eros Airport</b>		
29.	Focus group: 1x Acting Airport Manager 1x Chief Safety Officer	Khomas
<b>Walvis Bay International Airport</b>		
30.	1x Chief Safety Officer	Erongo
<b>Ondangwa Airport</b>		
31.	1x Airport Manager	Oshana
<b>Namibian Civil Aviation Authority</b>		
<b>Windhoek</b>		



Number	Position	Region
32.	Focus group: 4x Acting Senior Managers 1x Project Officer: ICAO 1x Acting Chief of Aviation 1x Senior Airworthiness Inspector 1x Senior Administrative Officer	<b>Khomas</b>
<b>Namibian Radiation Protection Authority</b>		
<b>Windhoek</b>		
33.	Focus group: 2x Deputy Director 2x Chief Radiation Physicists 1x Radiation Physicist	<b>Khomas</b>

**APPENDIX IV: PHYSICAL OBSERVATIONS CONDUCTED**

<b>Ministry of Agriculture, Water and Forestry</b>	<b>Region</b>
<b>Charcoal Activities: Tsumeb area</b>	
1. Drie Fontein Farm 2. Hedwigsluts Farm 3. Rosa Farm 4. Rentia Farm 5. Wildernis Farm 6. Tsumeb Charcoal Factory	<b>Oshikoto</b>
<b>Charcoal Activities: Otjiwarongo area</b>	
7. Diekmann Farm 8. Farm Klein Huis 9. Doringlaagte 299 10. Makarra Bush Products 11. Van Wyk Farm 12. Charcoal Producers Okahandja	<b>Otjozondjupa</b>
<b>Charcoal Activities: Omaheke area</b>	
13. Volmoed Farm 14. Mombolo Farm	<b>Omaheke</b>
<b>Charcoal Activities: Erongo area</b>	
15. King Charcoal Factory	<b>Erongo</b>
<b>Charcoal Activities: Khomas area</b>	
16. Groot-Aub area farms	<b>Khomas</b>
<b>Ministry of Finance</b>	
17. Oshakati Customs Warehouse 18. Botswana Boarder Storage Space 19. Walvis Bay Customs Warehouse	<b>Oshana Omaheke Erongo</b>
<b>Ministry of Health and Social Services</b>	
<b>Bar / Shebeens: Gobabis</b>	
1. Powerhouse No.1 2. Powerhouse No.2 3. Club Scream Bar 4. Pouua Bar 5. UB40 Bar 6. Push and Pull Bar 7. Hut Bar (M & J Enterprises) 8. G. Nguno Bottle Store 9. MJS Sport Bar 10. Thlotua Lenyora Bar 11. Kassna Bar 12. Pandu Mini Market and Bar 13. Shilongo Shebeen	<b>Omaheke</b>
<b>Bar / Shebeens: Arandis</b>	
14. Ongulumbashe Shebeen 15. Trapizzino Bar 16. Dream Lounge 17. Rantino Lounge 18. Tess Inn 19. Onkawa Amusement Bar and Beer Garden 20. Oshombango Shebeen	<b>Erongo</b>
<b>Bar / Shebeens: Swakopmund</b>	
21. Embwada Bar 22. Masandisa Bar 23. Etenda Bar 24. J-Bar 25. Oshikuyu Bar No. 2 26. Okaneka Bar 27. P & J Game Bar 28. Green House Bar 29. Pwari Kapapwa Shebeen	<b>Erongo</b>
<b>Bar / Shebeens: Ondangwa Rural Constituency</b>	
30. River Dance Pub 31. Diversity Park (London Man Bar & Resturant) 32. JJ Bar and Mini Market	<b>Oshana</b>



<b>Ministry of Agriculture, Water and Forestry</b>	<b>Region</b>
<b>Charcoal Activities: Tsumeb area</b>	
<b>Bar / Shebeens: Khomas</b>	
33. Special Inn Bar 34. Raino Bar 35. Onaukuti Shebeen 36. Kwazimoto Bar 37. Barclays Bar 38. New Edition Bar 39. Tsunami Bar 40. Maspiri Bar 41. Endengu Bar 42. Kiinge's Bar	<b>Khomas</b>
<b>Hospital Incinerators:</b>	
43. Katutura Intermediate Hospital Incinerator 44. Oshakati State Hospital Incinerator 45. Gobabis District Hospital Incinerator 46. Tsumeb District Hospital Incinerator 47. Otjiwarongo District Hospital Incinerator 48. Swakopmund District Hospital Incinerator 49. Walvis Bay Hospital Incinerator	<b>Khomas</b> <b>Oshana</b> <b>Omaheke</b> <b>Oshikoto</b> <b>Otjozondjupa</b> <b>Erongo</b> <b>Erongo</b>
<b>Ministry of Urban and Rural Development</b>	
<b>Waste Water Treatment Plant and Waste Disposal Site:</b>	
50. City of Windhoek 51. Swakopmund Municipality 52. Walvis Bay Municipality 53. Ondangwa Town Council 54. Gobabis Municipality	<b>Khomas</b> <b>Erongo</b> <b>Erongo</b> <b>Oshana</b> <b>Omaheke</b>
<b>Local Authorities</b>	
<b>Waste disposal / landfill sites and treatment plants</b>	
55. Tsumeb 56. Otjiwarongo 57. Walvis Bay 58. Swakopmund 59. Gobabis 60. Windhoek	<b>Oshikoto</b> <b>Otjozondjupa</b> <b>Erongo</b> <b>Erongo</b> <b>Omaheke</b> <b>Khomas</b>
<b>Asbestos Roofs: City of Windhoek</b>	
61. Katutura: Shandubala and Wambo Location	<b>Khomas</b>
<b>Asbestos Roofs: Tsumeb Municipality</b>	
62. Tsumeb municipal magazine yard	<b>Oshikoto</b>
<b>Namibian Airports Company</b>	
<b>Airports:</b>	
63. Ondangwa Airport 64. Hosea Kutako International Airport 65. Eros Airport 66. Walvis Bay Airport	<b>Oshana</b> <b>Khomas</b> <b>Khomas</b> <b>Erongo</b>
<b>Ministry of Works and Transport</b>	
<b>Airstrips:</b>	
67. Swakopmund (Swakopmund Municipality) 68. Otjiwarongo 69. Gobabis	<b>Erongo</b> <b>Otjozondjupa</b> <b>Omaheke</b>
<b>TransNamib</b>	
<b>Locomotive depots:</b>	
70. Ondangwa 71. Otjiwarongo 72. Walvis Bay 73. Windhoek	<b>Oshana</b> <b>Otjozondjupa</b> <b>Erongo</b> <b>Khomas</b>
<b>Road Authority</b>	
<b>NATIS: Motor Vehicle Examination</b>	
74. Windhoek 75. Walvis Bay 76. Gobabis 77. Oshakati	<b>Khomas</b> <b>Erongo</b> <b>Omaheke</b> <b>Oshana</b>



**APPENDIX V: DOCUMENTS ANALYZED**

<b>Number</b>	<b>Document Analyzed</b>	<b>Information Obtained</b>
1.	Environmental Management Act, 2007 (Act No.7 of 2007).	Criteria
2.	Customs and Excise Act, 1998 (Act No.20 of 1998).	Criteria
3.	Import and Export Control Act, 1994 (Act No.30 of 1994).	Criteria
4.	Local Authorities Act, 1992 (Act No.23 of 1992).	Criteria
5.	Minerals (Prospecting and Mining), Act, 1992 (Act No.33 of 1992).	Criteria
6.	National Transport Services Holding Act, 1998 (Act No.28 of 1998).	Criteria
7.	Roads Authority Act, 1999 (Act No.17 of 1999).	Criteria
8.	Labour Act, 2007 (Act No.11 of 2007).	Criteria
9.	Public Environmental Health Act, 2015 (Act No.1 of 2015).	Criteria
10.	Atomic Energy and Radiation Protection Act, 2005 (Act No.5 of 2005).	Criteria
11.	Labour Act 1992: Regulations relating to the Health and Safety of Employees at Work.	Criteria
12.	Road Traffic and Transport Regulations, 2001.	Criteria
13.	International Standard (ISO) 31000:2009.	Criteria
14.	South African Bureau of Standards.	Criteria
15.	National Renewable Energy Policy of Namibia 2017.	Criteria
16.	Model Fire Brigade Services Regulations.	Criteria
17.	Asbestos Regulations made under the Labour Act, 1992 (Act No.6 of 1992).	Criteria
18.	Tobacco Product Control Act, 2010 (No.1 of 2010).	Criteria
19.	Integrated Health Care Waste Management Plan of 2012.	Criteria
20.	Stockholm Convention on Persistent Organic Pollutants.	Criteria
21.	5 <sup>th</sup> National Development Plan and Agenda 2030 for Sustainable Development	To determine the relevant Sustainable Development Goals (SDG's) relating to Air Quality, and to determine whether the current laws and regulations on Air Quality as well as the strategic and annual plans are in line with the SDG's.
22.	Radiation Management Plans.	To determine whether the NRPA ensured that facilities operates with an approved operational document that provides the framework of how they intend to fulfil the requirements stipulated in both the Act and its Regulations. Also, if listed activities undertaken comply with what is stipulated in the Radiation Management Plans.
23.	Licenses	To determine whether radiation sources facilities are complying with the general licence conditions.
24.	Environmental Management Plans	To determine whether DEA under MET ensured that proponents have an approved operational document that provides the framework of how they intend to fulfil the requirements stipulated in both the Act and its Regulations. Also, if listed activities undertaken comply with what is stipulated in the Environmental Management Plans.
25.	Environmental Clearance Certificates	To determine whether the DEA under MET ensured that proponents undertaking pollution listed activities endangering the environment are operating with valid Environmental Clearance Certificates.
26.	Environmental Management Reports	To determine whether the DEA under MET conducted verification inspections to ensure that the Environmental Management Reports of organisations undertaking pollution listed activities endangering the environment is a true reflection of operations.
27.	Inspection reports: Conservation scientists, Radiation, Aviation, Labour, Locomotives, Waste disposal and treatment plants.	To determine whether environmental activities, radiation sources, labour activities, locomotive operations, the MET, NRPA, NCAA, MWT, TransNamib and Local Authorities effectively inspect dumping and landfill sites and treatment plants. Also, to determine if inspection recommendations are implemented and adhered to.
28.	Job Descriptions of Conservation Scientists, Radiation Physicists, Labour Inspectors, Aviation officers, Airworthiness Inspector and Environmental Health Practitioners	To determine the roles and responsibilities of key staff of the MET, NRPA, NCAA, MoHSS and Local Authorities.
29.	DEA under MET Annual Operational Plans	To determine whether the DEA under MET effectively execute its operational activities as stated by the Annual Operational Plan.



Number	Document Analyzed	Information Obtained
30.	Namibian Government budget book for the financial years ending 2014/15-2017.	To determine the staff establishment of the key Departments under MET.
31.	Report of the Auditor-General on the accounts of the Ministry of Environment and Tourism for the financial years ending 2014/15-2017	To determine the budget allocations of the DEA under MET.
32.	World Health Organization Global Update	To determine the impact of air pollution on human health
33.	United Nations Environmental Programme	To determine the impact of air pollution on human health
34.	United Nations Sustainable Development Goals	Criteria
35.	European Agency emissions inventory guidebook 2013	Criteria
36.	Otjiwarongo Municipality Street and Traffic Regulations	Criteria
37.	Independent Verification report of Hydro Chlorofluoro Carbons import quota and licensing system in Namibia 2015-2016	To determine whether the quota allocation will reduce the import of ozone depleting substances.
38.	United Nations Framework on Climate Change	Criteria
39.	Namibia Tax Bulletin 6/2016	Criteria
40.	TransNamib integrated annual report 2016/2017	Criteria
41.	Walvis Bay and Swakopmund Municipalities Waste Disposal Management Contracts	Criteria

#### APPENDIX VI: Planned Locomotive Examinations Executed

Calendar Year	Planned Locomotive Examinations	Monthly Locomotive Examination Conducted	3 Monthly Locomotive Examination Conducted	6 Monthly Locomotive Examinations Conducted	Annual Locomotive Examination Conducted	Total Locomotive Examination Conducted	Total Locomotive Examinations not Conducted	Percentage Locomotive Examinations not Conducted
2014	270	44	23	16	12	92	175	65%
2015	270	35	19	8	5	64	203	75%
2016	270	62	27	14	15	120	152	56%
2017	270	56	30	15	14	112	155	57%
<b>Total</b>	<b>1080</b>	<b>197</b>	<b>99</b>	<b>53</b>	<b>46</b>	<b>395</b>	<b>685</b>	<b>63%</b>

Source: OAG Own Analysis from TransNamib Examination Reports

APPENDIX VII: LIST OF OUTSTANDING ENVIRONMENTAL LEVIES

Table 1 Outstanding Environmental Levies 2017

Year	Month	Office	HS COD	Sum(Env Levy) NS	Sum Items
2017	06	TKAL	87042181	9600	2
2017	11	TKAL	40111009	2840	3
2017	03	LUDE	85392990	693	2
2017	09	TKAL	40111005	2560	2
2017	11	WALV	40112024	2300	1
2017	11	ARIA	85392190	216	2
2017	08	ORAN	87033390	4160	1
2017	01	WALV	87032390	12880	4
2017	07	WALV	87032290	5600	2
2017	03	WALV	40122010	12000	1
2017	11	WALV	40122010	16000	1
2017	01	ARIA	40111009	100	2
2017	05	NOOR	85392145	1020	1
2017	08	NOOR	85392145	150	1
2017	06	LUDE	85392245	42	1
2017	07	NOOR	85392245	27	4
2017	12	FPDT	40114000	40	1
2017	09	FPDT	85392950	60	1
2017	04	TKAL	85392245	120	1
2017	06	ARIA	40111001	20	1
2017	09	WALV	40111007	220	1
2017	04	TKAL	40114000	160	1
2017	08	NOORD	85392245	33	5
2017	11	WALV	87032390	135240	44
2017	09	WALV	87032390	409160	156
2017	07	TKAL	87042181	18000	2
2017	11	TKAL	40112018	110	2
2017	02	LUDE	85392190	6	1
2017	02	TKAL	85392190	60	1
2017	11	TKAL	40111007	200	1
2017	11	TKAL	40111005	470	4
2017	05	LUDE	85392990	36	1
2017	09	TKAL	40112016	400	1
2017	11	ARIA	40111005	20	1
2017	12	HAIR	40117020	60	1
2017	10	TKAL	40111009	80	1
2017	08	LUDE	85392990	69	2
2017	04	TKAL	40111001	140	1
2017	08	WALV	40122090	13490	1
2017	04	LUDE	85392290	600	1
2017	10	NOOR	85392245	6	2
2017	07	NOOR	87032390	2800	1
2017	10	NGOM	87032390	5992	2
2017	09	TKAL	40111001	40	1
2017	11	NOOR	85392245	3	1
2017	11	FPDT	85392190	60	2
2017	02	NOOR	85392290	30	1
2017	08	TKAL	40112018	1700	1
2017	12	TKAL	40111001	2770	1
2017	07	TKAL	40111009	2500	2
2017	09	TKAL	85392145	6	1
2017	08	LUDE	85392290	48	1
2017	09	TKAL	40111007	200	2
2017	01	WALV	40111009	8830	1
2017	10	WALV	87032290	26080	10
2017	10	WALV	87032390	200920	66
2017	10	WALV	40122010	30270	1
2017	04	WALV	85392990	1800	1
2017	11	TKAL	40111001	400	2
2017	06	LUDE	85392190	72	1
2017	09	ORAN	87033390	6000	1
2017	02	WALV	87033390	12800	2
2017	03	NOORD	87032390	6400	2
2017	11	WALV	40111009	12440	1
2017	03	LUDE	85392245	80	1
2017	08	TKAL	40115000	2700	1
2017	03	LUDE	85392190	96	1
2017	03	NOORD	40111009	20	1
2017	<b>TOTAL</b>			<b>974045</b>	<b>372</b>



**Table 2: Outstanding Environmental Levies 2016**

Year	Month	Office	HS COD	Sum(Env Levy) N\$	Sum Items
2016	10	WALV	87032290	40800	16
2016	08	WALV	87032390	9920	2
2016	07	WALV	40119300	4300	5
2016	07	NOOR	85392190	102	2
2016	08	NOOR	85392190	108	1
2016	11	WALV	87032390	32800	8
2016	12	WALV	87032390	6800	2
2016	11	TKAL	85392245	327	2
2016	11	WALV	40111009	11400	1
2016	08	NOOR	87032390	4800	9
2016	09	NOOR	85392190	291	2
2016	07	TKAL	85392990	480	2
2016	10	WALV	87032390	48000	16
2016	11	WALV	40122010	22000	1
2016	07	WALV	40111001	12720	1
2016	08	ARIA	85392190	1155	1
2016	11	NOOR	85392190	3900	1
2016	12	LUDE	85392990	9	1
2016	08	TKAL	85392245	426	3
2016	07	NOOR	85392145	30	1
2016	10	NOOR	85392190	792	4
2016	07	TKAL	85392190	120	7
2016	10	TKAL	40116310	40	1
2016	10	WALV	40119300	150	1
2016	08	ARIA	85392957	210	1
2016	10	NOOR	85392990	123	2
2016	11	WALV	87032290	31200	12
2016	10	WALV	40122090	14720	1
2016	08	TKAL	40112025	30	1
2016	10	TKAL	85392245	348	1
2016	07	WALV	40116200	10	1
2016	09	ARIA	85392145	201	1
2016	09	TKAL	85392245	240	1
2016	10	TKAL	40119990	3000	1
2016	12	NOOR	85392990	3	1
2016	07	WALV	40122010	13670	1
2017	<b>TOTAL</b>			<b>265225</b>	<b>114</b>

