Management of Environmental Impact Assessments (EIA) of Proposed Development Activities

A guiding handbook for Environmental Health Practitioners (EHPs)

health
Department:
Health
REPUBLIC OF SOUTH AFRICA

Us the manual in conjunction with the Department of Environmental Affairs, EIA Regulations 2014 (as amended) R326 of 07 April 2017; and The Department of Health Environmental Health Impact Assessment Guidelines for Development Projects in South Africa, 2014.

ABBREVIATIONS

BA	Basic Assessment
BAR	Basic Assessment Report
CA	Competent Authority
DEA	Department of Environmental Affairs
DOH	Department of Health
EAP	Environmental Assessment Practitioner
EHP	Environmental Health Practitioner
EHIA	Environmental Health Impact Assessment
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act (Act 107 of 1998)
NHA	National Health Act (Act 61 of 2003)

Part 1

UNDERSTANDING THE ENVIRONMENAL IMPACT ASSESSMENT (EIA) PROCESS IN SOUTH AFRICA

1. INTRODUCTION

Environmental Impact Assessments (EIAs) in South Africa are conducted when a new development or activity is proposed. In terms of the National Environmental Management (NEMA) Act, Act 107 of 1998, section 24 states that "In order to give effect to the general objectives of Integrated Environmental management laid down in Chapter 5 of the act, the potential impact on-

(a) the environment;
(b) socio-economic conditions; and
(c) the cultural heritage.

of activities that require authorization or permission by law and which may significantly affect the environment, people and nearby developments must be considered, investigated and assessed prior to their implementation, and reported to the organ of state charged by law with authorizing, permitting, or otherwise allowing the implementation of an activity.

An EIA is a formal process used to predict the environmental consequences (negative and/or positive) of a plan, policy, program, or project prior the implementation decision. EIA proposes measures to adjust impacts to acceptable levels or to investigate new technological solutions/alternatives that may reduce impacts or eliminate them altogether, as well as measures to monitor and manage impacts. The EIA process essentially aims to protect the environment from human activity by providing sound basis for effective and sustainable development, through the identification, description, prediction, assessment, evaluation and mitigation of direct and indirect impacts of a project on the environment, including socio-economic and cultural factors such as (human health, fauna and flora, soil, water, air, climate and the landscape), to inform decision making to either grant or refuse environmental authorization.

EIAs are unique in that they do not require adherence to predetermined environmental outcomes, but rather they require decision makers to account for environmental values in their decisions and to justify those decisions in light of detailed environmental studies and public comments on the potential environmental impacts.

The Environmental Impact Assessment Regulations, 2014 (as amended) -R326 of 04 April 2017, a amended were promulgated in terms of section 25(5), 24M and 44 of NEMA, to regulate

authorizations of listed activities. All activities that have a potential to have an impact on the environment and therefore require environmental authorization are listed in **LISTING** Notice **1** and **LISTING Notice 2**: Lists activities and competent authorities identified in terms of section 24(2) and 24(d) of the act, as well as **Notice 409 of 2009** list of Waste Management Activities that have or are likely to have a detrimental effect on the environment.

Role of Environmental Health Practitioners

The role of Environmental Health Practitioners (EHPs) in the EIA processes is driven by the need to ensure a healthy environment for protection of public health. Their scope of work is structured on reducing environmental and social risk factors to prevent the burden of environmentally induced disease.

Through the EIA process, EHPs aims to predict, identify, assess and control factors in the environment that may pose an adverse impact on human health as a result of an activity. This manual therefore serves as a Guide for managing EIAs from a health perspective, i.e. to predict a potential health problem, identify its potential hazard and assess its potential level/degree of harm to human health, if potential impacts are not mitigated or reduced.

ENVIRONMENTAL AUTHORISATION

What is Environmental Authorisation?

Environmental Authorisation was previously referred as a Record of Decision (ROD). It refers to permission or approval granted by a Competent Authority to a developer to undertake a specific activity, that may have an impact on the environment, after the EIA process has been completed.

A developer applies for environmental authorisation to the competent authority, who after due EIA processes, can either grant or refuse environmental authorization, or to grant authorization with conditions.

What are the contents of an Environmental Authorisation?

An Environmental Authorisation **must** specify;

- the name, address and telephone number of the person to whom the authorisation is issued;
- a description of the activity that is authorised;
- a description of the property on which the activity is to be undertaken and the location of the activity on the property, or if it is –

- ❖ a linear activity, a description of the route of the activity; or
- ❖ an ocean-based activity, the coordinates within which the activity is to be undertaken;

- the conditions subject to which the activity may be undertaken, including conditions determining -

  - ❖ The period within which commencement must occur, which period may not exceed 10 years and may not be extended beyond that 10 years;
  - ❖ where the environmental authorisation does not include operational aspects, the period for which the environmental authorisation is granted, which period may not be extended unless the process to amend the environmental authorisation is followed, and the date on which the activity is deemed to have been concluded;
  - ❖ a distinction between the portions of the environmental authorisation that deal with operational and non operational aspects respectively and the respective periods for which the distinct portions of the environmental authorisation is granted, where the environmental authorisation contains operational and non operational aspects;
  - ❖ requirements for the avoidance, management, mitigation, monitoring and reporting of the impacts of the activity on the environment throughout the life of the activity additional to those contained in the approved Environmental Management Plan report, and where applicable the closure plan; and
  - ❖ the frequency of auditing of compliance with the conditions of the environmental authorisation and of compliance with the approved EMPr, and where applicable the closure plan, in order to determine whether such EMPr and closure plan continuously meet mitigation requirements and addresses environmental impacts, taking into account processes for such auditing prescribed in terms of these Regulations: provided that the frequency of the auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr may not exceed intervals of 5 years;
  - ❖ the frequency of submission of an environmental audit report to the competent authority, including the timeframe within which a final environmental audit report must be submitted to the competent authority;
  - ❖ the frequency of updating the approved EMPr, and where applicable the closure plan, and the manner in which the updated EMPr and closure plan will be approved, taking into account processes for such amendments prescribed in terms of these Regulations;
  - ❖ a requirement that the environmental authorisation, approved EMPr, any independent assessments of financial provision for rehabilitation and environmental liability, closure plans, where applicable, audit reports including the environmental audit report contemplated by regulation 34, and all compliance monitoring reports be made available for inspection and copying—
    - o at the site of the authorised activity;

- to anyone on request; and
- where the holder of the environmental authorisation has a website, on such publicly accessible website; and

❖ any relevant conditions which the competent authority deems appropriate.

ROLE PLAYERS IN THE EIA PROCESS

Who are the role players in the EIA process and what are their role?

Role players in the EIA process in South Africa include the following;

- the NEMA competent authority;
- the Applicant;
- the Environmental Assessment Practitioner (EAP);
- Interested and Affected parties, and
- relevant state departments.

a) Who is the NEMA Competent Authority?

The competent authority refers to an authority with the powers to issue or reuse environmental authorisation. Depending on the nature and the location of the proposed activity, NEMA competent authority can be the Minister of the National Department of Environmental Affairs, an MEC of the relevant environmental authority in the province or the Mayor of a Municipality.

In terms of the Mineral Resources Act, the Minister of the Department of Mineral Resources is the Competent Authority in terms of mining activities, or activities requiring Mining Proprietary rights.

b) Applicant?

The applicant is the developer, or party that requests or requires environmental authorization; they are primarily the company or organization intending to undertake the proposed activity or project.

c) What is an Environmental Assessment Practitioner (EAP)?

The EAP is a consultant/s appointed by the applicant to manage the Environmental Authorisation application and process on the applicant's behalf. EAP are mainly environmental specialists, specializing in Environmental Management issues.

A person/s appointed as an EAP must be independent, objective and have expertise in conducting EIAs.

d) Relevant State Departments?

These are relevant government departments that are concerned with a particular issue/s relating to environmental authorization or are responsible for administering a specific law relating to any other matter affecting the environment e.g. Department of Health (DOH), whose main concern is human health and how it can be affected by a proposed activity, or the Department of Water and Sanitation wrt, water resources, quality and quantity.

e) Interested and Affected Parties (I&APs)?

I&APs are/ refer to any person/s that may be directly or indirectly affected by proposed activity, these may include;

- Owners and occupiers of land adjacent to the site where the activity is to be undertaken;
- Owners or occupiers of land within 100 meters of the boundary of the site who are or may be directly affected by the activity;
- The municipal councilor of the ward in which the site is situated and any organization of ratepayers that represent the community in the area;
- The municipality or any organ of state which has jurisdiction over a particular area or activity; or who's mandate has a bearing/can be affected by the proposed activity; or
- Any other individual or group of individuals with an interest in the matter.

The EAP must open and maintain a register of names and addresses of all persons who have submitted their comments or attended meetings during the public participation process, all persons who have completed the relevant public participation request form and all organs of state with jurisdiction.

UNDERSTANDING PROCESSES OF ENVIRONMENTAL IMPACT ASSESSMENT

What are the processes involved in an EIA?

There are two processes involved in Environmental Authority; the *Basic Assessment (BA) process and the Scoping and Environmental Impact Reporting (S&EIR) process*.

When applying for environmental authorization, a proposed activity/project must be subjected to either a Basic Assessment process or a scoping and environmental impact process before Environmental authorization is granted.

What are the activities that require a Basic Assessment (BA) process?

- Activities that are listed in terms of **Listing Notice 1** of the EIA Regulations 2014 (as amended), as well as those activities listed in **Category A** of Notice 409 of 2009 of the National Environmental Management: Waste Act, 2008 must be subjected to a **Basic Assessment**.
- These activities are generally smaller scale activities, of which the impacts are generally known and can be easily assessed and managed.

What are the activities that require a detailed Scoping and EI(S&EIR) process?

- All activities that are listed in terms of **Listing Notice 2** of the EIA Regulations, as well as those listed in **Category B** of Notice 409 of 2009 of the NEM: Waste Act, 2008 must be subjected to a detailed S&EIR process.

- These activities are likely to have significant impacts on the environment due to their nature and extent. They are considered higher risk activities that are associated with potentially higher levels of pollution, waste and environmental degradation.

The BA and S&EIR require similar processes to be undertaken, however at different scales. i.e. Screening, Scoping, Appraisal, Monitoring and Evaluation.

THE BASIC ASSESSMENT (BA) PROCESS

1) Basic Assessment

A BA is a more concise (brief) analysis of environmental impacts of a proposed activity. The Basic Assessment process will result in a Basic Assessment Report (BAR).

2) Procedures in a Basic Assessment process

An application for a BA is submitted to the relevant CA, relevant government departments and I&APs are notified of the intention of the BA process of the proposed activity and their comments requested.
During the **BA** process, the EAP must;

- Open and maintain a register of all I&APs;
- Consider all objections and representation from I&APs following a public participation process conducted and subject the proposed application to a basic assessment.

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In a **BA**, although the impacts are generally known and can be easily managed, the processes includes the following:

- Consideration of potential environmental impacts of a proposed activity;
- An assessment of possible mitigation measures;
- Public notice and participation;
- An assessment of whether there are any significant issues or impacts that require further investigation; and
- Inclusion of specialists studies where required e.g. Heritage impact study, geotechnical study or social impact studies etc.

After the activities in a **BA** are been completed, the EAP must:

- Prepare a Basic Assessment Report (BAR); and
- Give all registered I&APs and opportunity to comment on the **BAR** before submitting to the competent authority.

Contents of a BAR

The BAR must provide the Competent Authority with enough information to consider the application and come to a decision on the application, and must included-

- Details of the EAP/consultant who prepared the report and their expertise;
- Location of the activity, including;
  - the 21 digit Surveyor General Code of each cadastral land parcel;
  - where available, the physical address and farm name;
  - where required, the coordinates of the boundary of the property/properties;
- A plan which locates the proposed activity/activities applied for as well as associated structures and infrastructure at an appropriate scale; or if it is-
  - a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken;
  - a description of the activities to be undertaken including associated structures and infrastructure.
- A description of the scope of the proposed activity, including;-
  - all listed and specified activities triggered and being applied for; and
  - a description of the activities to be undertaken including associated structures and infrastructure.
- A description of the policy and legislative context within which the development is proposed, including -

- an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and
- how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks and instruments;

- A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location;
- A motivation of the preferred site, activity and technology alternative;
- A full description of the process followed to reach the proposed preferred alternative within the site, including;
  - details of the alternatives considered;
  - details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;
  - a summary of the issues raised by the I&APs and an indication of the manner in which the issues were incorporated or the reasons for not including them;
  - the environmental attributes associated with the alternatives focusing on geographical, physical, biological, social, economic, heritage and cultural aspects;
  - the impacts and risks identified of each alternatives, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which the impacts, can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated;
  - the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of the potential environmental impacts and risks associated with the alternatives;
  - positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
  - the possible mitigation measures that could be applied and the level of residual risks;
  - the outcome of the site selection matrix;
  - if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and
  - a concluding statement indicating the preferred alternatives, including preferred location of the activity;
- A full description of the process undertaken to identify, assess and rank the impacts that the activity will impose on the preferred location through the life of the activity, including-
  - a description of all environmental issues and risks that were identified during the EIA process; and
  - an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.
- An assessment of each identified potentially significant impact and risk, including;-

- cumulative impacts;
- the nature, significance and consequences of the impact and risk;
- the extent and duration of the impact and risk;
- the probability of the impact and risk occurring;
- the degree to which the impact and risk can be reversed;
- the degree to which the impact and risk may cause irreplaceable loss of resources; and
- the degree to which the impact and risk can be avoided, managed or mitigated.

- Where applicable, a summary of the findings and impact management measures identified in any specialist report and an indication as to how these findings and recommendations have been included in the final report;
- An environmental impact statement which contains-
  - a summary of the key findings of the EIA;
  - a map at an appropriate scale, which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers;
  - a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;
- Any aspects which were conditional to the findings of the assessment either by the EAP or specialist, which are to be included as conditions of authorisation;
- A description of any assumptions or uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;
- A reasoned opinion as to whether the proposed the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, and conditions that should be made in respect to that authorisation;
- Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;
- An undertaking under oath or affirmation by the EAP in relation to;
  - the correctness of the information provided in the reports;
  - the inclusion of comments and inputs from stakeholders and I&APs;
  - the inclusions of inputs and recommendations from specialist reports where relevant;
  - any information provided by the EAP to I&APs, and any responses to comments or inputs made by I&APs; and
- Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management or negative environmental impacts;
- Any specific information that may be required by the CA; and
- any other matters required in terms of section 24(4)(a) and (b) of the NEMA.

SCOPPING AND ENVIRONMENTAL IMPACT ASSESSMENT (S&EIA) PROCESS

3) Scoping and Environmental Impact (S&EIA) Process

Us the manual in conjunction with the Department of Environmental Affairs, EIA Regulations 2014 (as amended) R326 of 07 April 2017; and The Department of Health Environmental Health Impact Assessment Guidelines for Development Projects in South Africa, 2014.

Scoping and EIA process requires a thorough environmental assessment of activities. It is required for those activities that are likely to have a significant impact on the environment and can therefore be regarded as higher risk activities. These activities are mainly associated with potentially higher levels of pollution e.g. air, water, waste etc.

4) Procedures in the S&EIA process:

a) Scoping

- Scoping is a critical, early step in the preparation of an EIA. The Scoping process will result in a scoping report that is submitted to the CA for approval before an EIA is conducted.

<u>The scoping will generally include;</u>

- Identification of relevant policies and legislation relevant to the activity;
- Identification of issues that are likely to be of most importance during the EIA and eliminates those that are of little concern;
- Determining major issues and impacts and risks that will be important in decision-making on the proposal, and that need to be addressed in an EIA;
- Motivate the need and desirability of the proposed activity, including the need and desirability in the context of the preferred location;
- Agree on the level of the assessment to be undertaken and the methodology to be used to assess potential impacts;
- Identification of specialist studies and reports that will be necessary during an EIA, the expertise required; and
- Identification of suitable measures to avoid, manage or mitigate identified impacts and determine the extent of the residual risks that need to be managed and monitored.

The scoping process basically provides a roadmap for preparation of an EIA or Terms of Reference (TOR) of an EIA;
In this way, scoping ensures that EIA studies are focused on the *significant impacts and risks,* and that time and money are not wasted on unnecessary investigations.

<u>The purpose of scoping therefore is to identify:</u>

- Important issues to be considered in an EIA;
- Appropriate time and space boundaries of the EIA study;
- Information necessary for decision-making; and
- Significant effects and factors to be studied in detail; and equally important for consideration of alternatives to a proposed action/activity where necessary.

b) When is the scoping process completed?

Scoping is completed when the detailed ToR for the EIA have been specified and a detailed plan of study has been developed.

c) What is a plan of study?

The plan of study provides guidance to the proponent (developer) on how the EIA should be conducted and managed. It outlines what the EIA is to cover, the type of information to be submitted, e.g. specialist study reports; and the depth of analysis that is required for assessment of activities. The Plan of Study for EIA and has to be submitted together with the scoping report.

d) The Scoping Report?

The scoping report describes the proposed project and identifies the possible impacts of the proposed development. In addition, the scoping report must contain a description of the significant impacts and risks and the methodology that will be used to assess potential impacts and any specialist reports that will be necessary. However, the scoping report *does not include a detailed assessment* of the impact of the project on the environment.

Contents of a Scoping Report

The EIA regulations states that **"a scoping report must contain all the information for the proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the EIA process.**

The Scoping Report must include;

- Details of the EAP/consultant who prepared the report and their expertise;
- Location of the activity, including;
  - the 21 digit Surveyor General Code of each cadastral land parcel;
  - where available, the physical address and farm name;
  - where required, the coordinates of the boundary of the property/properties;
- A plan which locates the proposed activity/activities applied for as well as associated structures and infrastructure at an appropriate scale; or if it is-
  - a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken;
  - a description of the activities to be undertaken including associated structures and infrastructure.

- A description of the scope of the proposed activity, including;-
  - all listed and specified activities triggered; and
  - a description of the activities to be undertaken including associated structures and infrastructure.
- A description of the policy and legislative context within which the development is proposed, including, an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and are to considered in the assessment process;
- A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location;
- A motivation of the preferred site, activity and technology alternative;
- A full description of the process followed to reach the proposed preferred alternative within the site, including;
  - details of the alternatives considered;
  - details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;
  - a summary of the issues raised by the I&APs and an indication of the manner in which the issues were incorporated or the reasons for not including them;
  - the environmental attributes associated with the alternatives focusing on geographical, physical, biological, social, economic, heritage and cultural aspects;
  - the impacts and risks identified of each alternatives, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which the impacts, can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated;
  - the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of the potential environmental impacts and risks associated with the alternatives;
  - positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
  - the possible mitigation measures that could be applied and the level of residual risks;
  - the outcome of the site selection matrix;
  - if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and
  - a concluding statement indicating the preferred alternatives, including preferred location of the activity;
- A full description of the process undertaken to identify, assess and rank the impacts that the activity will impose on the preferred location through the life of the activity, including-
  - a description of all environmental issues and risks that were identified during the EIA process; and

- an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.

- A plan of study for undertaking the EIA process to be undertaken, including-
  - a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with such activity;
  - a description of the aspects to be assessed as part of the EIA;
  - aspects to be assessed by specialists;
  - a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;
  - a description of the proposed method of assessing, duration and significance;
  - an indication of the stages in which the CA will be consulted;
  - particulars of the public participation process to be conducted during the EIA process;
  - a description of the tasks that will be undertaken as part of the EIA process;
  - identification of suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored;
- An undertaking under oath or affirmation by the EAP in relation to;
  - the correctness of the information provided in the reports;
  - the inclusion of comments and inputs from stakeholders and I&APs;
  - any information provided by the EAP to I&APs, and any responses to comments or inputs made by I&APs;
  - An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and I&APs on the plan of study for undertaking the EIA;
- Where applicable, any specific information that may be required by the CA; and
- any other matters required in terms of section 24(4)(a) and (b) of the NEMA.

f) Environmental Impact Assessment (EIA) Process

The EIA process must be undertaken in line with the approved plan of study for the EIA. The environmental impacts, mitigation and closure outcomes, as well as the residual risks of the proposed activity must be set out in the Environmental Impact Report (EIR).

The objective of the EIA process is to, through a consultative process;-

- Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- Describe the need and desirability of the proposed activity, including the need and desirability in the context of the preferred location;
- Identify the location of the development footprint within the approved site as contemplated in the approved scoping report;

- Determine the nature, significance, extent, duration and probability of the impacts ccuring to inform the identified preferred alternatives and the degree which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed and mitigated.
- Identify the most ideal location for the activity within the preferred approved site;
- Identify, assess and rank the impacts the activity will pose on the preferred location;
- Identify suitable measures to avoid, manage or mitigate identified impacts; and
- identify residual risks that need to be managed and monitored.

The Environmental Impact Report (EIR)

The final EIR is the comprehensive examination of the issues and impacts identified in the Scoping Report. The final EIR must contain an Environmental Management Plan (EMP) that sets forth the applicant/developer's proposals for managing possible impacts and risks of the project.

Contents of an EIR

In terms of the EIA Regulations, the EIR must contain information that is necessary for the CA to consider and come to a decision on the application, and must include;-

- Details of the EAP/consultant who prepared the report and their expertise;
- Location of the activity, including;
  - the 21 digit Surveyor General Code of each cadastral land parcel;
  - where available, the physical address and farm name;
  - where required, the coordinates of the boundary of the property/properties;
- A plan which locates the proposed activity/activities applied for as well as associated structures and infrastructure at an appropriate scale; or if it is-
  - a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken;
  - a description of the activities to be undertaken including associated structures and infrastructure.
- A description of the scope of the proposed activity, including;-
  - all listed and specified activities triggered and being applied for; and
  - a description of the activities to be undertaken including associated structures and infrastructure.
- A description of the policy and legislative context within which the development is proposed, including -
  - an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and

- how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks and instruments;

- A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location;
- A motivation of the preferred development footprint within the site as contemplated in the scoping report;
- A full description of the process followed to reach the proposed development footprint within the preferred site, including;
  - details of the development footprint alternatives considered;
  - details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;
  - a summary of the issues raised by the I&APs and an indication of the manner in which the issues were incorporated or the reasons for not including them;
  - the environmental attributes associated with the alternatives focusing on geographical, physical, biological, social, economic, heritage and cultural aspects;
  - the impacts and risks identified of each alternatives, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which the impacts, can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated;
  - the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of the potential environmental impacts and risks associated with the alternatives;
  - positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
  - the possible mitigation measures that could be applied and the level of residual risks;
  - the outcome of the site selection matrix;
  - if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and
  - a concluding statement indicating the preferred alternatives, including preferred location of the activity;
- A full description of the process undertaken to identify, assess and rank the impacts that the activity will impose on the preferred location through the life of the activity, including-
  - a description of all environmental issues and risks that were identified during the EIA process; and
  - an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.
- An assessment of each identified potentially significant impact and risk, including;-
  - cumulative impacts;
  - the nature, significance and consequences of the impact and risk;

- the extent and duration of the impact and risk;
- the probability of the impact and risk occurring;
- the degree to which the impact and risk can be reversed;
- the degree to which the impact and risk may cause irreplaceable loss of resources; and
- the degree to which the impact and risk can be avoided, managed or mitigated.

- Where applicable, a summary of the findings and impact management measures identified in any specialist reports and an indication as to how these findings and recommendations have been included in the final report;
- An environmental impact statement which contains-
  - a summary of the key findings of the EIA;
  - a map at an appropriate scale, which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers;
  - a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;
- Based on the assessment, and where applicable, recommendations from specialist reports, recording of the proposed impact management objectives and the impact management outcomes for the development for inclusion in the Environmental Management Plan report as well as conditions of authorisation;
- The final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment;
- Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of the authorisation;
- A description of any assumptions or uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;
- A reasoned opinion as to whether the proposed the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, and conditions that should be made in respect to that authorisation;
- Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;
- An undertaking under oath or affirmation by the EAP in relation to;
  - the correctness of the information provided in the reports;
  - the inclusion of comments and inputs from stakeholders and I&APs;
  - the inclusions of inputs and recommendations from specialist reports where relevant;
  - any information provided by the EAP to I&APs, and any responses to comments or inputs made by I&APs; and
- Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management or negative environmental impacts;
- Any specific information that may be required by the CA; and
- any other matters required in terms of section 24(4)(a) and (b) of the NEMA.

5) The Environmental Management Programme/Plan (EMP)

The EMP is one of the outputs of the EIA process. It includes the synthesis/combination of all proposed mitigation measures and monitoring actions to the identified impacts and risks of a proposed activity. An EMP is set to a timeline with specific responsibility assigned and follow-up actions defined. When an EIA process is concluded an EMP must form part of a EIR.

The EMP must generally contain proposals for managing all impacts of the activity, from the design and planning stage through to construction and operating stage to the decommissioning stage.

Contents of an Environmental Management Plan report (EMPr)

In terms of the EIA Regulations, an EMP must include the following;

- Details of the person who prepared the EMP and their expertise in preparing EMPs;
- A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;
- A map at an appropriate scale that superimposes the proposed activity, its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;
- A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the EIA for all phases o the development, including planning and design, pre-construction activities, construction activities, rehabilitation of the environment after construction and where applicable post closure; and where relevant, operation activities;
- A description of proposed impact management actions, identifying the manner in which the impact outcomes will be achieved, and must where applicable, include actions to;
  - avoid, modify, remedy, control or stop any action or activity or process which causes pollution or degradation;
  - comply with any prescribed environmental management standards and practices;
  - comply with the applicable provisions of NEMA regarding closure; where applicable;
  - comply with any provisions of the NEMA regarding financial provisions for rehabilitation, where applicable;
- The method of monitoring the implementation of the identified impact management actions;
- The frequency of monitoring the implementation of the impact management actions;
- An indication of persons who will be responsible for the implementation of the impact management actions;
- The time periods within which the impact management actions must be implemented;
- The mechanisms for monitoring compliance of the impact management actions;

- A program for reporting on compliance, taking into account the requirements as prescribed by the EIA Regulations;
- An Environmental Awareness Plan describing the manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work, and a manner in which risks must be dealt with in order to avoid pollution or degradation of the environment; and
- Any specific information that might be required by the CA.

SPECIALIST PROCESSES AND SPECIALIST REPORTS

6) Specialist processes refer to processes to obtain information in specialised fields, which Is not readily available without extensive investigation. The aim of specialist processes is to provide an overview informs an assessment and evaluation of the impacts of the activity; and includes risk assessment and cost benefit analysis.

Specialist studies are carried out by specialists in specific fields and are determined by impacts of the development/activity that are of main concern. They are often commissioned on issues such as heritage, social impacts, vegetation, fresh water systems, noise impact and health etc.

Contents of Specialist Reports

A specialist report prepared in terms of the EIA Regulations must contain;

- Details of the person who prepared the report and their expertise to carry out the specific studies;
- A declaration that the specialist is independent in a form prescribed by the CA;
- an indication of the scope of, and the purpose for which the report was prepared;
- A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;
- The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;
- A description of the methodology adopted in preparing the report or carrying out the specialised process, inclusive of equipment and model used;
- Details of an assessment of the specific identified sensitivity of the site related to the proposed activity/activities and its associated structures and infrastructure, inclusive of site plan identifying site alternatives;
- Identification of areas to be avoided, including buffers;
- A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site, including areas to be avoided, including buffers;
- A description of any assumptions made and any uncertainties or gaps in knowledge;

- A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives; on the environment;
- Any mitigation measures for inclusion in the EMPr;
- Any conclusion for inclusion in the environmental authorisation;
- Any monitoring requirements for inclusion in the EMPr or environmental authorisation;
- A reasoned opinion as to whether the proposed activity, activities or portions thereof should be authorised and the acceptability of the proposed activity/activities.
- If the opinion is that the proposed activity should be authorised, any avoidance or mitigation measures that should be included in the EMPr, and where applicable, the closure plan;
- A description of any consultations process that was undertaken during the course of preparing the specialist report; and
- Any other information requested by the CA.

Part 2

HUMAN HEALTH CONSIDERATIONS IN ENVRONMENTAL ASSESSMENT OF PROPOSED DEVELOPMENT

The environment influences human health in many ways - through exposures to physical, chemical and biological risk factors, and through related changes in behaviour in response to those factors. These factors are termed health determinants, which stem from the notion that any change in a health determinants will impact on human health status whether positively or negatively.

Health determinants include the social and economic environment, the physical factors in the environment, and person's individual characteristics and behaviours, that may influence or affect overall health status of a community or individual.

In order for an EHP to effectively manage health impacts within an EIA, it is critical to understand what are the determinants of health that may be impacted negatively or positively by a proposed activity/development, and what kinds of risks and effects will these impacts have on human health.

The table below outlines determinants that have an effect on health . These factors represent examples of the strongest and most consistent predictors of health morbidity and mortality.

Table 1: Determinants of health

Fixed (biological)	Social and economic (personal/family circumstances)	Lifestyle and behaviours (social environment)	Public services	Physical environment
▪ Ageing ▪ Genes ▪ Race ▪ sex	▪ community structure ▪ crime ▪ diet ▪ education ▪ employment ▪ income ▪ occupation ▪ poverty ▪ social exclusion	▪ alcohol ▪ attitude ▪ coping skills ▪ culture ▪ drugs ▪ leisure time ▪ peer pressure ▪ physical activity ▪ politics ▪ religion ▪ risk of injury ▪ sexual behaviour ▪ smoking ▪ tradition	▪ basic services ▪ educational services ▪ health services ▪ leisure/recreational facilities ▪ social services ▪ transport	▪ air quality ▪ climate change ▪ communicable diseases ▪ disease vectors and pests ▪ environmental pollution ▪ food safety and security ▪ hazardous substances ▪ housing ▪ natural disasters ▪ odour & noise ▪ occupational hazards ▪ radiation exposure ▪ visual impacts ▪ waste ▪ water, sanitation, hygiene

Environmental Health Practitioners (EHPs) and the EIA processes

The Scope of Profession for Environmental Health, R888 of 1991, as amended, regulates the role of Environmental Health Practitioners in Environmental pollution control and health surveillance of premises as it relates to EIAs for protection of public health to include;

- Conducting environmental health impact assessments of amongst others, housing projects;
- Ensuring urban and rural land-use planning and practices that are conducive to sustainable development by conducting sound environmental health impacts and other assessments;
- Ensuring prevention and abatement of any condition on any premises, which is likely to contribute a health hazard;

- Conducting environmental health impact assessments of development project and policies, including assessment of major hazard installations;
- Approving environmental health impact reports and providing health comments on Environmental Impact Assessments;
- Taking the required preventative measures to ensure that the general environment is free from health risks.

- Therefore, the overall role of EHPs in the EIA process is to promote and ensure that, through provision of health comments, human health aspects associated with development are fully considered and investigated during planning and impact assessment. This include ensuring that potential impacts, including cumulative impacts of activities are fully assessed, corrected, controlled, mitigated or prevented to prevent adverse health effects.

- EHPs employed by the National Department of Health, Province and District/Metropolitan Municipality all have a role to play in handling EIAs, based on the NEMA competent authority.

NEMA COMPETENT AUTHORITY	RELEVANT HEALTH AUTHORITY	EHP TO HANDLE EIA
The Minster of the National Department of Environmental Affairs;	National Department of Health;	EHP employed by National Health;
MEC or Environmental authority in a province	Provincial Department of Health;	Provincial EHP;
If the Minister of Environmental Affairs has in terms of section 42 of NEMA delegated any powers or duties of a Competent Authority.	Health Authority is the equivalent health delegate in powers or duties.	EHP employed by the relevant health authority;

- EHPs employed by the District/ Metropolitan Municipalities will handle EIA applications for Municipal Infrastructure Projects and any other EIAs as delegated.
- EHP in a province should liaise with Municipal EHPs on all projects falling within the jurisdiction of a district or metropolitan Municipality.

The role of an EHP in the EIA process is outlined as follows:

- Screening of EIA and Basic Assessment applications received;
- Assessing whether a proposed project/development has a potential to trigger any health impacts;

- Assessing and informing the relevant competent authority and EAP in writing of the potential health impacts of a proposed development/ activity; and whether the impacts are expected to be negligible, be of concern or be significant;
- Depending on the significance of the possible impacts of a proposed activity, recommend that health specialist studies be conducted where necessary, and the extent of the HIA required;
- Perform Rapid Environmental Health Impact Assessments, where necessary;
- Inspect BA, Scoping and EI Reports to assess whether proposed mitigation measures are put in place for the possible significant health impacts that have been identified, and whether alternatives have been explored to reduce, avoid or mitigate impacts;
- Inspection and appraisal of health specialist reports submitted by consultants;
- Participate in consultation with Interested and affected parties, where necessary;
- Conduct site visits of the site on which the activity is to be undertaken and the location of the property; and the environment that may be affected by the proposed activity and the manner in which it may be affected by the activity;
- Monitor continuous compliance of operational activities of developments with the relevant environmental and health related legislation for protection o public health.

P.S In summary an EHP must identify potential health hazards of a proposed activity, relate the hazards to changes in environmental and social determinants of health, interpret these changes into health risks; and suggest risk management strategies to reduce or where possible eliminate the impacts.

Determining Possible Health Impacts

What are health impacts?

Health impacts can be defined as changes/effects in health resulting from exposure to a source, in the context of EIAs, it refers to a development or an activity. Health impacts can either be positive or negative, and can be directly or indirectly influenced by the physical, social or economic factors of the environment.

Negative health impacts are those impacts that may have adverse effects, they may result in injuries, stress, loss of income, diseases, environmental pollution and degradation and above all poor physical and/or mental health and well being.

Positive impacts on the other end my bring improved community or individual outcomes or the betterment of society. These can be associated with improved health determinants and health status, for e.g. access to basic services (water and sanitation, electricity, housing, educational, social services and recreational facilities) in the short or long term.

The type and level/degree of health impacts depends on the nature and extent of activity and hazards and risks to human health. E.g. Pollution of water has impacts on water quality and quantity which may result in an increase in water borne diseases.

Identification and assessment of possible health impacts?

Impacts of an activity can be identified by firstly identifying potential hazards, which can be environmental, physical or biological hazards. These may include e.g. air emissions, chemical agents, hazardous substances, vectors, carcinogenicity, viruses, pathogens, bacteria etc.
Assessment of health impacts or Health Impact Assessment as commonly known, refers to the use of a combination of procedures, methods and tools to assess a policy, programme or projects as to its potential effects (positive and negative) on human health and the distribution of those effects within a population.

Part 3

ENVIRONMENTAL HEALTH IMPACT-ASPECT REGISTER

- The table below provides an aspect-impact register, which aims to provide a guide to EHPs on listed activities, their possible hazards and the related potential negative human health impacts and effects on the population;

and

- The guide also provides an estimation on the possible level of HIA that may be required for listed activities.

- For assessment of the hazards as to their potential effect on human health, refer to the *Guideline for Environmental Health Impacts Assessment of development in south Africa, 2014*.

IMPACT/ASPECT REGISTER

ACTIVITIES REQUIRING ENVIRONMENTAL AUTHORISATION IN TERMS OF THE EIA REGULATIONS

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
1. The construction of facilities or infrastructure, for the generation of electricity.	Construction activities (e.g. excavations, tarring, building). Different methods are used to generate electricity in South Africa; ▪ Coal-based facilities; ▪ A hydro-electric facility (using water by building a dam or diverting a stream) will impact on stream flows; ▪ Nuclear power generation;	**<u>Construction impacts</u>** ▪ Visual impacts; ▪ Disturbance of cultural heritage; ▪ Air quality impacts from dust emissions (scrapping road surfaces, excavations etc) ▪ Emission from construction vehicles; ▪ Noise effects may also arise from vehicles for the transportation of equipment used during construction, as well as noise effects from construction of roads for the proposed site; ▪ Construction site management of general and hazardous waste e.g. availability of proposed landfill sites with sufficient disposal capacity within proximity of the proposed sites; ▪ Contamination of nearby water sources (surface water supplies and catchments ;	▪ Injuries and death due to accidents during construction. ▪ Respiratory infections (asthma, cardiopulmonary diseases and cancer) due to air pollution. ▪ Hearing disturbances due to high noise levels. ▪ Sleep disturbances and increased stress levels due to high noise levels. ▪ Mental health problems due to disturbed peace. ▪ Increased in diarrhoea due to contamination of water sources. ▪ Waterborne diseases due to contamination. ▪ Damage to biological cells due to radiation exposure and cancer. ▪ Genetic diseases due to radiation exposure. ▪ Probability of immature	▪ Full EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
		Operation impacts ▪ A coal based facility – significant air pollution, emissions such as carbon dioxide, carbon monoxide, smog; ▪ Hydroelectric facility – impact on stream flows (dam construction requirements) ▪ Power-lines – bird deaths by electrocutions; ▪ Noise impact from operation of the plant if the distance between the proposed power station and the neighbouring land is not long enough; ▪ Non-radioactive and radionuclide emissions may occur in the operational phase; ▪ A coal-based facility may result in significant air pollution; ▪ Waste management impacts of coal-based facilities may be result from the disposal of ash from the chimney stacks; ▪ Heat rejection from the cooling circuit may result in raised temperatures which nurture the spread of disease carrying mosquitoes.	deaths due to radiation, injuries, respiratory illnesses and exposure to hazards.	

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
		▪ Inhalation of air containing raised levels of sulphates in combination with other emissions; ▪ Contamination of nearby water sources (surface water supplies and catchments) from site operation; ▪ Radiation exposure (in the absence of adequate access control).		
2. The construction of facilities or infrastructure, for the storage of ore or coal that requires an atmospheric emissions license in terms of the National Environmental Management: Air Quality Act (Act No. 39 of 2004)	<u>Construction activities</u>: ▪ Movement of equipment, materials and personnel to, within and from the site; ▪ Mobilization and installation of required construction infrastructure; ▪ Site preparation (including vegetation clearing, grubbing and excavation as required); ▪ Establishing site buildings and other components; ▪ Installation of associated systems, equipment and	**<u>Construction impacts</u>** ▪ Visual impacts; ▪ Disturbance of cultural heritage; ▪ Air quality impacts from dust emissions (scrapping road surfaces, excavations etc); ▪ Emission from construction vehicles; ▪ Noise effects may also arise from vehicles for the transportation of equipment used during construction, as well as noise effects from construction of roads for the proposed site; ▪ Construction site management of waste e.g. availability of proposed landfill sites with	▪ Injuries and death due to accidents during construction. ▪ Respiratory infections (asthma cardiopulmonary diseases and cancer) due to air pollution. ▪ Hearing disturbances due to high noise levels. ▪ Waterborne diseases; ▪ Increase in diarrhoeal cases. ▪ Increase in Tuberculosis and other respiratory infections. ▪ Eye irritations, skin conditions, lung infections etc).	▪ Full EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
	utilities. <u>Operation activities include</u>: ▪ Stacking and storage of coal and ore ▪ Transportation and load out of coal and ore ▪ Offloading of iron ore	sufficient disposal capacity within proximity of the proposed sites; ▪ Contamination of nearby water sources (surface water supplies and catchments ; ▪ Fugitive dust emissions. **<u>Operation impacts</u>** Depending on the ore type (e.g. gold, platinum, iron ore etc). ▪ Pollution of water bodies (underground acquifiers and groundwater) through seepage runoff is likely; ▪ Sediment from the ore pile may blow into nearby rivers/ sensitive habitats which may cause dangerous conditions, incl health effects due to inhalation and contact; ▪ Contamination from acid runoff from coal leaching into the environment; ▪ Noise impacts; ▪ Ambient air quality impacts; ▪ Fugitive dust emissions.		
3. The construction of facilities or		**<u>Construction impacts</u>** ▪ Visual impacts;		▪ Intermediate EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
infrastructure for the slaughter of poultry		▪ Disturbance of cultural heritage; ▪ Air quality impacts from dust emissions (scrapping road surfaces, excavations etc) ▪ Emission from construction vehicles; ▪ Noise effects may also arise from vehicles for the transportation of equipment used during construction, as well as noise effects from construction of roads for the proposed site; ▪ Construction site management of waste e.g. availability of proposed landfill sites with sufficient disposal capacity within proximity of the proposed sites ; ▪ Contamination of nearby water sources (surface water supplies and catchments. **<u>Operation impacts</u>** ▪ Diseases and pests resulting from improper handling of animal by-products and manure; ▪ Contamination of surrounding	▪ Injuries and death due to accidents during construction. ▪ Respiratory infections (asthma, etc) due to inhalation of dust particles. ▪ Increase in Tuberculosis and other respiratory infections to existing patients. ▪ Hearing disturbances due to high noise levels. ▪ Waterborne diseases; ▪ Increase in diarrhoeal cases. ▪ Skin irritations. ▪ Zoonotic diseases (Anthrax, bites etc). ▪ Lung infections	

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
		ecosystems by chemicals used for cleaning if not properly disposed; ▪ Odour nuisance from the storage of animals and manure; ▪ Demand for supporting road infrastructure due to transportation of animals to the facility and dead flesh from the facility; ▪ Increased demand of water and electricity usage for cleaning/sustaining the animals/processing/refrigeration; ▪ Increased noise levels from plant operation.		
4. The construction of facilities or infrastructure for the concentration of animals (pigs, stock, rabbits etc) for the purpose of commercial production	▪ Construction activities (e.g. excavations, tarring, building). ▪ Breeding, slaughtering and transportation of animals. ▪ The concentration of animals in proximity ▪ Animal feeding operations ▪ Manure storage, handling and waste	**<u>Construction impacts</u>** ▪ Visual impacts; ▪ Disturbance of cultural heritage; ▪ Air quality impacts from dust emissions (scrapping road surfaces, excavations etc) ▪ Emission from construction vehicles ▪ Noise effects may also arise from vehicles for the	▪ Injuries and death due to accidents during construction; ▪ Respiratory infections (asthma, etc) due to inhalation of dust particles; ▪ Increase in Tuberculosis and other respiratory infections to existing patients; ▪ Hearing disturbances due to high noise levels; ▪ Waterborne diseases;	▪ Rapid EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
	processing	transportation of equipment used during construction, as well as noise effects from construction of roads for the proposed site; ▪ Construction site management of waste e.g. availability of proposed landfill sites with sufficient disposal capacity within proximity of the proposed sites; ▪ Contamination of nearby water sources (surface water supplies and catchments . **<u>Operational Impacts:</u>** ▪ Control of waste products e.g. manure, ▪ Associated diseases, pests, ▪ chemicals from cleaning that could contaminate surrounding ecosystems ▪ Offensive odours to surrounding inhabitants ▪ Disposal of waste water ▪ Health risks from the use of pesticides ▪ Surface and ground water pollution by animal waste ▪ Ozone pollution and global	▪ Increase in diarrhoeal cases. ▪ Skin irritations; ▪ Zoonotic diseases (Anthrax, bites etc); ▪ Lung infections; ▪ Strains of influenza from swine.	

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
		warming from heavy use of fossil fuels.		
5. The construction of facilities or infrastructure for the concentration of poultry;	▪ Construction activities (e.g. excavations, tarring, building). <u>Operation activities</u> ▪ The concentration of poultry in proximity ▪ Breeding and transportation of poultry ▪ Animal feeding operations ▪ Manure storage, handling and waste processing	**<u>Construction impacts</u>** ▪ Visual impacts; ▪ Disturbance of cultural heritage; ▪ Air quality impacts from dust emissions (scrapping road surfaces, excavations etc); ▪ Emission from construction vehicles; ▪ Noise effects may also arise from vehicles for the transportation of equipment used during construction, as well as noise effects from construction of roads for the proposed site; ▪ Construction site management of waste e.g. availability of proposed landfill sites with sufficient disposal capacity within proximity of the proposed sites; ▪ Contamination of nearby water sources (surface water supplies and catchments ; ▪ Manure contamination of surface and ground water	▪ Waterborne diseases; ▪ Increase in diarrhoeal cases. ▪ Skin irritations; ▪ Zoonotic diseases (Anthrax, bites etc); ▪ Respiratory illnesses in workers; ▪ Strains of avian influenza from poultry; ▪ Antibiotic resistance in workers from the use of swine and poultry; concentrated animal feeding operations; ▪ Salmonella related illnesses.	▪ Rapid EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
		Operational impacts: ▪ Control of waste products e.g. manure; ▪ associated diseases, pests; ▪ chemicals from cleaning that could contaminate surrounding ecosystems; ▪ Odour impacts to surrounding inhabitants; ▪ Disposal of waste water; ▪ Control of dust and ammonia; ▪ Manure lagoons; ▪ Transmission of microorganisms amongst poultry than may infections of surrounding life forms; ▪ Salmonella cycling within the plant and exposure to E coli.		
6. The construction of facilities, infrastructure or structures for aquaculture of finfish, crustaceans, mollusks etc		Impacts may include: ▪ Pollution of surrounding water by runoff from freshwater; aquaculture farm operations ▪ Pollution of surrounding water by chemicals, medications and surplus feeds used on capture populations; ▪ The use of pesticides.		
7. The construction of a hatchery or agri-	▪ Construction activities (e.g. excavations, tarring,	**Operation impacts** ▪ Control of waste products,	▪ Pesticide poisoning; ▪ Neurological health impacts	▪ Rapid EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
industrial infrastructure	building). <u>Operation activities</u> ▪ Industrialized production of crops, animals or animal products. ▪ Cultivation or breeding of fish or poultry	associated diseases, pests, chemicals from cleaning could contaminate surrounding ecosystems; ▪ Odour impacts to surrounding inhabitants; and ▪ Health risks from the use of pesticides; ▪ Pollution of ground and surface water with animal waste; ▪ Heavy use of fossil fuels may result in air pollution. **<u>Construction impacts</u>** ▪ Visual impacts; ▪ Disturbance of cultural heritage; ▪ Air quality impacts from dust emissions (scrapping road surfaces, excavations etc); and emission from construction vehicles ▪ Noise effects may also arise from vehicles for the transportation of equipment used during construction, as well as noise effects from construction of roads for the proposed site. ▪ Management of construction	from pesticide exposure, asthma, allergies; ▪ Diarrhoea, vomiting, stomach problems and other waterborne illnesses as a result of water pollution; ▪ Respiratory infections; ▪ Cancer from long term; pollution of the atmosphere ▪ Diseases associated with poultry or fish.	

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
		site waste; ▪ Contamination of nearby water sources (surface water supplies and catchments .		
8. The construction of facilities or infrastructure for the bulk transportation of water, sewage and storm water.	Construction activities will include, scraping, excavations.	**Construction impacts** ▪ Accidents and injuries from open excavations; ▪ Visual impacts; ▪ Disturbance of cultural heritage; ▪ Air quality impacts from dust emissions (scrapping road surfaces, excavations etc); and emission from construction vehicles; ▪ Noise effects may also arise from vehicles for the transportation of equipment used during construction, as well as noise effects from construction of roads for the proposed site; ▪ Management of construction site waste; ▪ Contamination of ground water sources . **Operation impacts** ▪ Water pollution from seepage	▪ Respiratory illnesses ▪ Diarrhoea ▪ Other waterborne diseases ▪ Dysentery ▪ Ecoli infections ▪ Campylobacteriosis ▪ Cyclosporiasis	▪ Full EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
		of pollution from damaged pipes; ▪ Increase in unpleasant smells associated with the projects.		
9. Construction of dams, canals, channels	Construction activities: ▪ Movement of equipment, materials and personnel to, within and from the site; ▪ Mobilization and installation of required construction infrastructure; ▪ Site preparation (including vegetation clearing, grubbing and excavation as required); ▪ Excavations	**Operating impacts** ▪ Increased danger to downstream inhabitants both in terms of drought and flooding if the dam wall breaks; ▪ Increased water pooling can provide habitants of insects and increase the risk of diseases such as schistomiasis/ malaria; ▪ Increase in communicable diseases; ▪ Effects downstream. During operation local communities might perceive several effects on their ways of life associated with physical changes downstream of the dam, such as: ○ A reduction in the river flow ○ Saline intrusion close to the coast ○ Loss of the deposition of nutrients in flooding valleys as they do not flood anymore ○ Problems related to the	▪ Schistomiasis ▪ Malaria ▪ Gastrointestinal diseases ▪ Drowning ▪ Injuries or death if dam wall breaks. ▪ Induced stress of communities due to construction	▪ Full EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
		fluctuation of the underground water levels such as dry wells ○ A risk is induced due to the existence of a dam upstream that might fail and produce a disastrous flood. **Construction impacts** ▪ Accidents and injuries from open excavations ▪ Visual impacts;		
10. The construction of facilities or infrastructure for the storage, and handling of dangerous goods,	Construction activities: ▪ Movement of equipment, materials and personnel to, within and from the site; ▪ Mobilization and installation of required construction infrastructure; ▪ Site preparation (including vegetation clearing, grubbing and excavation as required); ▪ Establishing site buildings and other components; ▪ Excavations, tarring, building	**Construction impacts** ▪ Visual impacts; ▪ Disturbance of cultural heritage; ▪ Air quality impacts from dust emissions (scrapping road surfaces, excavations etc); and emission from construction vehicles; ▪ Noise effects may also arise from vehicles for the transportation of equipment used during construction, as well as noise effects from construction of roads for the proposed site; ▪ Management of construction site waste;	▪ Respiratory illnesses ▪ Waterborne diseases, diarrhea, gastrointestinal abnormalities ▪ Cancer ▪ Asthma ▪ Skin rushes ▪ Burns	▪ Full EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
		▪ Contamination of nearby water sources (surface water supplies and groundwater). **<u>Operation impacts</u>** ▪ Potential water/air/soil pollution through leakage or damage of storage facilities; ▪ Human health may be affected by leakages due to improper storage; ▪ Possible explosions (depending on the dangerous goods stored); ▪ Accidental exposure to workers resulting in adverse human health effects.		
11. The construction of facilities for desalination of sea water	▪ Processes of removal of amount of salt and other minerals from sea water to produce fresh water suitable for human consumption.	▪ Possible green house gas emissions; ▪ Inadequate disposal of brine produced may present a significant environmental challenge; ▪ Possible emission of pollutants in the air.	▪ Respiratory illnesses as a result of airborne contaminants; ▪ Health issues as a result of the quality of water.	▪ Full EHIA
12. The establishment of cemeteries	Construction activities include: ▪ Site preparation (including vegetation clearing, scrapping as	**<u>Construction impacts</u>** ▪ Visual impacts; ▪ Disturbance of cultural heritage; ▪ Air quality impacts from dust	▪ Waterborne diseases; ▪ Infectious diseases from dead bodies following natural disasters; ▪ Stress ;	▪ Intermediate EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
	required); ▪ Establishing site buildings and other components; ▪ Excavations, tarring etc. Operation activities include excavations and burial of dead bodies.	emissions (scrapping road surfaces, excavations etc); and emission from construction vehicles; ▪ Noise effects may also arise from vehicles for the transportation of equipment used during construction, as well as noise effects from construction of roads for the proposed site; ▪ Management of construction site waste. **<u>Operation impacts</u>** ▪ Groundwater pollution – possible seepage of decay products into percolating water during putrification of the human corpse; ▪ If the cemetery is located in a porous soil type, such as sand or gravel, movement of seepage can be rapid and mix easily with the groundwater beneath the site; ▪ Leachate seepage; ▪ Possible soil pollution; ▪ Increased amounts of traffic to the site;		

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
		▪ Negative effects on personal beliefs and cultures.		
13. The transformation of undeveloped, vacant or derelict land to- (i) Residential, retail, commercial, industrial or institutional use	Construction activities include: ▪ Site preparation (including vegetation clearing, scrapping road surfaces); ▪ Excavations, tarring, building ▪ Construction of access roads ▪ Construction of bulk services (Sewage and water, piping installations)	**Construction impacts** ▪ Visual impacts; ▪ Air quality impacts from dust emissions (scrapping road surfaces, excavations etc); and emission from construction vehicles; ▪ Noise effects from construction vehicles and construction. ▪ Management of construction site waste; ▪ Ground and Surface Water quality impacts; ▪ Water quantity impacts. **Operational impacts** ▪ Increased waste production and demand on the municipality solid waste stream; ▪ Increased demand on sewage facilities; ▪ Increased demand on drinking water; ▪ Increased traffic.	▪ Stress ▪ Respiratory infections (Asthma, coughing, wheezing, lung irritations) ▪ Vector borne illnesses from increased waste ▪ short term hearing defects and irritations	▪ Intermediate EHIA
14. Transformation of land bigger than 1000	Construction activities include:	**Construction impacts** ▪ Visual impacts;	▪ Stress ▪ Respiratory infections	▪ Full EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
square meters in size, to residential, retail, commercial, industrial or institutional use	▪ Site preparation (including vegetation clearing, scrapping road surfaces); ▪ Excavations, tarring, building ▪ Construction of access roads ▪ Construction of bulk services (Sewage and water, piping installations)	▪ Air quality impacts from dust emissions (scrapping road surfaces, excavations etc); and emission from construction vehicles; ▪ Noise effects from construction vehicles and construction; ▪ Management of construction site waste; ▪ Ground and Surface Water quality impacts; ▪ Water quantity impacts. **<u>Operational impacts</u>** ▪ Increased waste production and demand on the municipality solid waste stream; ▪ Increased demand on sewage facilities; ▪ Increased demand on drinking water; ▪ Increased traffic.	▪ Diarrhea and other waterborne diseases; ▪ Hearing defects.	
15. The release of genetically modified organisms into the environment, where the assessment of such release is required by the	▪ Genetic engineering is a process whereby genes from one organism are moved into the genome of another organism. In the case of genetically engineered foods, genes	▪ Unanticipated impacts on other species of flora and fauna in the ecosystem; ▪ Development of antibiotic resistance; ▪ New Allergens; ▪ Nutritional changes;	▪ Depleted immune systems; ▪ Respiratory infections; ▪ Gastrointestinal tract problems; ▪ Skin irritations and rushes.	▪ Rapid EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
Genetically Modified Organisms Act, 1997 (Act No 15 of 1997) or the NEM: Biodiversity Act (Act No 10 of 1994)	from bacteria or other plants or organisms are moved into crop varieties with the assistance of a viral vector.	▪ Changes in the creation of toxins – new toxins maybe introduced; ▪ Possible genetic pollution through cross pollination.		
16. The decommissioning of existing facilities or infrastructure for; i) electricity generation with a threshold of more than 10MW ii) electricity; transmission and distribution with a threshold of more than 132 KV; iii) nuclear reactors and storage of nuclear fuel; iv) activities, where the facility or the land on which it is located is contaminated; v) storage, or storage and handling, of dangerous goods of more than 80 m^3.	Activities include: ▪ safe management – at the end of life and includes dismantling of facilities or structures for electricity generation, nuclear power station, dangerous goods from service ▪ Long term clean-up of the site	▪ Radioactive waste disposal/management activities; ▪ Possible fires and explosions; ▪ Radioactive contamination and exposure; ▪ Human exposure to hazardous substance releases; ▪ Hazardous material leakages.	▪ Injuries ▪ Death ▪ Radiation burns ▪ Poisoning	▪ Full EHIA
17. Expansion of existing facility that new or	▪ Any expansion of facilities can result in	▪ Increase in exposure to pollutants, emissions, hazards	▪ Health problems associated with pollution of the air,	▪ Full EHIA

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
amended of an existing permit or license in terms of national or provincial legislation governing the release of emissions or pollution.	increased pollution and safety hazards.	etc;	noise, water quality etc.	
18. Refining, extraction or processing of gas, oil or petroleum product.	Activities include: ▪ Drilling, extraction, refining (mixture with other oils etc) ▪ Cleaning of raw gas to remove impurities	▪ Contamination of water may occur due to the improper storage of waste products; ▪ Air pollution impacts; ▪ Soil and groundwater pollution; ▪ Water demand impact; ▪ Greenhouse gas emissions ▪ Oil sands emissions; ▪ Possible spills, leaks and blowouts; ▪ Methane exposure.	▪ Respiratory illnesses ▪ Cancer	▪ Intermediate EHIA
19. Transportation of dangerous goods	▪ Transportation of goods those are highly flammable, noxious, toxic or gaseous.	▪ Spillages due to improper containerization; ▪ Fires and explosions due to improper handling and transport of the hazardous goods; ▪ Contamination of water sources as a result of spillages.	▪ Burns and other injuries; ▪ Death; ▪ Stillbirth from exposure to methane in water sources ▪ Diarrhoea and other; waterborne diseases from contaminated water sources;	▪ Intermediate EHIA

Us the manual in conjunction with the Department of Environmental Affairs, EIA Regulations 2014 (as amended) R326 of 07 April 2017; and The Department of Health Environmental Health Impact Assessment Guidelines for Development Projects in South Africa, 2014.

LISTED ACTIVITY	ACTIVITIES	POSSIBLE ENVIRONMENTAL AND HEALTH IMPACTS	POSSIBLE NEGATIVE HUMAN HEALTH EFFECTS	RECOMMENDED HIA LEVEL
20. Airports	Activities include: ▪ Construction of structures, moving equipments and vehicles for construction, ▪ Operation of an airport which include landing and taking off of aircrafts; ▪ Operation of fuel and oil stations for fuelling aircrafts and vehicles (fuel storage tanks) ▪ Transfer of water to aircrafts ▪ Sewerage disposal activities	<u>Operation impacts</u> ▪ Noise pollution –from air/ vehicle traffic ; ▪ Water pollution (resulting Airport operations and maintenance activities include many activities likely to result in the discharge of pollutants to adjacent water bodies; ▪ Soil pollution – Resulting from the maintenance of aircraft ▪ Fuel and oil spillages; ▪ Possible explosions and fires ▪ Air quality issues (emissions from aircraft, cars, busses, generators, incinerators, fire training facilities, aircraft engine testing facilities, painting operations – release of particulate matter, greenhouse gases, VOCs; ▪ Increased in mosquitoes; ▪ Climate change; ▪ Increased demand in water from local providers.	▪ Respiratory illnesses, asthma and premature deaths as a result; ▪ Diarrhea and other waterborne disease, typhoid, dysentery from contaminated water sources; ▪ Injuries, burns and death due to accidents, fires and explosions; ▪ Hearing defects, increased stress levels due to disturbing noise, mental health issues; ▪ Frequent emission exposures resulting in cure difficulties; ▪ Imported diseases from other countries; ▪ Destroyed human cells as a result of inhalation of Co2 ▪ Chronic lung disease, eyes, throat, nose and lung irritations; ▪ Increased death rate and premature deaths due to lung and heart problems; ▪ SO2 can cause coughing, make people more prone to respiratory infections, and aggravate asthma and chronic bronchitis.	▪ Full EHIA

WASTE MANAGEMENT ACTIVITIES REQUIRING ENVIRONMENTAL AUTHORISATION

ACTIVITIES REQUIRING A BASIC ASSESSMENT TO BE CONDUCTED

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
1. The storage, including the temporary storage of general waste at a facility that has the capacity to store in excess of 100m^3 of general waste at any one time, excluding the storage of waste in lagoons	▪ Contamination of surrounding environment from inadequately stored waste (e.g. seepage of waste into groundwater pollution); ▪ Odours from the facility ▪ Increase in pests, such as flies and rodents; ▪ Unsightliness due to windblown waste.	▪ Waterborne related diseases ▪ Rodent borne/transmitted diseases (haemorrhagic fever, rat bite fever, leptospirosos, plague); ▪ Vector-borne related illnesses; ▪ Nose, skin and eye irritations.	▪ Rapid EHIA
2. The storage, including the temporary storage of hazardous waste at any facility that has the capacity to store in excess of 31m^3 of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons.	▪ Spillages due to improper storage; ▪ Seepage of waste into groundwater pollution; ▪ Possible explosions from inadequate storage that may be hazardous to human health leading to injury or death.	▪ Injuries or death; ▪ Nose, skin and eye irritations; ▪ Chronic health effects, such as cancer, liver failure, or slowed growth and development.	▪ Intermediate EHIA
3. The storage including the temporary storage of waste in lagoons	▪ Toxic air emissions released in the process can make people sick from gases such as ammonia and hydrogen sulphite capable of causing health effects; ▪ Drinking water may be contaminated with nitrates from lagoon seepage, spills or leaks; ▪ Offensive odours; ▪ Groundwater pollution as a result of leaking.	▪ Chest tightness and heart palpitations; ▪ Shortness of breath, blue baby syndrome in children younger than six months; ▪ Other waterborne and related diseases.	▪ Intermediate EHIA

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ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
4. The storage of waste tyres in excess of 500 m^2	▪ They are not biodegradable, given that the time they take to decompose is indeterminate. Their composition includes hazardous elements, such as lead, chromium, cadmium and other heavy metals; ▪ Tyres are ideal sites for rodents and also breeding sites of vectors, eg. mosquitoes. The round shape of tires, coupled with their impermeability enable them to hold water and other debris (*e.g.*, decaying leaves) for long periods of time, turning them into perfect sites for the development of mosquito larva; ▪ Tyres specially facilitate the spread of two species of mosquitoes, *Aedes aegypti* and *Aedes albopictus*. These are the principal vectors of dengue and yellow fever diseases that afflict millions of people in tropical regions. In temperate regions, other species such as *Aedes triseriatus* and *Aedes atropalpus* are more predominant in scrap tires; ▪ Fire risks if inappropriately store.	▪ Dengue, yellow fever (or local vector-borne disease, such as Malaria and Tik fever); ▪ Injuries, burns and death.	▪ Intermediate EHIA
5. The sorting, shredding and bailing of general waste at a facility that has the capacity to process in excess of one ton of general waste per day.	▪ Wind-blown litter leading to pollution of the surrounding environment; ▪ Attraction of flies and rats due to waste lying around;	▪ Intestinal infections transmitted by flies from the waste; ▪ Skin infections resulting from direct contact with waste;	▪ Rapid EHIA

Us the manual in conjunction with the Department of Environmental Affairs, EIA Regulations 2014 (as amended) R326 of 07 April 2017; and The Department of Health Environmental Health Impact Assessment Guidelines for Development Projects in South Africa, 2014.

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
6. The recovery of waste including the refining, utilization, treatment or co-processing of the waste at a facility that has the capacity to process in excess of 3 tons of general waste or less than 500kg of hazardous waste per day, excluding recover that place as an integral part of an internal manufacturing process within the same premises.	▪ Odours from the facility; ▪ Contamination of surrounding environment from inadequately stored waste; ▪ Groundwater pollution from the seepage.	▪ Water borne related diseases, gastrointestinal infections as a result of contaminated water; ▪ Occupational hazards associated with waste handling; <u>Infections</u> ▪ Skin and blood infections resulting from direct contact with waste, and from infected wounds; ▪ Eye and respiratory infections resulting from exposure to infected dust, especially during landfill operations; ▪ Different diseases that results from the bites of animals feeding on the waste; ▪ Intestinal infections that are transmitted by flies feeding on the waste. <u>Chronic diseases;</u> ▪ Incineration operators may be at risk of chronic respiratory diseases, including cancers resulting from exposure to dust and hazardous compounds; <u>Accidents</u> ▪ Bone and muscle disorders resulting from the handling of heavy containers;	▪ Intermediate EHIA

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
		▪ Infecting wounds resulting from contact with sharp objects; ▪ Poisoning and chemical burns resulting from contact with small amounts of hazardous chemical waste mixed with general waste; Burns and other injuries resulting from occupational accidents at waste disposal sites or from methane gas explosion at landfill sites.	
7. The treatment of general waste in lagoons	▪ Groundwater pollution; ▪ Surface water pollution; ▪ odours;	▪ Chest tightness and heart palpitations. ▪ Shortness of breath, blue baby syndrome in children younger than six months ▪ Other waterborne and related diseases	▪ Intermediate EHIA
8. The disposal of general waste of land recovering an area of more than 50 m2 but less than 200m2 and with a total capacity not exceeding 25 000 tons.	▪ Liquid Leachate which may lead to groundwater pollution; ▪ Air pollution; ▪ Odour problems; ▪ Dust; ▪ Disease transmission by scavengers on the dump (birds, rats and flies and rats)Increase vehicular traffic from the transportation of waste to the site may result in spillages of waste; ▪ Emission of greenhouse gases.	▪ Gastrointestinal infections and other waterborne related diseases as a result of consumption of contaminated disease; ▪ Intestinal infections transmitted by flies from the waste; ▪ Respiratory infections, lung diseases (asthma, lung irritations, coughs etc) ; ▪ Eye irritations; ▪ The onset and spread of rodent borne diseases.	▪ Intermediate EHIA
9. The disposal of domestic waste generated on premises in areas	▪ Possible groundwater pollution due to liquid leachate seepage;	▪ Gastrointestinal infections and other waterborne related diseases as a	▪ Intermediate EHIA

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
not serviced by the municipal service where the waste disposed does not exceed 500kg per month.	▪ Vermin attraction as a result of the storage of waste; ▪ Offensive odours from the facility; ▪ Wind-blown litter leading to pollution of the surrounding environment;	result of consumption of contaminated disease; ▪ Intestinal infections transmitted by flies from the waste; ▪ Respiratory infections, lung diseases (asthma, lung irritations, coughs etc); ▪ Eye irritations; ▪ The onset and spread of rodent borne diseases.	
10. The storage, treatment or processing of animal manure at a facility with a capacity to process in excess of 1 ton per day	▪ Manure consists of pathogens which are capable of causing human diseases; ▪ Offensive odours from the storage of the manure; ▪ Possible Impacts on water quality (surface and groundwater); ▪ Air quality issues.	▪ Waterborne related diseases (diarrhea, dysentery, typhoid etc); ▪ Respiratory infections, lung irritations; ▪ Nose, eyes and skin irritations; ▪ skin sores, fever, headaches, nausea, chills, joint stiffness, pains, nasal congestion from anthrax; ▪ Weakness, lethargy, sweating , headaches from brucellosis; ▪ Rash, sore throat, fever – foot and mouth; ▪ Leptosporosis; ▪ Ascariasis; ▪ Giadiasis – diarrhea, abdominal pain, abdominal gas, nausea, vomiting, headache, fever.	▪ Intermediate EHIA
11. The construction of facilities for activities listed (1-10) of this schedule	Impacts of construct ion may include injuries and death due to: ▪ Physical hazards; such as vibration, noise, exposure temperatures, exposure to	▪ Respiratory infections; ▪ Lung irritations, coughing, wheezing, eye irritations from dust; ▪ Short term hearing issues;	▪ Intermediate EHIA

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
	radiation; ▪ Chemical hazards ; inhalation of fumes, dust, gases.	▪ Increase in stress level from traffic congestions, construction vehicles movements; ▪ Chemical exposure and poisoning.	
12. The expansion of facilities for activities listed in this schedule	▪ Potential impacts of expansion activities are generally similar to those in the construction phase.	▪ Respiratory infections; ▪ Lung irritations, coughing, wheezing, eye irritations from dust; ▪ Short term hearing issues; ▪ Increase in stress level from traffic congestions, construction vehicles movements; ▪ Chemical exposure and poisoning.	▪ Intermediate EHIA
13. The decommissioning of activities listed in this schedule	Potential impacts of decommissioning activities are generally similar to those of the construction phase, may also include: ▪ Exposure to biological hazards by contact with contaminated water, soil etc; ▪ Substantial amount of solid waste and hazardous waste will be generated form dismantling activities; ▪ Emissions generated during; decommissioning will include vehicle emissions, diesel emissions from large construction equipment and dust.	▪ Chemical and other hazard exposure from contact with contaminated waste and other equipment. ▪ lung irritations and other respiratory infections from gases and fumes inhalations.	▪ Intermediate EHIA
14. The re-commissioning of activities listed in this schedule	▪ Re-commissioning impacts will be similar to the impacts as a result of the construction and operation of the facilities.	▪ Respiratory infections ▪ Lung irritations, coughing, wheezing, eye irritations from dust ▪ Short term hearing issues ▪ Increase in stress level from traffic	▪ Intermediate EHIA

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ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
		congestions, construction vehicles movements ▪ Chemical exposure and poisoning.	
15. The storage, including the temporary storage of hazardous waste in lagoons	Impacts may include: ▪ Possible fires and explosions due to inadequate storage; ▪ Possible water pollution due to leakages.	▪ Sore throat to seizures, comas and even death. ▪ Other health effects may include headaches, shortness of breath, wheezing, excessive coughing and diarrhoea. ▪ Drinking water contaminated with nitrates that have seeped to the ground water can increase the risk of blue baby syndrome, which can cause deaths in infants. High levels of nitrates in drinking water have also been linked to spontaneous abortions. ▪ Outbreaks related to drinking water have been traced to bacteria and viruses from waste. ▪ Burns, injuries and death as a result of the explosions.	▪ Full EHIA
16. The recovery of hazardous waste including, refining, utilization or co-processing of waste at a facility with a capacity to process more than 500kg of hazardous waste.	▪ Hazardous waste materials might cause spills, leaks, fires and contamination of the soil and drinking water if not properly stored.	▪ Drinking water contaminated with nitrates that have seeped to the ground water can increase the risk of blue baby syndrome, which can cause deaths in infants. High levels of nitrates in drinking water have also been linked to spontaneous	▪ Intermediate EHIA

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
		abortions; ▪ Outbreaks related to drinking water have been traced to bacteria and viruses from waste; ▪ Burns, injuries and death as a result of the explosions; ▪ Burns, injuries and death as a result of the explosions.	
17. The reuse of hazardous waste in road building and road surfacing	▪ Possible ground and surface water pollution; ▪ Soil contamination.	▪ Gastrointestinal illnesses; ▪ Skin irritations; ▪ Cholera, Dysentery, Diarrhoea, Hepatitis A , lead poisoning; ▪ Cancer as a result of long terms exposure to pollutants.	▪ Full EHIA
18. The biological, physical or physio-chemical treatment of hazardous waste at a facility that has the capacity to receive in excess of 500kg of hazardous waste per day	▪ Air pollution; ▪ Ground and surface water pollution; ▪ Toxic gases and fumes generated from the mixture of hazardous waste and water; ▪ Possible explosions from the treatment process (some H waste when mixed with water can be explosive); ▪ Accidental poisonings e.g. handling of pesticides, herbicides and other poisonous hazardous substances.	▪ Respiratory infections and lung irritations/diseases, asthma from inhalation of toxic fumes; ▪ Gastrointestinal illnesses and other water quality related diseases; ▪ Injuries, burns and even death from explosions .	▪ Full EHIA
19. The autoclaving, drying or microwaving of hazardous waste at a facility regardless of the capacity of such facility.	▪ Air pollution; ▪ Water pollution from disposal of waste water; ▪ Offensive odours.	▪ Both acute and chronic effects of poor air quality on human health, upper respiratory irritation to chronic respiratory and heart disease, lung cancer, acute respiratory infections in children and chronic bronchitis in	▪ Full EHIA

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
		adults, aggravating pre-existing heart and lung disease, or asthmatic attacks. In addition, short- and long-term exposures have also been linked with premature mortality and reduced life expectancy; ▪ Cholera, Dysentery, Diarrhoea, Hepatitis A; ▪ Anxiety, depression and other negative psychological reactions as a result of continued exposure to offensive odours.	
20. The incineration of waste at a facility regardless of the capacity of such a facility.	▪ Possible air pollution from emissions released through the combustion process; ▪ Odour impacts from the storage and burning of waste; ▪ Infectious waste as a result of contact with improperly treated waste.	▪ Both acute and chronic effects of air pollution on human health, upper respiratory irritation to chronic respiratory and heart disease, lung cancer, acute respiratory infections in children and chronic bronchitis in adults, aggravating pre-existing heart and lung disease, or asthmatic attacks. In addition, short- and long-term exposures have also been linked with premature mortality and reduced life expectancy; ▪ Cardiovascular and cerebrovascular mortality; ▪ Birth Defects; ▪ Cancer; ▪ Ischemic Heart disease; ▪ Anxiety, depression and other	▪ Full EHIA

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
		negative psychological reactions as a result of continued exposure to offensive odours; ▪ Skin, nose and eye irritations and conditions as a result of contact with infectious waste.	
21. The treatment of hazardous waste in lagoons	▪ Groundwater pollution; ▪ Surface water pollution; ▪ Odours from the facility;	▪ Chest tightness and heart palpitations; ▪ Shortness of breath, blue baby syndrome in children younger than six months; ▪ Gastrointestinal diseases and other waterborne and related diseases; ▪ Negative psychological reactions as a result of continued exposure to offensive odours.	▪ Full EHIA
22. The disposal of any quantity of hazardous waste to land	▪ Groundwater pollution due to leakages from improper storage; ▪ Air pollution from emissions of gases produced by the waste; ▪ Odour problems from the facility; ▪ Dust from the movement of vehicles to and from the facility; ▪ Emission of greenhouse gases; ▪ Possible fires and explosions from improper storage.	▪ Both acute and chronic effects of air pollution on human health, upper respiratory irritation to chronic respiratory and heart disease, lung cancer, acute respiratory infections in children and chronic bronchitis in adults, aggravating pre-existing heart and lung disease, or asthmatic attacks. In addition, short- and long-term exposures have also been linked with premature mortality and reduced life expectancy; ▪ Cardiovascular and cerebrovascular mortality;	▪ Full EHIA

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
		▪ Birth Defects, Cancer, Ischemic Heart disease from air pollution; ▪ Anxiety, depression and other Negative psychological reactions as a result of continued exposure to offensive odours; ▪ Lung, nose and eye irritations from exposure to dust particles; ▪ Burns, Injuries and possible death as a result of fires and explosions; ▪ Cholera, Dysentery, Diarrhoea, Hepatitis A and other water related diseases.	
23. The disposal of general waste to land covering an area in excess of 200m2	▪ Liquid Leachate which may lead to groundwater pollution as a result of storage of waste and the waste compacting activities; ▪ Odour problems due to the storage of waste; ▪ Dust as a result of vehicles travelling to and from the site; ▪ Disease transmission by scavengers on the dump (birds, rats and flies and rats); ▪ Increase vehicular traffic from the transportation of waste to the site may result in spillages of waste; ▪ Emission of greenhouse gases, such as the escape of methane; ▪ Windblown litter causing a health nuisance to neighbouring premises	▪ Cholera, Dysentery, Diarrhoea, Hepatitis A and other water related diseases; ▪ Negative psychological reactions as a result of continued exposure to offensive odours; ▪ Eyes, skin and lung irritations from dust particles; ▪ Vector and rodent borne disease transmission and spread; ▪ Fires and injuries from methane gas explosions; ▪ Decreased oxygen from inhalation of methane gas in high concentration may displace oxygen for breathing and can cause suffocation and loss of consciousness. It can also cause	▪ Full EHIA

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
	▪ Harbour of pests e.g. rats and flies capable of spreading disease.	headache, dizziness, weakness, nausea, vomiting, and loss of coordination.	
24. The construction of activities listed in this schedule	Impacts of construct ion may include injuries and death due to: ▪ Physical hazards; such as vibration, noise, exposure temperatures, exposure to radiation; ▪ Chemical hazards ; inhalation of fumes, dust, gases.	▪ Respiratory infections; ▪ Lung irritations, coughing, wheezing, eye irritations from dust; ▪ Short term hearing issues; ▪ Increase in stress level from traffic congestions, construction vehicles movements; ▪ Chemical exposure and poisoning.	▪ Full EHIA
25. The expansion of facilities for activities listed in this schedule	▪ Potential impacts of expansion activities are generally similar to those in the construction phase.	▪ Respiratory infections; ▪ Lung irritations, coughing, wheezing, eye irritations from dust; ▪ Short term hearing issues; ▪ Increase in stress level from traffic congestions, construction vehicles movements; ▪ Chemical exposure and poisoning.	▪ Full EHIA
26. The decommissioning of activities in this schedule	Potential impacts of decommissioning activities are generally similar to those of the construction phase, may also include: ▪ Exposure to biological hazards by contact with contaminated water, soil etc; ▪ Substantial amount of solid waste and hazardous waste will be generated form dismantling activities; ▪ Emissions generated during decommissioning will include, vehicle	▪ Chemical and other hazard exposure from contact with contaminated waste and other equipment. ▪ lung irritations and other respiratory infections from gases and fumes inhalations	▪ Full EHIA

ACTIVITY DESCRIPTION	POSSIBLE ENVIRONMENTAL HEALTH IMPACTS	POSSIBLE HEALTH EFFECTS	EHIA REQUIRED
	emissions, diesel emissions from large construction equipment and dust.		
27. The re-commissioning of activities listed in this schedule	▪ Re-commissioning impacts will be similar to the impacts as a result of the construction and operation of the facilities.	▪ Respiratory infections; ▪ Lung irritations, coughing, wheezing, eye irritations from dust; ▪ Short term hearing issues; ▪ Increase in stress level from traffic congestions, construction vehicles movements; ▪ Chemical exposure and poisoning.	▪ Full EHIA

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